



InformaCast Virtual Appliance Basic Paging[®]

Installation and User Guide for a Cisco[®] Unified Communications Manager
Environment
October 9, 2013

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

CCDE, CCENT, Cisco Eos, Cisco HealthPresence, the Cisco logo, Cisco Lumin, Cisco Nexus, Cisco StadiumVision, Cisco TelePresence, Cisco WebEx, DCE, and Welcome to the Human Network are trademarks; Changing the Way We Work, Live, Play, and Learn and Cisco Store are service marks; and Access Registrar, Aironet, AsyncOS, Bringing the Meeting To You, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, CCVP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Collaboration Without Limitation, EtherFast, EtherSwitch, Event Center, Fast Step, Follow Me Browsing, FormShare, GigaDrive, HomeLink, Internet Quotient, IOS, iPhone, iQuick Study, IronPort, the IronPort logo, LightStream, Linksys, MediaTone, MeetingPlace, MeetingPlace Chime Sound, MGX, Networkers, Networking Academy, Network Registrar, PCNow, PIX, PowerPanels, ProConnect, ScriptShare, SenderBase, SMARTnet, Spectrum Expert, StackWise, The Fastest Way to Increase Your Internet Quotient, TransPath, WebEx, and the WebEx logo are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0812R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

InformaCast Virtual Appliance Basic Paging
© 2012 Cisco Systems, Inc. All rights reserved.

© 2012 Singlewire. All rights reserved.

InformaCast is a trademark of Singlewire Software.

All other referenced trademarks are trademarks of their respective owners and our reference to them does not imply or indicate any approval, endorsement, sponsorship or affiliation with such owners unless such approval, endorsement, sponsorship or affiliation is expressly indicated.

Last Updated: October 9, 2013



Contents

InformaCast Virtual Appliance Basic Paging Overview	1-1
Intended Audience	1-1
Prerequisites	1-1
Hardware Requirements	1-2
A Note on Licensing	1-3
A Note on Illustrations	1-4
A Note on Usage	1-4
Where to Start	1-5
Troubleshooting	1-7
Getting Help	1-7
Technical Support	1-8
Installing InformaCast	2-1
Prepare your Multicast Environment	2-1
Integrate Communications Manager	2-2
Install InformaCast Virtual Appliance	2-34
Start InformaCast	2-45
Log into InformaCast	2-48
Change the Administrator's Password	2-53
View Your License Key	2-54
Configuring InformaCast	3-1
Configure Your InformaCast Server(s)	3-2
Verify that your Network is Configured for Multicast	3-14
Update JTAPI	3-14
Using InformaCast	4-1
Configure Recipient Groups	4-1
Configure Messages	4-27
Manage SIP Functionality	4-30
Manage DialCast Functionality	4-67
Send a Broadcast	4-72
Cancel a Broadcast	4-73
Administering InformaCast	5-1
Manage InformaCast Backups	5-2
Manage Phone Updates	5-13
Configure SNMP Monitoring	5-15
Configure Session Timeout	5-16

Upgrading InformaCast from Basic to Advanced	6-1
Note the Differences	6-1
Upgrade InformaCast	6-3
Enter Your New License Key	6-9
Frequently Asked Questions (FAQ)	7-1
Troubleshooting	8-1
Multicast	8-1
Log Files	8-12
Log into InformaCast Virtual Appliance's Interfaces	8-12
Start/Stop/Restart InformaCast and Reboot the InformaCast Virtual Machine	8-18
VMware Tools	8-30
Authentication	8-30
Phone Discovery	8-31
Broadcasts	8-32
Upgrading InformaCast Virtual Appliance	8-33
Upgrading from Basic to Advanced InformaCast	8-33
Further Discussion	9-1
Determine the Busy State of a Phone with JTAPI's Device State Server	9-1
Advanced Matching for Recipient Groups	9-4
Release Notes	10-1
What's New in InformaCast 8.5.1	10-1
New Caveats	10-2
What's New in InformaCast 8.4.a	10-2
What's New in InformaCast 8.3.a	10-4
What's New in InformaCast 8.3	10-5
What's New in InformaCast 8.2.a	10-6
What's New in InformaCast 8.2	10-6
What's New in InformaCast 8.1	10-6
What's New in InformaCast 8.0.2	10-9
What's New in InformaCast 8.0.1	10-10
What's New in InformaCast 8.0	10-11
What's New in InformaCast 7.1	10-15
What's New in InformaCast 7.0	10-17
What's New in InformaCast 6.1.1	10-20
What's New in InformaCast 6.1	10-20
What's New in InformaCast 6.0.1	10-21
What's New in InformaCast 6.0	10-22
What's New in InformaCast 5.1.1	10-24
What's New in InformaCast 5.1	10-24

What's New in InformaCast 5.0.4	10-25
What's New in InformaCast 5.0.3	10-26
What's New in InformaCast 5.0.2	10-27
What's New in InformaCast 5.0	10-28
What's New in InformaCast 4.2.1	10-29
What's New in InformaCast 4.2	10-29
What's New in InformaCast 4.1.1	10-30
What's New in InformaCast 4.1	10-31
What's New in InformaCast 4.0	10-32
What's New in InformaCast 3.2	10-34
What's New in InformaCast 3.1	10-34
What's New in InformaCast 3.0	10-34
What's New in InformaCast 2.1	10-35
What's New in InformaCast 2.0	10-36
What's New in InformaCast 1.3	10-37
What's New in InformaCast 1.2.3	10-37
What's New in InformaCast 1.2	10-38
What's New in InformaCast 1.1	10-39
Acknowledgments	11-1
Glossary	12-1
Index	13-1



CHAPTER 1

InformaCast Virtual Appliance Basic Paging Overview

For virtualized environments, InformaCast Virtual Appliance Basic Paging (InformaCast or Basic InformaCast) is Singlewire Software's IP telephony broadcast system that allows you to send a live audio stream to Cisco IP phones. InformaCast is designed to get messages quickly to large groups of people; when these messages are sent through InformaCast, they are called *broadcasts*.

Intended Audience

This guide is written with two audiences in mind, the administrators and users of InformaCast. There are three versions of this guide: one for installations using Basic Paging, one for installations using Advanced Notification in conjunction with Cisco's Unified Communications Manager, and one for installations using Advanced Notification in conjunction with a Hybrid Runtime Environment (HRE). Please make sure you have the right version by looking at the cover page, or by looking at the environment type printed at the bottom of every page.

When you install InformaCast in a Communications Manager environment, you should:

- Be familiar with Communications Manager administration
- Have multicast and networking knowledge

Prerequisites

InformaCast has the following system prerequisites:

- Meet the hardware requirements as defined in this user guide (see "Hardware Requirements" on page 1-2)
- Use of one of the following supported browsers: Firefox 15, Chrome 18, or Internet Explorer 9
- Enable and configure multicast routing for all network segments between InformaCast and its phones
- Configure a static IP address on the InformaCast virtual appliance
- Install and maintain Cisco Unified Communications Manager server (including Business Edition 6000); the following versions are supported: 8.5, 8.6, 9.0, 9.1, 9.12, and 10.0
- Enable web access on any Cisco IP phones working with InformaCast
- Enable SNMP on all servers in a Communications Manager cluster
- Run the AXL service on at least one server in the Communications Manager cluster

- Run the CTIManager service on at least one node that's also running the CallManager service. The CTIManager service can run on up to eight nodes in a cluster, and you should use more than one node with this service for redundancy.
- Know how to: obtain access to the command-line interface (bash prompt) of your InformaCast server, perform basic UNIX commands, and use vi for editing files

**Tip**

Singlewire recommends a screen resolution of at least 1024x768.

Hardware Requirements

You should deploy InformaCast on hardware supported by VMware ESXi 4.0 - 5.1 because it provides the lowest overhead of the VMware products (other VMware products such as VMware Player, VMware Workstation, or VMware Server will work for lab or demonstration purposes). VMware ESXi is available free of charge from vmware.com. If VMware is new to you, you may find these resources useful:

- [Learn more about what benefits VMware can provide your organization](#)
- [How to install VMware ESXi](#)

If you are unsure whether your server hardware supports VMware, check the [VMware ESXi compatibility list](#).

InformaCast requires:

- 4Gb of memory
- A dedicated virtual CPU (vCPU)-the InformaCast operating system and application are 32-bit, and may run on 32- or 64-bit CPUs. The CPU speed requirements are defined as follows:
 - For IP phone deployments, InformaCast does not have a minimum CPU speed requirement; regardless of the number of phones, InformaCast will scale to meet the need. In general, faster CPU means faster phone activation time.
 - For Singlewire Desktop Notification System machines or IP speakers in excess of 1,000 endpoints, [contact Singlewire](#) for the most current recommendations.
- A single virtual NIC configured for bridging, not NAT; InformaCast will not work through NAT'd network connections
- 80Gb disk, which can be either local disk or SAN-attached disk (the SAN may be of any type supported by VMware)

As a virtual machine (VM), InformaCast may be run co-resident with other Cisco UC virtual machines on a VMware ESX host (a solution that is supported by Cisco's TAC), as long as you don't modify the InformaCast OVA configuration or oversubscribe the host CPU or memory. It is possible to run more virtual machines than the VMware host physically supports (i.e. oversubscription), but this will adversely affect audio quality and phone activation performance. In order to avoid oversubscribing your VMware host, please make sure the following is true:

- The sum of all vCPUs does not exceed the number of cores on the VMware host
- The sum of memory needed by all VMs does not exceed the amount of physical RAM on the VMware host

- The InformaCast VM is run in thick disk mode

A Note on Licensing

InformaCast's functionality is based on its license, and depending on the license you have, you will be able to access all of InformaCast's functionality or only parts of it. *Basic InformaCast* functionality includes the ability to send live audio broadcasts to up to 50 phones by dialing a number on your Cisco IP phone. *Advanced InformaCast* functionality includes the ability to send a number of different types of broadcasts (e.g. live audio, pre-recorded audio, pre-recorded audio and text, etc.) using your Cisco IP phone's interface and/or InformaCast's web interface, interact with InformaCast's plugins (e.g. conduct conference calls, trigger contact closures, post to Facebook and Twitter, send broadcasts to email addresses, etc.), customize scripts that can be attached to broadcasts, and receive confirmation when broadcasts are sent, among other features.



Note

Upgrading from Basic to Advanced InformaCast is easily accomplished through the **Try** or **Buy** icons or by [contacting Singlewire](#) to obtain a license for a switch in functionality. Downgrading from Advanced InformaCast back to Basic is accomplished by clicking the **Stop Advanced Notification Trial** button on InformaCast's Manage License Key page (**Admin | Manage License Key**). This will cause InformaCast to reboot, as will any future change in InformaCast functionality or license type.

In addition to Basic and Advanced functionality, InformaCast can also be obtained with a basic, trial, demonstration, subscription, or purchased license. The basic license applies only to Basic InformaCast functionality and exists in perpetuity. The rest of the licenses apply only to Advanced InformaCast and can be [obtained through Singlewire Software](#).

The trial license is included with your initial copy of InformaCast and allows you to try Advanced InformaCast for free for 60 days. If you downgrade to Basic InformaCast before your trial period ends, you can elect to resume your trial for the remaining period (e.g. obtain Basic InformaCast, upgrade to Advanced InformaCast through the trial, use Advanced InformaCast for 30 days, downgrade to Basic InformaCast, and upgrade to Advanced InformaCast through the trial for the remaining 60 days). When your trial period ends, you can elect to go back to Basic InformaCast or you can contact Singlewire to obtain a demonstration, subscription, or purchased license.

The demonstration license allows you to try Advanced InformaCast for a set period of time. Because it ends on a certain date, you cannot downgrade to Basic InformaCast and then resume Advanced InformaCast on the demo license past its expiration date (e.g. you cannot obtain Basic InformaCast, upgrade to Advanced InformaCast through the trial, obtain a demonstration license of Advanced InformaCast that is valid for two weeks, downgrade to Basic InformaCast after one week, and resume using Advanced InformaCast three weeks later).

The subscription license allows you to purchase Advanced InformaCast without the hassle of a long-term contract; however, you must install InformaCast on an Internet-accessible server.

The purchased license allows you to purchase InformaCast and own it outright for a longer period of time. Both subscription and purchased licenses come with access to Singlewire's Support team and free software upgrades.

**Caution**

If you upgrade from Basic to Advanced InformaCast through either the trial, demonstration, subscription or purchased licenses and you decide to return to Basic functionality, all additional information entered during your Advanced phase will not be saved (e.g. when you revert to Basic from Advanced, any information you entered after you upgraded initially—dialing configurations, users, recipient groups, etc.—will not be available once you downgrade to Basic InformaCast). If you choose to upgrade back to Advanced InformaCast, that information will reappear; however, any new information you entered after you reverted to Basic functionality will be unavailable.

**Warning**

If you are moving from Basic InformaCast to Advanced InformaCast (and you have previously had Advanced InformaCast), InformaCast will be restarted with the installation of this new license. Please plan your upgrades accordingly.

A Note on Illustrations

The web-based administrative interface to InformaCast is dynamic; it changes with the kind of environment (Basic or Advanced) as well as the permitted capabilities of the person logged into the administrative webpages. Therefore, the screenshots displayed in this guide may not exactly match what you see on your system. However, as specific points are covered in the instructions, the salient interface elements will be shown.

A Note on Usage

Specific fonts are used to represent specific kinds of information in this guide. The fonts and their meaning are listed here:

- **Bold fonts** indicate the name of a button, text field, or other element with which you interact and any text that you must enter.
- *Italic fonts* indicate the name of an area or section on one of InformaCast's pages.
- Angled brackets enclose text that varies with your specific environment, i.e. `http://<Your IP Address>` means that you would enter your specific IP address instead of the brackets and what they enclose.
- [Blue, underlined](#) text indicates a hyperlink.
- U n d e r l i n e d t e x t indicates a tooltip in the InformaCast user interface. Hover your mouse over the tooltip to see an explanation of the underlined text.

There are several kinds of notification boxes used in this guide:

- **Tip.** These offer advice or “best practices.”
- **Note.** These contain additional information, usually relevant in special cases.
- **Caution.** These contain information about a procedure that may reduce the performance of your system.
- **Warning.** These contain information about a procedure that can impair or disable your system.

Where to Start

If you have a specific task in mind, peruse the “Contents” to locate the instructions for that task. Additionally, the index that starts on page 13-1 can help you locate desired information.

InformaCast has multiple user interfaces:

- Start page
- InformaCast web interface
- Toolbox
- Virtual machine administrative web interface (Webmin)
- Command line interface (CLI)

**Note**

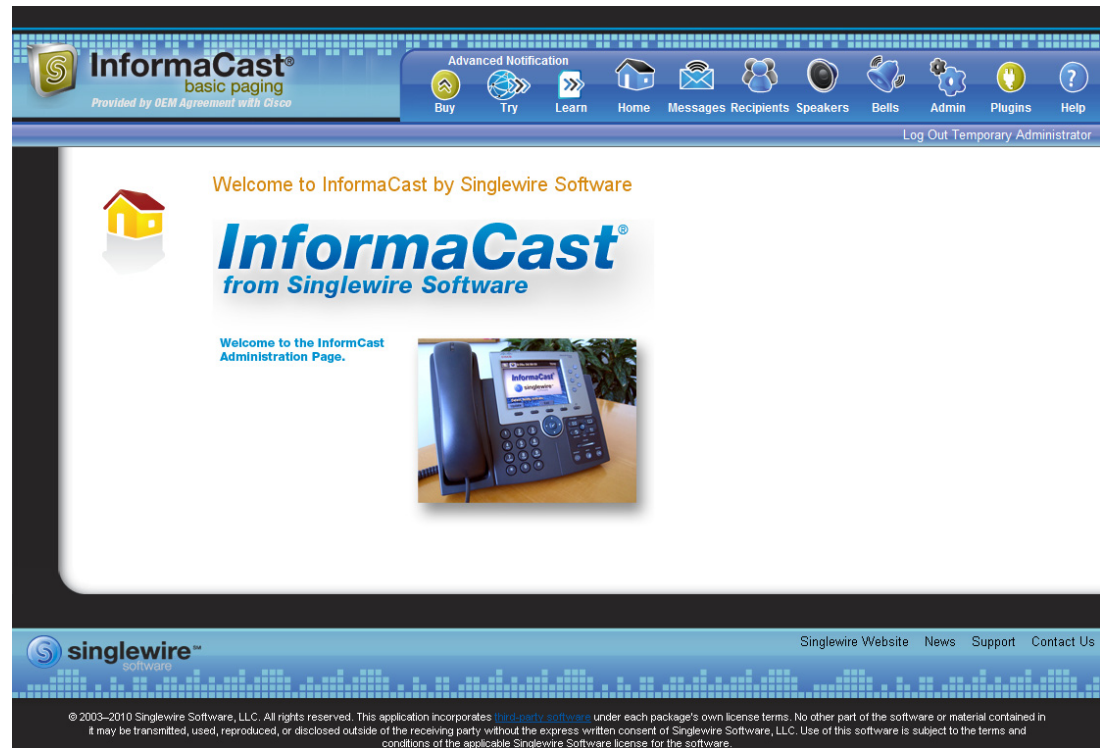
The initial login credentials for all interfaces are **admin** (login) and **changeMe** (password).

Start Page

The Singlewire Start page is accessible through a web browser addressed with the IP address of your Virtual Appliance server, and it contains links to your applications' user interfaces, the Toolbox, and Webmin.

Web Interface

The webpages you'll use to administer InformaCast are comprised of navigational icons at the top, which also house dropdown menus, and an administration pane whose contents change with what you're doing. The icons and their options also change with the access permissions you have in InformaCast.



Depending on your access level, you'll have access to:

- **Home.** InformaCast's homepage, complete with RSS news feed.
- **Messages.** The message administration page.
- **Recipients.** The recipient group administration page, allowing you to create and manage recipient groups.
- **Admin.** The configuration overview page, allowing you to view scheduled updates and backups; manage the license key; and set up the system, network, and broadcast parameters, along with DialCasts.
- **Help.** InformaCast's help pages, allowing you access to various aspects of the online help system.

Three additional icons (**Try**, **Buy**, and **Learn**) allow you to try Advanced InformaCast through a 60-day free trial, upgrade to Advanced InformaCast through a purchased or subscription license, or learn more about the features of Advanced InformaCast.



Note

While in Basic InformaCast, you will see a number of menu items that are grayed out, and you will not be able to access them. These menu items are only available when you have Advanced InformaCast.

Toolbox

The Toolbox is designed to be an inclusive destination for application-level accessories. Here, you can access the License Manager to see all of your Singlewire applications' licenses, review the functionality they encompass, and update those licenses with newer versions. Or, you can use the Migration Managers to migrate from a Windows platform to the Virtual Appliance. The “InformaCast Virtual Appliance Administration Guide” has more information on Toolbox functionality.

Virtual Machine Administrative Web Interface (Webmin)

The virtual machine administrative web interface is used for administering the underlying operating system of the virtual machine, e.g. configuring the network interface, stopping and starting InformaCast and shutting down the virtual machine.

Command Line Interface

The command line interface is a text-based interface used for support issues and some configuration procedures (e.g. those that require manual editing of files or the running of scripts). The command line interface uses the bash command line shell, and can be accessed via a virtual machine console window or over the network through the use of an SSH (Secure Shell) client.

**Note**

Rudimentary knowledge of bash is required to use the command line interface. If files are to be edited on the virtual machine itself, knowledge of the vi text editor is also required. If you are not familiar with the vi editor, you can optionally transfer files that need to be modified to another machine, edit them there, and then transfer the modified file back to the InformaCast virtual machine. The transfer process can be achieved via an SCP (Secure Copy) client, such as PSCP on Windows. PuTTY, available as a free download (<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>) contains all the necessary tools for transferring files.

Troubleshooting

If you've followed the instructions in this guide and are still having trouble getting InformaCast to work, “Troubleshooting” on page 8-1 may help you figure out what's wrong. You may also find a useful answer in “Frequently Asked Questions (FAQ)” on page 7-1.

Getting Help

Your first line of support is the **Help** icon. Clicking it takes you to the online help system. Accessing its dropdown menu allows you to access:

- The online help system
- Its FAQ section
- Its Troubleshooting section
- InformaCast's Support page

**Note**

If you do not have an active network connection to the Internet, not all of the content on InformaCast's Support or Welcome pages will be available.

InformaCast's Support page (**Help | Support**) is where you can access all of the previously listed online help links as well as the Calling Terminal Diagnostics page, InformaCast's Performance, Summary, and SIP logs, and a PDF of this guide.

InformaCast®
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help
Log Out Temporary Administrator

Help | Support

Your version of help is dependent on your version of Communications Manager. InformaCast Basic Paging requires that your version of Communications Manager be 8.5 or later.

If you have Communications Manager 8.5 or later, you can contact Cisco directly for help: <http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html> or click the **Help** icon and view InformaCast's installation and user guide.

If you have a version of Communications Manager previous to 8.5, you have the following options:

- Click the **Try** icon to start your 60-day free trial of InformaCast Advanced Notification
- Click the **Buy** icon to obtain a demonstration, subscription, or purchased license for InformaCast Advanced Notification

Support links

- [Calling Terminal Diagnostics](#)
- [Summary Log](#)
- [Performance Log](#)
- [SIP Stack Log](#) (used when detailed logging is inactive)
- [SIP Stack Debug Log](#) (used when detailed logging is active)

You also received [PDF format documentation](#) when downloading InformaCast.

singlewire™
software

Singlewire Website News Support Contact Us

© 2003–2012 Singlewire Software, LLC. All rights reserved. This application incorporates [third-party software](#) under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Technical Support

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at: <http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>



CHAPTER 2

Installing InformaCast

It is expected that this application will be installed and configured by an ESXi administrator who is well versed in Communications Manager, as many of the concepts involved require familiarity with VMware ESXi and Communications Manager, and it will be necessary to configure both as part of the installation process.

The general steps to install InformaCast are:

- Prepare your multicast environment
- Configure Communications Manager for use with InformaCast
- Install InformaCast Virtual Appliance on your ESXi server
- Start InformaCast
- Log into InformaCast
- Change the administrator's password
- Enter your license key

Prepare your Multicast Environment



Note

Please follow these next recommendations before configuring InformaCast. Your InformaCast environment will be more stable and configuration will proceed more smoothly.

You must enable multicast across your network in order for your recipients to receive the audio portion of InformaCast broadcasts.



Caution

Just because music on hold works on your phones does not mean that it is using multicast. Music on hold can be used with either unicast or multicast.

Multicast is communication between a single sender and multiple receivers on a network. InformaCast has no special requirements for how multicast is enabled, and you should use your network vendor's best practices and design considerations. Multicast is typically routed with Protocol Independent Multicast (PIM) that is deployed in either sparse or dense mode. InformaCast will work with either mode.

For WAN links where your circuit provider will not route your multicast, you can configure GRE tunnels, which carry your multicast traffic from the location where the InformaCast server is located to its recipients. The only traffic that needs to traverse these GRE tunnels is the multicast traffic you might want to route. The tunnels do not need to create a full mesh between sites; they only need to be

configured from the hub location to the spoke location(s). Please see the following link for details: http://www.cisco.com/en/US/tech/tk828/technologies_configuration_example09186a00801a5aa2.shtml

For recipients to receive the audio portion of InformaCast broadcasts, they make requests using Internet Group Management Protocol (IGMP). While most networks default to IGMPv2, newer recipients may use IGMPv3. If newer recipients are being deployed, be sure to enable the newer protocol version on network devices.

Network design and multicast configuration is outside the scope for which Singlewire can provide support. It is recommended that you work with your network vendor or partner. The following table provides guides and resources for more information on configuring multicast on your network.

Resource	Description
Quick Start Guide	Cisco IP Multicast Quick Start Configuration that provides concise configuration examples
Design Guides	Cisco Design Zone for IP Multicast for access to the AVVID SRND for Multicast Design
Multicast Troubleshooting	Cisco IP Multicast Troubleshooting Guide
IGMP Snooping	Cisco CGMP and IGMP Snooping documentation
GRE Tunnels	Cisco Multicast over a GRE Tunnel (for when a WAN carrier will not route multicast)
Protocol Analyzer	Wireshark download link, which can be used to view network traffic for troubleshooting

If you have a Cisco network, you can work with the Cisco TAC or locate a local Cisco Partner. The following table provides Cisco resources for configuration help.

Resource	Description
Support Home	Cisco Troubleshooting Homepage
Phone or Email	Cisco TAC Telephone Numbers
Open Case Online	Cisco TAC Case Creation Tool
Partner Locator	Locate a Cisco Partner to contract for network consulting

Integrate Communications Manager

Before you can begin using InformaCast in a telephony environment, you must configure your version of Communications Manager.



Note

The pictures in the following sections illustrate Cisco Unified Communications Manager v7.x; however, the steps are consistent between versions of Communications Manager. Discrepancies are noted where they occur.

**Warning**

If you fail to configure Communications Manager in Basic InformaCast, upgrading to Advanced InformaCast and then configuring Communications Manager before downgrading to Basic InformaCast will require you to perform all the steps in this section again.

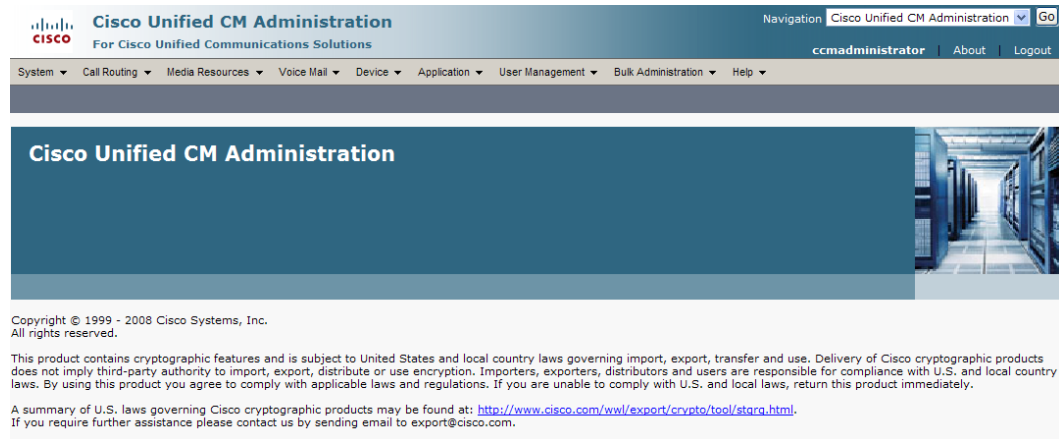
Configure Communications Manager SNMP

InformaCast uses SNMP to gather phone information from Communications Manager.

Enable SNMP on Communications Manager Cluster Nodes

You must enable SNMP on Communications Manager cluster nodes that will function with InformaCast.

- Step 1** Open a web browser and log into the administration interface of the Communications Manager server (the address will be similar to `https://<Communications Manager IP Address>/CCMAdmin`). The Cisco Unified CM Administration page appears.



- Step 2** Select **Cisco Unified Serviceability** from the **Navigation** dropdown menu and click the **Go** button. The Cisco Unified Serviceability page appears.



Step 3 Go to **Tools | Service Activation**. The Service Activation page appears.

Service Activation

Navigation: Cisco Unified Serviceability Go

ccmadministrator About Logout

Alarm Trace Tools Snmp Help

Related Links: Control Center - Feature Services Go

Save Set to Default Refresh

Status

Status : Ready

Select Server

Server* IPTCUCM613 Go

Check All Services

CM Services

Service Name	Activation Status
<input checked="" type="checkbox"/> Cisco CallManager	Activated
<input checked="" type="checkbox"/> Cisco Tftp	Activated
<input type="checkbox"/> Cisco Messaging Interface	Deactivated
<input type="checkbox"/> Cisco Unified Mobile Voice Access Service	Deactivated
<input type="checkbox"/> Cisco IP Voice Media Streaming App	Deactivated
<input checked="" type="checkbox"/> Cisco CTIManager	Activated
<input checked="" type="checkbox"/> Cisco Extension Mobility	Activated
<input type="checkbox"/> Cisco Extended Functions	Deactivated
<input type="checkbox"/> Cisco Dialed Number Analyzer	Deactivated
<input type="checkbox"/> Cisco DHCP Monitor Service	Deactivated

CTI Services

Service Name	Activation Status
<input type="checkbox"/> Cisco CallManager Attendant Console Server	Deactivated
<input type="checkbox"/> Cisco IP Manager Assistant	Deactivated
<input type="checkbox"/> Cisco WebDialer Web Service	Deactivated

CDR Services

Service Name	Activation Status
<input type="checkbox"/> Cisco SOAP - CDRonDemand Service	Deactivated
<input type="checkbox"/> Cisco CAR Web Service	Deactivated

Database and Admin Services

Service Name	Activation Status
<input checked="" type="checkbox"/> Cisco AXL Web Service	Activated
<input type="checkbox"/> Cisco UXL Web Service	Deactivated
<input checked="" type="checkbox"/> Cisco Bulk Provisioning Service	Activated
<input type="checkbox"/> Cisco TAPS Service	Deactivated

Performance and Monitoring Services

Service Name	Activation Status
<input type="checkbox"/> Cisco Serviceability Reporter	Deactivated
<input checked="" type="checkbox"/> Cisco CallManager SNMP Service	Activated

Security Services

Service Name	Activation Status
<input type="checkbox"/> Cisco CTL Provider	Deactivated
<input type="checkbox"/> Cisco Certificate Authority Proxy Function	Deactivated

Directory Services

Service Name	Activation Status
<input type="checkbox"/> Cisco DirSync	Deactivated

Save Set to Default Refresh

i *- indicates required item.



Note If you have more than one server, you'll have to select your server from the **Server** dropdown menu and click the **Go** button. The Service Activation page for that server will then appear.

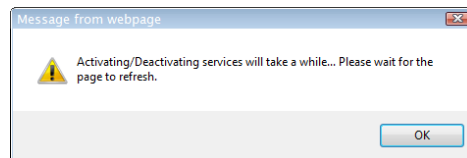
Step 4 Ensure the following services' checkboxes are selected: **Cisco CallManager**, **Cisco TFTP**, **Cisco CTIManager**, **Cisco AXL Web Service**, and **Cisco CallManager SNMP Service**.



Note Cisco CallManager SNMP Service, Cisco AXL Web Service, and Cisco CTIManager must be enabled on your Communications Manager cluster.

Step 5 Click the **Save** button to save your changes.

Step 6 Click the **OK** button if you receive a message about activating/deactivating services.

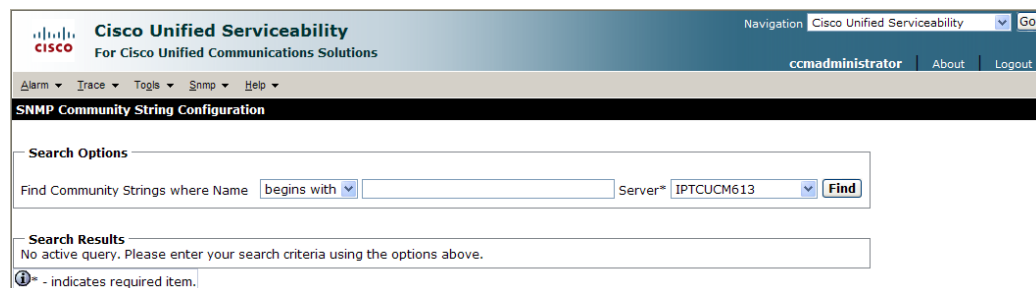


Step 7 Verify that the SNMP service is running by going to **Tools | Control Center - Feature Services**. The **Cisco CallManager SNMP Service** should say it is **Activated**. If not, click the green arrow in the top left hand corner to start the service.

Create an InformaCast SNMP Community String

Follow these steps to create an InformaCast SNMP community string.

Step 1 Go to **SNMP | V1/V2c | Community String**. The SNMP Community String Configuration page appears.



- Step 2** Select your server from the **Server** dropdown menu and click the **Find** button. The SNMP Community String Configuration page refreshes.

The screenshot shows the Cisco Unified Serviceability interface for SNMP Community String Configuration. The page title is "SNMP Community String Configuration". The status bar indicates "1 records found". The search options section shows "Find Community Strings where Name begins with" and "Server*" set to "CUCM7". The search results table is as follows:

<input type="checkbox"/>	Community String Name	Access Privileges
<input type="checkbox"/>	InformaCast	ReadNotifyOnly

Below the table are buttons for "Add New" and "Delete Selected". A help box at the bottom provides instructions: "Click on the Add New button to add a new Community String", "Click on the corresponding Community String Name to Update the Community String Information", "Select corresponding Checkbox and click on Delete Selected button to Delete Community String", and "* - indicates required item."

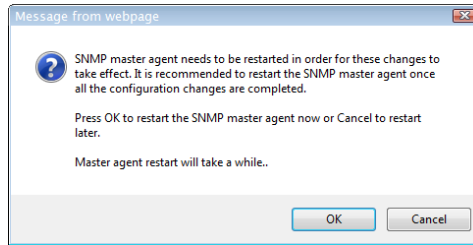
- Step 3** Click the **Add New** button to create a new community string. The SNMP Community String Configuration page refreshes again.

The screenshot shows the Cisco Unified Serviceability interface for editing an SNMP Community String. The page title is "SNMP Community String Configuration". The status bar shows "Status : Ready". The "Server*" dropdown is set to "IPTCUCM613". The "Community String Information" section has a "Community String Name*" field. The "Host IP Addresses Information" section has radio buttons for "Accept SNMP Packets from any host" (selected) and "Accept SNMP Packets only from these hosts". Below this are fields for "Host IP Address" and "Host IP Addresses" with "Insert" and "Remove" buttons. The "Access Privileges" section has a dropdown menu for "Access Privileges*" set to "-- Select Access Privilege --". A help box at the bottom states: "Notify access privilege is required in order to configure Notification Destinations." and "* - indicates required item."

- Step 4** Enter **InformaCast** into the **Community String Name** field. You will need to remember this name when you edit InformaCast's SNMP configuration in "Configure Your Default Communications Manager Cluster" on page 3-3.

- Step 5** Select **ReadOnly** from the **Access Privileges** dropdown menu.

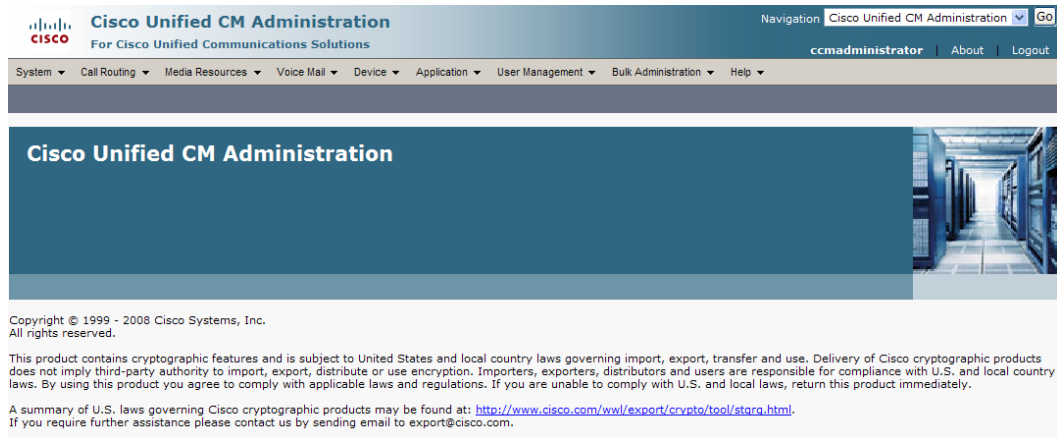
- Step 6** Select the **Apply to All Nodes** checkbox, if possible.
- Step 7** Click the **Save** button. If you are prompted to restart the SNMP service, click the **OK** button.



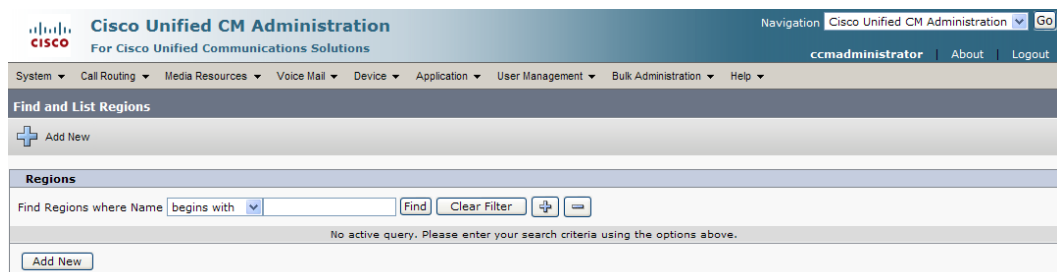
Set the Default Codec to G.711

InformaCast requires that audio streams be in G.711 μ Law format. Because most Communications Manager deployments use G.729 across the WAN, you need to create a region for InformaCast that will always use G.711 for all calls to all other regions.

- Step 1** Select **Cisco Unified CM Administration** from the **Navigation** dropdown menu and click the **Go** button. The Cisco Unified CM Administration page appears.



- Step 2** Go to **System | Region**. The Find and List Regions page appears.





Note If you are using Communications Manager 9.0 or later, you will go to **System | Region Information | Region** instead of **System | Region**.

Step 3 Click the **Add New** button. The Region Configuration page appears.

Step 4 Enter **InformaCast** in the **Name** field and click the **Save** button. The Region Configuration page refreshes.

Region	Audio Codec	Video Call Bandwidth	Link Loss Type
NOTE: Region(s) not displayed	Use System Default	Use System Default	Use System Default

Regions	Audio Codec	Video Call Bandwidth	Link Loss Type
ICVA InformaCast	Keep Current Setting	<input checked="" type="radio"/> Keep Current Setting <input type="radio"/> Use System Default <input type="radio"/> None <input type="radio"/> _____ kbps	Keep Current Setting

Step 5 Select **InformaCast** from the *Regions* area (as well as any other phone regions where broadcasting phones are located).

Step 6 Select **G.711** from the **Audio Codec** dropdown menu.

Step 7 Select the **None** radio button in the *Video Call Bandwidth* area.

Step 8 Click the **Save** button.



Note Once changes have been saved, verify that all phone regions are associated to the InformaCast region and using the G.711 audio codec. This will ensure that InformaCast can communicate with the phones in these regions.

Create a Device Pool for the InformaCast Region

Subsequent sections will walk you through creating devices on Communications Manager. In order to have those devices use the newly created G.711 μ Law region for InformaCast, you must first create a device pool for InformaCast.

Step 1 Go to **System | Device Pool**. The Find and List Device Pools page appears.

The screenshot shows the Cisco Unified CM Administration interface. The top navigation bar includes the Cisco logo, the title 'Cisco Unified CM Administration For Cisco Unified Communications Solutions', and a navigation menu with 'Cisco Unified CM Administration' selected and a 'Go' button. Below the navigation bar is a menu with options: System, Call Routing, Media Resources, Voice Mail, Device, Application, User Management, Bulk Administration, and Help. The main content area is titled 'Find and List Device Pools' and features an 'Add New' button with a plus sign. Below this is a 'Device Pool' section with a search form. The search form includes a dropdown menu for 'Device Pool Name', a 'begins with' dropdown, a 'Find' button, a 'Clear Filter' button, and a search icon. Below the search form, a message states: 'No active query. Please enter your search criteria using the options above.' At the bottom of the search form is another 'Add New' button.

Step 2 Click the **Add New** button. The Device Pool Configuration page appears.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration | Go
ccadministrator | About | Logout

System | Call Routing | Media Resources | Voice Mail | Device | Application | User Management | Bulk Administration | Help

Device Pool Configuration | Related Links: Back To Find/List | Go

Save

Status
Status: Ready

Device Pool Information
Device Pool: New

Device Pool Settings

Device Pool Name*

Cisco Unified Communications Manager Group* -- Not Selected --

Calling Search Space for Auto-registration < None >

Reverted Call Focus Priority Default

Local Route Group < None >

Roaming Sensitive Settings

Date/Time Group* -- Not Selected --

Region* -- Not Selected --

Media Resource Group List < None >

Location < None >

Network Locale < None >

SRST Reference* -- Not Selected --

Connection Monitor Duration***

Single Button Barge* Default

Join Across Lines* Default

Physical Location < None >

Device Mobility Group < None >

Device Mobility Related Information****

Device Mobility Calling Search Space < None >

AAR Calling Search Space < None >

AAR Group < None >

Calling Party Transformation CSS < None >

Called Party Transformation CSS < None >

Incoming Calling Party Settings

If the administrator sets the prefix to Default this indicates call processing will use prefix at the next level setting (DevicePool/Service Parameter). Otherwise, the value configured is used as the prefix unless the field is empty in which case there is no prefix assigned.

Clear Prefix Settings | Default Prefix Settings

Incoming Calling Party National Number Prefix Default

Incoming Calling Party International Number Prefix Default

Incoming Calling Party Unknown Number Prefix Default

Incoming Calling Party Subscriber Number Prefix Default

Save

i * - indicates required item.
i ** - Number of devices that have to be reset when this device pool is updated. To see a detailed list of these devices and other dependencies, click on Dependency Records.
i *** - leave blank to use default.
i **** - These five parameters will overwrite device level settings when device is roaming and in the same device mobility group.

Step 3 Enter **InformaCast** in the **Device Pool Name** field.

Step 4 Select **InformaCast** from the **Region** dropdown menu. This refers to the region you created in “Set the Default Codec to G.711” on page 2-7.

Step 5 Select/enter appropriate values for any required fields, which are marked with asterisks (*).

Step 6 Click the **Save** button.

Create an InformaCast Route Partition

Partitions can be seen as a collection of directory numbers, allowing you to assign and group route points for easier administration of the services that certain phones can reach.

Step 1 Go to **Call Routing | Class of Control | Partition**. The Find and List Partitions page appears.

Step 2 Click the **Add New** button. The Partition Configuration page appears.

Step 3 Enter **InformaCast** in the **Name** field and click the **Save** button.



Note Make sure to add this partition to the calling search space your phones use or they will not be able to reach InformaCast's route points.

Create Route Points

You must configure a CTI route point for InformaCast's use if you want to use InformaCast's DialCast functionality. DialCasts allow you to trigger an InformaCast broadcast by calling this route point, which is configured to send a specific message to predetermined recipient groups when a call is received. InformaCast can support multiple CTI route points as long as they are created in Communications Manager and associated to the InformaCast application user.



Tip

Instead of creating a CTI route point for every number you need for DialCasts, you could also add multiple lines to a single CTI route point. Another option would be to use wild card patterns to match a range numbers.



Note

DialCast also supports DNs that are associated with SIP trunks that enable InformaCast to receive SIP calls. Please see “Manage SIP Functionality” on page 4-30 for more information. If you are planning on using SIP to facilitate DialCast functionality, you can skip this section.

Step 1 Go to **Device | CTI Route Point**. The Find and List CTI Route Points page appears.

The screenshot shows the Cisco Unified CM Administration interface. The page title is "Find and List CTI Route Points". The navigation menu includes System, Call Routing, Media Resources, Voice Mail, Device, Application, User Management, Bulk Administration, and Help. The user is logged in as "ccmadministrator". The search bar is empty, and the "Add New" button is visible.

Step 2 Click the **Add New** button. The CTI Route Point Configuration page appears.

The screenshot shows the Cisco Unified CM Administration interface. The main heading is "Cisco Unified CM Administration For Cisco Unified Communications Solutions". The user is logged in as "ccmadministrator". The page title is "CTI Route Point Configuration". Below the title is a "Save" button. The "Status" section shows "Status: Ready". The "Device Information" section contains the following fields:

Device Name*	<input type="text"/>
Description	<input type="text"/>
Device Pool*	-- Not Selected -- View Details
Common Device Configuration	< None > View Details
Calling Search Space	< None >
Location*	Hub_None
User Locale	< None >
Media Resource Group List	< None >
Network Hold MOH Audio Source	< None >
User Hold MOH Audio Source	< None >

Below the form is a "Save" button and a note: "i *- indicates required item."

Step 3 Enter **InformaCast** in the **Device Name** field.

Step 4 Enter **InformaCast** in the **Description** field.



Tip

If you are adding multiple route points, use variations of InformaCast for the **Device Name** and **Description** fields, e.g. **InformaCast1**, **InformaCast2**, etc.

Step 5 Select **InformaCast** from the **Device Pool** dropdown menu.



Note

The device pool must use a region that will allow a G.711 μ Law call to phones that will record voice messages.

Step 6 Click the **Save** button. The CTI Route Point Configuration page refreshes.

The screenshot displays the Cisco Unified CM Administration web interface. At the top, the navigation bar shows 'Cisco Unified CM Administration' and 'For Cisco Unified Communications Solutions'. The user is logged in as 'ccmadministrator'. The main heading is 'CTI Route Point Configuration'. Below this, there are icons for 'Save', 'Delete', 'Copy', 'Reset', and 'Add New'. A status message indicates 'Add successful'. The 'Device Information' section contains the following fields:

Registration	Unknown
IP Address	Unknown
Device Name*	InformaCast
Description	InformaCast
Device Pool*	InformaCast View Details
Common Device Configuration	< None > View Details
Calling Search Space	< None >
Location*	Hub_None
User Locale	< None >
Media Resource Group List	< None >
Network Hold MOH Audio Source	< None >
User Hold MOH Audio Source	< None >

The 'Association Information' section includes a link: [Line \[1\] - Add a new DN](#). At the bottom, there are buttons for 'Save', 'Delete', 'Copy', 'Reset', and 'Add New'. A note at the bottom left states: **i** *- indicates required item.

Step 7 Click the **Line [1] - Add a new DN** link. The Directory Number Configuration page appears.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration

System | Call Routing | Media Resources | Voice Mail | Device | Application | User Management | Bulk Administration | Help

ccmadministrator | About | Logout

Directory Number Configuration Related Links: [Configure Device \(ICVA-IC-1\)](#)

Status
Status: Ready

Directory Number Information

Directory Number*

Route Partition

Description

Alerting Name

ASCII Alerting Name

Active

Directory Number Settings

Voice Mail Profile (Choose <None> to use system default)

Calling Search Space

Presence Group*

User Hold MOH Audio Source

Network Hold MOH Audio Source

AAR Settings

AAR	Voice Mail	AAR Destination Mask	AAR Group
<input type="checkbox"/>	<input type="checkbox"/> or	<input type="text"/>	<input style="border: none;" type="text" value=" < None > "/>

Retain this destination in the call forwarding history

MLPP Alternate Party Settings

Target (Destination)

MLPP Calling Search Space

MLPP No Answer Ring Duration (seconds)

Line Settings for All Devices

Hold Reversion Ring Duration (seconds) Setting the Hold Reversion Ring Duration to zero will disable the feature

Hold Reversion Notification Interval (seconds) Setting the Hold Reversion Notification Interval to zero will disable the feature

Line 1 on Device ICVA-IC-1

Display (Internal Caller ID) Display text for a line appearance is intended for displaying text such as a name instead of a directory number for internal calls. If you specify a number, the person receiving a call may not see the proper identity of the caller.

ASCII Display (Internal Caller ID)

External Phone Number Mask

Multiple Call/Call Waiting Settings on Device InformaCast

Note: The range to select the Max Number of calls is: 1-10000

Maximum Number of Calls*

Busy Trigger* (Less than or equal to Max. Calls)

Forwarded Call Information Display on Device InformaCast

Caller Name

Caller Number

Redirected Number

Dialed Number

i * - indicates required item.

i ** - Changes to Line or Directory Number settings require restart.

Step 8 Enter a DN in the **Directory Number** field. This is the number your users will use to initiate a DialCast.

Step 9 Select **InformaCast** from the **Route Partition** dropdown menu.

Step 10 Enter **InformaCast** in the **Display (Internal Caller ID)** and **ASCII Display (Internal Caller ID)** fields.

Step 11 Click the **Save** button.



Note Add the InformaCast partition to your organization's calling search space that the phones are using or you will not be able to dial these extensions from your phones.

Create a Calling Search Space

InformaCast places a call to your Cisco IP phone to record the audio that will be broadcast. This is a phone call just like any other call. You must ensure that your Communications Manager's calling search space allows calls to your SIP trunk or all the partitions within which your Cisco IP phone directory numbers are located.

Step 1 Go to **Call Routing | Class of Control | Calling Search Space**. The Find and List Calling Search Spaces page appears.

Step 2 Click the **Add New** button. The Calling Search Space Configuration page appears.

Step 3 Enter **InformaCast** in the **Name** field.

- Step 4** Select the partitions for the phones that will record a voice stream or in which your SIP trunk resides (do not add the voicemail platform) from the *Available Partitions* area and move them into the *Selected Partitions* area using the down arrow.
- Step 5** Click the **Save** button.

Create CTI Ports

Use the following steps to create CTI ports for InformaCast.

- Step 1** Go to **Device | Phone**. The Find and List Phones page appears.

The screenshot shows the Cisco Unified CM Administration interface. The page title is "Find and List Phones". The navigation menu includes System, Call Routing, Media Resources, Voice Mail, Device, Application, User Management, Bulk Administration, and Help. The user is logged in as "ccmadministrator". The page contains a search bar with "Device Name" selected and "begins with" as the filter. There are buttons for "Find", "Clear Filter", and "Add New". A message at the bottom states: "No active query. Please enter your search criteria using the options above."

- Step 2** Click the **Add New** button. The Add a New Phone page appears.

The screenshot shows the Cisco Unified CM Administration interface for "Add a New Phone". The page title is "Add a New Phone". The navigation menu is the same as in the previous screenshot. The user is logged in as "ccmadministrator". The page contains a "Next" button with a green arrow. Below that, there is a "Status" section with an information icon and the text "Status: Ready". There is a section titled "Select the type of phone you would like to create" with a dropdown menu for "Phone Type*" currently set to "-- Not Selected --". There is another "Next" button at the bottom. A note at the bottom left states: "* - indicates required item."

Step 3 Select **CTI Port** from the **Phone Type** dropdown menu and click the **Next** button. The Phone Configuration page appears.

Phone Configuration

Status
Status: Ready

Phone Type
Product Type: CTI Port
Device Protocol: SCCP

Device Information

Device Name*

Description

Device Pool* -- Not Selected -- [View Details](#)

Common Device Configuration < None > [View Details](#)

Common Phone Profile* Standard Common Phone Profile

Calling Search Space < None >

AAR Calling Search Space < None >

Media Resource Group List < None >

User Hold MOH Audio Source < None >

Network Hold MOH Audio Source < None >

Location* Hub_None

AAR Group < None >

User Locale < None >

Network Locale < None >

Privacy* Default

Device Mobility Mode* Default [View Current Device Mobility Settings](#)

Owner User ID < None >

Join Across Lines Default

Always Use Prime Line* Default

Always Use Prime Line for Voice Message* Default

Is Active

Ignore Presentation Indicators (internal calls only)

Logged Into Hunt Group

Remote Device

Protocol Specific Information

Presence Group* Standard Presence group

Device Security Profile* -- Not Selected --

SUBSCRIBE Calling Search Space < None >

Unattended Port

MLPP Information

MLPP Domain < None >

Notes:

- *- indicates required item.
- **- Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.
- ***Note: Security Profile Contains Addition CAPF Settings.

Step 4 Enter an appropriate name in the **Device Name** field for the new CTI port. For example, using the entry “InformaCast,” will be consistent with the configuration example in “Prepare your Multicast Environment” on page 2-1. As you add ports, you can simply append a number to this name, for example: InformaCast2, InformaCast3, etc.

Step 5 Enter a description in the **Description** field. Communications Manager will default to the name of the port. If you want more detail, you could set this to **InformaCast Recording Port**.

Step 6 Select **InformaCast** from the **Device Pool** dropdown menu.



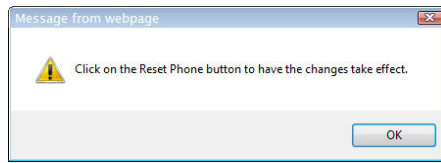
Note The device pool must use a region that will allow a G.711 μ Law call to phones that will record voice messages.

- Step 7** Select **InformaCast** from the **Calling Search Space** dropdown menu. This calling search space must allow calls to the partitions in which phones reside from which a user might want to record an InformaCast message. Calling search spaces are unable to detect when voicemail answers a phone. If a phone extension is called with the expectation that the person answering will dictate a message, InformaCast will end up broadcasting the voicemail prompt until the broadcast is canceled.



Note In Communications Manager 10 and later, the **Owner ID** field is required. Select the **Anonymous/Public Shared Space** radio button above the **Owner ID** field, which will remove the required setting.

- Step 8** Select **Cisco CTI Port - Standard SCCP Non-Secure Profile** from the **Device Security Profile** dropdown menu.
- Step 9** Click the **Save** button. A warning dialog box appears.



Step 10 Click the **OK** button if you are prompted to restart the CTI ports. The Phone Configuration page refreshes, and you are given the opportunity to create a Directory Number (DN) for the new port.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration Go
ccadministrator About Logout

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Phone Configuration Related Links: Back To Find/List Go

Save Delete Copy Reset Add New

Status
Add successful

Association Information

- 7775 Line [1] - Add a new DN
- 7775 Intercom [1] - Add a new Intercom

Phone Type
Product Type: CTI Port
Device Protocol: SCCP

Device Information

Registration: Unknown
IP Address: Unknown
 Device is Active
 Device is trusted
 Device Name*: ICVA-IC-1
 Description: InformaCast Recording Port
 Device Pool*: ICVA [View Details](#)
 Common Device Configuration: < None > [View Details](#)
 Common Phone Profile*: Standard Common Phone Profile
 Calling Search Space: ICVA
 AAR Calling Search Space: < None >
 Media Resource Group List: < None >
 User Hold MOH Audio Source: < None >
 Network Hold MOH Audio Source: < None >
 Location*: Hub_None
 AAR Group: < None >
 Owner User ID: < None >
 Join Across Lines: Default
 Use Trusted Relay Point*: Default
 Always Use Prime Line*: Default
 Always Use Prime Line for Voice Message*: Default
 Calling Party Transformation CSS: < None >
 Geolocation: < None >
 Use Device Pool Calling Party Transformation CSS
 Ignore Presentation Indicators (internal calls only)
 Logged Into Hunt Group
 Remote Device

Protocol Specific Information

Presence Group*: Standard Presence group
 Device Security Profile*: Cisco CTI Port - Standard SCCP Non-Secure Profil
 SUBSCRIBE Calling Search Space: < None >
 Unattended Port

Save Delete Copy Reset Add New

Legend:

- *- indicates required item.
- ** - Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.
- ***Note: Security Profile Contains Addition CAPF Settings.

Step 11 Click the **Line[1] - Add an New DN** link. The Directory Number Configuration page appears.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration

System | Call Routing | Media Resources | Voice Mail | Device | Application | User Management | Bulk Administration | Help

ccmadministrator | About | Logout

Directory Number Configuration Related Links: [Configure Device \(ICVA-IC-1\)](#)

Status
Status: Ready

Directory Number Information

Directory Number*

Route Partition

Description

Alerting Name

ASCII Alerting Name

Active

Directory Number Settings

Voice Mail Profile (Choose <None> to use system default)

Calling Search Space

Presence Group*

User Hold MOH Audio Source

Network Hold MOH Audio Source

AAR Settings

AAR	Voice Mail	AAR Destination Mask	AAR Group
<input type="checkbox"/>	<input type="checkbox"/> or	<input type="text"/>	<input style="border: none; border-bottom: 1px solid black;" type="text" value=" < None > "/>

Retain this destination in the call forwarding history

MLPP Alternate Party Settings

Target (Destination)

MLPP Calling Search Space

MLPP No Answer Ring Duration (seconds)

Line Settings for All Devices

Hold Reversion Ring Duration (seconds) Setting the Hold Reversion Ring Duration to zero will disable the feature

Hold Reversion Notification Interval (seconds) Setting the Hold Reversion Notification Interval to zero will disable the feature

Line 1 on Device ICVA-IC-1

Display (Internal Caller ID) Display text for a line appearance is intended for displaying text such as a name instead of a directory number for internal calls. If you specify a number, the person receiving a call may not see the proper identity of the caller.

ASCII Display (Internal Caller ID)

External Phone Number Mask

Multiple Call/Call Waiting Settings on Device InformaCast

Note: The range to select the Max Number of calls is: 1-10000

Maximum Number of Calls*

Busy Trigger* (Less than or equal to Max. Calls)

Forwarded Call Information Display on Device InformaCast

Caller Name

Caller Number

Redirected Number

Dialed Number

i * - indicates required item.

i ** - Changes to Line or Directory Number settings require restart.

Step 12 Enter a value in the **Directory Number** field that will not be used for any other purpose at your organization, and which is not within a direct-inward-dialing range. Nothing will call this number. It's purely for InformaCast's use when placing calls.

Step 13 Select **InformaCast** from the **Route Partition** dropdown menu.

Step 14 Enter **InformaCast** in the **Display (Internal Caller ID)** field.

- Step 15** Enter **InformaCast** in the **ASCII Display (Internal Caller ID)** field. This will cause “from InformaCast” to display on phones when they are called by InformaCast to record audio, which provides a better user experience.
- Step 16** Click the **Save** button to add the directory number.
- Step 17** Repeat Steps 1 through 16 as many times as needed to create the number of CTI ports that you need (minimum two).

Create an InformaCast AXL User Group/Access Control Group

To avoid the security risks of allowing multiple users access to the administrative credentials of Communications Manager for AXL request authentication, create a group that has only the Standard AXL API Access role.



Note

If you are using Communications Manager 9.0 or later, AXL user groups have been renamed to access control groups, the Find and List User Groups page has been renamed to Find and List Access Control Groups, and the navigation to that page has changed to **User Management | User Settings | Access Control Group** instead of **User Management | User Group**. Because of this name change, the User Group Configuration page has been renamed to the Access Control Group Configuration page. However, all the rest of the steps in this section remain the same. Only the way to access the Find and List Access Control Groups page and its naming convention have changed.

- Step 1** Go to **User Management | User Group**. The Find and List User Groups page appears.



Note

If you are using Communications Manager 9.0 or later, go to **User Management | User Settings | Access Control Group**. The Find and List Access Control Groups page then appears.

Step 2 Click the **Add New** button. The User Group Configuration page appears.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration Go
ccmadministrator | About | Logout

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

User Group Configuration Related Links: Back To Find/List Go

Save

Status
0 records found

User Group Information
Name*

Save

* - indicates required item.

Step 3 Enter **InformaCast AXL User Group** in the **Name** field and click the **Save** button. The User Group Configuration page refreshes.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration Go
ccmadministrator | About | Logout

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

User Group Configuration Related Links: Back To Find/List Go

Save Delete Copy Add New

Status
0 records found

User Group Information
Name* InformaCast AXL User Group

User Rows per Page 50

Find User where User ID begins with Find Clear Filter

No active query. Please enter your search criteria using the options above.

Add End Users to Group Add App Users to Group Select All Clear All Delete Selected

Save Delete Copy Add New

* - indicates required item.

Step 4 Make sure **Back to Find/List** is selected in the **Related Links** dropdown menu and click the **Go** button. The Find and List User Groups page appears.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration Go
ccmadministrator | About | Logout

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Find and List User Groups

Add New

User Group

Find User Group where Name begins with Find Clear Filter

No active query. Please enter your search criteria using the options above.

Add New

Step 5 Click the **Find** button. The Find and List User Groups page refreshes and you should see your new user group.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration **ccmadministrator** | About | Logout

System | Call Routing | Media Resources | Voice Mail | Device | Application | User Management | Bulk Administration | Help

Find and List User Groups

Status
23 records found

User Group (1 - 23 of 23) Rows per Page 50

Find User Group where Name begins with

<input type="checkbox"/>	Name ^	Roles	Copy
<input type="checkbox"/>	InformaCast AXI User Group		
<input type="checkbox"/>	MarkUserGroup		
<input type="checkbox"/>	Standard_CAR_Admin_Users		
	Standard_CCM_Admin_Users		
	Standard_CCM_End_Users		
	Standard_CCM_Gateway_Administration		
	Standard_CCM_Phone_Administration		
	Standard_CCM_Read_Only		
	Standard_CCM_Server_Maintenance		
	Standard_CCM_Server_Monitoring		
	Standard_CCM_Super_Users		
	Standard_CTI_Allow_Call_Monitoring		
	Standard_CTI_Allow_Call_Park_Monitoring		
	Standard_CTI_Allow_Call_Recording		
	Standard_CTI_Allow_Calling_Number_Modification		
	Standard_CTI_Allow_Control_of_All_Devices		
	Standard_CTI_Allow_Reception_of_SRTP_Key_Material		
	Standard_CTI_Enabled		
	Standard_CTI_Secure_Connection		
	Standard_EM_Authentication_Proxy_Rights		
	Standard_Packet_Sniffer_Users		
	Standard_RealtimeAndTraceCollection		
	Standard_TabSync_User		

Step 6 Click the **i** icon in the Roles column next to your new user group. The User Group Configuration page appears.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration **ccmadministrator** | About | Logout

System | Call Routing | Media Resources | Voice Mail | Device | Application | User Management | Bulk Administration | Help

User Group Configuration Related Links: [Back To Find/List](#)

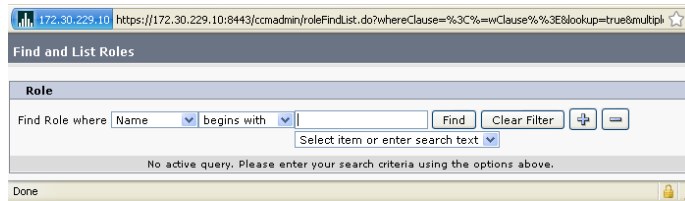
Status
 Status: Ready

User Group Information
Name* ICVA User Group

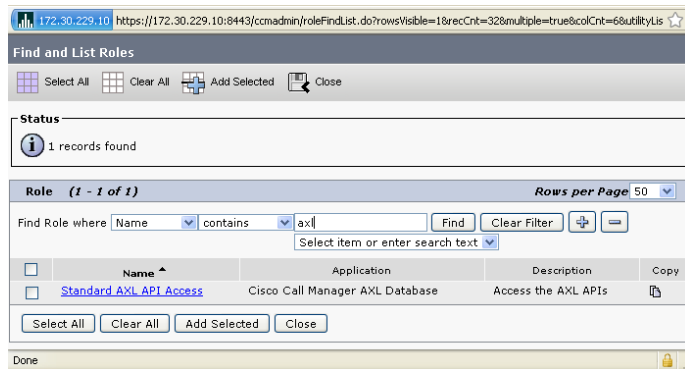
Role Assignment
Role

* - indicates required item.
 **The role Standard CCM Admin Users must be assigned to a user group to enable its members to logon to CCMAdmin web site
 ***The role Standard CCM End Users must be assigned to a user group to enable its members to logon to CCMUser web site

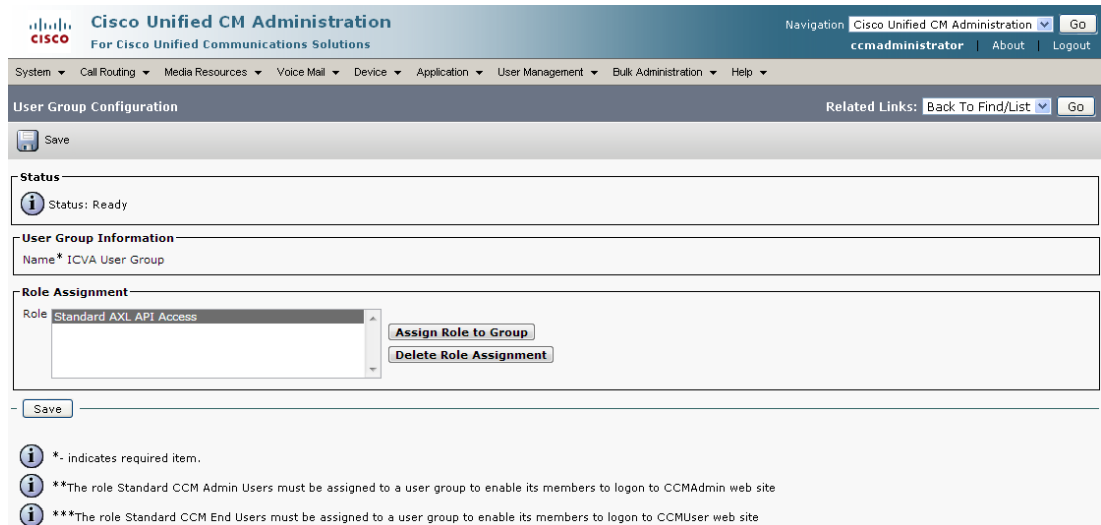
Step 7 Click the **Assign Role to Group** button. The Find and List Roles window appears.



Step 8 Click the **Find** button. The Find and List Roles window refreshes.



Step 9 Select the **Standard AXL API Access** checkbox and click the **Add Selected** button. The User Group Configuration page refreshes.



Step 10 Click the **Save** button.

Create the Application User for InformaCast Broadcasts

InformaCast needs an application user set in Communications Manager so that it can establish a CTI connection and gain access to the telephony features Communications Manager offers (e.g. making phone calls, receiving calls on route points, using JTAPI to determine the busy status of a phone, etc.). You also need an application user for AXL phone data requests. Those requests must include the credentials for a user who has been granted access to the AXL API. Several roles need to be associated with your application user:

- **Enable CTI Application Use.** Enables the basic level of communication between InformaCast and Communications Manager.
- **Standard AXL API Access.** Allows you to have a separate set of credentials for AXL request authentication, protecting your superuser administrative credentials from exposure.
- **Standard CTI Allow Control of Phones Supporting Connected Xfer and Conf.** Allows JTAPI to determine the busy status of a phone, communicating to InformaCast whether to skip it in a broadcast (for phones that support the connected transfer and conference feature).
- **Standard CTI Allow Control of Phones Supporting Rollover Mode.** Allows JTAPI to determine the busy status of a phone, communicating to InformaCast whether to skip it in a broadcast (for phones that support rollover mode).



Tip

Make a note of the username and password for the user you create, as you will need to enter them on InformaCast's Edit Telephony Configuration page (see “Configure Your Default Communications Manager Cluster” on page 3-3).

Step 1 Go to **User Management | Application User**. The Find and List Application Users page appears.

The screenshot shows the Cisco Unified CM Administration web interface. The page title is "Find and List Application Users". The interface includes a navigation menu with options like System, Call Routing, Media Resources, Voice Mail, Device, Application, User Management, Bulk Administration, and Help. Below the navigation menu, there is a search bar for "Application User" with a dropdown menu set to "begins with". The search bar contains the text "Find Application User where User ID begins with". There are buttons for "Find", "Clear Filter", and "Add New". Below the search bar, there is a message: "No active query. Please enter your search criteria using the options above." and another "Add New" button.

Step 2 Click the **Add New** button. The Application User Configuration page appears.

The screenshot displays the Cisco Unified CM Administration interface for the Application User Configuration page. The page is titled "Application User Configuration" and includes a navigation menu at the top. The main content area is divided into several sections:

- Status:** Shows "Status: Ready".
- Application User Information:** Contains fields for "User ID*", "Password", "Confirm Password", "Digest Credentials", "Confirm Digest Credentials", and "Presence Group*" (set to "Standard Presence group"). There are also checkboxes for "Accept Presence Subscription", "Accept Out-of-dialog REFER", "Accept Unsolicited Notification", and "Accept Replaces Header".
- Device Information:** Features a list of "Available Devices" (ICRYAN, InformaCast1, InformaCastTest, MarkRoutePoint, NICKICCTI) with "Find more Phones", "Find more Route Points", and "Find more Pilot Points" buttons. Below is a "Controlled Devices" list.
- CAPF Information:** Includes an "Associated CAPF Profiles" field and a "View Details" link.
- Permissions Information:** Contains "Groups" and "Roles" fields, each with a "View Details" link. There are also "Add to User Group" and "Remove from User Group" buttons.

At the bottom of the page, there is a "Save" button and a note: "i *- indicates required item."

Step 3 Enter an appropriate user ID in the **User ID** field, e.g. **InformaCast**.

Note it here: _____

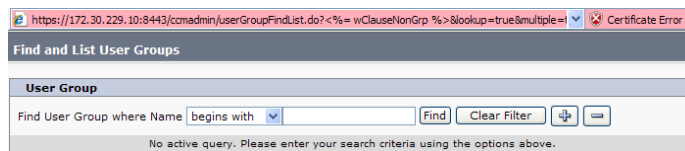
Step 4 Enter a password into the **User Password** field, and enter it again in the **Confirm Password** field.

Note it here: _____

You will need to remember the user ID and password values because you will enter them into InformaCast's own Edit Telephony Configuration page once you install InformaCast.

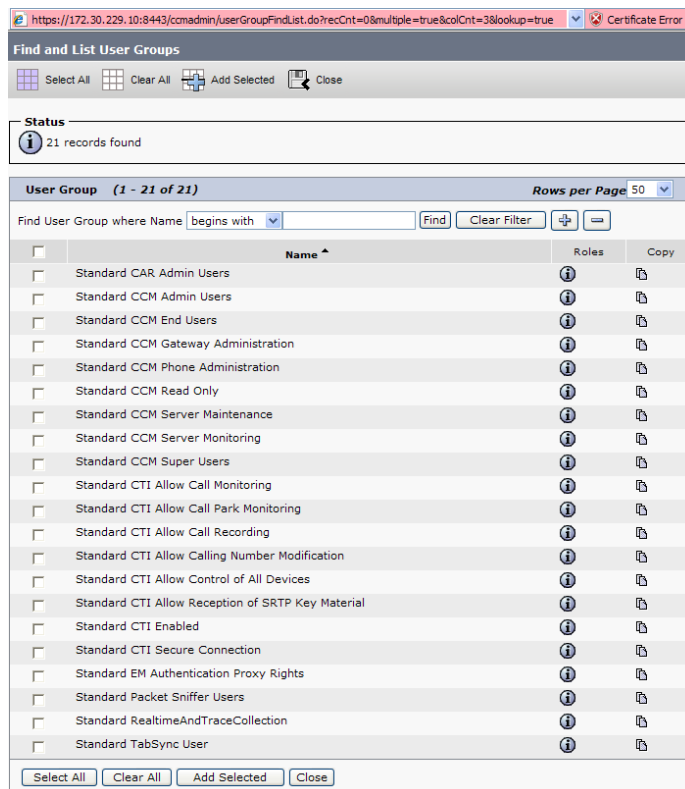
Step 5 Select the InformaCast route points and CTI ports (created in "Create Route Points" on page 2-12 and "Create CTI Ports" on page 2-17) in the *Device Information* area and move them to the *Controlled Devices* area using the down arrow.

- Step 6** Scroll down to the *Permissions Information* area on the Application User Configuration page and click the **Add to User Group** button. The Find and List User Groups window appears.




Note If you are using Communications Manager 9.0 or later, the naming change from user groups to access control groups (see “Create an InformaCast AXL User Group/Access Control Group” on page 2-22) means that you will now click the **Add to Access Control Group** button instead of the **Add to User Group** button. Clicking the **Add to Access Control Group** button will open the Find and List Access Control Groups pop-up window.

- Step 7** Click the **Find** button. The Find and List User Groups window refreshes with a list of user groups.



Name	Roles	Copy
Standard CAR Admin Users	ⓘ	📄
Standard CCM Admin Users	ⓘ	📄
Standard CCM End Users	ⓘ	📄
Standard CCM Gateway Administration	ⓘ	📄
Standard CCM Phone Administration	ⓘ	📄
Standard CCM Read Only	ⓘ	📄
Standard CCM Server Maintenance	ⓘ	📄
Standard CCM Server Monitoring	ⓘ	📄
Standard CCM Super Users	ⓘ	📄
Standard CTI Allow Call Monitoring	ⓘ	📄
Standard CTI Allow Call Park Monitoring	ⓘ	📄
Standard CTI Allow Call Recording	ⓘ	📄
Standard CTI Allow Calling Number Modification	ⓘ	📄
Standard CTI Allow Control of All Devices	ⓘ	📄
Standard CTI Allow Reception of SRTP Key Material	ⓘ	📄
Standard CTI Enabled	ⓘ	📄
Standard CTI Secure Connection	ⓘ	📄
Standard EM Authentication Proxy Rights	ⓘ	📄
Standard Packet Sniffer Users	ⓘ	📄
Standard RealtimeAndTraceCollection	ⓘ	📄
Standard TabSync User	ⓘ	📄

- Step 8** Select the **Standard CTI Enabled**, **InformaCast AXL User Group**, **Standard CTI Allow Control of Phones supporting Connected Xfer and conf**, and **Standard CTI Allow Control of Phones supporting Rollover Mode** checkboxes and click the **Add Selected** button. You will be returned to the Application User Configuration page.

**Note**

If you are using Communications Manager v7.1 or earlier, the **Standard CTI Allow Control of Phones supporting Connected Xfer and conf** and **Standard CTI Allow Control of Phones supporting Rollover Mode** checkboxes do not exist.

- Step 9** Verify the InformaCast user has been added to the correct groups by scrolling down to the *Permissions Information* area and viewing the user in the **Groups** field.
- Step 10** Click the **Save** button to save your changes.

Enable Web Access for Cisco IP Phones

You must enable web access for all phones to which InformaCast will broadcast. The following steps describe how to enable web access for phones individually and en masse.

Enable Web Access for Individual Phones

Use the following steps to enable web access for individual phones.

- Step 1** Go to **Device | Phone**. The Find and List Phone page appears.

The screenshot shows the Cisco Unified CM Administration web interface. The page title is "Find and List Phones". The navigation menu includes System, Call Routing, Media Resources, Voice Mail, Device, Application, User Management, Bulk Administration, and Help. The user is logged in as "ccadministrator". The page contains a search form for finding phones, with a dropdown for "Device Name" and a "begins with" filter. The search results area is currently empty, displaying the message: "No active query. Please enter your search criteria using the options above." There is an "Add New" button at the bottom left of the search area.

Step 2 Click the **Find** button to display all phones of which Communications Manager knows or use the filter fields at the top of the page to narrow your list of phone results before clicking the **Find** button. The Find and List Phone page refreshes.

Find and List Phones

Status: 75 records found

Phone (1 - 25 of 75) Rows per Page: 25

Find Phone where: Device Name begins with [] Find Clear Filter

Device Name(Line)	Description	Device Pool	Device Protocol	Status	IP Address	Copy	Super Copy
AT211		Default	SCCP	Registered with iptapps-ccm61pub	172.30.227.211		
ATA0023EBC6AB6A	Auto 60018	Default	SCCP	Unknown	Unknown		
ATA23EBC6AB6A01	Auto 60019	Default	SCCP	Unknown	Unknown		
CTIFORNICK		Default	SCCP	Unknown	Unknown		
ICNick1	ICNick1	Default	SCCP	Unknown	Unknown		
ICNick2	ICNick2	Default	SCCP	Unknown	Unknown		
ICNick3	ICNick3	Default	SCCP	Unknown	Unknown		
ICNick4	ICNick4	Default	SCCP	Unknown	Unknown		
ICNick5	ICNick5	Default	SCCP	Unknown	Unknown		
ICNick6	ICNick6	Default	SCCP	Unknown	Unknown		
JessCTI1	JessCTI1	Default	SCCP	Unknown	Unknown		
JessCTI2	JessCTI2	Default	SCCP	Unknown	Unknown		
JessRCCTI		Default	SCCP	Unknown	Unknown		
KatieIC1		Default	SCCP	Unknown	Unknown		
KatieIC2		Default	SCCP	Unknown	Unknown		
KatieIC3		Default	SCCP	Unregistered	172.30.227.200		
KatieIC4		Default	SCCP	Unregistered	172.30.227.200		
PeteCTI1	PeteCTI1	Default	SCCP	Registered with iptapps-ccm61pub	172.30.227.211		
PeteCTI2	PeteCTI2	Default	SCCP	Registered with iptapps-ccm61pub	172.30.227.211		
RajCallAlert	RajCallAlert	RajInformaCast	SCCP	Unknown	Unknown		
RajCTIPort	RajCTIPort	RajInformaCast	SCCP	Unknown	Unknown		
RajCTIPort2	RajCTIPort2	RajInformaCast	SCCP	Unknown	Unknown		
RajCTIPort3	RajCTIPort3	RajInformaCast	SCCP	Unknown	Unknown		
RajCTIPort4	RajCTIPort4	RajInformaCast	SCCP	Unknown	Unknown		
SEP0004F2E67F44	Auto 60037	Default	SCCP	Unknown	Unknown		

Go 1 of 3

Step 3 Click the **Device Name** link of the phone in which you want to enable web access. The Phone Configuration page for that phone appears.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration

ccmadministrator | About | Logout

System | Call Routing | Media Resources | Voice Mail | Device | Application | User Management | Bulk Administration | Help

Phone Configuration Related Links: [Back To Find/List](#)

Status
Status: Ready

Association Information

1	Line [1] - 60028 (no partition)
2	None
3	Add a new SD
4	Add a new SD
5	Add a new SD
6	Add a new SD
7	Add a new SD
8	Add a new SD
9	Add a new SD
10	Add a new SD
11	Add a new SD
12	Add a new SD
----- Unassigned Associated Items -----	
13	Line [2] - Add a new DN
14	Add a new SD
15	Privacy
16	None

Phone Type
Product Type: Cisco 7937
Device Protocol: SCCP

Device Information

Registration	Unknown
IP Address	Unknown
MAC Address*	0004F2E67F44
Description	Auto 60028
Device Pool*	Default View Details
Common Device Configuration	< None > View Details
Phone Button Template*	-- Not Selected --
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	Phones
Media Resource Group List	< None >
User Hold MOH Audio Source	< None >
Network Hold MOH Audio Source	< None >
Location*	Hub_None
User Locale	< None >
Network Locale	< None >
Built In Bridge*	Default
Privacy*	Default
Device Mobility Mode*	Default View Current Device Mobility Settings
Owner User ID	< None >
Phone Load Name	

Ignore Presentation Indicators (internal calls only)
 Allow Control of Device from CTI
 Logged Into Hunt Group
 Remote Device

Product Specific Configuration Layout ?

Settings Access*	Enabled
Gratuitous ARP*	Enabled
PC Voice VLAN Access*	Enabled
Web Access*	Enabled
Load Server	
SSH Access*	Disabled

Legend:
 * - indicates required item.
 ** - Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.
 ***Note: Security Profile Contains Addition CAPF Settings.

Step 4 Scroll down to the *Product Specific Configuration Layout* area.

Step 5 Select **Enabled** from the **Web Access** dropdown menu.

Step 6 Click the **Save** button.

**Note**

You will have to reset your phones to make these changes permanent. However, you will also have to reset your phones in “Configure Your Default Communications Manager Cluster” on page 3-3. If you have a lot of phones, this process can be time-consuming. If you only want to reset your phones once, wait to do so until after configuring your default Communications Manager cluster.

Enable Web Access for Multiple Phones

Use the following steps to enable web access for multiple phones by changing their profiles.

**Note**

The following steps will only work for later versions of Communications Manager 7.x and newer. Use the Bulk Administration Tool (BAT) if you are using earlier versions of Communications Manager.

- Step 1** Go to **Device | Device Settings | Common Phone Profile**. The Find and List Common Phone Profiles page appears.

- Step 2** Click the **Find** button to display all the phone profiles of which Communications Manager knows or use the filter fields at the top of the page to narrow your list of profile results before clicking the **Find** button. The Find and List Common Phone Profiles page refreshes.

Name	Description	Copy
Standard Common Phone Profile	Standard Common Phone Profile	

Step 3 Click the **Name** link of the profile in which you want to enable web access. Make sure you select the profile that applies to the phones where web access needs to be enabled. The Common Phone Profile Configuration page for that phone appears.

The screenshot shows the Cisco Unified CM Administration interface for the 'Common Phone Profile Configuration' page. The page is organized into several sections:

- Status:** Shows 'Status: Ready'.
- Common Phone Profile Information:** Includes fields for Name (Standard Common Phone Profile), Description (Standard Common Phone Profile), Local Phone Unlock Password, DND Option* (Ringer Off), DND Incoming Call Alert* (Beep Only), and Feature Control Policy (< None >). There is a checkbox for 'Enable End User Access to Phone Background Image Setting' which is checked.
- Secure Shell Information:** Includes fields for Secure Shell User and Secure Shell Password.
- Phone Personalization Information:** Includes dropdown menus for Phone Personalization* (Default), Always Use Prime Line* (Default), Always Use Prime Line for Voice Message* (Default), and Services Provisioning* (Default).
- Product Specific Configuration Layout:** A table with three columns: Param, Value, and Override Common Settings. The 'Web Access' parameter is set to 'Enabled' and has an 'Override Common Settings' checkbox checked. Other parameters include Back USB Port*, Side USB Port*, Cisco Camera*, Enable/Disable USB Classes, SDIO*, Bluetooth*, Wifi*, Bluetooth Profiles*, Join And Direct Transfer Policy*, Settings Access*, Video Capabilities*, Load Server, RTP*, Peer Firmware Sharing*, Cisco Discovery Protocol (CDP): Switch Port*, Cisco Discovery Protocol (CDP): PC Port*, Link Layer Discovery Protocol - Media Endpoint Discover (LLDP-MED): Switch Port*, Link Layer Discovery Protocol (LLDP): PC Port*, IPv6 Load Server, 802.1x Authentication*, Days Display Not Active, Display On Time, Display On Duration, Display Idle Timeout, and HTTPS Server*.

At the bottom of the page, there are buttons for Save, Delete, Copy, Reset, Apply Config, and Add New. A note indicates that an asterisk (*) indicates a required item.

Step 4 Scroll down to the *Product Specific Configuration Layout* area.

Step 5 Select **Enabled** from the **Web Access** dropdown menu.

Step 6 Click the **Save** button.



Note You will have to reset your phones to make these changes permanent. However, you will also have to reset your phones in “Configure Your Default Communications Manager Cluster” on page 3-3. If you have a lot of phones, this process can be time-consuming. If you only want to reset your phones once, wait to do so until after configuring your default Communications Manager cluster.

Install InformaCast Virtual Appliance

When installing InformaCast on the Virtual Appliance:

- Basic installations are limited to one InformaCast server per cluster; however, Advanced installations can be run with multiple InformaCast servers per cluster ([contact Singlewire Sales](#) for details)
- Neither Cisco nor Singlewire supports combining both Basic and Advanced InformaCast servers in the same Communications Manager cluster



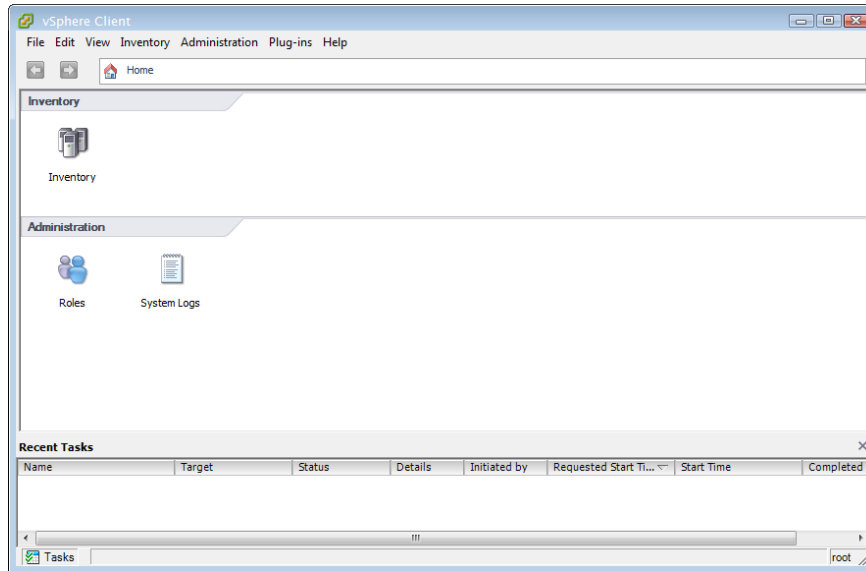
Note Singlewire supports InformaCast Virtual Appliance on the VMware ESXi 4.0 and later platform. This platform is managed through the vSphere client. This section describes how to import InformaCast Virtual Appliance using the vSphere client. Your client can be downloaded from your VMware server.

Step 1 Download the OVA file from the [Singlewire website](#) or [Cisco's website](#).

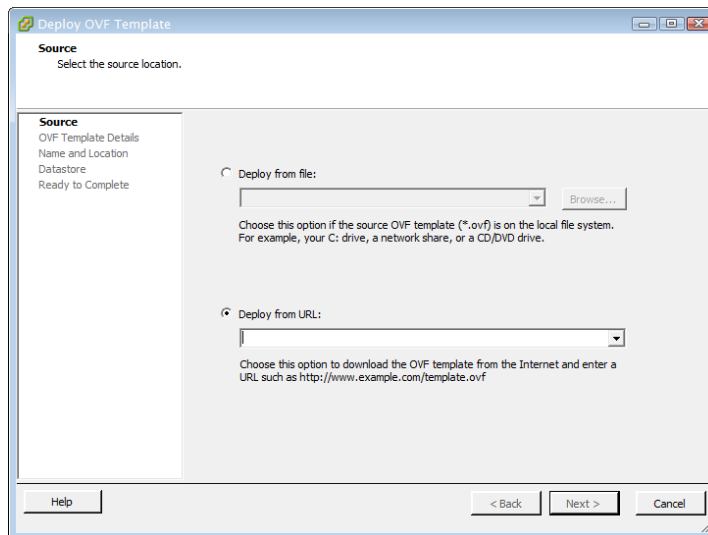


Note If you are using InformaCast on the Communications Manager Business Edition 6000, you will be supplied with a DVD in a package with an OVA on it (physical media).

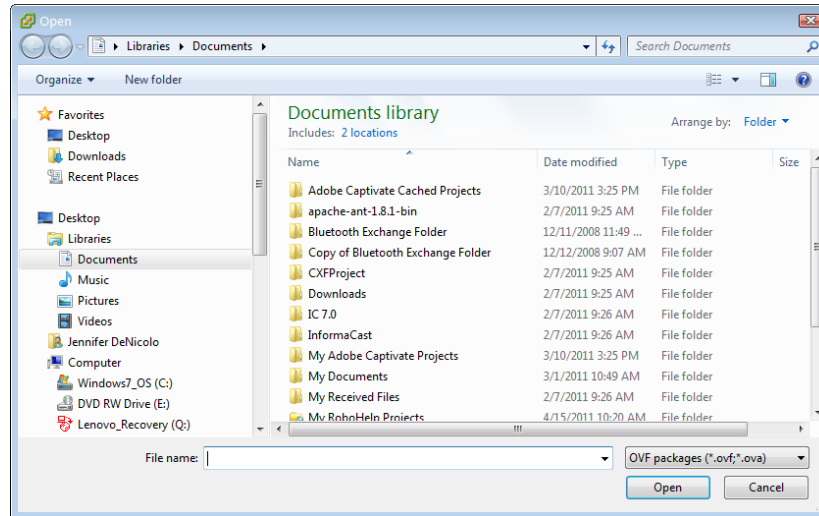
Step 2 Open and log into the vSphere client. The vSphere Client window appears.



Step 3 Go to **File | Deploy OVF Template**. The Deploy OVF Template dialog box appears.

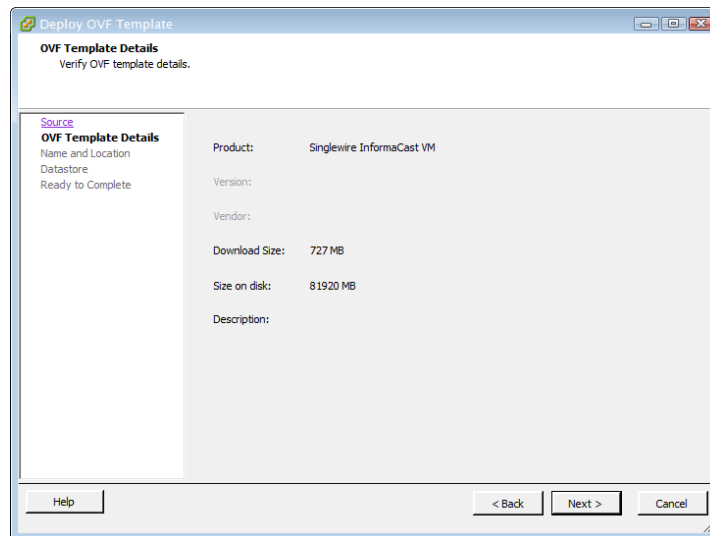


Step 4 Click the **Deploy from File** radio button and click its **Browse** button. The Open dialog box appears.

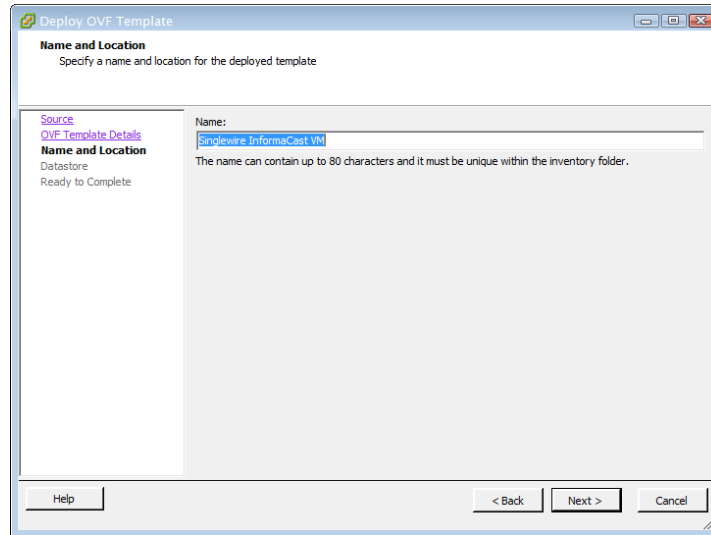


Step 5 Navigate to where you saved the Singlewire-InformaCast-VM.ova file (or to the OVA file on the supplied DVD), select it, and click the **Open** button.

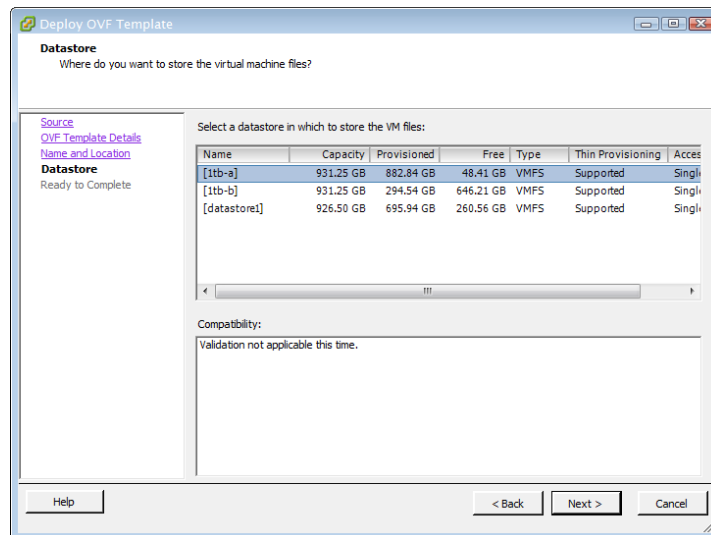
Step 6 Click the **Next** button. The Deploy OVF Template dialog box refreshes.



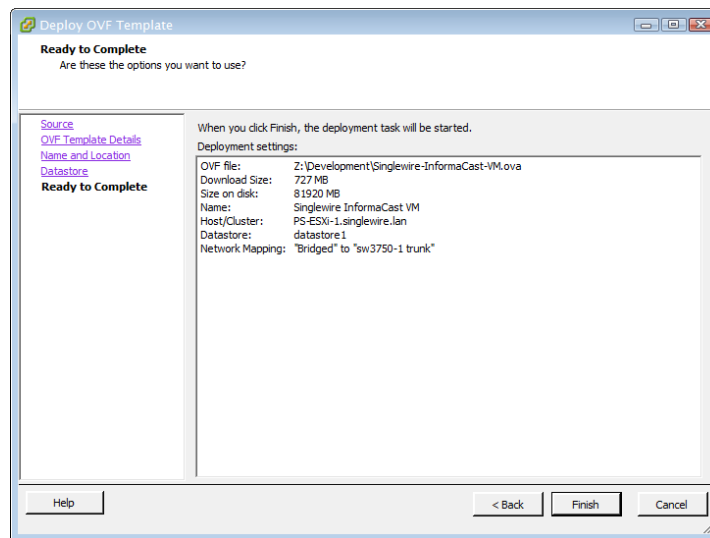
Step 7 Click the **Next** button. The Deploy OVF Template dialog box refreshes.



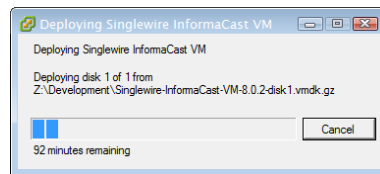
Step 8 Click the **Next** button. The Deploy OVF Template dialog box refreshes.



- Step 9** Select the datastore on which the new virtual machine will reside and click the **Next** button. The Deploy OVF template dialog box refreshes.

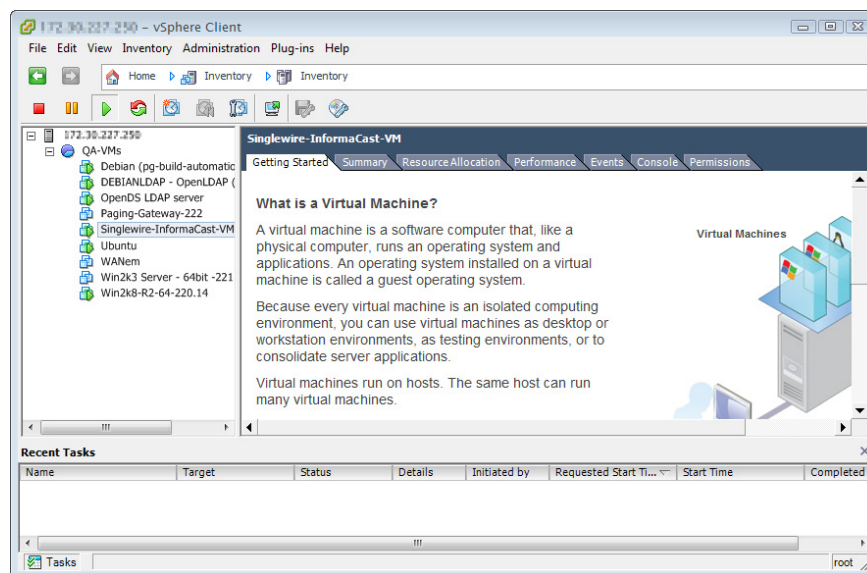


- Step 10** Click the **Finish** button. InformaCast Virtual Appliance will begin importing.



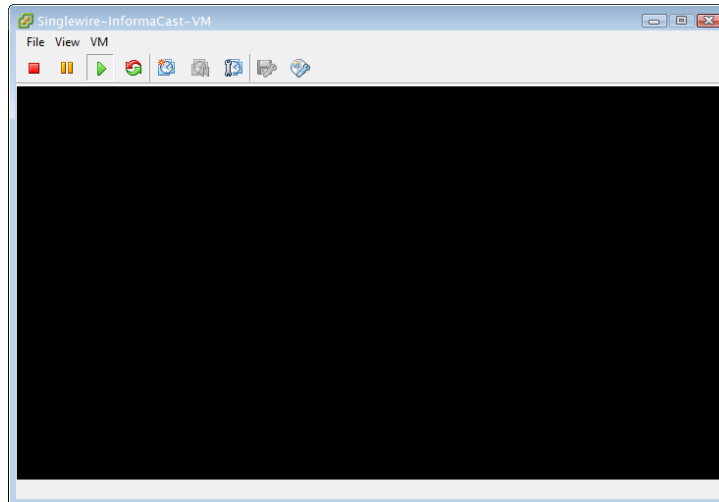
When it's finished, click the **Close** button.


- Step 11** Click the **Inventory** icon (📁) on the vSphere Client window. The vSphere Client window refreshes.

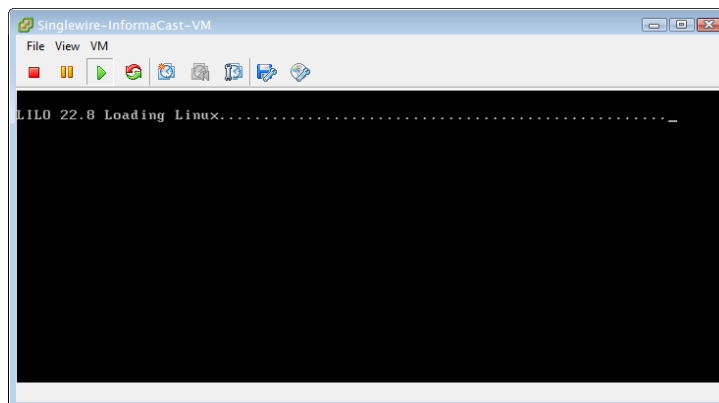


Step 12 Select your virtual machine (by default, this is Singlewire InformaCast VM).

Step 13 Go to **Inventory** | **Virtual Machine** | **Open Console**. The Singlewire InformaCast VM console window appears.

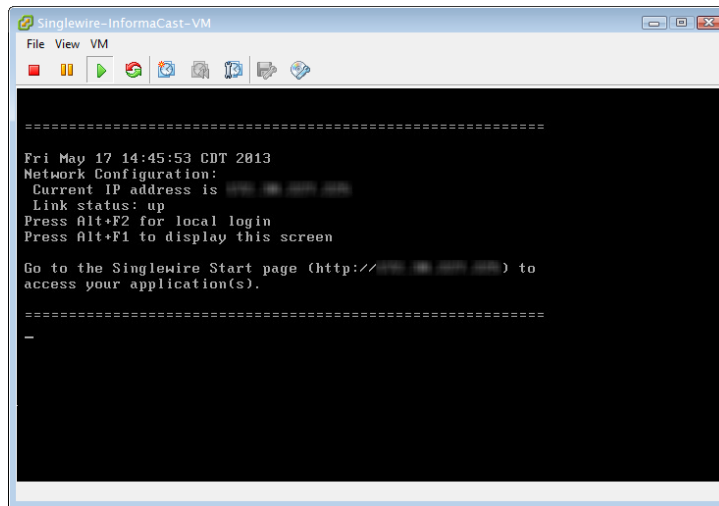


Step 14 Click the green arrow button () to turn on the virtual machine. The Singlewire InformaCast VM console window begins booting the virtual machine.



Note Depending on the hardware resources available to InformaCast Virtual Appliance, it will likely boot in less than a minute.

When InformaCast Virtual Appliance is done booting, it will acquire an IP address using DHCP (if there is a DHCP server available). The acquired DHCP address can be seen in the console.



```
=====
Fri May 17 14:45:53 CDT 2013
Network Configuration:
Current IP address is 192.168.1.100
Link status: up
Press Alt+F2 for local login
Press Alt+F1 to display this screen

Go to the Singlewire Start page (http://192.168.1.100) to
access your application(s).
=====
```



Note Singlewire recommends that you configure a static IP address for InformaCast. For specifics on IP addresses and packet routing, please see your network administrator.

SwiftStart will then start automatically, and you will see the End User License Agreement (EULA) page.



End User License Agreement

I AGREE

IMPORTANT: PLEASE READ THIS END USER LICENSE AGREEMENT CAREFULLY. IT IS VERY IMPORTANT THAT YOU CHECK THAT YOU ARE PURCHASING CISCO SOFTWARE OR EQUIPMENT FROM AN APPROVED SOURCE AND THAT YOU, OR THE ENTITY YOU REPRESENT (COLLECTIVELY, THE "CUSTOMER") HAVE BEEN REGISTERED AS THE END USER FOR THE PURPOSES OF THIS CISCO END USER LICENSE AGREEMENT. IF YOU ARE NOT REGISTERED AS THE END USER YOU HAVE NO LICENSE TO USE THE SOFTWARE AND THE LIMITED WARRANTY IN THIS END USER LICENSE AGREEMENT DOES NOT APPLY. ASSUMING YOU HAVE PURCHASED FROM AN APPROVED SOURCE, DOWNLOADING, INSTALLING OR USING CISCO OR CISCO-SUPPLIED SOFTWARE CONSTITUTES ACCEPTANCE OF THIS AGREEMENT.

....

For all countries referred to above, the parties specifically disclaim the application of the UN Convention on Contracts for the International Sale of Goods. Notwithstanding the foregoing, either party may seek interim injunctive relief in any court of appropriate jurisdiction with respect to any alleged breach of such party's intellectual property or proprietary rights. If any portion hereof is found to be void or unenforceable, the remaining provisions of the Agreement and Warranties shall remain in full force and effect. Except as expressly provided herein, the Agreement constitutes the entire agreement between the parties with respect to the license of the Software and Documentation and supersedes any conflicting or additional terms contained in any Purchase Order or elsewhere, all of which terms are excluded. The Agreement has been written in the English language, and the parties agree that the English version will govern.

Product warranty terms and other information applicable to Cisco products are available at the following URL: <http://www.cisco.com/go/warranty>

Cisco and the Cisco Logo are trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and other countries. A listing of Cisco's trademarks can be found at www.cisco.com/go/trademarks. Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company.

All Rights Reserved © 2012 Singlewire Software





Note SwiftStart will only automatically start on the initial boot of InformaCast Virtual Appliance.

Step 15 Click the **I Agree** button to accept the EULA.

If you have DHCP enabled on your network, you will see the following picture:

SwiftStart

Network Configuration

An IP address of **172.30.227.144** has been chosen by the DHCP server. Do you want to make this address permanent?

Parameter Method: Use DHCP Parameters
 Enter Manually

SUBMIT →

QUIT ✕

All Rights Reserved © 2011 Singlewire Software

singlewire
software

You will be able to choose between the **Use DHCP Parameters** or **Enter Manually** radio buttons:

- Clicking the **Submit** button with the **Use DHCP Parameters** radio button selected will allow SwiftStart to make static the IP address it has detected, pull the relevant network configuration information from this IP address, and configure your network to work with InformaCast. Skip to Step 17 on page 2-44.
- Clicking the **Submit** button with the **Enter Manually** radio button selected will allow you to enter an IP address manually. Continue with the following steps.

If you do not have DHCP enabled on your network, you will see the following picture:

SwiftStart

Network Configuration

Please provide the following network parameters:

IP Address:

Netmask:

Gateway:

First DNS Server:

Second DNS Server:

SUBMIT →

QUIT ✕

All Rights Reserved © 2011 Singlewire Software

singlewire
software

Enter a routable IP address on your network that's not currently in use, a valid netmask for that IP address, its default gateway, the IP address(es) of a DNS server(s) on your network, and click the **Submit** button.

Clicking the **Submit** button will allow SwiftStart to make the IP address you've entered static, use the network configuration information you've entered about this IP address, and configure your network to work with InformaCast.

When your network configuration is successful, the Network Configuration page will refresh with a statement confirming the success.



Step 16 Click the **Finish** button. The SwiftStart window appears with a note about starting InformaCast.



Step 17 Click the **OK** button and close your open console window.

Start InformaCast


Note

If you completed all of the SwiftStart steps in “Install InformaCast Virtual Appliance” on page 2-34, InformaCast will have already been started for you and you can skip this section.

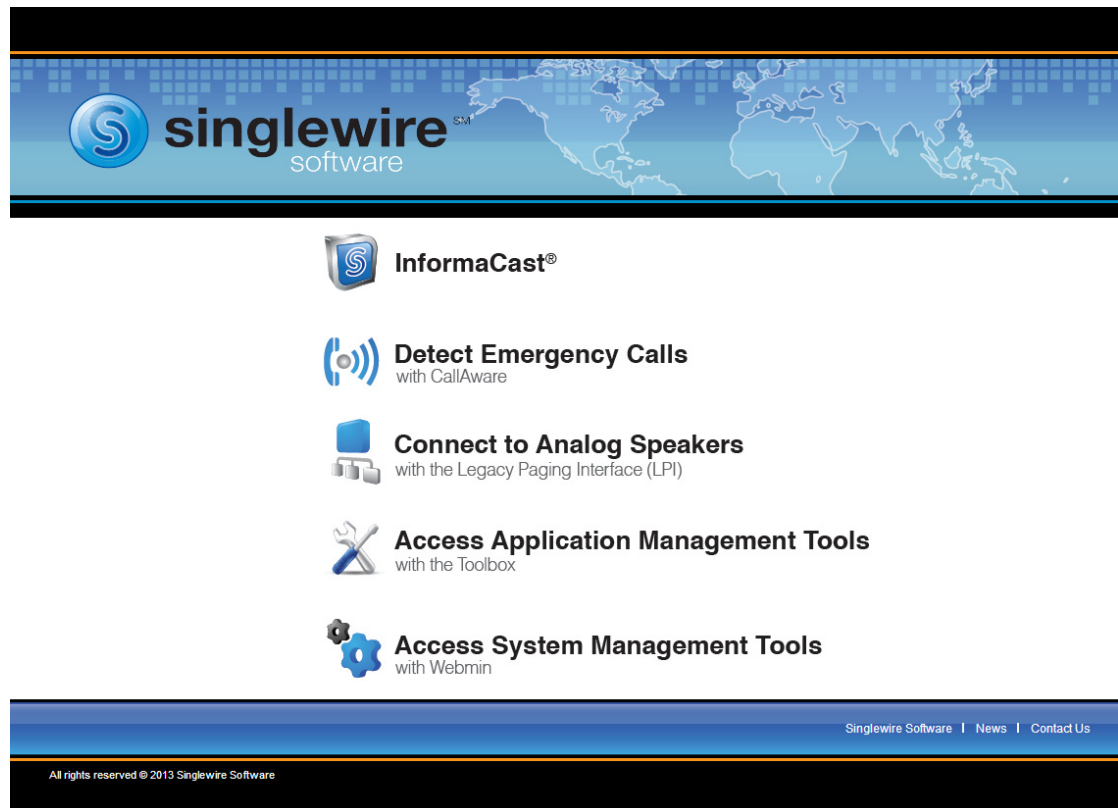
If you didn’t complete all of the SwiftStart steps in “Install InformaCast Virtual Appliance” on page 2-34, InformaCast will not yet be started. Once you initially start InformaCast (and there are no startup problems), it will automatically start when the virtual machine is started.


Note

To avoid complications, make sure InformaCast’s IP address has been statically configured before starting InformaCast for the first time.

Step 1

Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.


Tip

The Singlewire Start page allows you to easily access all of your Singlewire applications’ user interfaces along with application- and system-level management tools. You may find it helpful to keep this tab/window open during the time that you’re working with Singlewire applications.

Step 2 Click the **Access System Management Tools with Webmin** link. A separate tab/window opens to the Login to Webmin page.



Note You may have to accept a warning from your web browser about the security of this page's content.

Step 3 Enter your login credentials and click the **Login** button. By default, your username is **admin** and your password is **changeMe**. The Webmin homepage appears.

The Webmin homepage displays versioning information and statistics about the Virtual Appliance.

Step 4 Go to **System | Bootup and Shutdown**. The Bootup and Shutdown page appears.

Login: admin

System

- Bootup and Shutdown
- Scheduled Cron Jobs
- Software Packages
- Networking
- Hardware
- System Time

Search:

System Information

Logout

Module Config

Bootup and Shutdown

Create a new bootup and shutdown action.

Action	At boot?	Description
<input type="checkbox"/> alsa-utils	No	This script stores and restores mixer levels on
<input type="checkbox"/> asterisk	No	Controls the Asterisk PBX
<input type="checkbox"/> atftpd	No	Launch atftpd server, a TFTP server useful
<input type="checkbox"/> awds	No	This script is used to start the AWDS daemon which provides
<input type="checkbox"/> batmand	No	/etc/init.d/batmand: start batmand
<input type="checkbox"/> bootlogd	No	Starts or stops the bootlogd log program
<input type="checkbox"/> bootmisc.sh	No	Some cleanup. Note, it need to run after mountnfs-bootclean.sh.
<input type="checkbox"/> checkfs.sh	No	Check all filesystems.
<input type="checkbox"/> checkroot.sh	No	Check to root file system.
<input type="checkbox"/> cron	Yes	cron is a standard UNIX program that runs user-specified
<input type="checkbox"/> dahdi	No	dahdi - load and configure DAHDI modules
<input type="checkbox"/> dnsmasq	No	DHCP and DNS server
<input type="checkbox"/> ebttables	No	Saves and restores the state of the ebttables rulesets.
<input type="checkbox"/> flashybird	No	Flashybird is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> hostapd	No	Userspace IEEE 802.11 AP and IEEE 802.1X/WPA/WPA2/EAP
<input type="checkbox"/> flashybird	No	Flashybird is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> single	No	executed by init(8) upon entering runlevel 1 (single).
<input type="checkbox"/> singlewireInformaCast	No	InformaCast application from Singlewire

Create a new bootup and shutdown action.

Start Stop Restart Start On Boot Disable On Boot Start Now and On Boot Disable Now and On Boot

Change to runlevel: 2 Click this button to switch your system from the current runlevel to the selected one. This will cause all the actions in the current level to be stopped, and then all the actions in the new runlevel to be started.

Reboot System Click on this button to immediately reboot the system. All currently logged in users will be disconnected and all services will be re-started.

Shutdown System Click on this button to immediately shutdown the system. All services will be stopped, all users disconnected and the system powered off (if your hardware supports it).

Step 5 Scroll down the list of actions until you come to **singlewireInformaCast**. Click its link. The Edit Action page appears.

Login: admin

System

- Bootup and Shutdown
- Change Passwords
- Scheduled Cron Jobs
- Software Packages
- Networking
- Hardware
- System Information
- Logout

Module Index

Edit Action

Action Details

Name: singlewireInformaCast

Action Script

```
#!/bin/sh
### BEGIN INIT INFO
# Short-Description: InformaCast
# Description: InformaCast application from Singlewire
### END INIT INFO

# Author: Jeff Ramin <jjeff.ramin@singlewire.com>
#

# Do NOT "set -e"

# PATH should only include /usr/* if it runs after the mountnfs.sh script
PATH=/sbin:/usr/sbin:/bin:/usr/bin
DESC="InformaCast"
NAME=singlewireInformaCast
```

Start at boot time? Yes No

Save Start Now Show Status Stop Now Delete

Return to bootup and shutdown actions

- Step 6** Click the **Start Now** button. It will take a minute or so for InformaCast to start. From now on, InformaCast will start automatically when the virtual machine boots.



Log into InformaCast

Once InformaCast is started, you can log into it and begin configuring it from the web interface. You will start by logging into the InformaCast Virtual Appliance, which will open the Singlewire Start page, where links to your applications' user interfaces, the Toolbox, and Webmin are housed.

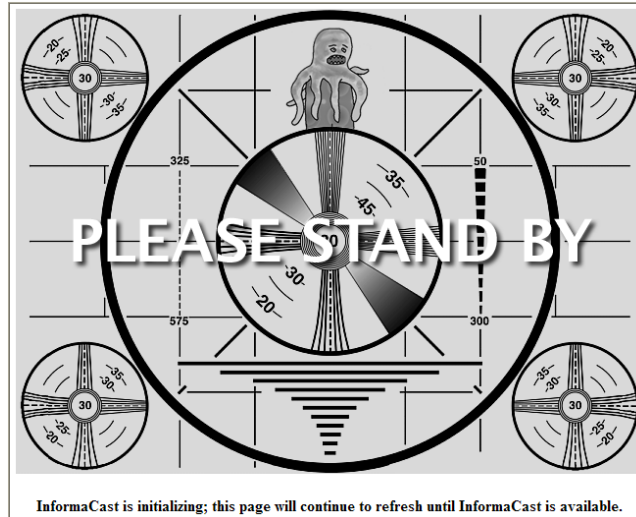
- Step 1** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.



**Tip**

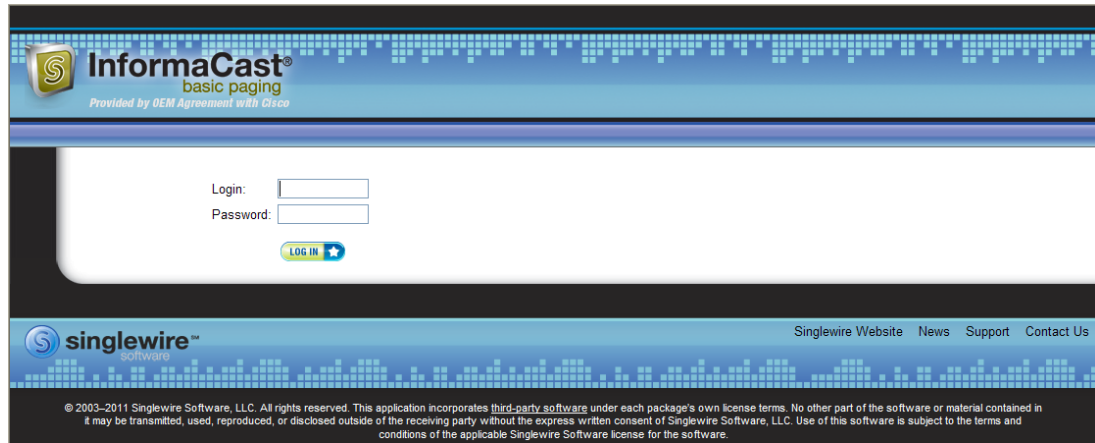
The Singlewire Start page allows you to easily access all of your Singlewire applications' user interfaces along with application- and system-level management tools. You may find it helpful to keep this tab/window open during the time that you're working with Singlewire applications.

- Step 2** Click the **InformaCast** link. A separate tab/windows opens to InformaCast's Startup page. If this is the first time you've logged into InformaCast, and depending on your system, there may be a delay of several minutes while InformaCast initializes.

**Note**

If you are using Internet Explorer to access InformaCast, you will receive an error, "There is a problem with this website's security certificate." Since InformaCast, like Communications Manager, is a locally-installed server rather than a global, public Internet site, there is no practical way for web browsers to recognize its encryption certificate as safe. To permanently bypass this error, install the self-signed SSL certificate present on your InformaCast server. See the question on page 7-1 for details on installing this certificate.

Once InformaCast initializes, you will be presented with InformaCast's Login page.



Step 3 Enter **admin** in the **Login** field. The **Login** field is case sensitive.

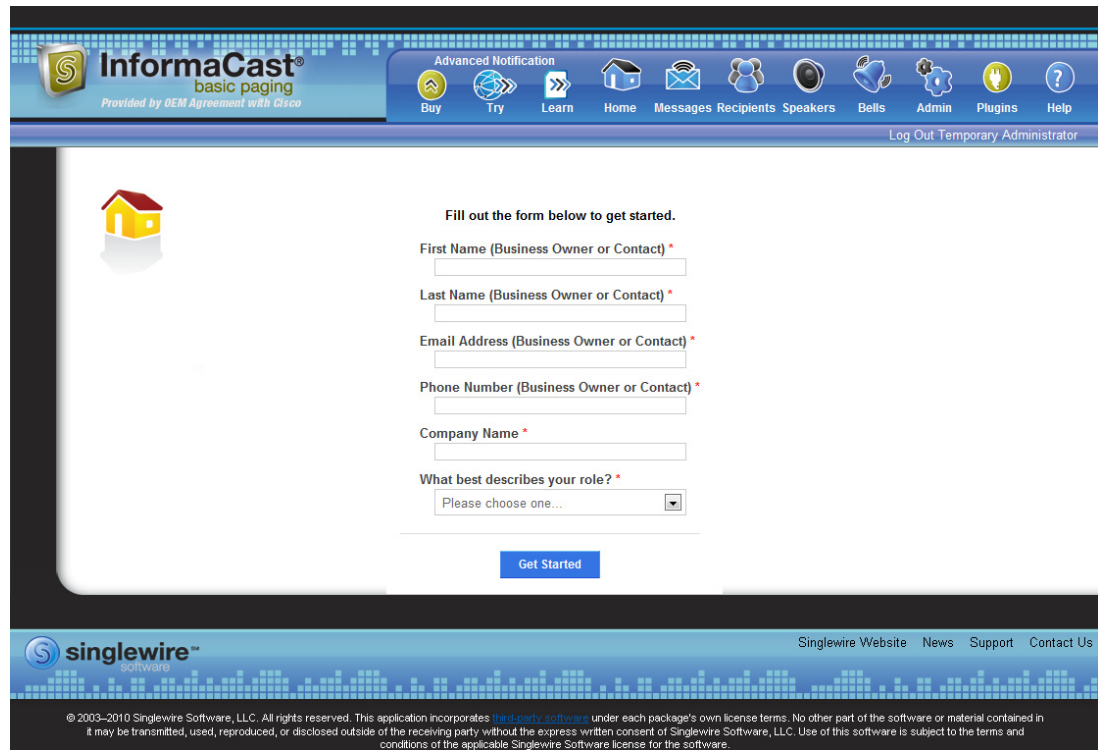
Step 4 Enter **changeMe** in the **Password** field. The **Password** field is also case sensitive.



Note

These are your default credentials. “Change the Administrator’s Password” on page 2-53 will show you how to change your credentials, which will make your InformaCast installation more secure.

- Step 5** Click the **Log In** button. If the machine on which InformaCast is installed has Internet access, the Getting Started Form page appears.



The screenshot shows the InformaCast basic paging interface. At the top, there is a navigation bar with the InformaCast logo and a list of icons for Buy, Try, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help. Below the navigation bar is a "Log Out Temporary Administrator" link. The main content area features a house icon on the left and a "Get Started" form on the right. The form includes the following fields:

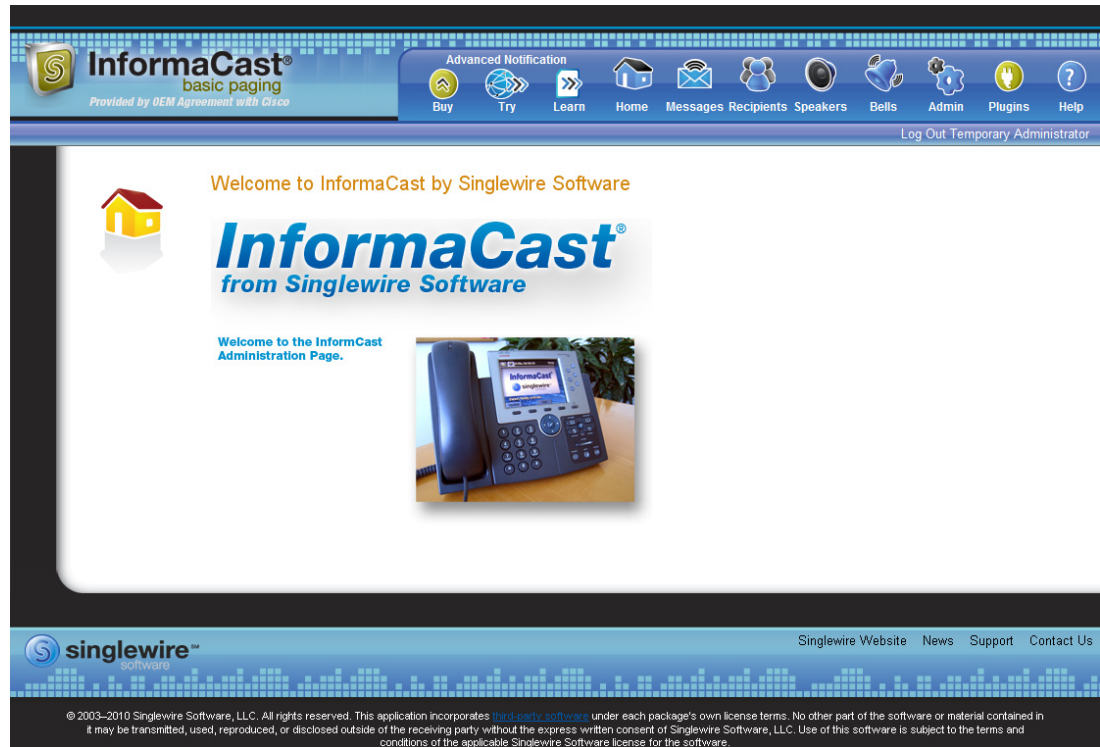
- Fill out the form below to get started.
- First Name (Business Owner or Contact) *
- Last Name (Business Owner or Contact) *
- Email Address (Business Owner or Contact) *
- Phone Number (Business Owner or Contact) *
- Company Name *
- What best describes your role? * (Please choose one...)

At the bottom of the form is a blue "Get Started" button. The footer of the page contains the Singlewire logo and links for Singlewire Website, News, Support, and Contact Us. A copyright notice is also present at the bottom of the page.

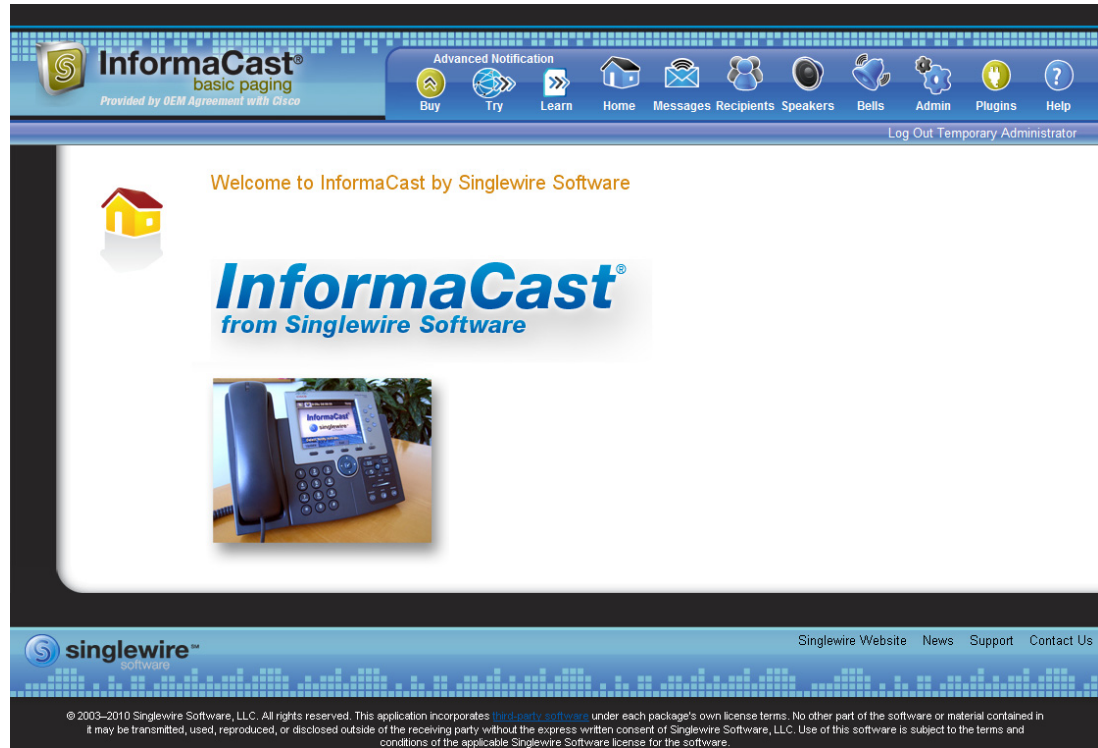
**Note**

Completing this form is required in order to access InformaCast's functionality.

If the machine on which InformaCast is installed does not have Internet access, you will see InformaCast’s homepage. Skip the rest of this section and continue with “Change the Administrator’s Password” on page 2-53.



Step 6 Fill out the form and click the **Get Started** button. The InformaCast Welcome page appears.



Change the Administrator's Password

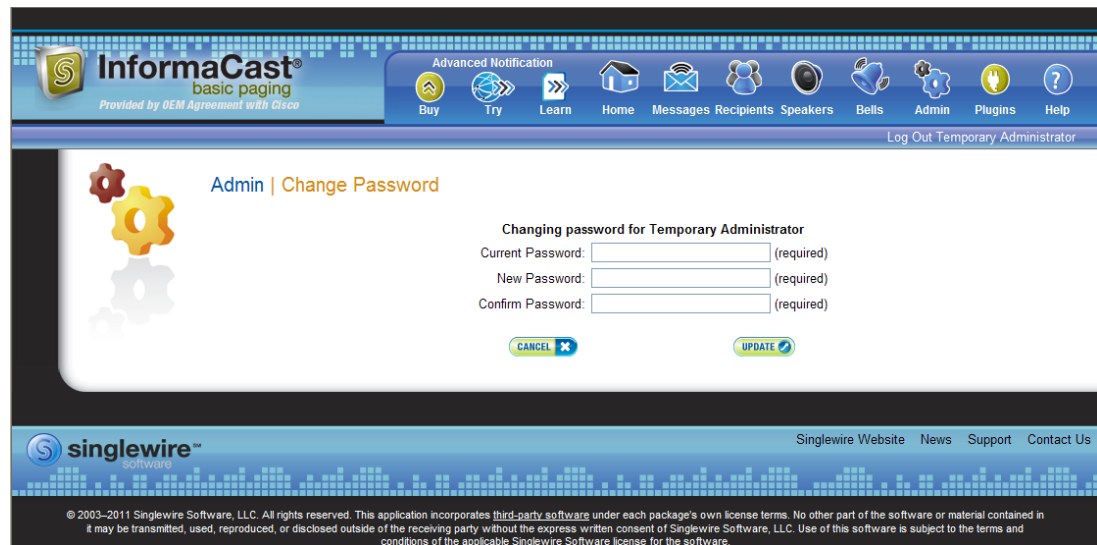
In this phase of the installation procedure, you will change your administrator password. InformaCast ships with a default administrative user, admin, so that you can log in and configure the system. In this section, you will change it so that other people familiar with InformaCast won't have complete access to your configuration.



Warning

If you change your password in Basic InformaCast, upgrade to Advanced InformaCast, then downgrade to Basic InformaCast, your password will revert to your original Basic InformaCast password.

Step 1 Go to **Admin | Change Password**. The Change Password page appears.



Step 2 Enter the current password in the **Current Password** field.

Step 3 Enter your new password in the **New Password** and **Confirm Password** fields. Choose a password that you will be able to remember (or record it in a secure location).

Step 4 Click the **Update** button.



Note If the passwords you entered in the **New Password** and **Confirm Password** fields do not match or if you entered the wrong password, you will be prompted to try again.

You have now established a new password that you will use (along with the admin username) to log into InformaCast.

View Your License Key

Your InformaCast license key (**Admin | Manage License Key**) contains your designated functionality for InformaCast (e.g. Basic vs. Advanced, the number of phones to which you can broadcast, trial vs. demonstration vs. subscription vs. purchased, etc.). For a further discussion of how licensing works in InformaCast, see “A Note on Licensing” on page 1-3.



Note Once you have exceeded the number of phones allowed by your license, you will receive a warning that you’ve attempted to broadcast to more phones than are allowed by your license key, causing some phones to be skipped. Consult the InformaCast Performance log (**Help | Support**) to see the phones that have been skipped and contact your [Singlewire salesperson](#) about obtaining a larger license. You can also retry your broadcast with a smaller group of phones. Your license limits you to 50 phones. If you want to broadcast to more than 50 phones (i.e. 100 phones), you can send out one broadcast to 50 phones and a second broadcast to the next 50 phones.



CHAPTER 3

Configuring InformaCast

To optimize your installation, several aspects of the InformaCast software must be customized. Complete all of the steps in the following sections:

- “Configure Your InformaCast Server(s)” on page 3-2
- “Verify that your Network is Configured for Multicast” on page 3-14
- “Update JTAPI” on page 3-14

Configure Your InformaCast Server(s)

When you click the **Admin** icon, you will be brought to the Overview page. On this page, you can view various statistics associated with the configuration of InformaCast, such as how long the current session of InformaCast has been running, your version of InformaCast, and the configuration of your backups and phone updates.

InformaCast®
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Admin | Overview

Welcome to the InformaCast configuration overview page. For specific configuration tasks, please use the "Admin" menu.

Times		Backup		Versions	
Current Server Time	2011-10-24 16:13:40	Backup Activated	false	InformaCast Version	8.3.0
Application Start Time	2011-10-24 14:48:29	Next Scheduled Backup		Communications Manager Versions	Default configuration 8.6
		Backup Location		JTAPI Version	Cisco Jtapi

Phone Updates		CTI Route Points		
Last Attempted Phone Rebuild	2011-10-24 16:10:00	Name	DN	State
Last Successful Phone Rebuild	2011-10-24 16:10:02	MarkRP	0XXXXX	IN_SERVICE
Last Attempted Phone Refresh	never	MarkRP	88X	IN_SERVICE
Last Successful Phone Refresh	never	MarkRP	*777	IN_SERVICE
Number of Phones Retrieved	13	MarkRP	#777	IN_SERVICE
Number of Phones Used / Licensed	1 / 1000			
Next Phone Rebuild	2011-10-24 17:10:00			
Phone Refresh Interval (minutes)	disabled			

SIP Calls

There are no SIP calls.

SIP User Agent Status

User Agent is running

singlewire™ software

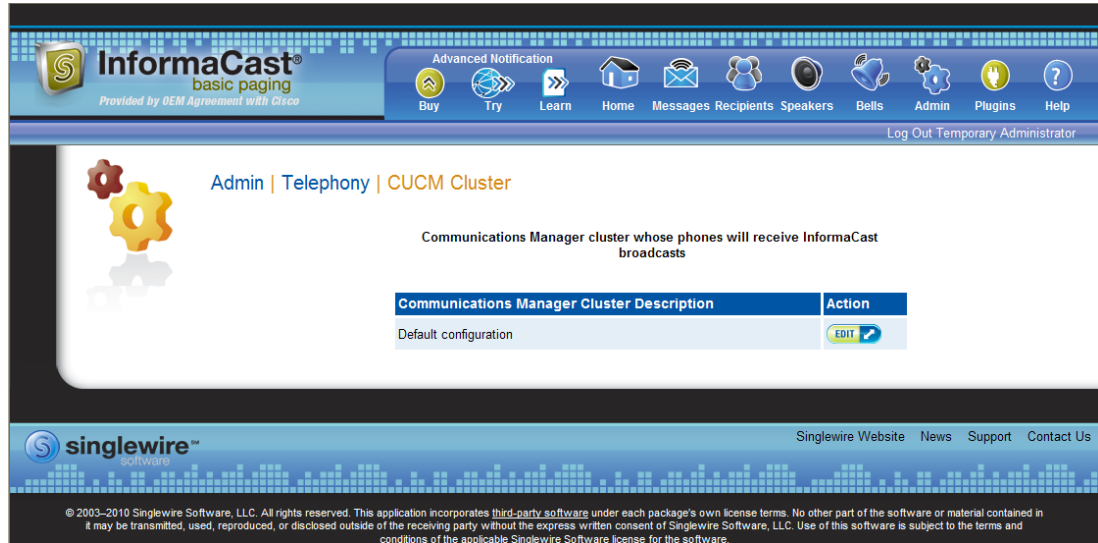
Singlewire Website News Support Contact Us

© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Configure Your Default Communications Manager Cluster

Follow these steps to set up the configuration of your default Communications Manager cluster. These steps should be performed by your Communications Manager administrator.

Step 1 Go to **Admin | Telephony | CUCM Cluster**. The CUCM Cluster page appears.



- Step 2** Click the **Edit** button next to Default Configuration. The Edit Telephony Configuration page for that cluster opens.

InformaCast[®] basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help
Log Out Temporary Administrator

Admin | Telephony | CUCM Clusters | Edit Telephony Configuration

Telephony Configuration

Primary Communications Manager Cluster: Yes

Communications Manager Cluster Description: Default configuration (required)

Communications Manager Application User: AT201 (required)

Communications Manager Application Password: [masked]

Confirm Application Password: [masked]

Use Application User for AXL

Communications Manager AXL User: ccadministrator (required)

Communications Manager AXL Password: [masked] (required)

Confirm AXL Password: [masked]

AXL IP Address(es): [empty]

Communications Manager IP Address(es): 172.30.229.32 (required)

SNMP Community Name: [masked] (required)

Confirm SNMP Community Name: [masked]

XML Push Authentication

Make sure the **URL Authentication** parameter for the Communications Manager in this cluster (found in the **Phone URL Parameters** section of the **System | Enterprise Parameters** page) is set to the following value:

`http://172.30.229.201:8081/InformaCast/phone/auth`

Optionally, you can also tell InformaCast where to send authentication requests for commands that aren't coming from InformaCast. You only need to do this if, before installing InformaCast, you had set this Communications Manager parameter to a non standard value. In such cases, copy the current Communications Manager setting into the field below, before changing it to the value shown above.

Next Authentication URL: [empty]

If empty, non-InformaCast authentication requests from phones in this cluster will be sent to the default Communications Manager authentication page, `http://172.30.229.32/ccmcp/authenticate.jsp`

Note: If you changed any Telephony Configuration settings, be sure to refresh the Recipient Group list before attempting to send a broadcast.

singlewire™ software
Singlewire Website News Support Contact Us

© 2003–2010 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

- Step 3** Change name of your cluster (if necessary) in the **Communications Manager Cluster Description** field.
- Step 4** Enter the username of the application user that you created earlier into the **Communications Manager Application User** field (see Step 3 on page 2-27).
- Step 5** Enter the password of the application user that you created earlier into the **Communications Manager Application Password** field (see Step 4 on page 2-27).
- Step 6** Enter the application user password a second time into the **Confirm Application Password** field.
- Step 7** Decide if you will use your application user or AXL user's credentials. By default, the **Use Application User for AXL** checkbox is selected, meaning that your application user credentials are used when building InformaCast's phone cache. Deselecting this checkbox means that your AXL credentials will be used instead.

**Tip**

Using your AXL credentials means that potentially more people have administrative access to Communications Manager, which may pose a security risk. To close this potential security hole, your Communications Manager Administrator should grant AXL API access to the application user and tell your InformaCast administrator what the credentials are. The InformaCast administrator then only knows the application user credentials and does not have administrative access to Communications Manager.

**Note**

Different fields will appear on this page depending on whether the **Use Application User for AXL** checkbox is selected.

For application user credentials, leave the **Use Application User for AXL** checkbox selected and skip to Step 8 on page 3-5.

For AXL credentials:

Step a. Deselect the **Use Application User for AXL** checkbox.

Step b. Enter the Communications Manager administrator's username in the **Communications Manager AXL User** field.

**Note**

This is the same username you use to access the Communications Manager Administrator interface, often CCMAdministrator for Communications Manager 7.x through 9.x.

The username and password of the administrative login to the Communications Manager server are required for gathering phone information to enable broadcast messages.

Step c. Enter the Communications Manager administrator's password in the **Communications Manager AXL Password** field.

**Note**

This is the same password you use to access the Communications Manager Administrator interface.

Step d. Enter the Communications Manager administrator's password a second time in the **Confirm AXL Password** field. The password is entered twice to double-check for typing errors since its value is masked.

Step 8 Enter your AXL IP address(es) in the **AXL IP Address(es)** field. Separate addresses with commas. If you leave this field blank, InformaCast will attempt to find a server running the AXL service among those servers running the CallManager service.

**Tip**

You can find which cluster members are running the AXL service by logging into your Communications Manager, selecting **Cisco Unified Serviceability** from the **Navigation** dropdown menu, and going to **Tools | Service Activation**. Scroll down the Service Activation page to see whether the **Cisco AXL Web Service** checkbox is selected.

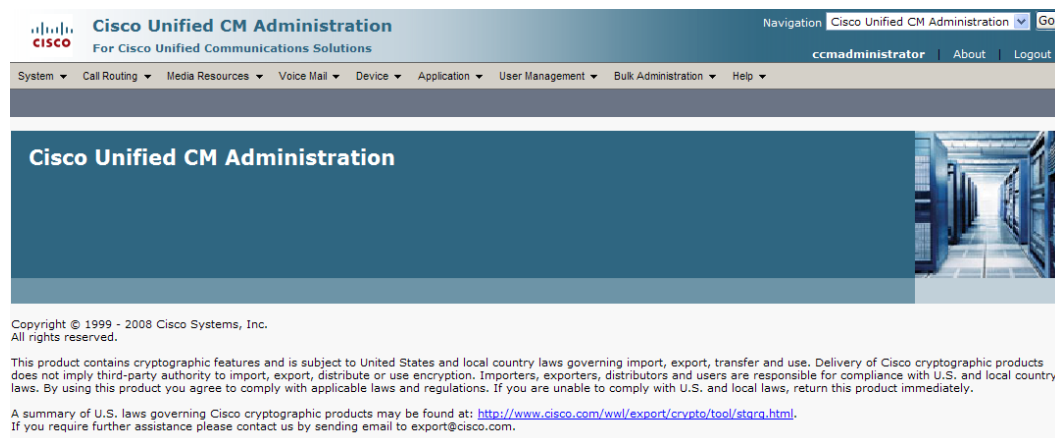
- Step 9** Enter the IP address of the Communications Manager server(s) in the **Communications Manager IP Address(es)** field, which will be used when establishing a CTI (JTAPI) connection with Communications Manager. You can enter any and all Communications Managers running the CTI Manager service. Use the numeric IP addresses rather than DNS names.

When InformaCast needs to interact with the Communications Manager, it will use this address. If you have a cluster of servers for redundancy and failover, you can list all of their addresses, separated by commas. InformaCast will use the first one when it is available, and will automatically try the next ones if it cannot reach the primary server.

**Caution**

InformaCast Basic Paging requires that your version of Communications Manager be 8.5 or newer. After completing the fields on the Edit Telephony Configuration page and clicking the **Update** button, InformaCast will determine your version of Communications Manager based on what you entered in the **Communications Manager IP Address(es)** field. If you have Communications Manager 8.5 or newer, you can continue using InformaCast Basic Paging. If you have a version of Communications Manager prior to 8.5, you will be redirected to a new page where you can decide between the following options: click the **Try** icon and start your 60-day free trial of InformaCast Advanced Notification or click the **Buy** icon to obtain a demonstration, subscription, or purchased license for InformaCast Advanced Notification.

- Step 10** Enter the appropriate name in the **SNMP Community Name** field. You made a note of this name when you configured your Communications Manager's SNMP in "Create an InformaCast SNMP Community String" on page 2-5.
- Step 11** Enter the SNMP community name a second time into the **Confirm SNMP Community Name** field. The community name is entered twice to double-check for typing errors since its value is masked.
- Step 12** Highlight and copy the URL shown in the *XML Push Authentication* area.
- Step 13** Open a new web browser window and log into the administration interface of the Communications Manager server. The Cisco Unified CM Administration page appears.

**Tip**

You will be going back and forth between InformaCast and Communications Manager. It is helpful to have separate web browser windows/tabs open.

Step 14 Go to **System | Enterprise Parameters**. The Enterprise Parameters Configuration page appears.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration | Go

ccadministrator | About | Logout

System | Call Routing | Media Resources | Voice Mail | Device | Application | User Management | Bulk Administration | Help

Enterprise Parameters Configuration

Save Set to Default Reset

Status
Status: Ready

Enterprise Parameters Configuration

Parameter Name	Parameter Value	Suggested Value
Synchronization Between Auto Device Profile and Phone Configuration *	True	True
Max Number of Device Level Trace *	12	12
DSCP for Phone-based Services *	default DSCP (000000)	default DSCP (000000)
DSCP for Phone Configuration *	CS3(precedence 3) DSCP (011000)	CS3(precedence 3) DSCP (011000)
DSCP for Cisco CallManager to Device Interface *	CS3(precedence 3) DSCP (011000)	CS3(precedence 3) DSCP (011000)
Connection Monitor Duration *	120	120
Auto Registration Phone Protocol *	SCCP	SCCP
BLF For Call Lists *	Disabled	Disabled
Advertise G.722 Codec *	Enabled	Enabled
Phone Personalization *	0	0
CCAdmin Parameters		
Max List Box Items *	250	250
Max Lookup Items *	1000	1000
Enable Dependency Records *	False	False
Security Parameters		
Cluster Security Mode *	0	
CAPF Phone Port *	3804	3804
CAPF Operation Expires in (days) *	10	10
Enable Caching *	False	False
Phone URL Parameters		
URL Authentication	http://172.30.224.20/auth.asp	
URL Directories	http://IPTAPPS-CCM60-PUB:8080/ccmcp/xmldirectory.js	
URL Idle		
URL Idle Time	0	0
URL Information	http://IPTAPPS-CCM60-PUB:8080/ccmcp/GetTelecasterH	
URL Messages		
IP Phone Proxy Address		
URL Services	http://IPTAPPS-CCM60-PUB:8080/ccmcp/getservicesmen	
User Search Parameters		
Enable All User Search *	True	True
User Search Limit *	64	64

Save Set to Default Reset

*. indicates required item.
**Set-to-Default button only applies to the modifiable parameters.

Warning

In order for the Communications Manager server to be able to respond rapidly enough to all the phones that are participating in a broadcast, you need to direct it to InformaCast's built-in authentication service. Failure to complete Steps 14 through 21 will result in unreliable broadcast behavior. Also, extension mobility will prevent phones from receiving broadcasts when users have logged into them unless you follow this process.



Note Once you make this change, InformaCast must be running when any XML push application is used, because the phones will query the InformaCast authentication server.

Step 15 Scroll down the page to the *Phone URL Parameters* area.

Step 16 Make a note of the URL in the **URL Authentication** field. You may need this in Step 20.

Step 17 Paste the URL you copied from InformaCast's *XML Authentication* area into the **URL Authentication** field. This will usually be in the format:
http://<InformaCast Server IP Address>:8081/InformaCast/phone/auth.



Note Use the *exact* value InformaCast displays on the Edit Telephony Configuration page. The details of the value will vary between installations, which is why InformaCast displays the correct, local information for you. Also, the URL is case sensitive, so make sure that the I and C in the word InformaCast are capitalized.



Note If you're using Communications Manager v8.x or later, you'll need to paste the URL you copied from InformaCast's *XML Authentication* area into the **Secured Authentication URL** field in the *Secured Phone URL Parameters* area as well.

Step 18 Click the **Save** button on the Communication Manager's Enterprise Parameters Configuration page.



Note You must reboot your phones for the new authentication URL to take affect.

Step 19 Go back to your InformaCast window.

Step 20 If the original value of the **URL Authentication** field (noted in Step 16) was not the standard Cisco authentication, enter this value into InformaCast's **Next Authentication URL** field on the Edit Telephony Configuration page.

This will tell InformaCast to delegate any authentication requests that aren't its own responsibility to your special authentication page. The normal behavior, which you get when this field is left blank, is to delegate them to Cisco's standard authentication page.

Step 21 Click the **Update** button. You will be redirected to the CUCM Cluster page.

The screenshot shows the InformaCast basic paging administration interface. The top navigation bar includes links for Buy, Try, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help. The main content area is titled "Admin | Telephony | CUCM Cluster" and displays a message: "Configuration changes saved. Remember to update your Recipient Groups to verify connectivity and membership." Below this, there is a section for "Communications Manager cluster whose phones will receive InformaCast broadcasts" with an "ADD" button. A table lists the cluster configuration:

Communications Manager Cluster Description	Action
Default configuration	EDIT

A note below the table states: "Note: You must refresh the Recipient Group list before attempting to send a broadcast." The footer includes the Singlewire logo and copyright information for 2003-2010.

Step 22 Click the **Note: You must refresh the Recipient Group list before attempting to send a broadcast link**. You will be redirected to the Edit Recipient Groups page.

The screenshot shows the InformaCast basic paging administration interface for editing recipient groups. The top navigation bar is the same as in the previous screenshot. The main content area is titled "Recipients | Edit Recipient Groups" and features two buttons: "UPDATE" (with a checkmark) and "SHOW ALL". A note below the buttons reads: "Discover current IP phone information from Communications Manager (may be time consuming)." Below this, there is an "ADD" button and a table listing recipient groups:

Name	Phones	Action
(All Recipients)	8	EDIT COPY DELETE

The footer includes the Singlewire logo and copyright information for 2003-2011.

Step 23 Click the **Update** button to refresh InformaCast's information pertaining to recipient groups. You will be redirected to the Discover Recipient Groups page.

InformaCast®
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Recipients | Edit Recipient Groups | Discover Recipient Groups

! Do you want to discover current IP phone information from Communications Manager?

This command will query the Communications Manager server to learn the IP addresses of all the phones that belong in the recipient groups you've set up. You only need to do this if you know you've just made changes to the Communications Manager configuration that affect your phones and want those changes to be immediately detected by InformaCast.

When you run this command, it may take many seconds or even several minutes to complete. While it is running, you will not see any response in your web browser (you'll just see that the page is loading). This is normal; do not press "Stop" or try to reload the page. Once the command has completed, you will see a confirmation message.

If you do actually want to run this command, click Update again now. Otherwise, you may click Cancel to return to the previous screen.

CANCEL UPDATE

singlewire™ software

Singlewire Website News Support Contact Us

© 2003–2010 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Step 24 Click the **Update** button again. You will be redirected to the Edit Recipient Groups page that will now have a note that recipient group members have been updated.

InformaCast®
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Recipients | Edit Recipient Groups

Recipient group members updated

UPDATE Discover current IP phone information from Communications Manager (may be time consuming).

SHOW ALL Show Defunct Phones

PREVIOUS Page 1 of 1 NEXT Jump to page: GO Show 50 results per page ADD

Name	Phones	Action
(All Devices)	5	EDIT COPY DELETE

PREVIOUS Page 1 of 1 NEXT Jump to page: GO Show 50 results per page

singlewire™ software

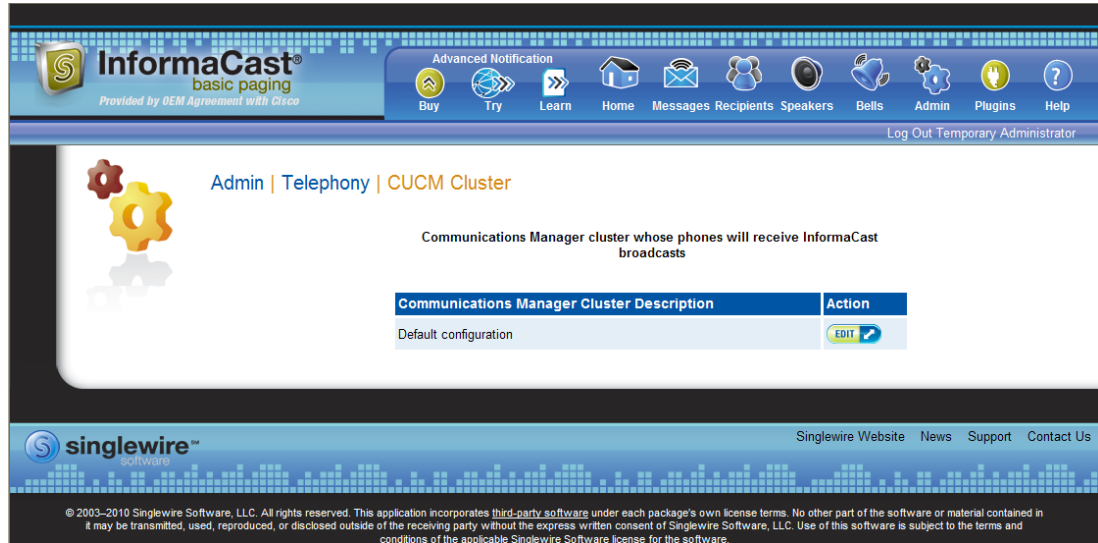
Singlewire Website News Support Contact Us

© 2003–2010 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Edit Your Primary Cluster

Once you've configured your default Communications Manager cluster in InformaCast, you may need to edit its information.

Step 1 Go to **Admin | Telephony | CUCM Clusters**. The CUCM Clusters page appears.



- Step 2** Click the **Edit** button next to the Communications Manager configuration you'd like to change. The Edit Telephony Configuration page for that cluster opens.

InformaCast[®] basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help
Log Out Temporary Administrator

Admin | Telephony | CUCM Clusters | Edit Telephony Configuration

Telephony Configuration

Primary Communications Manager Cluster: Yes

Communications Manager Cluster Description: (required)

Communications Manager Application User: (required)

Communications Manager Application Password:

Confirm Application Password:

Use Application User for AXL

Communications Manager AXL User: (required)

Communications Manager AXL Password: (required)

Confirm AXL Password:

AXL IP Address(es):

Communications Manager IP Address(es): (required)

SNMP Community Name: (required)

Confirm SNMP Community Name:

XML Push Authentication

Make sure the **URL Authentication** parameter for the Communications Manager in this cluster (found in the **Phone URL Parameters** section of the **System | Enterprise Parameters** page) is set to the following value:

`http://172.30.227.201:8081/InformaCast/phone/auth`

Optionally, you can also tell InformaCast where to send authentication requests for commands that aren't coming from InformaCast. You only need to do this if, before installing InformaCast, you had set this Communications Manager parameter to a non-standard value. In such cases, copy the current Communications Manager setting into the field below, before changing it to the value shown above.

Next Authentication URL:

If empty, non-InformaCast authentication requests from phones in this cluster will be sent to the default Communications Manager authentication page, `http://172.30.229.32/ccmcp/authenticate.jsp`

Note: If you changed any Telephony Configuration settings, be sure to refresh the Recipient Group list before attempting to send a broadcast.

singlewire™ software
Singlewire Website News Support Contact Us

© 2003–2010 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

- Step 3** Edit the information for that cluster.

- Step 4** Click the **Update** button.



Note You will need to ensure your cluster's configuration matches that which you have set up in Communications Manager.

Enable Audio Broadcast Support

If your InformaCast license includes audio broadcast capability, you'll need to set up your audio parameters.

Step 1 Go to **Admin | Broadcast Parameters**. The Broadcast Parameters page appears.

The screenshot shows the InformaCast Admin interface. At the top, there's a navigation bar with icons for Buy, Try, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help. The main content area is titled 'Admin | Broadcast Parameters' and contains the following form fields:

- Starting Multicast IP Address: 239.0.1.2 (required)
- Ending Multicast IP Address: 239.0.1.2 (required)
- See <http://www.iana.org/assignments/multicast-addresses>.
- Enable message blending:

At the bottom of the form area, there are two buttons: 'CANCEL' and 'UPDATE'.

Step 2 Verify that there is an entry in the **Starting Multicast IP Address** and **Ending Multicast IP Address** fields. This is the address that InformaCast will use to send IP multicast packets when broadcasting audio messages to IP phones. You will need to ensure that your network is configured to treat this address as a multicast address, and that your switches mark traffic to this address from the InformaCast server as having the highest priority.



Note The multicast IP address needs to be a valid IP multicast address, not your subnet's IP broadcast address. The default address InformaCast provides usually works; don't change it unless you have checked with your network administrator.

Alternatively, you can enter a range of IP addresses in the **Starting Multicast IP Address** and **Ending Multicast IP Address** fields, which will cause InformaCast to cycle through this range of addresses, using the next address in the range for each broadcast. You will need to ensure that your network is configured to treat each address in this range as a multicast address and that your switches mark traffic to this address range from the InformaCast server as having the highest priority.



Note Click the <http://www.iana.org/assignments/multicast-addresses/multicast-addresses> link for information on how multicast addresses are assigned.

Step 3 Click the **Update** button to save your changes.

Verify that your Network is Configured for Multicast

You must enable multicast across your network in order for your recipients to receive the audio portion of InformaCast broadcasts.



Caution

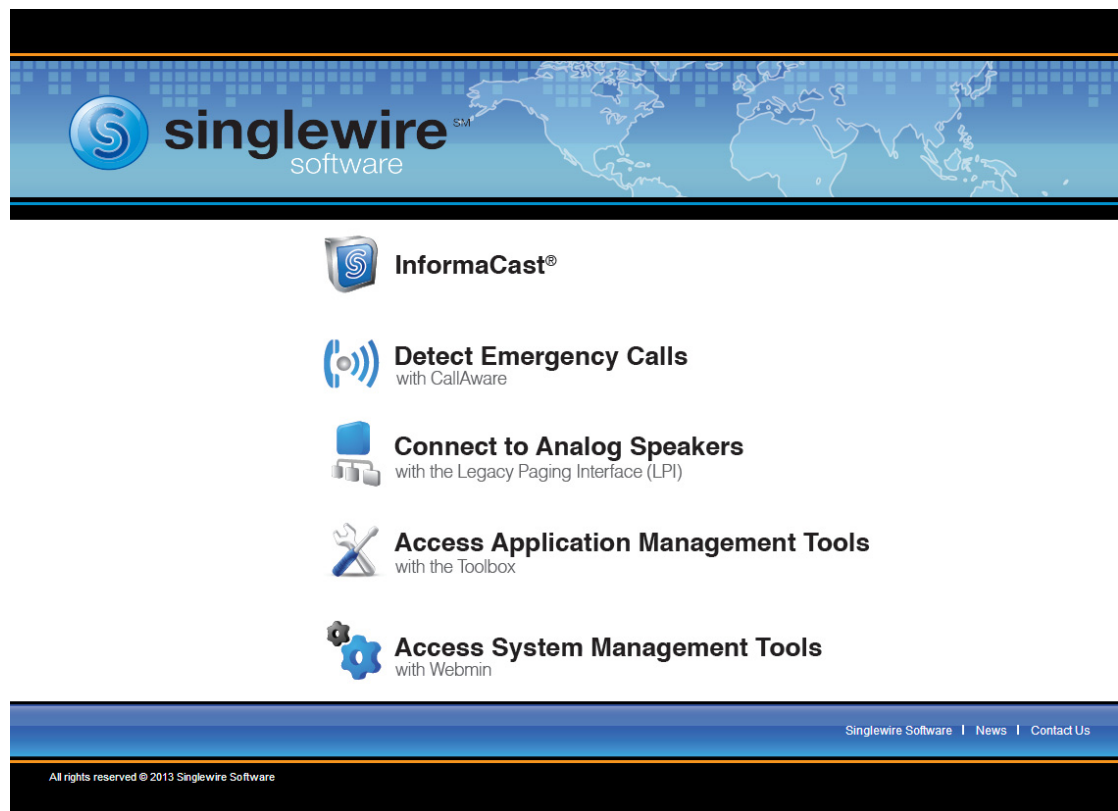
Just because music on hold works on your phones does not mean that it is using multicast. Music on hold can be used with either unicast or multicast.

Network design and multicast configuration is outside the scope for which Singlewire can provide support. It is recommended that you work with your network vendor or partner. See “Prepare your Multicast Environment” on page 2-1 for available resources on configuring multicast.

Update JTAPI

Once basic functionality has been confirmed, you need to update the JTAPI library used by InformaCast to the same version used by your Communications Manager server.

- Step 1** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.



Step 2 Click the **Access System Management Tools with Webmin** link. A separate tab/window opens to the Login to Webmin page.



Note You may have to accept a warning from your web browser about the security of this page's content.

Step 3 Enter your login credentials and click the **Login** button. By default, your username is **admin** and your password is **changeMe**. The Webmin homepage appears.

Virtual Appliance Version	###
System hostname	singlewire
Operating system	Debian Linux 5.0
Webmin version	1.530
Time on system	Thu Jun 16 15:48:10 2011
Kernel and CPU	Linux 2.6.30-voynage on i686
Processor information	Quad-Core AMD Opteron(tm) Processor 2382, 1 cores
System uptime	3 days, 7 hours, 57 minutes
Running processes	48
CPU load averages	0.00 (1 min) 0.00 (5 mins) 0.00 (15 mins)
CPU usage	0% user, 0% kernel, 0% IO, 100% idle
Real memory	2.97 GB total, 32.40 MB used
Virtual memory	3.73 GB total, 0 bytes used
Local disk space	75.07 GB total, 1.78 GB used

Step 4 Go to **System | Bootup and Shutdown**. The Bootup and Shutdown page appears.

Login: admin

System

- Bootup and Shutdown
- Scheduled Cron Jobs
- Software Packages
- Networking
- Hardware
- System Time

Search:

System Information

Logout

Module Config

Bootup and Shutdown

Create a new bootup and shutdown action.

Action	At boot?	Description
<input type="checkbox"/> alsa-utils	No	This script stores and restores mixer levels on
<input type="checkbox"/> asterisk	No	Controls the Asterisk PBX
<input type="checkbox"/> atftpd	No	Launch atftpd server, a TFTP server useful
<input type="checkbox"/> awds	No	This script is used to start the AWDS daemon which provides
<input type="checkbox"/> batmand	No	/etc/init.d/batmand: start batmand
<input type="checkbox"/> bootlogd	No	Starts or stops the bootlogd log program
<input type="checkbox"/> bootmisc.sh	No	Some cleanup. Note, it need to run after mountnfs-bootclean.sh.
<input type="checkbox"/> checkfs.sh	No	Check all filesystems.
<input type="checkbox"/> checkroot.sh	No	Check to root file system.
<input type="checkbox"/> cron	Yes	cron is a standard UNIX program that runs user-specified
<input type="checkbox"/> dahdi	No	dahdi - load and configure DAHDI modules
<input type="checkbox"/> dnsmasq	No	DHCP and DNS server
<input type="checkbox"/> ebttables	No	Saves and restores the state of the ebttables rulesets.
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> hostapd	No	Userspace IEEE 802.11 AP and IEEE 802.1X/WPA/WPA2/EAP
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> single	No	executed by init(8) upon entering runlevel 1 (single).
<input type="checkbox"/> singlewireInformaCast	No	InformaCast application from Singlewire

Create a new bootup and shutdown action.

Start Stop Restart Start On Boot Disable On Boot Start Now and On Boot Disable Now and On Boot

Change to runlevel: Click this button to switch your system from the current runlevel to the selected one. This will cause all the actions in the current level to be stopped, and then all the actions in the new runlevel to be started.

Reboot System Click on this button to immediately reboot the system. All currently logged in users will be disconnected and all services will be re-started.

Shutdown System Click on this button to immediately shutdown the system. All services will be stopped, all users disconnected and the system powered off (if your hardware supports it).

Step 5 Scroll down the list of actions until you come to **singlewireInformaCast**. Click its link. The Edit Action page appears.

Login: admin

System

- Bootup and Shutdown
- Change Passwords
- Scheduled Cron Jobs
- Software Packages
- Networking
- Hardware
- System Information
- Logout

Module Index

Edit Action

Action Details

Name:

Action Script

```
#!/bin/sh
### BEGIN INIT INFO
# Short-Description: InformaCast
# Description: InformaCast application from Singlewire
### END INIT INFO

# Author: Jeff Ramin <jjeff.ramin@singlewire.com>
#

# Do NOT "set -e"

# PATH should only include /usr/* if it runs after the mountnfs.sh script
PATH=/sbin:/usr/sbin:/bin:/usr/bin
DESC="InformaCast"
NAME=singlewireInformaCast
```

Start at boot time? Yes No

Save Start Now Show Status Stop Now Delete

Return to bootup and shutdown actions

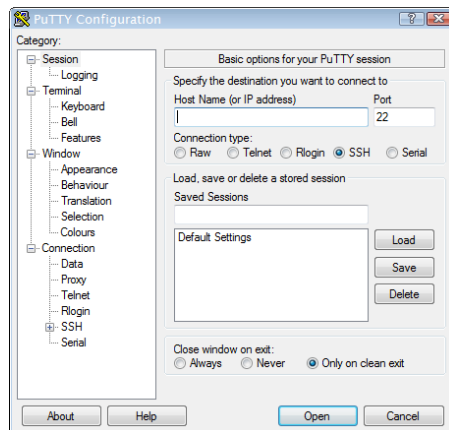
Step 6 Click the **Stop Now** button. It will take a minute or so for InformaCast to stop.



Note Leave this window open. You will come back to it.

Step 7 Use an SSH client (Singlewire recommends PuTTY: <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>) to access InformaCast's command line interface.

Step 8 Open PuTTY. The PuTTY Configuration window appears.

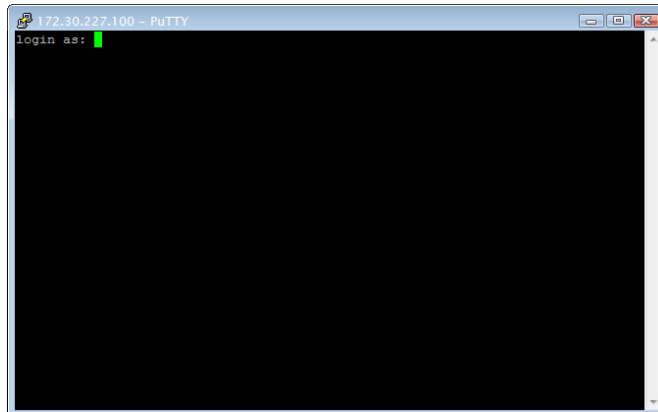


Step 9 Enter InformaCast's IP address in the **Host Name (or IP address)** field.

Step 10 Leave the **Port** field at its default of 22.

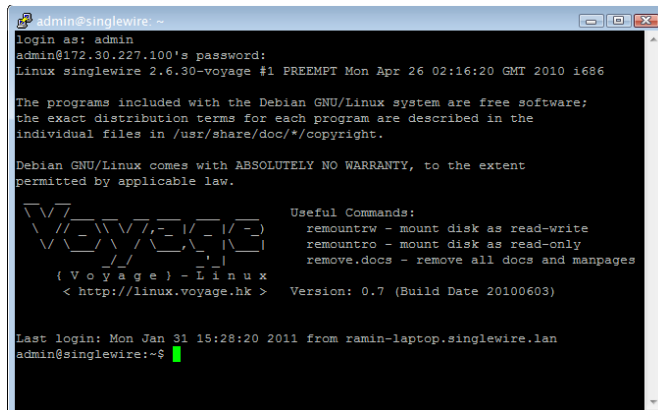
Step 11 Click the **SSH** radio button.

Step 12 Click the **Open** button. The command-line interface for InformaCast appears.



Step 13 Enter **admin** at the prompt and press **Enter**.

Step 14 Enter **changeMe** at the prompt and press **Enter**. The command-line interface refreshes, showing you that you're logged in.



Step 15 Enter **updateJTAPI** at the prompt and press **Enter**.

Step 16 Enter **exit** at the prompt and press **Enter**.

Step 17 Go back to your Stop Action page and click the **Return to action** link. The Edit Action page appears.

Module Index Edit Action

Login: admin

- System
 - Bootup and Shutdown
 - Change Passwords
 - Scheduled Cron Jobs
 - Software Packages
- Networking
- Hardware
- System Information
- Logout

Action Details

Name: singlewireInformaCast

Action Script

```
#!/bin/sh
### BEGIN INIT INFO
# Short-Description: InformaCast
# Description: InformaCast application from Singlewire
### END INIT INFO

# Author: Jeff Ramin <jeff.ramin@singlewire.com>
#

# Do NOT "set -e"

# PATH should only include /usr/* if it runs after the mountnfs.sh script
PATH=/sbin:/usr/sbin:/bin:/usr/bin
DESC="InformaCast"
NAME=singlewireInformaCast
```

Start at boot time? Yes No

Save Start Now Show Status Stop Now Delete

[Return to bootup and shutdown actions](#)

Step 18 Click the **Start Now** button. It will take a minute or so for InformaCast to start.

Module Index Start Action

Login: admin

- System
 - Bootup and Shutdown
 - Change Passwords
 - Scheduled Cron Jobs
 - Software Packages
- Networking
- Hardware
- System Information
- Logout

Executing /etc/init.d/singlewireInformaCast start ..

[Return to action](#)



CHAPTER 4

Using InformaCast

At its core, InformaCast’s main purpose is to send broadcasts out to recipients. InformaCast allows you to configure recipient groups, send a broadcast, cancel a broadcast, and configure SIP and/or DialCast functionality.

Configure Recipient Groups

If you’d like to be able to send messages to smaller groups of recipients (rather than all the recipients in your system), you must set up appropriate recipient groups within InformaCast. If you have a relatively small number of recipients, from a few to a few hundred, you can simply select the recipients you want included as members. If you have a large (or very dynamic) number of recipients, you can select multiple existing recipient groups and combine them into one larger group and/or construct matching rules that specify the members of a recipient group.

Once you’ve added recipients by selecting multiple existing recipient groups and/or constructing rules, you can also create exclusions, which allow recipients that had been included in a recipient group by a certain rule or through a recipient group to now be excluded.



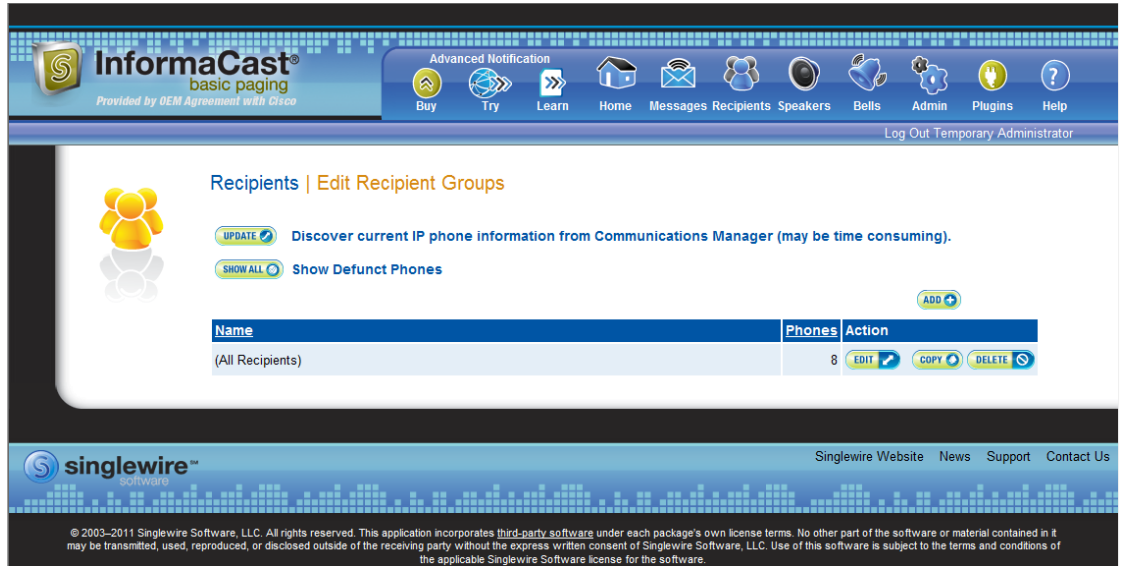
Note

By default, InformaCast initially creates an “(All Recipients)” group, which contains all the recipients that can be discovered.

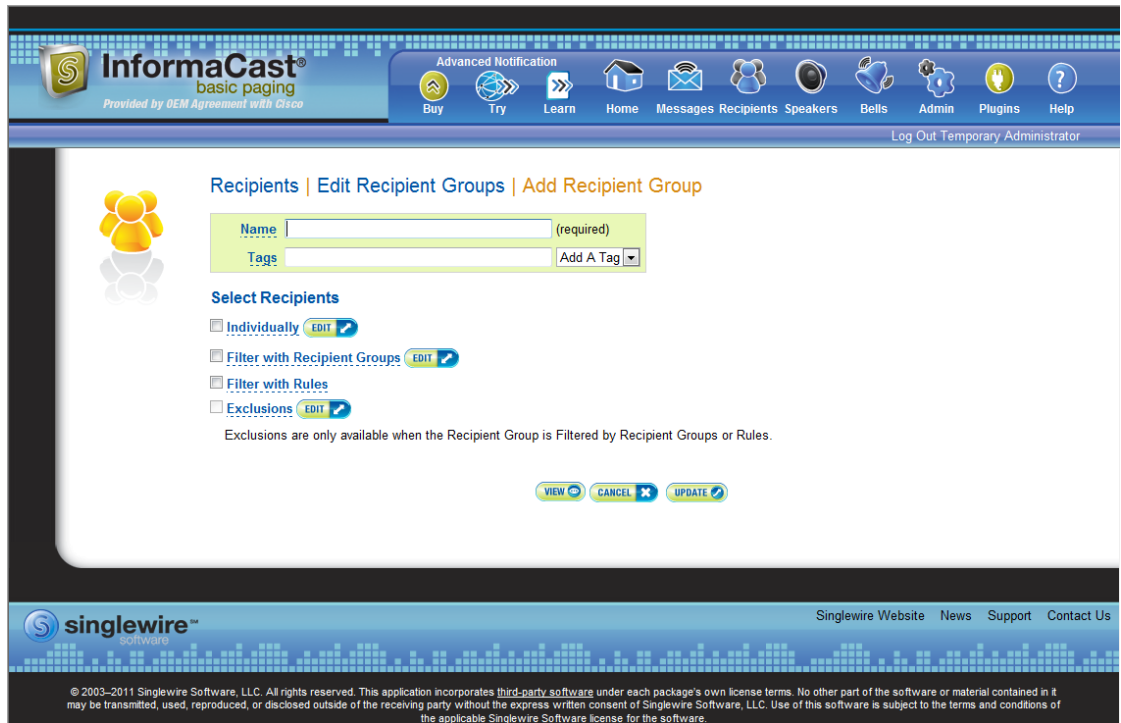
Add a Recipient Group

Use the following steps to add a recipient group.

- Step 1** Go to **Recipients | Edit Recipient Groups**. The Edit Recipient Groups page appears. This page shows the number of phones for each group.



- Step 2** Click the **Add** button. The Add Recipient Group page appears.



- Step 3** Enter the name of your group in the **Name** field. This name is what users will select when configuring DialCast messages, so make it as self-explanatory as possible.
- Step 4** Optionally, enter a name for a recipient group tag in the **Tags** field, which will create a new tag. Recipient group tags allow you finer control over the display results for recipient groups.



Note You can also create recipient group tags by going to **Recipients | Edit Tags** (see “Configure Recipient Group Tags” on page 4-24). Existing tags will appear in the **Add a Tag** dropdown menu on the Add Recipient Group page.

Decide whether you will add members to the group by selecting individual recipients, selecting existing recipient groups, or making rules:

- If you have chosen to select recipients, continue with Step 2 in “Create a Recipient Group by Selecting Individual Recipients” on page 4-3.
- If you have chosen to select existing recipient groups, continue with Step 2 in “Create a Recipient Group by Selecting Multiple, Existing Recipient Groups” on page 4-6.
- If you have chosen to make rules, continue with Step 2 in “Create a Recipient Group Using Rules” on page 4-8.

Create a Recipient Group by Selecting Individual Recipients

Use these steps to add members to a recipient group by selecting the individual recipients to appear within it.

- Step 1** Complete the steps in “Add a Recipient Group” on page 4-2.
- Step 2** Select the **Individually** checkbox on the Add Recipient Group page and click its **Edit** button. The Select Individual Recipients pop-up window appears.

The screenshot shows a window titled "Select Individual Recipients" with a close button in the top right corner. At the top left, there is a "Filter:" field followed by a "clear" link. Below this, the window is divided into two main sections. The left section is titled "Available Recipients (double click to select)" and contains a table with a "description" header. The table lists several Cisco IP Phone entries, each with a description and a unique identifier (e.g., "Cisco IP Phone: Auto 71045; DNs: 71045; SEP00115C979921"). The right section is titled "Selected Recipients (double click to remove)" and contains a table with a "description" header, which is currently empty and displays "No records found.". Between the two tables, there are "Add" and "Remove" links. At the bottom of the window, there are "Submit" and "Cancel" buttons. A pagination control at the bottom left shows "<< first < prev 1 next > last >>".



Tip Click the down arrow next to a recipient to see its parameters.

Step 3 Filter your list by entering text in the **Filter** field. This text will be matched to values of the following constraints, which can be held by your recipient:

Matching Parameter	Description
Communications Manager Calling Search Space	Phones that match the specified search space. ^a
Communications Manager Cluster Name	Phones that match the specified Communications Manager cluster name.
Communications Manager Device Pool	Phones that match the specified pool.
Communications Manager Device Type	Phones that match the specified model, as reported by the Communications Manager server.
Description	<p>Recipients that match the supplied description value. This is often a useful grouping tool because you have control over the description of the recipients in your system, so you can set up your descriptions in ways that facilitate grouping.</p> <p>The text you enter will be compared against the Device Description entries of phones registered with your Communications Manager server.</p>
Directory Numbers	Phones that match the supplied phone number(s) assigned to them in the Communications Manager Server.
IP Address	Recipients that match the supplied subnet boundaries.
InformaCast Device Type	Recipients that match in their functionality as an IP phone.
Location	Recipients that match the supplied location value.
Name	Recipients that match the supplied name. Like the Description parameter, you have control over names, so they may useful for grouping, but should be concise.
Partition Names	Phones that match the supplied dial plan partition assigned to each directory number, a.k.a. phone number, assigned to an IP phone in Communications Manager.

- a. Warning: If your site is using extension mobility, bear in mind that the calling search space, and even the directory number, assigned to a phone can change when a user logs in. Because of this, you should avoid using **Communications Manager Calling Search Space** as the criterion for setting up any recipient groups that are supposed to reflect geographic (rather than personnel) divisions. For such geographic divisions, **IP Address** is likely a better choice when extension mobility is a factor.

- Step 4** Double-click the recipients you want to include in your group to move them from the *Available Recipients* area to the *Selected Recipients* area. You can also click on a recipient and click the **Add** link to move it from the *Available Recipients* area to the *Selected Recipients* area.
- Step 5** Click the **Submit** button to save your selection(s). The Add Recipient Group page now shows the recipient(s) you selected.

- Step 6** Click the **Update** button if you are done creating your recipient group. Your recipient group is added to InformaCast.



Tip At any point, you can click the **View** button to list the recipients included in your recipient group. Within the View Recipients pop-up window that appears, you can click the down arrow next to a recipient and view its details.

If you would like to further refine your recipient group, continue with “Create a Recipient Group by Selecting Multiple, Existing Recipient Groups” on page 4-6 and/or “Create a Recipient Group Using Rules” on page 4-8.

Create a Recipient Group by Selecting Multiple, Existing Recipient Groups

Use the following steps to create a recipient group that includes the members of existing recipient groups.



Note If you further refine your recipient group by using rules, the rules will also apply to the existing recipient groups you select in this section.

- Step 1** Complete the steps in “Add a Recipient Group” on page 4-2.
- Step 2** Select the **Filter with Recipient Groups** checkbox and click its **Edit** button. The Filter with Recipient Groups pop-up window appears.

- Step 3** Filter the results of your existing recipient groups by entering partial or full recipient group names in the **Filter** field or by selecting a particular recipient group tag from the **Select a Tag** dropdown menu.



Note The filter value is case-sensitive and applied to both the recipient group name and tag. If the recipient group tag matches the filter value, the recipient group will show up in the match list (e.g. a filter value of **AAA** will match tags *aaa* or *AAA*). Also, if the recipient group name contains the filter value, the recipient group will show up in the match list (e.g. a filter value of **phone** will match the names *Phones*, *phone*, *PHONE*, *All phones*, etc.).

- Step 4** Double-click the existing recipient groups you want to include in your group to move them from the *Available Groups* area to the *Selected Groups* area. You can also click on a recipient group and click the **Add** link to move it from the *Available Groups* area to the *Selected Groups* area.

- Step 5** Click the **Submit** button to save your selection(s). The Add Recipient Group page now shows the recipient(s) you selected.

The screenshot displays the InformaCast interface for adding a recipient group. The top navigation bar includes the InformaCast logo and a menu with options like Buy, Try, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help. The main content area is titled 'Recipients | Edit Recipient Groups | Add Recipient Group'. It features a form with a 'Name' field containing 'Humanities' and a 'Tags' field with an 'Add A Tag' button. Below the form, the 'Select Recipients' section has four options: 'Individually' (checked), 'Filter with Recipient Groups' (checked), 'Filter with Rules' (unchecked), and 'Exclusions' (unchecked). The 'Individually' section shows a list of recipients, and the 'Filter with Recipient Groups' section shows a list of groups. At the bottom of the form area, there are 'VIEW', 'CANCEL', and 'UPDATE' buttons. The footer contains the Singlewire logo and copyright information.

- Step 6** Click the **Update** button if you are done creating your recipient group. Your recipient group is added to InformaCast.



Tip

At any point, you can click the **View** button to list the recipients included in your recipient group. Within the View Recipients pop-up window that appears, you can click the down arrow next to a recipient and view its details.

If you would like to further refine your recipient group, continue with “Create a Recipient Group by Selecting Individual Recipients” on page 4-3, “Create a Recipient Group Using Rules” on page 4-8, and/or “Add Exclusions to a Recipient Group” on page 4-11.

Create a Recipient Group Using Rules

Use the steps in the following section to add members to a recipient group by creating rules that the recipients must follow in order to be included. The rules can be general or extremely specific.



Note

Rules added in this section will also affect recipients added through selecting existing recipient groups (as described in “Create a Recipient Group by Selecting Multiple, Existing Recipient Groups” on page 4-6).

Step 1 Complete the steps in “Add a Recipient Group” on page 4-2.

Step 2 Select the **Filter with Rules** checkbox. The Add Recipient Group page refreshes.

The screenshot displays the InformaCast web interface for adding a recipient group. At the top, there is a navigation bar with the InformaCast logo and a menu of options: Buy, Try, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help. Below the navigation bar, the page title is "Recipients | Edit Recipient Groups | Add Recipient Group". The main form area includes a "Name" field with the value "Humanities" and a "Tags" field with an "Add A Tag" button. The "Select Recipients" section has three checkboxes: "Individually" (checked), "Filter with Recipient Groups" (checked), and "Filter with Rules" (checked). Under "Filter with Rules", there is a radio button for "AND" (selected), a radio button for "OR", and a text input for "Logical Expression" with the value "disabled". Below this, there is a table with one rule: "1 InformaCast Device Type Does Contain [] Ignore Case". The "Exclusions" section is currently unchecked. At the bottom of the form, there are buttons for "VIEW", "CANCEL", and "UPDATE". The footer of the page includes the Singlewire logo and copyright information: "© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software."



Tip

Adjust your browser window so the rule elements all fit on a single line.

**Note**

The **AND**, **OR**, and **Logical Expression** radio buttons control which rules will be applied to your recipients. **AND** means that your recipients have to match every rule you specify. **OR** means that your recipients must match at least one specified rule. **Logical Expression** means that your recipients must match a combination of specified rules based on the number in the first column of the Rules table and the words “and” and “or.” For example, (1 or 2) and not (3 and 4 and not 5).

- Step 3** Select a parameter from the first dropdown menu just underneath the Filter with Rules heading. (Initially, this dropdown menu has the selection **InformaCast Device Type**.) The parameters you can select are described in the following table:

Matching Parameter	Description
Communications Manager Calling Search Space	Phones that match (or don't match) the specified search space. ^a
Communications Manager Cluster Name	Phones that match (or don't match) the specified Communications Manager cluster name.
Communications Manager Device Pool	Phones that match (or don't match) the specified pool.
Communications Manager Device Type	Phones that match (or don't match) the specified model, as reported by the Communications Manager server. If you choose Equal as your constraint, you get a dropdown menu with human-oriented model names. Otherwise, you will see the underlying numeric code number assigned by Cisco.
Can Display Text	Recipients that match (or don't match) in their ability to display text. Recipients that can display text are typically IP phones. ^b
Description	Recipients that match (or don't match) the supplied description value. This is often a useful grouping tool because you have control over the description of the recipients in your system, so you can set up your descriptions in ways that facilitate grouping. The text you enter will be compared against the Device Description entries of phones registered with your Communications Manager server. Any recipients whose descriptions match with the rule you've specified will be considered part of the recipient group.
Directory Numbers	Phones that match (or don't match) the supplied phone number(s) assigned to them in the Communications Manager Server. ^b

Matching Parameter	Description
IP Address	Recipients that match (or don't match) the supplied subnet boundaries. When choosing this parameter, you are given a new Comparison Type choice, Belong to Subnet , which allows you to enter a subnet mask like 172.17.30.0/8. See "Subnet Matching" on page 9-4 for more information about this approach.
InformaCast Device Type	Recipients that match (or don't match) in their functionality as an IP phone.
Location	Recipients that match (or don't match) the supplied location value.
MAC Address	Recipients that match (or don't match) the supplied network hardware address of the recipient, which is guaranteed to be unique across your network.
Name	Recipients that match (or don't match) the supplied name. Like the Description parameter, you have control over names, so they may be useful for grouping, but should be concise.
Partition Names	Phones that match (or don't match) the supplied dial plan partition assigned to each directory number, a.k.a. phone number, assigned to an IP phone in Communications Manager.
Profile Description	Phones that match (or don't match) the Communications Manager's user device profile description. Phones that are using extension mobility or a profile when logged out are eligible to be filtered in this way. This option is only available when using Communications Manager v6 or later.

- a. Warning: If your site is using extension mobility, bear in mind that the calling search space, and even the directory number, assigned to a phone can change when a user logs in. Because of this, you should avoid using **Communications Manager Calling Search Space** as the criterion for setting up any recipient groups that are supposed to reflect geographic (rather than personnel) divisions. For such geographic divisions, **IP Address** is likely a better choice when extension mobility is a factor.
- b. The recipient must be currently registered for this parameter to match. InformaCast has no information about the detailed features of unregistered recipients.

Step 4 Select **Does** or **Does Not** from the second dropdown menu.

Step 5 Select the matching constraint from the third dropdown menu, which has context-sensitive choices. For example, if you select **IP Address** as the rule parameter to match, a choice of **Belong to Subnet** will appear as a matching relationship choice; this choice is not available for other matching parameters.



Note If you select the **Match Expression** relationship, InformaCast expects a regular expression in the last field. See “Regular Expressions and Recipient Groups” on page 9-5 for a description of regular expressions.

- Step 6** Enter the criteria to be matched in the next field. (If you selected the **Equal** relationship, the criteria element may facilitate your selection by changing from a field to a dropdown menu.)
- Step 7** Select **Ignore Case** or **Case Sensitive** from the last dropdown menu to further refine your recipients.
- Step 8** Click the **Add** button to add your rule. Automatically, another rule line shows up.
- Step 9** Decide if your rule is sufficient as it stands or follow Steps 3 through 8 to add another rule.



Tip If you want to remove a rule, click the **Remove** button to the right of the rule’s definition.

- Step 10** Click the **Update** button if you are done creating your recipient group. Your recipient group is added to InformaCast.



Tip At any point, you can click the **View** button to list the recipients included in your recipient group. Within the View Recipients pop-up window that appears, you can click the down arrow next to a recipient and view its details.

If you would like to further refine your recipient group, continue with “Create a Recipient Group by Selecting Individual Recipients” on page 4-3, “Create a Recipient Group by Selecting Multiple, Existing Recipient Groups” on page 4-6, and/or “Add Exclusions to a Recipient Group” on page 4-11.

Add Exclusions to a Recipient Group

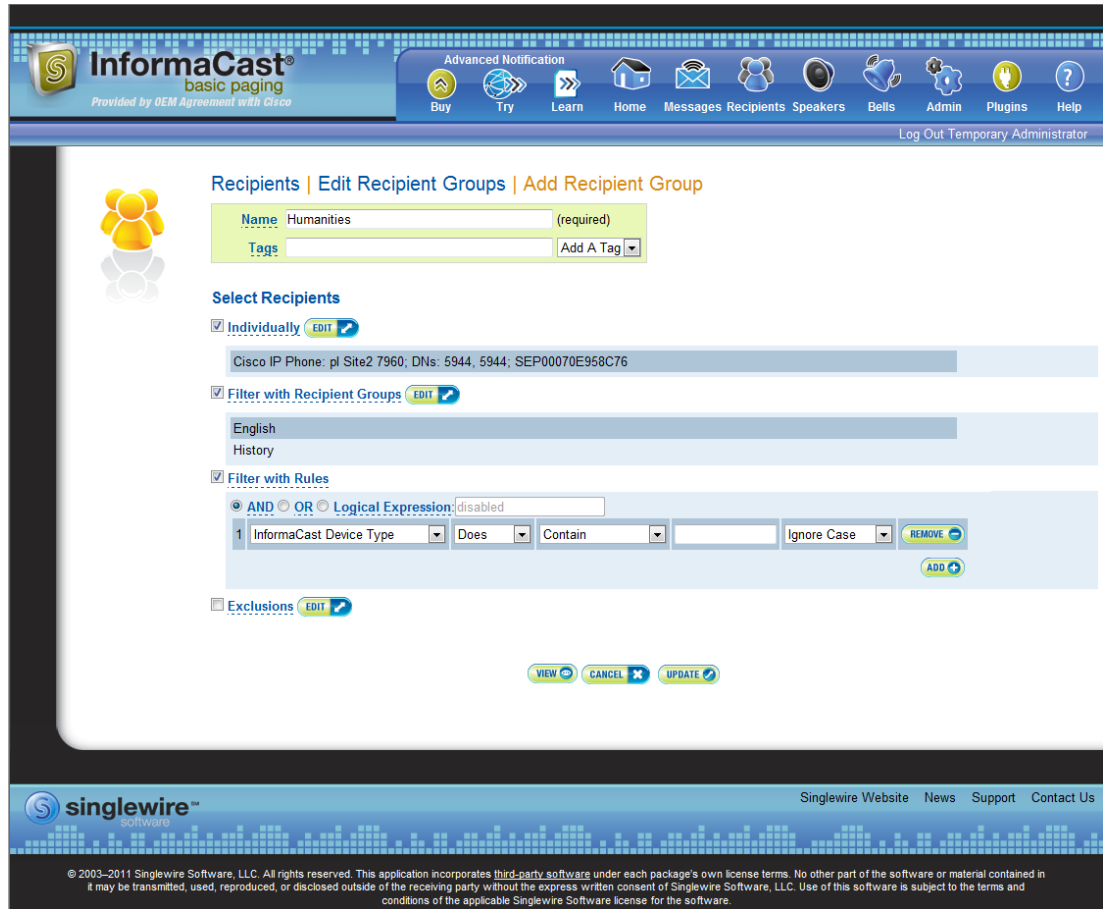
Use the steps in the following section to add exclusions to a recipient group, which allow recipients that had been included in a recipient group by a certain rule or through a recipient group to now be excluded.

- Step 1** Complete the steps in “Add a Recipient Group” on page 4-2.
- Step 2** Complete the steps in either “Create a Recipient Group by Selecting Multiple, Existing Recipient Groups” on page 4-6 or “Create a Recipient Group Using Rules” on page 4-8 (or both).

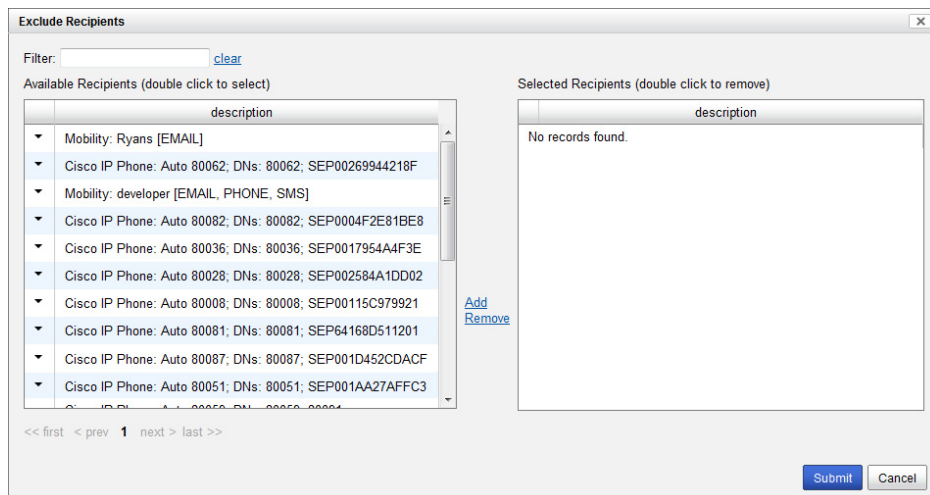


Note The Exclusions checkbox is only available if you select multiple existing recipient groups or create rules.

You'll be viewing the Add Recipient Group page.



Step 3 Select the **Exclusions** checkbox and click its **Edit** button. The Exclude Recipients pop-up window appears.



- Step 4** Filter your list by entering text in the **Filter** field. This text will be matched to values of the following constraints, which can be held by your recipient:

Matching Parameter	Description
Communications Manager Calling Search Space	Phones that match the specified search space. ^a
Communications Manager Cluster Name	Phones that match the specified Communications Manager cluster name.
Communications Manager Device Pool	Phones that match the specified pool.
Communications Manager Device Type	Phones that match the specified model, as reported by the Communications Manager server.
Description	Recipients that match the supplied description value. This is often a useful grouping tool because you have control over the description of the recipients in your system, so you can set up your descriptions in ways that facilitate grouping. The text you enter will be compared against the Device Description entries of phones registered with your Communications Manager server
Directory Numbers	Phones that match the supplied phone number(s) assigned to them in the Communications Manager Server.
IP Address	Recipients that match the supplied subnet boundaries.
InformaCast Device Type	Recipients that match in their functionality as an IP phone.
Location	Recipients that match the supplied location value.
Name	Recipients that match the supplied name. Like the Description parameter, you have control over names, so they may useful for grouping, but should be concise.
Partition Names	Phones that match the supplied dial plan partition assigned to each directory number, a.k.a. phone number, assigned to an IP phone in Communications Manager.

- a. Warning: If your site is using extension mobility, bear in mind that the calling search space, and even the directory number, assigned to a phone can change when a user logs in. Because of this, you should avoid using **Communications Manager Calling Search Space** as the criterion for setting up any recipient groups that are supposed to reflect geographic (rather than personnel) divisions. For such geographic divisions, **IP Address** is likely a better choice when extension mobility is a factor.

- Step 5** Double-click the recipients you want to exclude from your group to move them from the *Available Recipients* area to the *Selected Recipients* area. You can also click on a recipient and click the **Add** link to move it from the *Available Recipients* area to the *Selected Recipients* area.

- Step 6** Click the **Submit** button to apply your selection(s). The Add Recipient Group page now shows the recipient(s) you selected.

The screenshot shows the InformaCast basic paging interface. At the top, there's a navigation bar with icons for Buy, Try, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help. Below this is a breadcrumb trail: Recipients | Edit Recipient Groups | Add Recipient Group. The main form has a 'Name' field with 'Humanities' and a '(required)' label, and a 'Tags' field with an 'Add A Tag' button. Under 'Select Recipients', there are four checked options: 'Individually', 'Filter with Recipient Groups', 'Filter with Rules', and 'Exclusions'. The 'Filter with Rules' section shows a rule: '1 InformaCast Device Type' Does 'Contain' 'phone'. At the bottom, there are 'VIEW', 'CANCEL', and 'UPDATE' buttons.

- Step 7** Click the **Update** button if you are done creating your recipient group. Your recipient group is added to InformaCast.



Tip At any point, you can click the **View** button to list the recipients included in your recipient group. Within the View Recipients pop-up window that appears, you can click the down arrow next to a recipient and view its details.

If you would like to further refine your recipient group, continue with “Create a Recipient Group by Selecting Individual Recipients” on page 4-3, “Create a Recipient Group by Selecting Multiple, Existing Recipient Groups” on page 4-6 and/or “Create a Recipient Group Using Rules” on page 4-8.

Edit a Recipient Group

After you have added recipient groups to InformaCast, you may need to edit their information.

Step 1 Go to **Recipients | Edit Recipient Groups**. The Edit Recipient Groups page appears.

InformaCast® basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Recipients | Edit Recipient Groups

UPDATE Discover current IP phone information from Communications Manager (may be time consuming).

SHOW ALL Show Defunct Phones

PREVIOUS Page 1 of 1 NEXT Jump to page: GO Show 50 results per page Filter: ADD

Name	Phones	Action
(All Recipients)	1	EDIT COPY DELETE
English	1	EDIT COPY DELETE
History	8	EDIT COPY DELETE
Humanities	10	EDIT COPY DELETE

singlewire™ Singlewire Website News Support Contact Us

© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Step 2 Click the **Edit** button next to the recipient group you'd like to edit. The Edit Recipient Group page appears.

The screenshot displays the 'Edit Recipient Group' interface. At the top, the InformaCast logo and navigation menu are visible. The main content area is titled 'Recipients | Edit Recipient Groups | Edit Recipient Group'. It features a form with the following elements:

- Name:** Humanities (required)
- Tags:** Add A Tag
- Select Recipients:**
 - Individually** (EDIT)
 - Filter with Recipient Groups** (EDIT)
 - Filter with Rules**
 - AND OR Logical Expression: disabled
 - 1 InformaCast Device Type Does Contain phone Ignore Case (REMOVE)
 - (ADD)
 - Exclusions** (EDIT)
- Selected Recipients:**
 - Cisco IP Phone: pl Site 1 Fancy Phone; DNs: 7900; SEP1C17D340F2B6
 - English History
 - Cisco IP Phone: Auto 80082; DNs: 80082; SEP0004F2E81BE8

At the bottom of the form, there are three buttons: VIEW, CANCEL, and UPDATE.

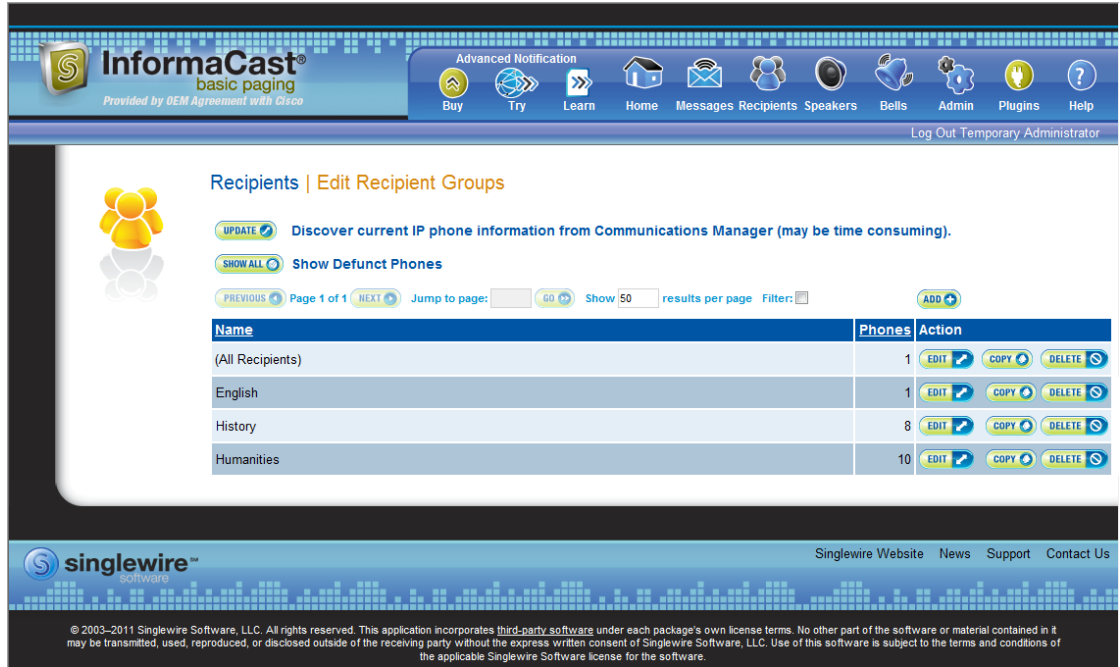
Step 3 Make your desired changes. See “Create a Recipient Group by Selecting Individual Recipients” on page 4-3, “Create a Recipient Group by Selecting Multiple, Existing Recipient Groups” on page 4-6, “Create a Recipient Group Using Rules” on page 4-8, or “Add Exclusions to a Recipient Group” on page 4-11 for more information on recipient group creation.

Step 4 Click the **Update** button when you are finished.

View Recipients in a Recipient Group

Once you have created a recipient group, you may want to review the recipients you've included.

Step 1 Go to **Recipients | Edit Recipient Groups**. The Edit Recipient Groups page appears.



Step 2 Click the **Edit** button of the recipient group you want to edit. The Edit Recipient Group page appears.

The screenshot shows the 'Edit Recipient Group' page in the InformaCast interface. The page header includes the InformaCast logo and navigation icons. The main content area is titled 'Recipients | Edit Recipient Groups | Edit Recipient Group'. It features a form with the following elements:

- Name:** Humanities (required)
- Tags:** Add A Tag
- Select Recipients:**
 - Individually
 - Filter with Recipient Groups
 - Filter with Rules
 - AND OR Logical Expression: disabled
 - Rule 1: InformaCast Device Type Does Contain phone Ignore Case
 - Exclusions

At the bottom of the form are buttons for 'VIEW', 'CANCEL', and 'UPDATE'. The footer of the page includes the Singlewire logo and copyright information.

Step 3 Click the **View** button to list the recipients included in your recipient group. The View Recipients pop-up window appears.

The 'View Recipients' pop-up window displays a list of recipients. The window has a title bar and a close button. The list is as follows:

Descriptive Text
Cisco IP Phone: Ryan Fowler; DNs: 80380; SEP006440B57448
Cisco IP Phone: Auto 80008; DNs: 80008; SEP00115C979921
Cisco IP Phone: Auto 80030; DNs: 80030; SEP00115CD89F2A
Cisco IP Phone: Auto 80089; DNs: 80089; SEP000427E69604
Cisco IP Phone: Auto 80025; DNs: 80025; SEP00260B5BE7A9
Cisco IP Phone: Auto 80082; DNs: 80082; SEP0004F2E81BE8
Cisco IP Phone: Auto 80007; DNs: 80007; SEP00270D5A6C4D
Cisco IP Phone: pl Site 1 Fancy Phone; DNs: 7900; SEP1C17D340F2B6
Cisco IP Phone: Auto 80051; DNs: 80051; SEP001AA27AFFC3
Cisco IP Phone: Auto 80062; DNs: 80062; SEP00269944218F

An 'OK' button is located at the bottom right of the window.

Step 4 Click the down arrow next to a recipient to view its details. The Target Details pop-up window appears.



Step 5 Click the **OK** buttons in the Target Details and View Recipients pop-up windows to close them.

Step 6 Click the **Cancel** button to go back to the Edit Recipient Groups page or click the **Update** button to save any changes you've made.

Copy a Recipient Group

When creating new recipient groups, you may want to start from a pre-existing recipient group that is close to the configuration you'd like for your new recipient group and make small changes from there.

Step 1 Go to **Recipients | Edit Recipient Groups**. The Edit Recipient Groups page appears.

The screenshot shows the InformaCast basic paging interface. The page title is 'Recipients | Edit Recipient Groups'. Below the title, there are several buttons: 'UPDATE' (with a checkmark), 'SHOW ALL', 'PREVIOUS', 'NEXT', 'Jump to page:', 'GO', 'Show 50 results per page', and 'Filter:'. Below these buttons is a table with the following data:

Name	Phones	Action
(All Recipients)	1	EDIT COPY DELETE
English	1	EDIT COPY DELETE
History	8	EDIT COPY DELETE
Humanities	10	EDIT COPY DELETE

The footer of the page includes the Singlewire logo and the text 'Singlewire Website News Support Contact Us'. At the bottom, there is a copyright notice: '© 2003-2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.'

- Step 2** Click the **Copy** button next to the recipient group you'd like to copy. The Add Recipient Group page appears.

The screenshot displays the 'Add Recipient Group' interface in InformaCast. At the top, there's a navigation bar with icons for 'Buy', 'Try', 'Learn', 'Home', 'Messages', 'Recipients', 'Speakers', 'Bells', 'Admin', 'Plugins', and 'Help'. Below this, the main content area is titled 'Recipients | Edit Recipient Groups | Add Recipient Group'. A form is shown with a 'Name' field containing 'Humanities (copy)' and a 'Tags' field with an 'Add A Tag' button. Under 'Select Recipients', there are three checked options: 'Individually', 'Filter with Recipient Groups', and 'Filter with Rules'. The 'Filter with Rules' section shows a logical expression: 'AND' selected, 'Logical Expression: disabled', and a single rule: '1 InformaCast Device Type Does Contain phone Ignore Case'. There are 'VIEW', 'CANCEL', and 'UPDATE' buttons at the bottom of the form. The footer contains the Singlewire logo and copyright text: '© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.'



Note The **Name** field will automatically populate with the original recipient group's name and "copy" appended to it.

- Step 3** Make your desired changes. See "Create a Recipient Group by Selecting Individual Recipients" on page 4-3, "Create a Recipient Group by Selecting Multiple, Existing Recipient Groups" on page 4-6, "Create a Recipient Group Using Rules" on page 4-8, or "Add Exclusions to a Recipient Group" on page 4-11 for more information on recipient group creation.
- Step 4** Click the **Update** button when you are finished.

Remove Defunct Phones from Recipient Groups

Defunct phones are recipients that are no longer available to Communications Manager when the regular polling interval occurs. Recipients can become defunct if they lose power and/or are accidentally unplugged. A large number of defunct phones can degrade InformaCast's performance, and they should be removed.

When phones become defunct, they will display as “Defunct” in your list of recipients on the Add/Edit Recipient Group page (see picture).

The screenshot shows the InformaCast basic paging web interface. At the top, there is a navigation bar with the InformaCast logo and various icons for navigation and user actions. The main content area is titled "Recipients | Edit Recipient Groups | Edit Recipient Group". Below this, there is a form for editing a recipient group named "Humanities". The form includes fields for "Name" (Humanities) and "Tags" (Add A Tag). Below the form, there is a "Select Recipients" section with a checkbox for "Individually" and a list of recipients. One recipient is listed as "Cisco IP Phone: Auto 700033; DN: 700033; SEP000653DC398A" and is marked as "Defunct Device: CiscoPhone-55:SEP000F8F761B8B". There are also sections for "Filter with Recipient Groups" (English, History) and "Filter with Rules" (AND/OR Logical Expression: disabled). A rule is defined as "InformaCast Device Type Does Contain phone Ignore Case". There is also an "Exclusions" section with one exclusion listed as "Cisco IP Phone: Auto 80082; DN: 80082; SEP0004F2E81BE8". At the bottom of the form, there are buttons for "VIEW", "CANCEL", and "UPDATE". The footer of the page includes the Singlewire logo and copyright information.

- Step 1** Remove defunct phones by clicking the **Recipients** icon or going to **Recipients | Edit Recipient Groups**. The Edit Recipient Groups page appears.

The screenshot shows the InformaCast basic paging interface. The top navigation bar includes icons for Buy, Try, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help. The main content area is titled "Recipients | Edit Recipient Groups". It features a "Discover current IP phone information from Communications Manager (may be time consuming)" button and a "Show Defunct Phones" button. Below this is a table with columns for Name, Phones, and Action. The table lists three recipient groups: "All Devices" (19 phones), "First Floor" (4 phones), and "Second Floor" (17 phones). Each group has Edit, Copy, and Delete buttons. The page also includes pagination controls and a footer with the Singlewire logo and copyright information.

- Step 2** Click the **Show All** button near the top of the page. The Defunct Phones window appears.

The screenshot shows a "Defunct Phones" window. It includes a "REMOVE" button and a list of defunct devices. The list contains one entry: "Defunct Device: CiscoPhone-55:SEP00115C979921".

- Step 3** Click the **Remove** button. Your defunct phones are removed from any recipient group to which they had been manually included or excluded.



Note Recipient groups using rules do not recognize defunct phones as viable recipients for inclusion in recipient groups.

Delete a Recipient Group

As your needs change, you may want to delete unused recipient groups from the system.

Step 1 Go to **Recipients | Edit Recipient Groups**. The Edit Recipient Groups page appears.

The screenshot shows the 'Edit Recipient Groups' page in the InformaCast interface. The page header includes the InformaCast logo and navigation icons. The main content area displays a table of recipient groups:

Name	Phones	Action
(All Recipients)	1	[EDIT] [COPY] [DELETE]
English	1	[EDIT] [COPY] [DELETE]
History	8	[EDIT] [COPY] [DELETE]
Humanities	10	[EDIT] [COPY] [DELETE]

The 'Humanities' group is highlighted, and the 'DELETE' button is visible in the Action column.

Step 2 Click the **Delete** button next to the recipient group you'd like to delete. The Delete Recipient Group page appears.

The screenshot shows the 'Delete Recipient Group' confirmation page. The page header includes the InformaCast logo and navigation icons. The main content area displays a warning message:

You have chosen to delete Humanities.
Deleting this group will permanently remove it from the recipient group list.

Buttons for **CANCEL** and **DELETE** are visible below the message.

Step 3 Click the **Delete** button again. Your recipient group is removed.

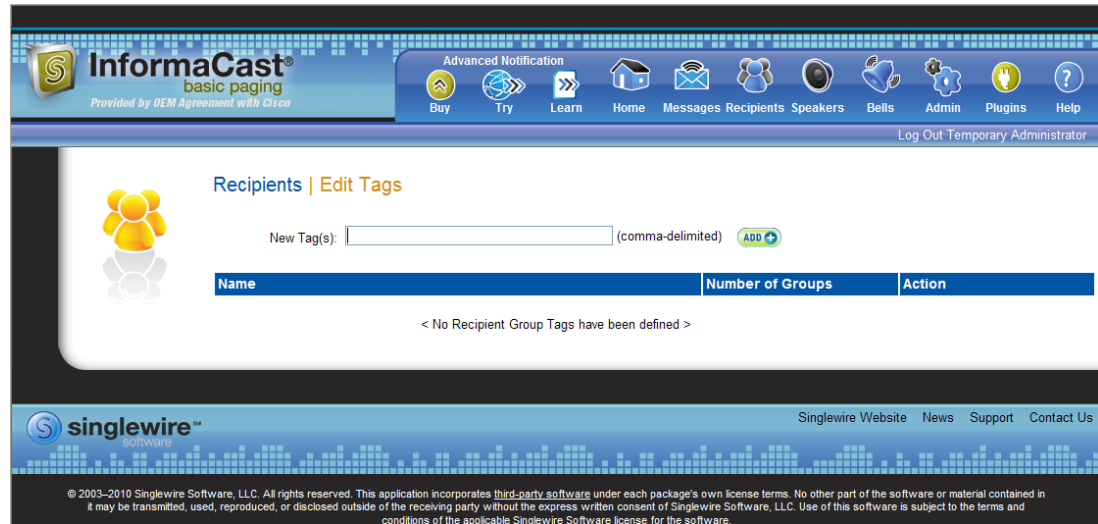
Configure Recipient Group Tags

Recipient group tags allow you finer control over the display results for recipient groups.

Add a Recipient Group Tag

Before you can filter recipient groups through tags, you need to add them to InformaCast.

Step 1 Go to **Recipients | Edit Tags**. The Edit Tags page appears.



Step 2 Enter a name for your tag in the **New Tag(s)** field. Separate multiple tag names with a comma.

- Step 3** Click the **Add** button. Your tag(s) will appear in the table on the Edit Tags page. When you assign your tags to recipient groups, the number of recipient groups assigned to that tag will also appear in the table.

InformaCast[®]
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Recipients | Edit Tags

New Tag(s): (comma-delimited) **ADD**

Name	Number of Groups	Action
Business Group	1	EDIT DELETE
Financial Group	0	EDIT DELETE
Marketing Group	0	EDIT DELETE

singlewire™ Singlewire Website News Support Contact Us

© 2003–2010 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Edit a Recipient Group Tag

Once you've added recipient group tags, you may need to edit their names.

- Step 1** Go to **Recipients | Edit Tags**. The Edit Tags page appears.

InformaCast[®]
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Recipients | Edit Tags

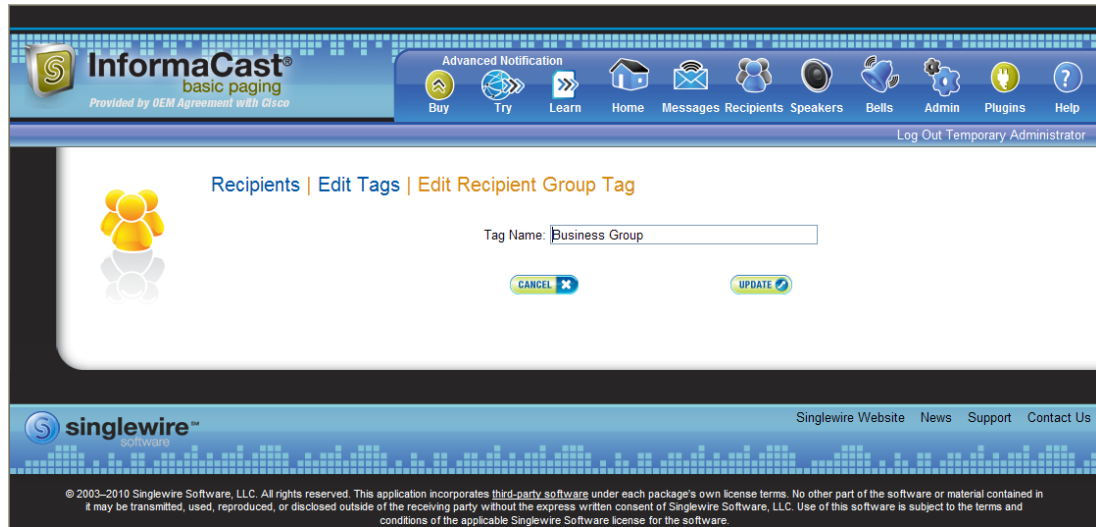
New Tag(s): (comma-delimited) **ADD**

Name	Number of Groups	Action
Business Group	1	EDIT DELETE
Financial Group	0	EDIT DELETE
Marketing Group	0	EDIT DELETE

singlewire™ Singlewire Website News Support Contact Us

© 2003–2010 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Step 2 Click the **Edit** button next to the tag you'd like to change. The Edit Recipient Group Tag page appears.



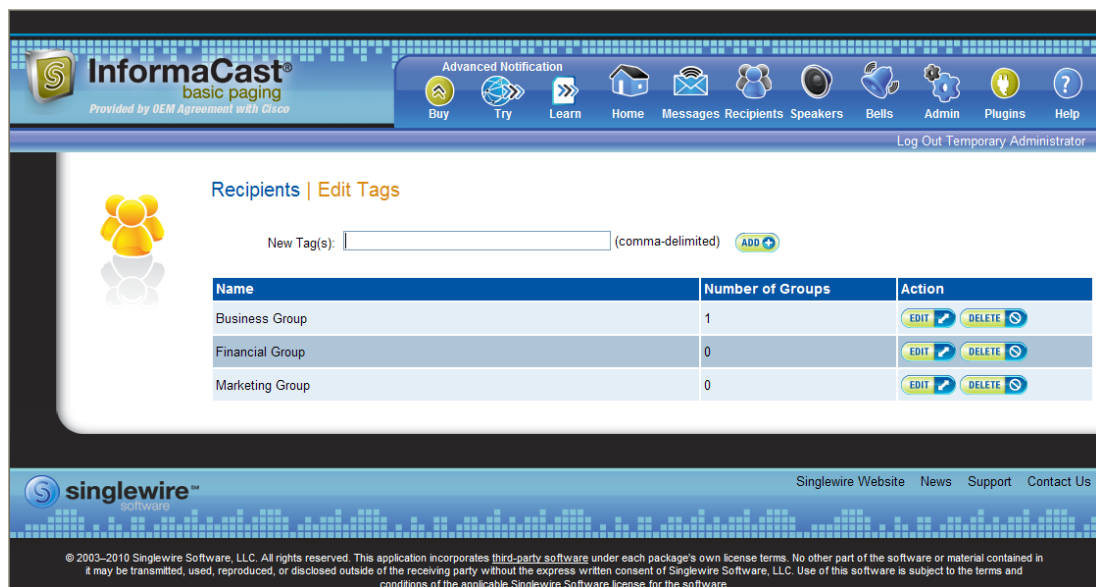
Step 3 Make your changes.

Step 4 Click the **Update** button. Your changes are saved.

Delete a Recipient Group Tag

As your needs change, you may want to delete existing tags from InformaCast.

Step 1 Go to **Recipients | Edit Tags**. The Edit Tags page appears.



Step 2 Click the **Delete** button next to the recipient group you want to delete.

Step 3 Click the **OK** button to accept the warning. Your tag is deleted.

Configure Messages

Messages are the basis of any InformaCast broadcast. A message predefines the characteristics of the broadcast.

A message can be composed of text, audio, or both; however, with Basic InformaCast functionality, you only have access to Live Audio broadcasts. In these messages, the audio is not recorded at all; it is streamed to recipient groups in real time when the message is broadcast. These broadcasts will skip any phones that are in use when the broadcast occurs, wait until all recipients capable of playing audio are ready to play the broadcast, play the broadcast at the volume at which the phone is set when the broadcast occurs, and if there are simultaneous broadcasts attempted, will play the first broadcast first (the second broadcast will be bumped) With Advanced InformaCast, you'd have access to all the messages described in the following table.

Message Type	Description
Text	These messages appear on the phone's display and in a pop-up window on Desktop Notification System machines.
Text and Pre-recorded Audio	These messages have the same display features as Text messages, but add an audible component.
Text and Live Audio	These messages are the combination of a Text message (whose content is predetermined, although it may be dynamic) with Live Audio that is streamed to recipient groups in real time when the message is broadcast.
Text and Ad-hoc Audio	These messages are the combination of a Text message (whose content is predetermined, although it may be dynamic) with an Ad-hoc Audio message, whose content is determined when the message is broadcast. Ad-hoc broadcasts are sent immediately after the audio is recorded. They are used to rapidly respond to unpredictable events.
Pre-Recorded Audio	These messages are audio only and are sent to the specified combination of phones, IP speakers, and Desktop Notification System machines. These messages have no display component; they do not affect the display of the phone (other than a small animation showing incoming stream activity, and the illumination of the Mute and Speaker lights during the audio broadcast).
Live Audio	In these messages, the audio is not recorded at all; it is streamed to recipient groups in real time when the message is broadcast.

Message Type	Description
Ad-hoc Audio	These messages are a form of Audio message in which the audio is not recorded in advance; instead, it is recorded each time the message is sent. Ad-hoc broadcasts are sent immediately after the audio is recorded. They are used to rapidly respond to unpredictable events.
Talk and Listen	Talk and Listen messages allow any phone in a recipient group to speak, in real time (“live”), to all the other phones receiving the broadcast by pressing a Talk softkey. Other listeners can respond by pressing the Talk softkey on their own phones.

Click the **Messages** icon or go to **Messages | Send or Edit Messages**. The Send or Edit Messages page appears.

InformaCast® basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help
Log Out Temporary Administrator

Messages | Send or Edit Messages

In Basic Paging, you have access to one message only, Basic Paging Live Broadcast. Upgrading to Advanced Notification will allow you to use the other messages listed on this page. You will also be able to create your own messages.

PREVIOUS Page 1 of 1 NEXT Jump to page: GO Show 50 results per page Filter: ADD

Description	Display Short Text	Type	Action
Basic Paging Live Broadcast		Live Audio * *	SEND EDIT COPY DELETE
Example Ad-Hoc Broadcast	This is an ad-hoc broadcast.	Ad-Hoc Audio §	SEND EDIT COPY DELETE
Example failed mail server	Email is down at \$(time) on \$(date)	Text §	SEND EDIT COPY DELETE
Example Hammer	This is a broadcast of an industrial sounding hammer	Text and Pre-Recorded Audio §	SEND EDIT COPY DELETE
Example Humoctopus Alert	There is a Humoctopus in the building! --This is only a test.	Text and Pre-Recorded Audio * §	SEND EDIT COPY DELETE
Example Monthly Meeting	Monthly company wide meeting is at 8:00. Press the details soft-key.	Text §	SEND EDIT COPY DELETE
Example Ring tone - Bell 1		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Bell 2		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Bell 3		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Clock chime		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Ding dong		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Tone 1		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Tone 2		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Severe Weather	Severe weather is in the area at \$(time) on \$(date).	Text §	SEND EDIT COPY DELETE
Example Singlewire Broadcast	This is a broadcast from Singlewire's Broadcast System!	Text and Pre-Recorded Audio §	SEND EDIT COPY DELETE
Example Tornado	There is a tornado in the area at \$(time) on \$(date).	Text §	SEND EDIT COPY DELETE
Example Winter Weather	There is severe winter weather in the area at \$(time) on \$(date).	Text §	SEND EDIT COPY DELETE

PREVIOUS Page 1 of 1 NEXT Jump to page: GO Show 50 results per page

* Message will skip phones that are in use.
§ Message is persistent.
° Message delivery is synchronized. It will start after a delay, and play only once.

singlewire™ software
Singlewire Website News Support Contact Us

© 2003–2012 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

**Note**

With Basic InformaCast functionality, you can view all of the potential InformaCast messages, but you cannot configure any of them unless you have Advanced InformaCast functionality. [Contact Singlewire](#) to obtain an Advanced InformaCast license, which is available as a free trial or for purchase, and gain access to all of InformaCast's functionality.

Aside from viewing potential InformaCast messages, you can also view active broadcasts by clicking the **View** button (only visible on the Send or Edit Messages page when there is an active broadcast) and cancel any ongoing broadcasts (see “Cancel a Broadcast” on page 4-73).

Manage SIP Functionality

Session Initiation Protocol (SIP) is supported by a growing number of PBXs and telephony devices, and provides InformaCast with the capability to receive SIP calls, allowing other SIP devices to locate and call InformaCast. InformaCast's SIP functionality provides these important features:

- **Access control.** Controls the devices from which InformaCast will accept SIP packets.
- **Authentication of incoming requests.** Allows incoming SIP requests to be authenticated using digest authentication.
- **Secure signalling.** Enables the exchange of SIP messages in a secure fashion by using the Transport Layer Security (TLS) protocol.
- **Authentication challenges.** Enables InformaCast to respond to authentication challenges issued by other SIP devices when sending a request.

**Note**

Configuring SIP functionality allows you to access DialCast functionality without the use of route points configured in Communications Manager—although you can still use Communications Manager if you wish—by using SIP/SIP devices to communicate with InformaCast.

In order to configure SIP functionality, you will need to configure a SIP trunk and InformaCast's SIP pages.

Configure a SIP Trunk

If you would rather use SIP for telephony communication with InformaCast instead of Communications Manager's route points in combination with CTI or JTAPI, you need create a SIP trunk, which has three basic components: a SIP trunk security profile, a SIP trunk, and a route pattern.

**Note**

The following sections should be used with Communications Manager 7.0 and later.

Create a SIP Trunk Security Profile

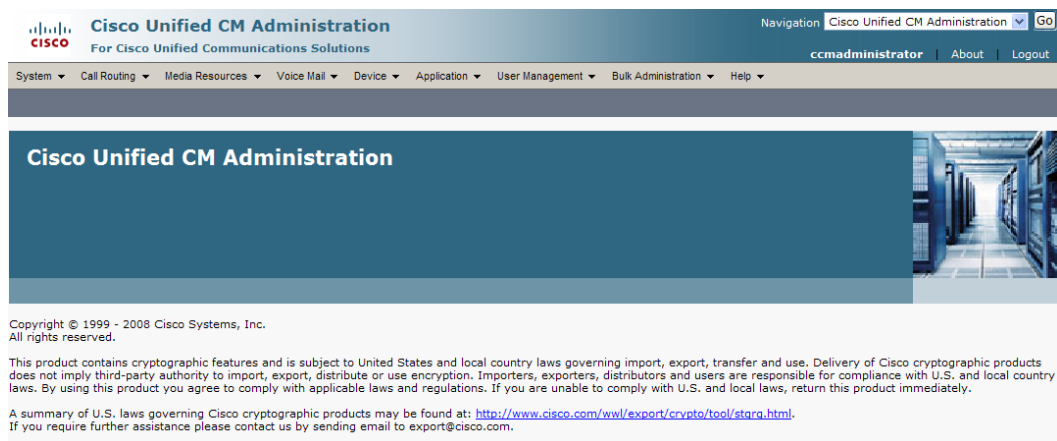
A SIP trunk security profile specifies things such as the transport protocol to be used, whether digest authentication should be performed, etc.



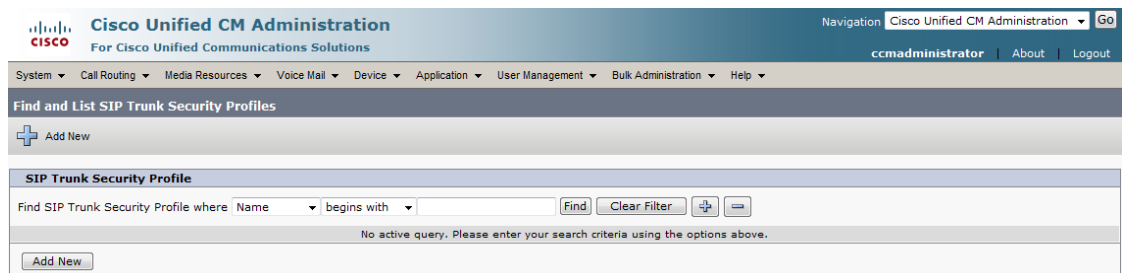
Note

The pictures in the following sections illustrate Cisco Unified Communications Manager v7.x; however, the steps are consistent between versions of Communications Manager. Discrepancies are noted where they occur.

- Step 1** Open a web browser and log into the administration interface of the Communications Manager server (the address will be similar to <https://<Communications Manager IP Address>/CCMAdmin>). The Cisco Unified CM Administration page appears.



- Step 2** Go to **System | Security Profile | SIP Trunk Security Profile**. The Find and List SIP Trunk Security Profiles page appears.



Note

If you are using Communications Manager 9.0 or later, you will go to **System | Security | SIP Trunk Security Profile** instead of **System | Security Profile | SIP Trunk Security Profile**.

- Step 3** Click the **Find** button. The Find and List SIP Trunk Security Profiles page refreshes with a list of SIP trunk security profiles.

- Step 4** Click the **Copy** icon in the row of your default profile, **Non Secure SIP Trunk Profile**. The SIP Trunk Security Profile Configuration page appears.

- Step 5** Enter a unique name for your SIP trunk security profile in the **Name** field, e.g. InformaCast.
- Step 6** Enter a description of your SIP trunk security profile in the **Description** field.
- Step 7** Select **Non Secure** from the **Device Security Mode** dropdown menu.



Note If you would like to use the TLS protocol with your environment, create the SIP trunk as directed here and also follow the steps in “Manage SIP Certificates to Facilitate TLS Protocol” on page 4-49.

Once you select a Device Security mode, the **Incoming** and **Outgoing Transport Type** fields will automatically fill with information.

Step 8 Select either **TCP** or **UDP** from the **Outgoing Transport Type** dropdown menu.

Step 9 Leave the **Incoming Port** field as **5060**.



Note Changing this port number necessitates you changing it on the InformaCast Virtual Appliance's firewall as well to allow inbound traffic on the new port.

Step 10 Click the **Save** button.

Create a SIP Trunk

Use the following steps to create a SIP trunk that uses the security profile you just created.

Step 1 Go to **Device | Trunk**. The Find and List Trunks page appears.

The screenshot shows the 'Find and List Trunks' page in the Cisco Unified CM Administration interface. The page includes a navigation menu at the top with options like System, Call Routing, Media Resources, Voice Mail, Device, Application, User Management, Bulk Administration, and Help. Below the navigation is a search bar for finding trunks, with a dropdown for 'Device Name' and a 'begins with' field. There are 'Find', 'Clear Filter', and 'Add New' buttons. A message below the search bar states: 'No active query. Please enter your search criteria using the options above.'

Step 2 Click the **Add New** button. The Trunk Configuration page appears.

The screenshot shows the 'Trunk Configuration' page in the Cisco Unified CM Administration interface. The page includes a navigation menu at the top with options like System, Call Routing, Media Resources, Advanced Features, Device, Application, User Management, Bulk Administration, and Help. Below the navigation is a 'Trunk Configuration' section with a 'Next' button. The configuration fields are:

- Status:** Ready
- Trunk Information:**
 - Trunk Type*: SIP Trunk
 - Device Protocol*: SIP
 - Trunk Service Type*: None(Default)

 There is a 'Next' button at the bottom of the configuration section. A note at the bottom indicates: '*- indicates required item.'

Step 3 Select **SIP Trunk** from the **Trunk Type** dropdown menu.

- Step 4** Ensure that **SIP** appears as the **Device Protocol** dropdown menu selection.
- Step 5** Leave the **Trunk Service Type** dropdown menu at its default of **None(Default)**.
- Step 6** Click the **Next** button. The Trunk Configuration page refreshes.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration Go
ccadministrator | About | Logout

System | Call Routing | Media Resources | Voice Mail | Device | Application | User Management | Bulk Administration | Help

Trunk Configuration Related Links: Back To Find/List Go

Save

Status
Status: Ready

Device Information

Product: SIP Trunk
 Device Protocol: SIP
 Device Name*:
 Description:
 Device Pool*: -- Not Selected --
 Common Device Configuration: < None >
 Call Classification*: Use System Default
 Media Resource Group List: < None >
 Location*: Hub_None
 AAR Group: < None >
 Packet Capture Mode*: None
 Packet Capture Duration: 0

Media Termination Point Required
 Retry Video Call as Audio
 Transmit UTF-8 for Calling Party Name
 Unattended Port

Multilevel Precedence and Preemption (MLPP) Information
 MLPP Domain: < None >

Call Routing Information

Inbound Calls

Significant Digits*: All
 Connected Line ID Presentation*: Default
 Connected Name Presentation*: Default
 Calling Search Space: < None >
 AAR Calling Search Space: < None >
 Prefix DN:
 Redirecting Diversion Header Delivery - Inbound

Outbound Calls

Calling Party Selection*: Originator
 Calling Line ID Presentation*: Default
 Calling Name Presentation*: Default
 Caller ID DN:
 Caller Name:
 Redirecting Diversion Header Delivery - Outbound

SIP Information

Destination Address*:
 Destination Address is an SRV
 Destination Port*: 5060
 MTP Preferred Originating Codec*: 711ulaw
 Presence Group*: Standard Presence group
 SIP Trunk Security Profile*: -- Not Selected --
 Rerouting Calling Search Space: < None >
 Out-Of-Dialog Refer Calling Search Space: < None >
 SUBSCRIBE Calling Search Space: < None >
 SIP Profile*: -- Not Selected --
 DTMF Signaling Method*: No Preference

Save

i * - indicates required item.
i ** - Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.

- Step 7** Enter a name for your SIP trunk in the **Device Name** field, e.g. InformaCast.
- Step 8** Select the device pool you created in “Create a Device Pool for the InformaCast Region” on page 2-9 from the **Device Pool** dropdown menu.
- Step 9** Scroll down to the *Inbound Calls* area and select the calling search space you created in “Create a Calling Search Space” on page 2-16 from the **Calling Search Space** dropdown menu.
- Step 10** Scroll down to the *SIP Information* area and enter the IP address of your InformaCast server in the **Destination Address** field.
- Step 11** Ensure that the value in the **Destination Port** field is the same as listed in Step 9 on page 4-33.



Note Changing this port number necessitates you changing it on the InformaCast Virtual Appliance’s firewall as well to allow inbound traffic on the new port.

- Step 12** Select the SIP trunk security profile that you created in “Create a SIP Trunk Security Profile” on page 4-31 from the **SIP Trunk Security Profile** dropdown menu.
- Step 13** Select **Standard SIP Profile** from the **SIP Profile** dropdown menu.
- Step 14** Click the **Save** button.

Create a Route Pattern

Use the following steps to create a route pattern that uses the SIP trunk you created in “Create a SIP Trunk” on page 4-33. In your route pattern, specify a range of DNs that, when called, use the SIP trunk. Another option would be to use wild card patterns to match a range numbers.

- Step 1** Go to **Call Routing | Route/Hunt | Route Pattern**. The Find and List Route Patterns page appears.

The screenshot shows the Cisco Unified CM Administration interface. The top navigation bar includes the Cisco logo and the text "Cisco Unified CM Administration For Cisco Unified Communications Solutions". The user is logged in as "ccmadministrator". The main content area is titled "Find and List Route Patterns" and contains a search form with the following elements:

- A dropdown menu for "Find Route Patterns where" set to "Pattern".
- A dropdown menu for "begins with" set to an empty field.
- Buttons for "Find", "Clear Filter", and a plus/minus icon.
- A message: "No active query. Please enter your search criteria using the options above."
- An "Add New" button.

Step 2 Click the **Add New** button. The Route Pattern Configuration page appears.

The screenshot displays the 'Route Pattern Configuration' page in the Cisco Unified CM Administration interface. The page is organized into several sections:

- Status:** Shows 'Status: Ready'.
- Pattern Definition:** Contains fields for 'Route Pattern*', 'Route Partition' (set to '< None >'), 'Description', 'Numbering Plan' (set to '-- Not Selected --'), 'Route Filter' (set to '< None >'), 'MLPP Precedence*' (set to 'Default'), 'Gateway/Route List*' (set to '-- Not Selected --'), 'Route Option' (with 'Route this pattern' selected), 'Call Classification*' (set to 'OffNet'), and checkboxes for 'Allow Device Override', 'Provide Outside Dial Tone', 'Allow Overlap Sending', 'Urgent Priority', 'Require Forced Authorization Code', and 'Require Client Matter Code'. An 'Authorization Level*' field is set to '0'.
- Calling Party Transformations:** Includes a checkbox for 'Use Calling Party's External Phone Number Mask', 'Calling Party Transform Mask', 'Prefix Digits (Outgoing Calls)', 'Calling Line ID Presentation*' (set to 'Default'), and 'Calling Name Presentation*' (set to 'Default').
- Connected Party Transformations:** Includes 'Connected Line ID Presentation*' (set to 'Default') and 'Connected Name Presentation*' (set to 'Default').
- Called Party Transformations:** Includes 'Discard Digits' (set to '< None >'), 'Called Party Transform Mask', and 'Prefix Digits (Outgoing Calls)'. A 'Save' button is located below this section.
- ISDN Network-Specific Facilities Information Element:** Includes 'Network Service Protocol' (set to '-- Not Selected --'), 'Carrier Identification Code', and a table for 'Network Service' with columns for 'Service Parameter Name' and 'Service Parameter Value'. One row is shown with 'Network Service' set to '-- Not Selected --', 'Service Parameter Name' set to '< Not Exist >', and an empty 'Service Parameter Value' field.

An information icon at the bottom left indicates that an asterisk (*) denotes a required item.

Step 3 Enter a route pattern in the **Route Pattern** field, e.g. 12345.

Step 4 Select the route partition you created in “Create an InformaCast Route Partition” on page 2-11 from the **Route Partition** dropdown menu.

Step 5 Enter a description of your route pattern in the **Description** field.

Step 6 Select the SIP trunk you created in “Create a SIP Trunk” on page 4-33 from the **Gateway/Route List** dropdown menu.

Step 7 Select the **Route This Pattern** radio button.

Step 8 Click the **Save** button.

Allow/Disable SIP Access to InformaCast

SIP access permits you to either allow or deny incoming SIP calls. The all-or-nothing scope of these buttons can be tuned by adding exceptions that counteract their setting. For example, when all incoming SIP calls are denied, exceptions serve to allow calls to be answered from those hosts specified by them. On the other hand, when all incoming SIP calls are allowed, exceptions serve to reject calls from those hosts specified by them.

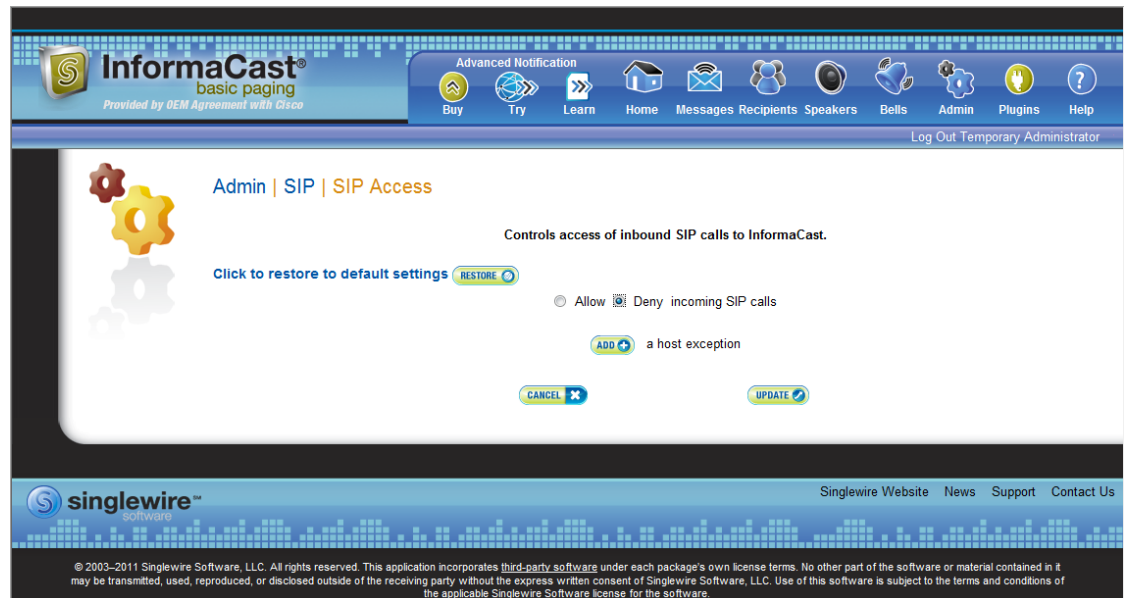
SIP is processed through InformaCast in the following manner: a SIP client sends an INVITE message to a SIP peer when it wants to start or modify a call with that peer. A Via header containing the host's address is added to the request when the client sends the INVITE message. As the message is routed to its destination, additional Via headers are added at each hop. When the message arrives at its final destination, one or more Via headers are present in the request. Via headers are used by SIP to ensure that responses are routed back to the caller through the same hosts that participated in sending the request. InformaCast uses the host in the top Via header when determining if the INVITE should be accepted or denied. The top Via header represents the last host that handled the request before it reached InformaCast.



Note

Changes made to SIP access take effect immediately and do not require a restart of InformaCast.

Step 1 Go to **Admin | SIP | SIP Access**. The SIP Access page appears.

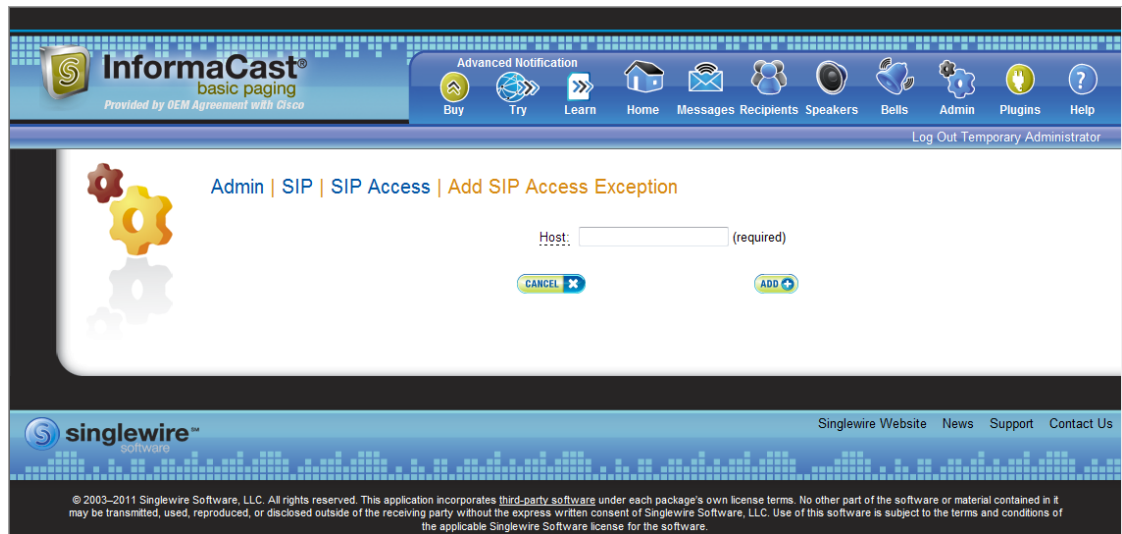


Note

By default, SIP access is denied.

Step 2 Select the **Allow** radio button to allow SIP calls to be answered.

- Step 3** Click the **Add** button to add exceptions to the SIP calls that are allowed. The Add SIP Access Exception page appears.



- Step 4** Enter the IP address or fully qualified domain name of the host you want to exclude from SIP access in the **Host** field.

**Tip**

When defining exceptions, make sure to specify the host that directly sends the INVITE request to InformaCast. This may be a SIP proxy server if proxies stand between InformaCast and the calling host.

Step 5 Click the **Add** button. The SIP Access page appears with your new exception noted.

The screenshot shows the InformaCast Admin interface for SIP Access. At the top, there is a navigation bar with icons for Buy, Try, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help. The main content area displays the breadcrumb 'Admin | SIP | SIP Access' and a confirmation message: 'Exception added; will be permanent once the SIP Access is saved.' Below this, there are controls for inbound SIP calls, including a 'RESTORE' button and radio buttons for 'Allow' (selected) and 'Deny'. A table lists host exceptions that counteract the SIP access setting, with one entry for '10.10.10.10' set to 'Deny'. The table has columns for 'Host', 'Access', and 'Action'. At the bottom of the page, there is a 'singlewire' logo and a footer with copyright information.

Admin | SIP | SIP Access

Exception added; will be permanent once the SIP Access is saved.

Controls access of inbound SIP calls to InformaCast.

Click to restore to default settings [RESTORE](#)

Note: You may have changes to commit. Click the update button to save your changes.

Allow Deny incoming SIP calls

Host exceptions that counteract the SIP access setting above [ADD](#)

Host	Access	Action
10.10.10.10	Deny	EDIT DELETE

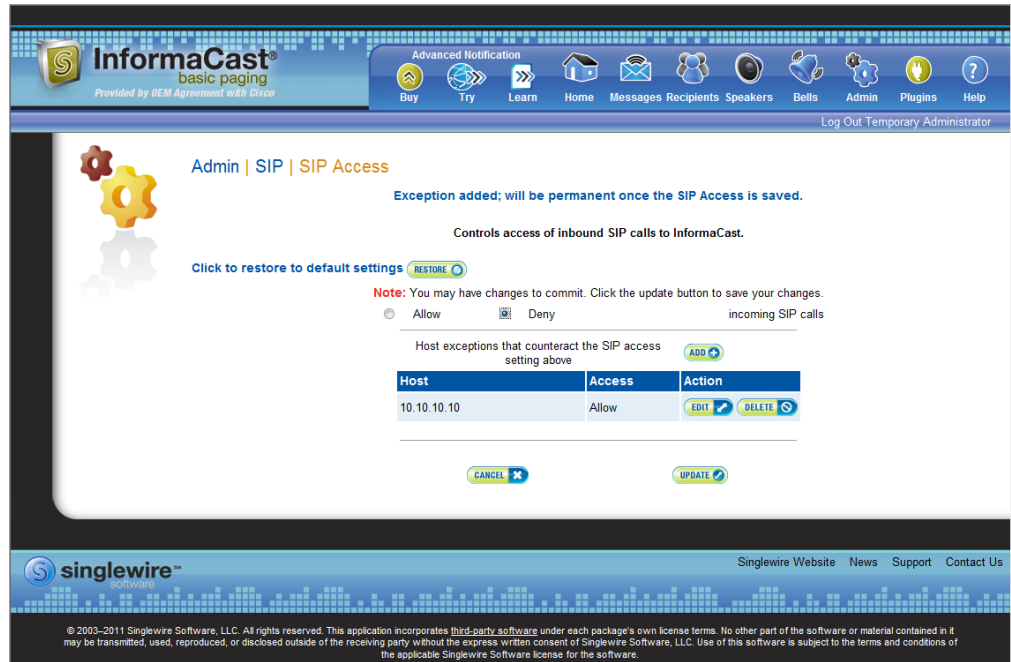
[CANCEL](#) [UPDATE](#)

singlewire™

© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

**Note**

If you had elected to deny SIP access by selecting the **Deny** radio button, you can still allow some SIP access by adding exceptions, as was illustrated in Step 5. In that case, your SIP Access page would appear as follows:



Step 6 Click the **Update** button to save your changes.

**Tip**

Click the **Restore** button to return InformaCast to its default settings.

Enable SIP Authentication for InformaCast

**Note**

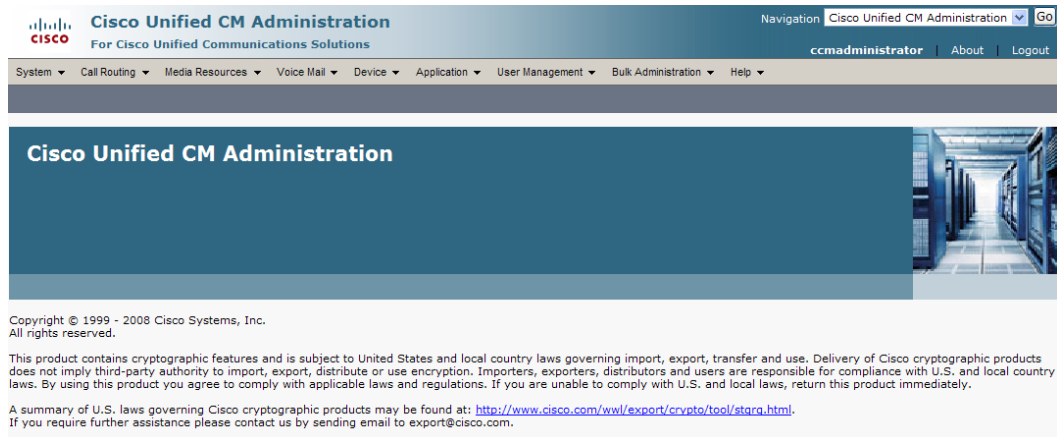
This section is optional depending on the security of your environment.

SIP authentication allows you to enable or disable digest authentication of incoming SIP requests. SIP authentication works in the following manner: SIP provides a stateless, challenge-based mechanism for authentication that is based on authentication in HTTP. Any time that a SIP device receives a request (with the exception of ACK messages or the CANCEL method), it may challenge the initiator of the request to provide assurance of its identity. Once the originator has been identified, the recipient of the request should ascertain whether or not this user is authorized to make the request in question.

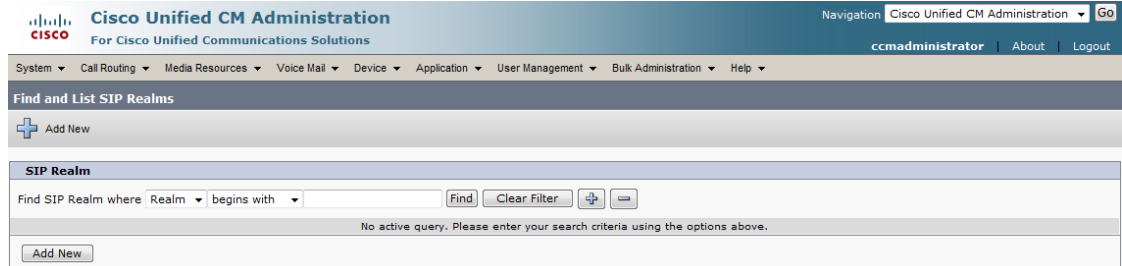
InformaCast responds with an UNAUTHORIZED (401) HTTP status when a request either does not contain an Authorization header or uses an Authorization header containing invalid data. The response sent to the peer contains a WWWAuthenticate header specifying the SIP realm for which credentials

must be provided. The peer must send another request containing a valid Authorization header before InformaCast will accept it. The header must use the same credentials that are given on this page and the same SIP realm.

- Step 1** Open a web browser and log into the administration interface of the Communications Manager server (the address will be similar to <https://<Communications Manager IP Address>/CCMAdmin>). The Cisco Unified CM Administration page appears.



- Step 2** Go to **User Management | SIP Realm**. The Find and List SIP Realms page appears.



- Step 3** Click the **Find** button. The Find and List SIP Realms page appears with a list of your configured SIP realms OR, if you have no SIP realms set up, it will display no records.

If you have a SIP realm you'd like to use, select it and make note of the values that appear in the following fields on the SIP Realm Configuration page:

- Realm
- User
- Digest Credentials

Skip to Step 10 on page 4-43.

If you have no realms set up, continue with the following steps.

Step 4 Click the **Add New** button. The SIP Realm Configuration page appears.

The screenshot shows the Cisco Unified CM Administration interface for SIP Realm Configuration. The page includes a navigation menu with options like System, Call Routing, Media Resources, Voice Mail, Device, Application, User Management, Bulk Administration, and Help. The main content area is titled 'SIP Realm Configuration' and features a 'Save' button, a 'Status' section indicating 'Status: Ready', and a 'SIP Realm Information' section with four required input fields: 'Realm*', 'User*', 'Digest Credentials*', and 'Confirm Digest Credentials*'. A 'Save' button is positioned below these fields. A legend at the bottom states '* indicates required item.'

Step 5 Enter **InformaCast** in the **Realm** field.

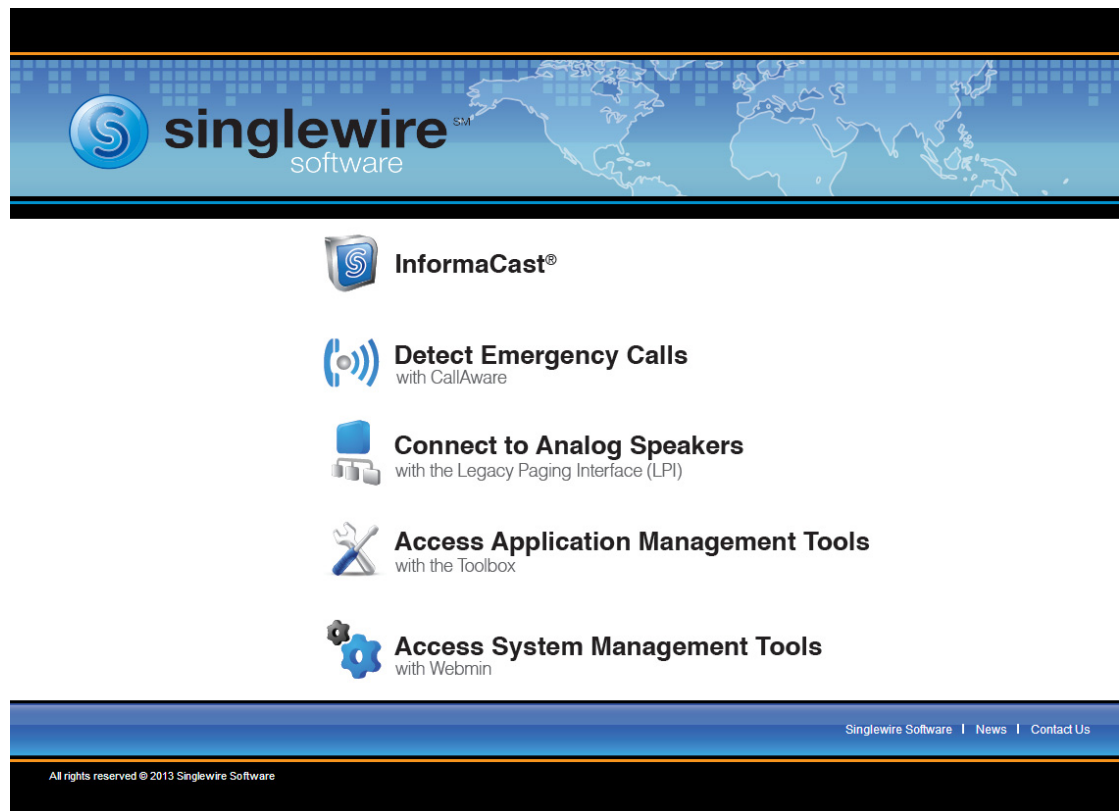
Step 6 Enter **sipuser** in the **User** field.

Step 7 Enter **changeMe** in the **Digest Credentials** field.

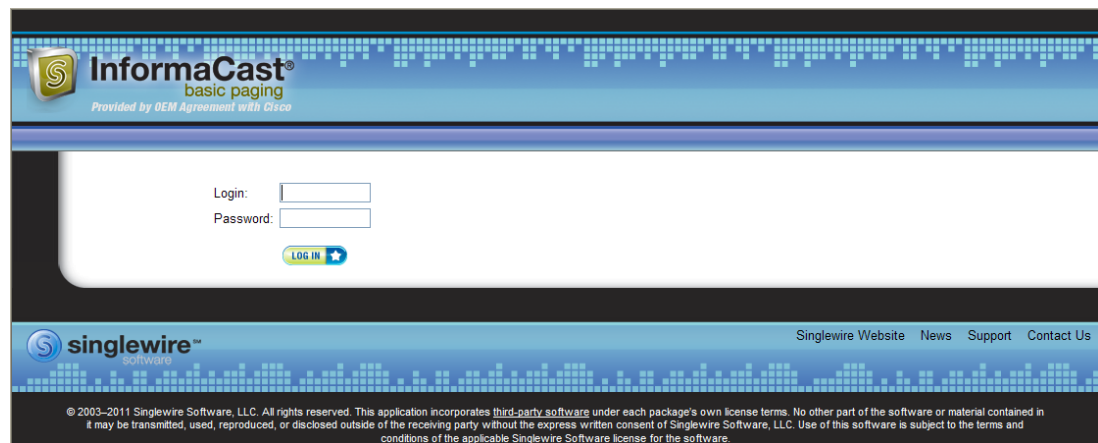
Step 8 Enter **changeMe** in the **Confirm Digest Credentials** field.

Step 9 Click the **Save** button.

- Step 10** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.

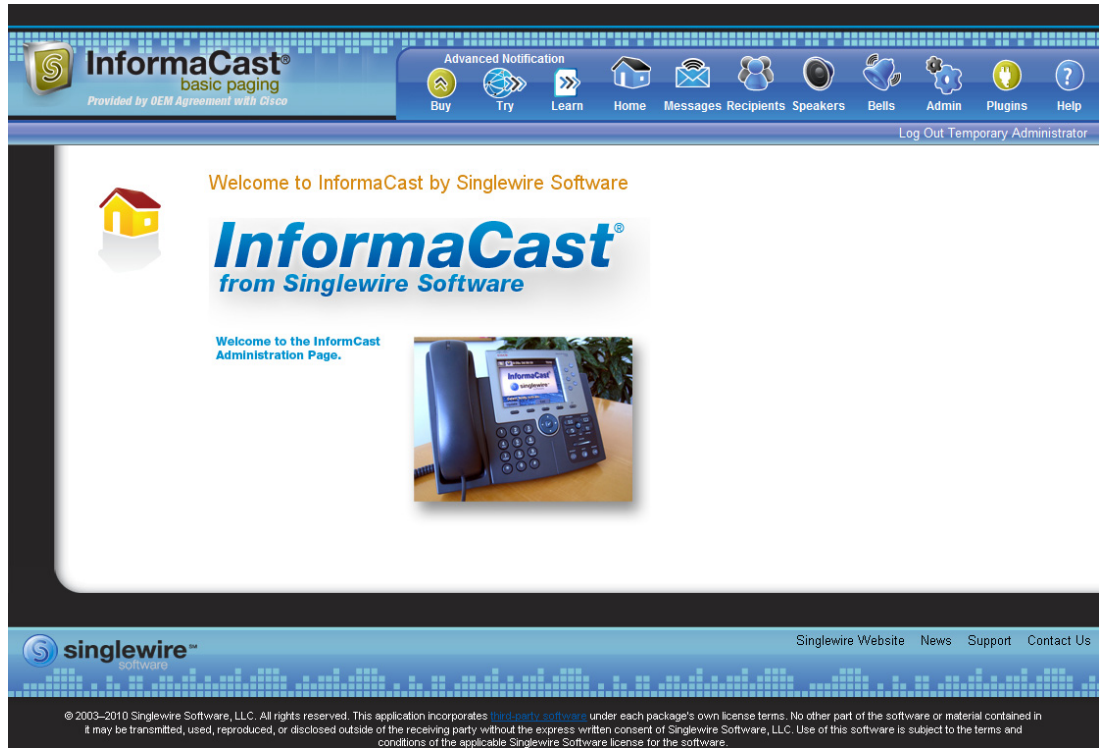


- Step 11** Click the **InformaCast** link. A separate tab/window opens to the InformaCast Login page.

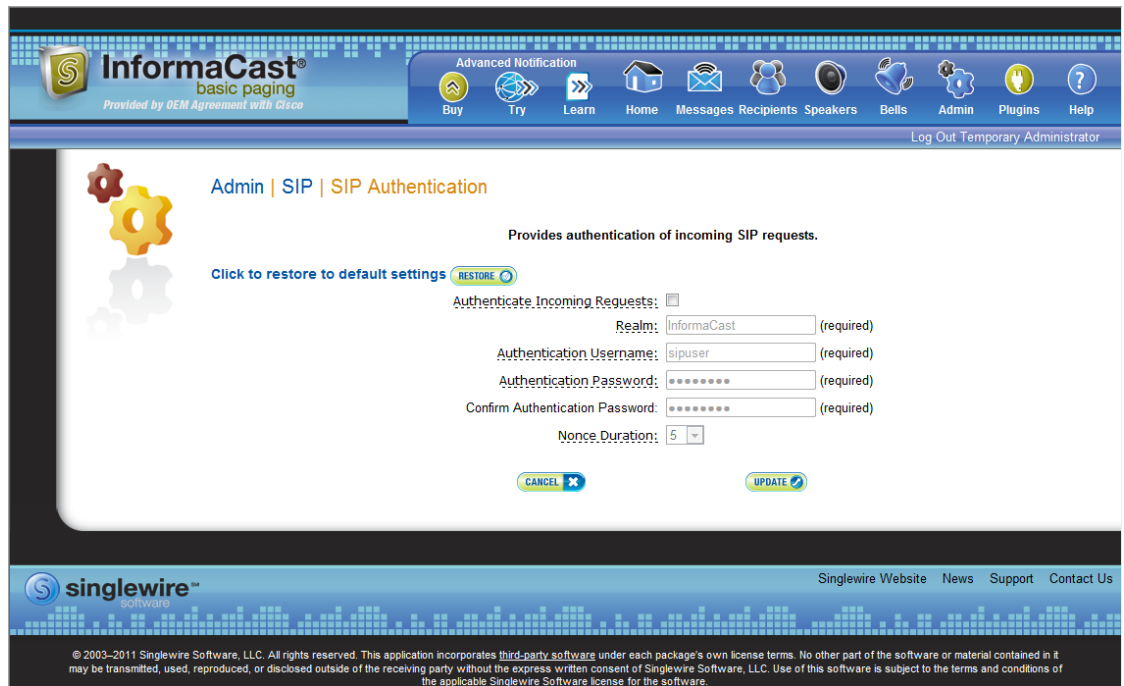
**Note**

You may have to accept a warning from your web browser about the security of this page's content.

Step 12 Enter your credentials and click the **Log In** button. The InformaCast homepage appears.



Step 13 Go to **Admin | SIP | SIP Authentication**. The SIP Authentication page appears.





Note By default, SIP authentication is disabled.

Step 14 Select the **Authenticate Incoming Requests** checkbox to enable SIP authentication.



Note The fields on this page come pre-filled. You only need to edit them if you want to change them. By default, the realm is named InformaCast, the authentication username is sipuser, and the authentication password is changeMe.

Step 15 Ensure that the values in the **Realm, Authentication Username, Authentication Password, and Confirm Authentication Password** fields match the values you made note of/entered on the SIP Realm Configuration page of Communications Manager (i.e. **Realm, User, Digest Credentials, and Confirm Digest Credentials**, respectively).

Step 16 Select the length of time InformaCast should allow for a single authentication request from the **Nonce Duration** dropdown menu.



Note The nonce value is used by the digest authentication scheme to provide additional security. Clients making requests will use it until it is deemed by InformaCast to be stale.

Step 17 Click the **Update** button to save your changes.

Enable Digest Authentication with SIP User Credentials



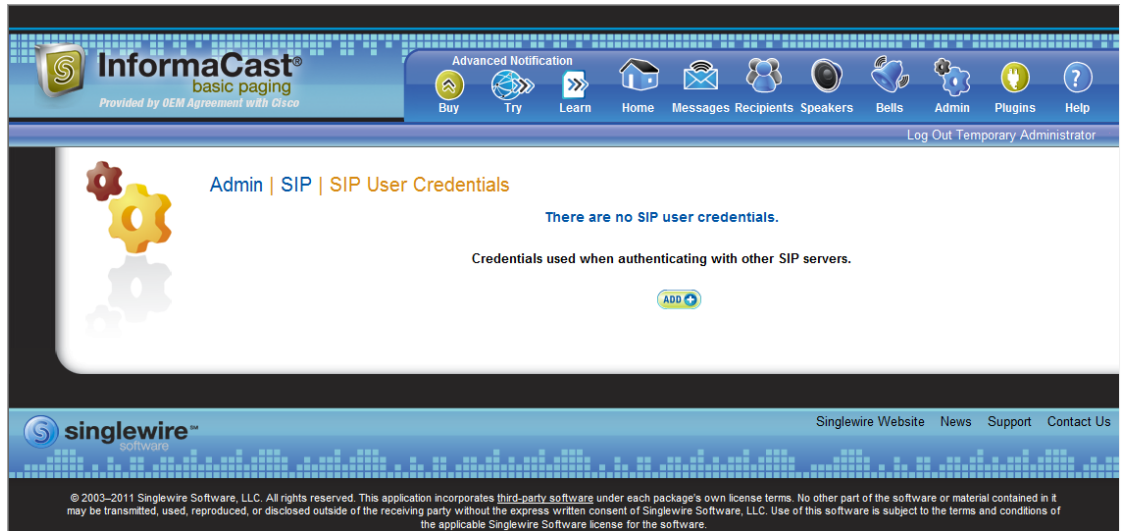
Note This section is optional depending on the security of your environment.

SIP peers may challenge InformaCast to provide valid credentials for its SIP realm when registering or terminating a SIP call. Lack of valid credentials for a challenging realm means that requests to it will be rejected. You should enter valid credentials for each SIP realm where you expect InformaCast to be challenged.

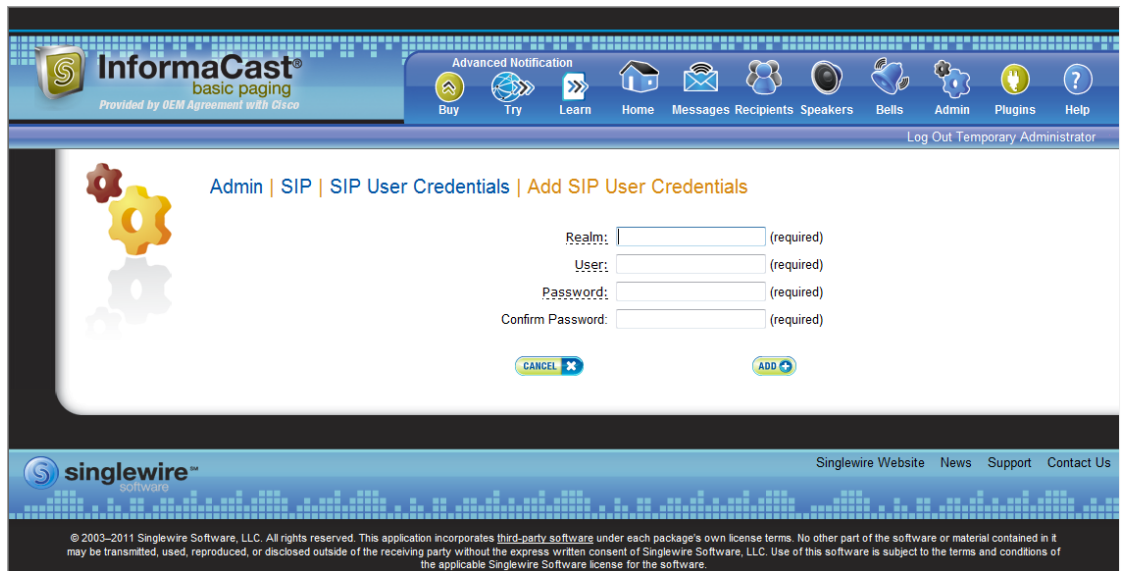
Add SIP User Credentials

Use the following steps to add SIP user credentials to InformaCast.

Step 1 Go to **Admin | SIP | SIP User Credentials**. The SIP User Credentials page appears.



Step 2 Click the **Add** button. The Add SIP User Credentials page appears.



Step 3 Enter the name of your SIP peer's SIP realm in the **Realm** field.

Step 4 Enter the username associated with the SIP peer's SIP realm in the **User** field.

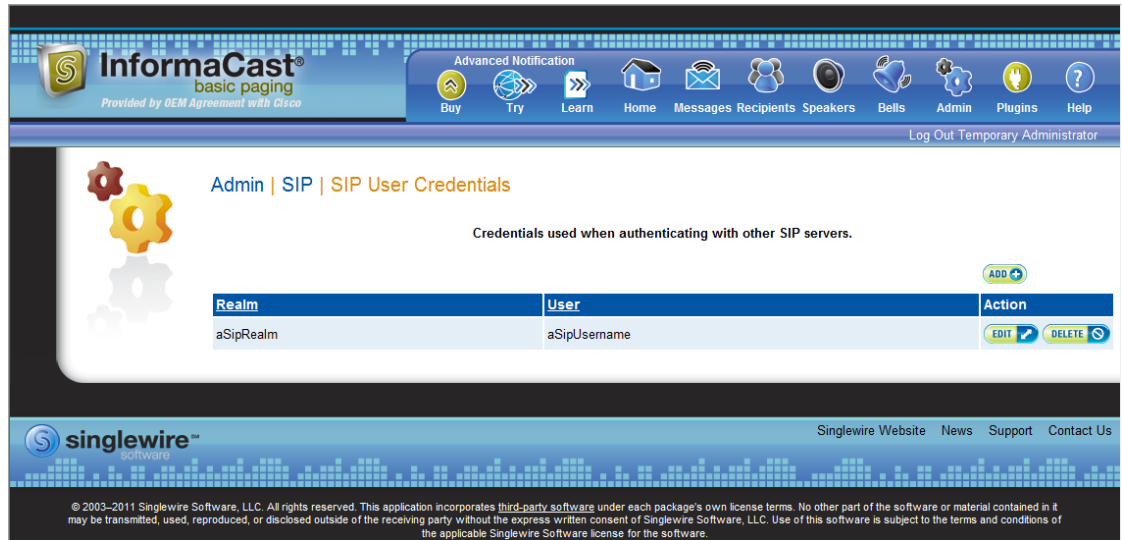
Step 5 Enter the password of the username associated with the SIP peer's SIP realm in the **Password** and **Confirm Password** fields.

Step 6 Click the **Add** button.

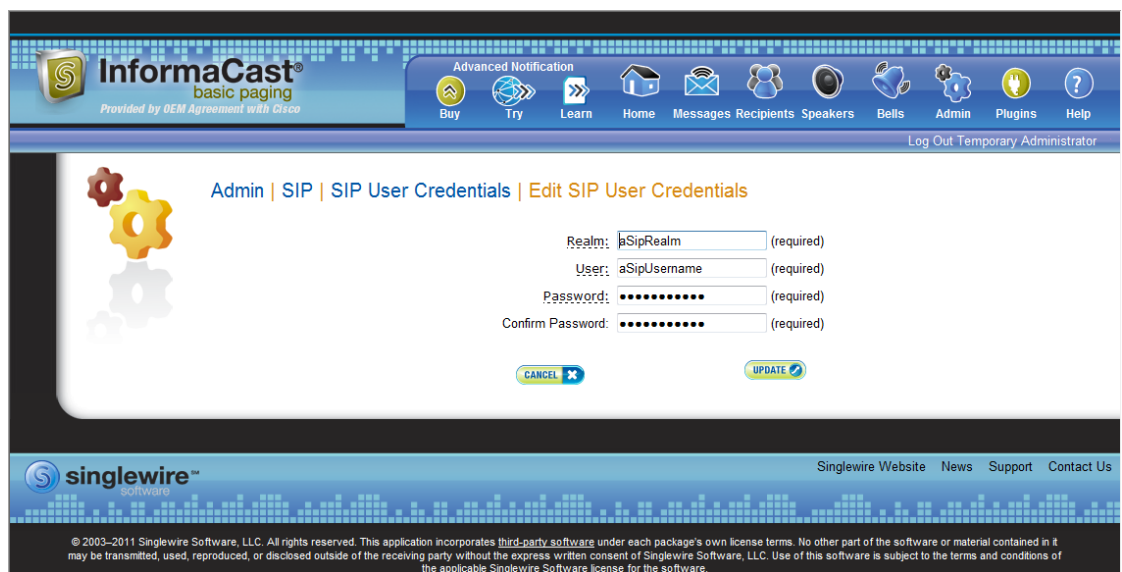
Edit SIP User Credentials

Once you have added SIP user credentials to InformaCast, you may want to edit their information.

Step 1 Go to **Admin | SIP | SIP User Credentials**. The SIP User Credentials page appears.



Step 2 Click the **Edit** button next to the user credentials you want to modify. The Edit SIP User Credentials page appears.



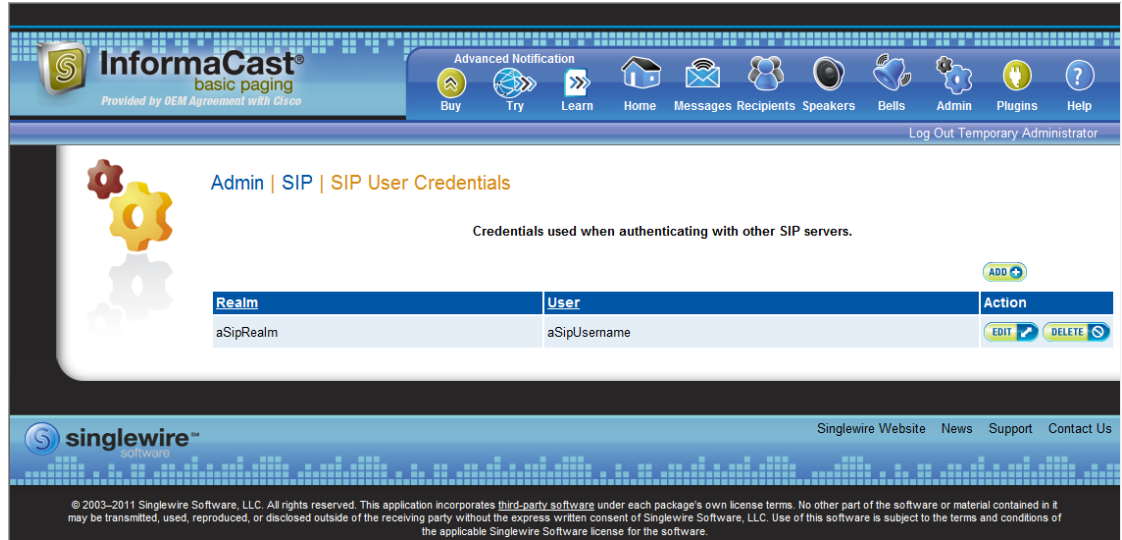
Step 3 Make your desired changes.

Step 4 Click the **Update** button to save your changes.

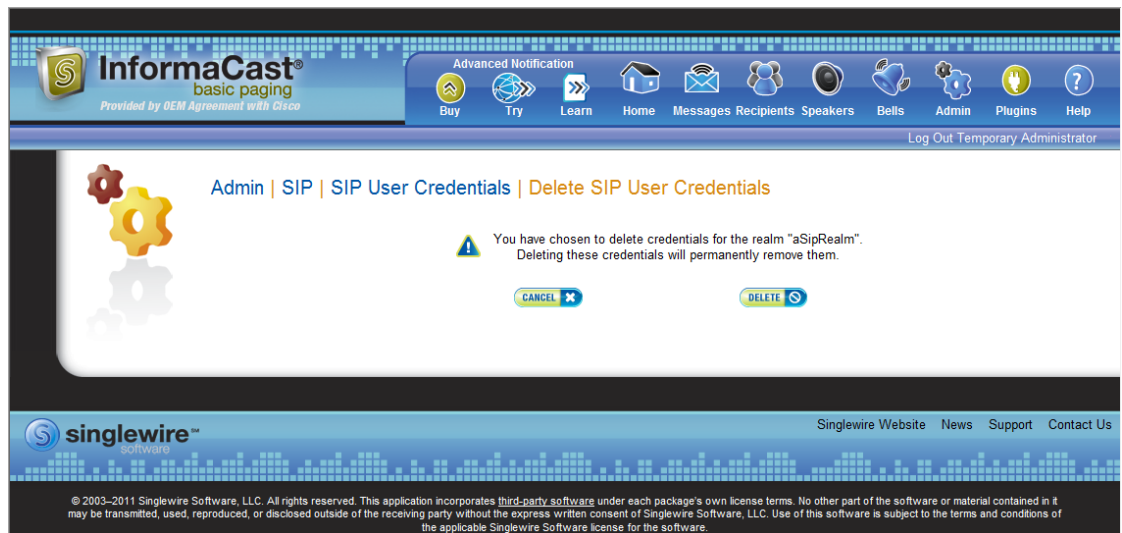
Delete SIP User Credentials

As your needs change, you may want to remove SIP user credentials from InformaCast.

Step 1 Go to **Admin | SIP | SIP User Credentials**. The SIP User Credentials page appears.



Step 2 Click the **Delete** button next to the SIP user credentials you want to delete. The Delete SIP User Credentials page appears.



Step 3 Click the **Delete** button. Your SIP user credentials are removed.

Manage SIP Certificates to Facilitate TLS Protocol



Note

This section is optional depending on the security of your environment.

The TLS protocol is used by SIP to provide secure signalling between SIP endpoints. Using TLS between two SIP hosts first requires the sending host to make a TCP connection with other host. Once the TCP connection has been made, the two hosts must agree upon an encryption protocol and cipher suite to be used when exchanging encrypted data with each other. Next, the two hosts must prove to each other that they are who they represent themselves to be. This process involves each host passing its identity certificate to the other host, thereby proving its trustworthiness since a copy of that certificate already resides in the other host's cache of trusted certificates. Once these steps have been successfully completed, the two hosts are ready to exchange SIP requests and responses between themselves over a secure channel.

It is essential that the InformaCast certificate be downloaded and installed at each host that expects to use TLS as its SIP transport protocol with InformaCast. It is also essential that a certificate from each of those same hosts be uploaded to InformaCast. You will also need to modify it and its security profile to use TLS.

When InformaCast is first installed, the key store only contains an RSA self-signed certificate for InformaCast. The InformaCast key store file is named keystore.jks (typically located in /usr/local/singlewire/InformaCast/web/WEB-INF/sip) and uses changeMe for its password. Each certificate in the certificate cache has an alias assigned to it. The alias is assigned when the certificate is uploaded and is set to be equal to the lowercase value of the common name in the certificate's subject line (i.e. CN=...).

View the InformaCast SIP Certificate

Use the following steps to view the SIP certificate for InformaCast.

Step 1 Go to **Admin | SIP | SIP Certificates**. The SIP Certificates page appears.

The screenshot shows the InformaCast Admin interface. At the top, there is a navigation bar with the InformaCast logo and a menu of icons for Buy, Try, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help. Below the navigation bar, the page title is "Admin | SIP | SIP Certificates". The main content area features a heading "Certificates used when establishing secure SIP connections between InformaCast and other SIP devices." and an "UPLOAD" button. Below this is a table with the following structure:

Alias	Action
informacast	VIEW DOWNLOAD

The footer of the page includes the Singlewire logo and the text: "© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software."



Note InformaCast installs with its own SIP certificate.

Step 2 Click the **View** button. The SIP Certificates page refreshes.

The screenshot shows the InformaCast Admin interface. The top navigation bar includes the InformaCast logo, a navigation menu with icons for Buy, Try, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help, and a 'Log Out Temporary Administrator' link. The main content area displays the breadcrumb 'Admin | SIP | SIP Certificates | SIP Certificate' and a detailed view of a certificate for the alias 'informacast'. The certificate details are as follows:

```

Certificate for alias informacast:
[
  Version: V3
  Subject: CN=InformaCast-172.30.227.212
  Signature Algorithm: SHA1withRSA, OID = 1.2.840.113549.1.1.5

  Key: Sun RSA public key, 1024 bits
  modulus:
1183697121016984262124186139075525433477849254894024690612744900000173735735326922621
1540857756645914171069876103438026520403470446582208459226084141271592141747568141928
7976525350321996019091283029028515297515845874347643393471135200295957930875774977221
915286745498762127423199339533477897994916941166934273
  public exponent: 65537
  Validity: [From: Wed Nov 16 20:13:12 CST 2011,
  To: Sat Apr 02 21:13:12 CDT 2039]
  Issuer: CN=InformaCast-172.30.227.212
  SerialNumber: [ 4ec46db8]
]
  Algorithm: [SHA1withRSA]
  Signature:
0000: 77 22 26 DF 15 E8 95 DD 8E 5C 50 FC 9C F6 ED BC w'&.....'P.....
0010: 36 9E 31 CC EF 2F 4A 11 52 F6 1E 4C 57 AB 79 4E 6.1...J.R.LW.yN
  
```

At the bottom of the certificate details, there is a 'DONE' button with a checkmark icon.

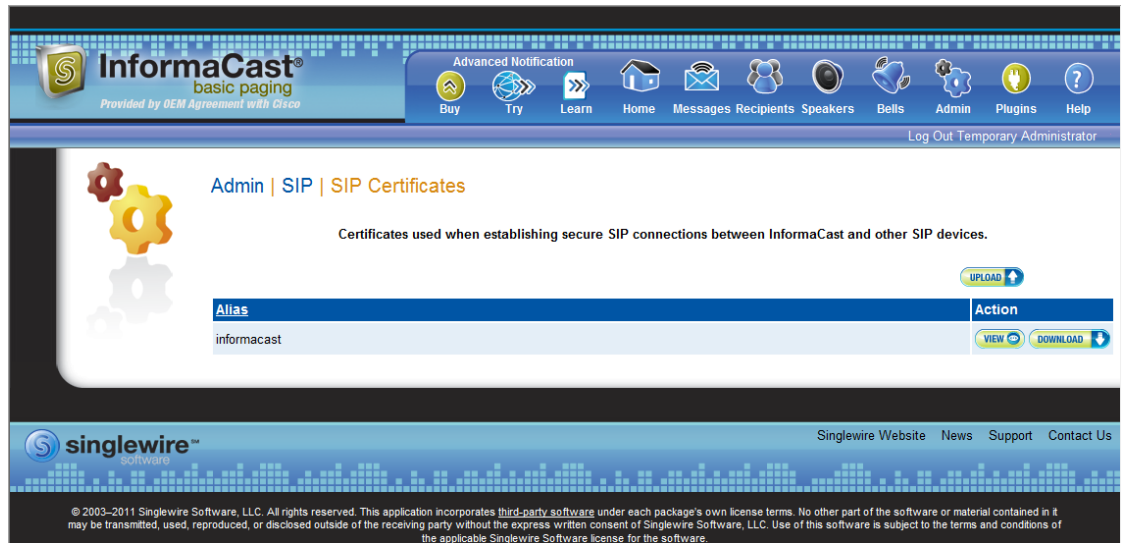
The footer of the interface includes the Singlewire logo and text: '© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.'

Step 3 Click the **Done** button to return to the SIP Certificates page.

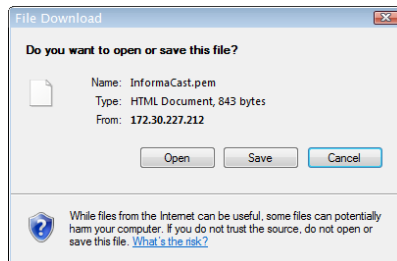
Install the InformaCast SIP Certificate on a SIP Device

To use the TLS protocol between Communications Manager and InformaCast, you will need to be using a SIP trunk for SIP configuration and install InformaCast's SIP certificate on all nodes in the Communications Manager group used by the trunk's device pool.

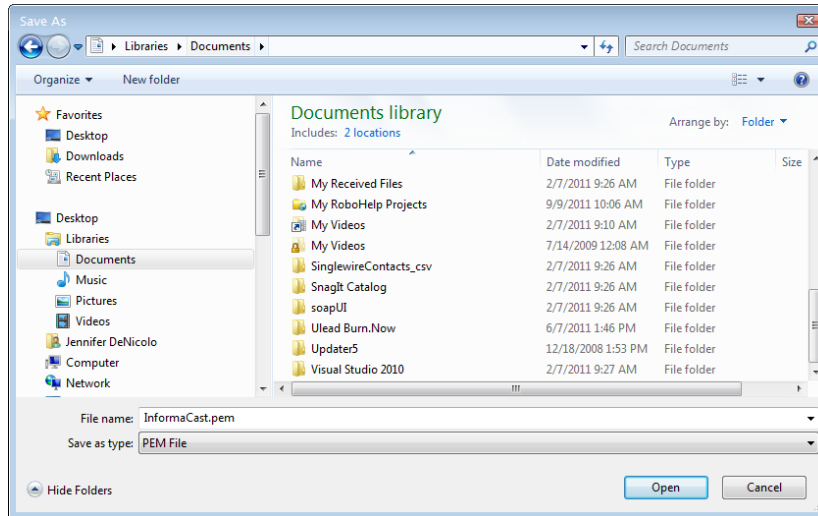
Step 1 Go to **Admin | SIP | SIP Certificates**. The SIP Certificates page appears.



Step 2 Click the **Download** button. The File Download dialog box appears.



Step 3 Click the **Save** button. The Save As dialog box appears.

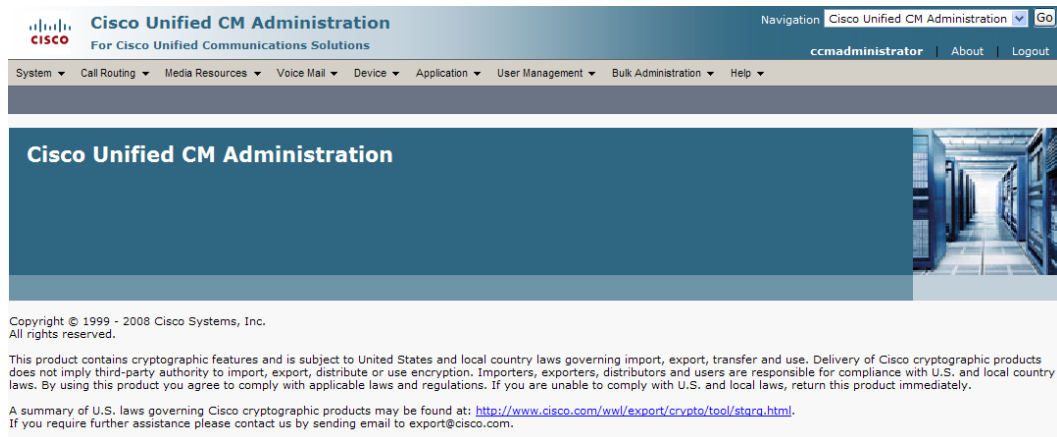


Step 4 Select a location accessible to your Communications Manager server(s) and click the **Save** button.



Note Leave this window open. You will come back to it.

Step 5 Open a web browser and log into the administration interface of the Communications Manager server (the address will be similar to <https://<Communications Manager IP Address>/CCMAdmin>). The Cisco Unified CM Administration page appears.



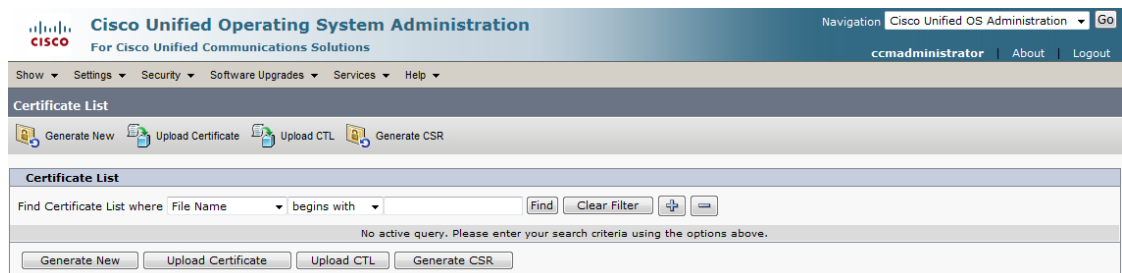
Step 6 Select **Cisco Unified OS Administration** from the **Navigation** dropdown menu and click the **Go** button. The Cisco Unified Operating System Administration page appears.



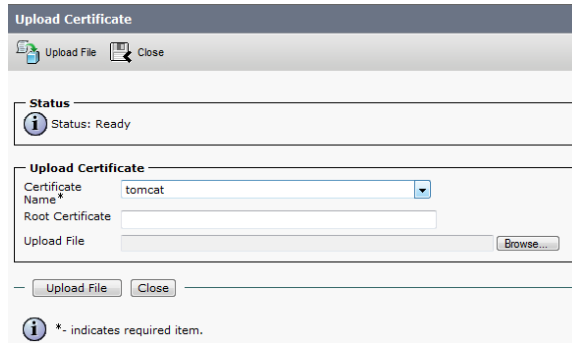
Step 7 Enter your Operating System Administration username and password in the **Username** and **Password** fields, respectively, and click the **Login** button. The Cisco Unified Operating System Administration page refreshes.



Step 8 Go to **Security | Certificate Management**. The Certificate List page appears.

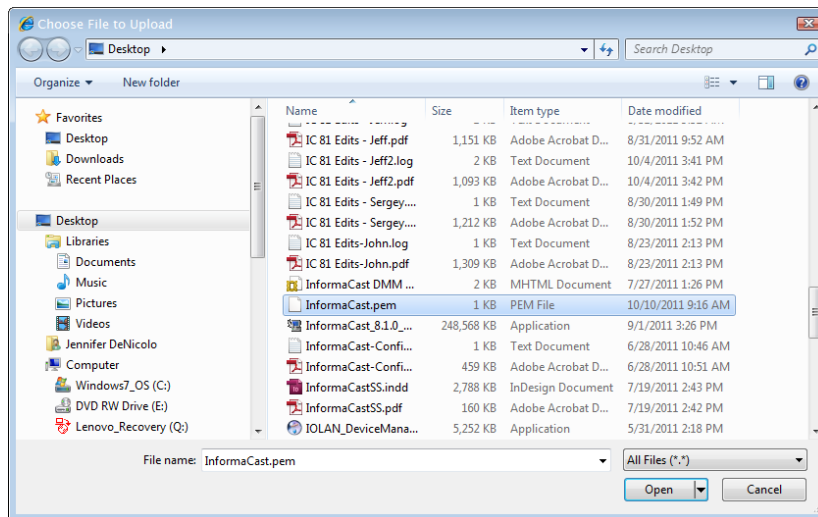


Step 9 Click the **Upload Certificate** button. The Upload Certificate window appears.



Step 10 Select **CallManager-trust** from the **Certificate Name** dropdown menu.

Step 11 Click the **Browse** button. The Choose File to Upload dialog box appears.



Step 12 Navigate to where you saved the InformaCast.pem file, select it, and click the **Open** button.

Step 13 Click the **Upload File** button on the Upload Certificate window.

Step 14 Click the **Close** button to close this window.

Step 15 Perform these steps for each Communications Manager server used by the SIP trunk.



Note TLS certificates are regenerated whenever Communications Manager is installed. So, if the server is restored from backup, these steps may need to be followed again. Also, InformaCast certificates are regenerated whenever InformaCast is installed or its IP address is changed, so this process will need to be followed again if InformaCast is re-installed or its IP address is changed.

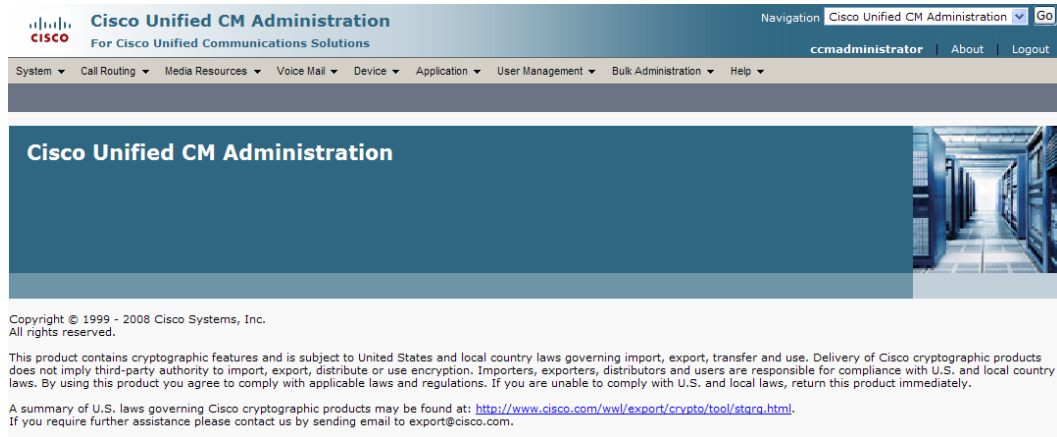
Modify the SIP Trunk's Security Profile to Use TLS

If your SIP trunk security profile was not previously configured to use TLS, you'll need to modify it so that it does.

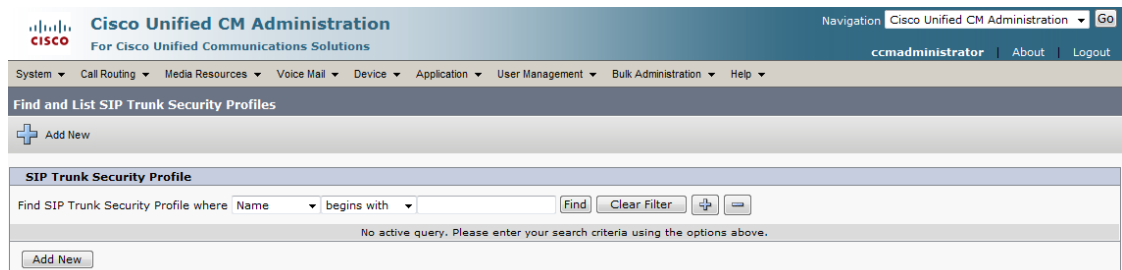
- Step 1** Select **Cisco Unified CM Administration** from the **Navigation** menu and click the **Go** button. The Cisco Unified CM Administration page appears.



- Step 2** Enter your administrative username and password in the **Username** and **Password** fields, respectively, and click the **Login** button. The Cisco Unified CM Administration page refreshes.



- Step 3** Go to **System | Security Profile | SIP Trunk Security Profile**. The Find and List SIP Trunk Security Profiles page appears.





Note If you are using Communications Manager 9.0 or later, you will go to **System | Security | SIP Trunk Security Profile** instead of **System | Security Profile | SIP Trunk Security Profile**.

Step 4 Click the **Find** button. The Find and List SIP Trunk Security Profiles page refreshes with a list of SIP trunk security profiles.

Step 5 Click the **Name** link for your SIP trunk security profile (you created this in “Create a SIP Trunk Security Profile” on page 4-31). The SIP Trunk Security Profile Configuration page appears.

Step 6 Select **Encrypted** from the **Device Security Mode** dropdown menu.

Step 7 Select **TLS** from the **Outgoing Transport Type** dropdown menu.

- Step 8** Enter **InformaCast- $\langle x.x.x.x \rangle$** in the **X.509 Subject Name** field, where $\langle x.x.x.x \rangle$ should be replaced with the IP address section of the common name assigned to InformaCast. This information can be found by viewing the SIP certificate.

```

Certificate for alias informacast:
[
  [
    Version: V3
    Subject: CN=InformaCast-172.30.227.212
    Signature Algorithm: SHA1withRSA, OID = 1.2.840.113549.1.1.5

    Key: Sun RSA public key, 1024 bits
    modulus:
1183697121016984262124186139075525433477849254894024690612744900000173735735326922621
1540857756645914171069876103438026520403470446582208459226084141271592141747568141928
7976525350321996019091283029028515297515845874347643393471135200295957930875774977221
915286745498762127423199339533477897994916941166934273
    public exponent: 65537
    Validity: [From: Wed Nov 16 20:13:12 CST 2011,
              To: Sat Apr 02 21:13:12 CDT 2039]
    Issuer: CN=InformaCast-172.30.227.212
    SerialNumber: [ 4ec46db8]
  ]
]
Algorithm: [SHA1withRSA]
Signature:
0000: 77 22 26 DF 15 E8 95 DD 8E 5C 50 FC 9C F6 ED BC w*&.....\P.....
0010: 36 9E 31 CC EF 2F 4A 11 52 F6 1E 4C 57 AB 79 4E 6.1..J.R..LW.yN
  
```

- Step 9** Enter **5061** in the **Incoming Port** field.

- Step 10** Click the **Save** button.

Modify the SIP Trunk to Use TLS

If your SIP trunk was not previously configured to use TLS, you'll need to modify it so that it does.



Note Make sure to reset your SIP trunk when you finish these steps so that the changes take effect.

- Step 1** Go to **Device | Trunk**. The Find and List Trunks page appears.

The screenshot shows the Cisco Unified CM Administration interface. The top navigation bar includes 'Cisco Unified CM Administration' and 'For Cisco Unified Communications Solutions'. Below the navigation bar, there is a 'Find and List Trunks' section with an 'Add New' button. The main content area shows a search bar with the text 'Find Trunks where Device Name begins with' and a 'Find' button. Below the search bar, there is a message: 'No active query. Please enter your search criteria using the options above.' and an 'Add New' button.

Step 2 Click the **Find** button. The Find and List Trunks page refreshes.

The screenshot shows the Cisco Unified CM Administration interface. At the top, there is a navigation bar with the title "Cisco Unified CM Administration" and a search bar. Below the navigation bar, there are several tabs: "System", "Call Routing", "Media Resources", "Voice Mail", "Device", "Application", "User Management", "Bulk Administration", and "Help". The main content area is titled "Find and List Trunks".

Below the title, there are several action buttons: "Add New", "Select All", "Clear All", "Delete Selected", and "Reset Selected". A status bar indicates "1 records found".

The main table is titled "Trunks (1 - 1 of 1)" and has a "Rows per Page" dropdown set to 50. The table has the following columns: Name, Description, Calling Search Space, Device Pool, Route Pattern, Partition, Route Group, Priority, Trunk Type, and SIP Trunk Security Profile. The table contains two rows:

Name	Description	Calling Search Space	Device Pool	Route Pattern	Partition	Route Group	Priority	Trunk Type	SIP Trunk Security Profile
LPI	Singlewire LPI	LPI-CSS	Relicast					SIP Trunk	Non Secure SIP Trunk Profile
SIPTrunk			InformaCast	234X				SIP Trunk	Non Secure SIP Trunk Profile

At the bottom of the table, there are several action buttons: "Add New", "Select All", "Clear All", "Delete Selected", and "Reset Selected".

Step 3 Click the **Name** link for your SIP trunk. The Trunk Configuration page appears.

The screenshot shows the Cisco Unified CM Administration interface for configuring a SIP Trunk. The page is titled "Trunk Configuration" and includes a navigation bar with "Cisco Unified CM Administration" and "For Cisco Unified Communications Solutions". The user is logged in as "ccmadministrator".

Trunk Configuration

Save Delete Reset Add New

Related Links: Back To Find/List Go

Status
Status: Ready

Device Information

Product: SIP Trunk
 Device Protocol: SIP
 Device Name*: SIPTrunk
 Description: Singlewire SIP Trunk
 Device Pool*: InformaCast
 Common Device Configuration: < None >
 Call Classification*: Use System Default
 Media Resource Group List: < None >
 Location*: Hub_None
 AAR Group: < None >
 Packet Capture Mode*: None
 Packet Capture Duration: 0

Media Termination Point Required
 Retry Video Call as Audio
 Transmit UTF-8 for Calling Party Name
 Unattended Port

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain: < None >

Call Routing Information

Inbound Calls

Significant Digits*: All
 Connected Line ID Presentation*: Default
 Connected Name Presentation*: Default
 Calling Search Space: LPI-CSS
 AAR Calling Search Space: < None >
 Prefix DN:
 Redirecting Diversion Header Delivery - Inbound

Outbound Calls

Calling Party Selection*: Originator
 Calling Line ID Presentation*: Default
 Calling Name Presentation*: Default
 Caller ID DN:
 Caller Name:
 Redirecting Diversion Header Delivery - Outbound

SIP Information

Destination Address*: 10.10.10.10
 Destination Address is an SRV
 Destination Port*: 5060
 MTP Preferred Originating Codec*: 711ulaw
 Presence Group*: Standard Presence group
 SIP Trunk Security Profile*: Non Secure SIP Trunk Profile
 Rerouting Calling Search Space: < None >
 Out-Of-Dialog Refer Calling Search Space: < None >
 SUBSCRIBE Calling Search Space: < None >
 SIP Profile*: Standard SIP Profile
 DTMF Signaling Method*: No Preference

Save Delete Reset Add New

i * - indicates required item.
i ** - Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.

- Step 4** Scroll down to the *SIP Information* area and enter **5061** in the **Destination Port** field.
- Step 5** Click the **Save** button.
- Step 6** Click the **Reset** button.

Install SIP Device Certificates on InformaCast

To use the TLS protocol between a SIP device and InformaCast, you will need to install InformaCast's SIP certificate on the SIP device.

- Step 1** Select **Cisco Unified OS Administration** from the **Navigation** dropdown menu and click the **Go** button. The Cisco Unified Operating System Administration page appears.



- Step 2** Enter your Operating System Administration username and password in the **Username** and **Password** fields, respectively, and click the **Login** button. The Cisco Unified Operating System Administration page refreshes.



Step 3 Go to **Security | Certificate Management**. The Certificate List page appears.

The screenshot shows the Cisco Unified Operating System Administration interface. The page title is "Certificate List". The navigation menu includes "Show", "Settings", "Security", "Software Upgrades", "Services", and "Help". The user is logged in as "ccmadministrator". The page contains a search bar with the text "Find Certificate List where File Name begins with" and buttons for "Find", "Clear Filter", and "Go". Below the search bar, there is a message: "No active query. Please enter your search criteria using the options above." At the bottom of the page, there are buttons for "Generate New", "Upload Certificate", "Upload CTL", and "Generate CSR".

Step 4 Click the **Find** button. The Certificate List page refreshes.

The screenshot shows the Cisco Unified Operating System Administration interface after a search. The page title is "Certificate List" and it includes navigation menus, a search bar, and buttons for "Generate New", "Upload Certificate", "Upload CTL", and "Generate CSR". The search results are displayed in a table with the following columns: File Name, .PEM File, .DER File, Certificate Name, and Certificate Type. The table contains 14 rows of data. Below the table, there are buttons for "Generate New", "Upload Certificate", "Upload CTL", and "Generate CSR".

File Name	.PEM File	.DER File	Certificate Name	Certificate Type
CAP-RTP-001	a0440f4c_0		CAPF-trust	trust-certs
CAP-RTP-001	CAP-RTP-001.pem		CallManager-trust	trust-certs
CAP-RTP-002	a69d2e04_0		CAPF-trust	trust-certs
CAP-RTP-002	CAP-RTP-002.pem		CallManager-trust	trust-certs
CAPF-de86176c	CAPF-de86176c.pem		CallManager-trust	trust-certs
CAPF	061fd1db_0	CAPF.der	CAPF	certs
CallManager	CallManager.pem	CallManager.der	CallManager	certs
Cisco_Manufacturing_CA	f7a74b2c_0		CAPF-trust	trust-certs
Cisco_Manufacturing_CA	Cisco_Manufacturing_CA.pem		CallManager-trust	trust-certs
Cisco_Root_CA_2048	dcc12642_0		CAPF-trust	trust-certs
Cisco_Root_CA_2048	Cisco_Root_CA_2048.pem		CallManager-trust	trust-certs
InformaCast	InformaCast.pem	InformaCast.der	CallManager-trust	trust-certs
ipsec_cert	ipsec_cert.pem	ipsec_cert.der	ipsec	certs
tomcat_cert	tomcat_cert.pem	tomcat_cert.der	tomcat	certs

Step 5 Click the **CallManager.pem** link in the .PEM File column. The Certificate Configuration page appears.

The screenshot shows the Cisco Unified Operating System Administration interface. The page title is "Certificate Configuration". At the top, there are navigation menus for "Settings", "Security", "Software Upgrades", "Services", and "Help". Below the navigation is a "Certificate Configuration" section with buttons for "Regenerate", "Download", and "Generate CSR". The "Status" section shows "Status: Ready". The "Certificate Settings" section displays the following information:

- File Name: CallManager.pem
- Certificate Name: CallManager
- Certificate Type: certs
- Certificate Group: product-cm

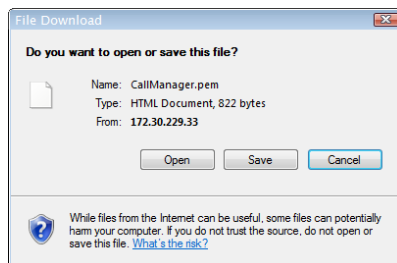
The "Certificate File Data" section shows the following details:

```

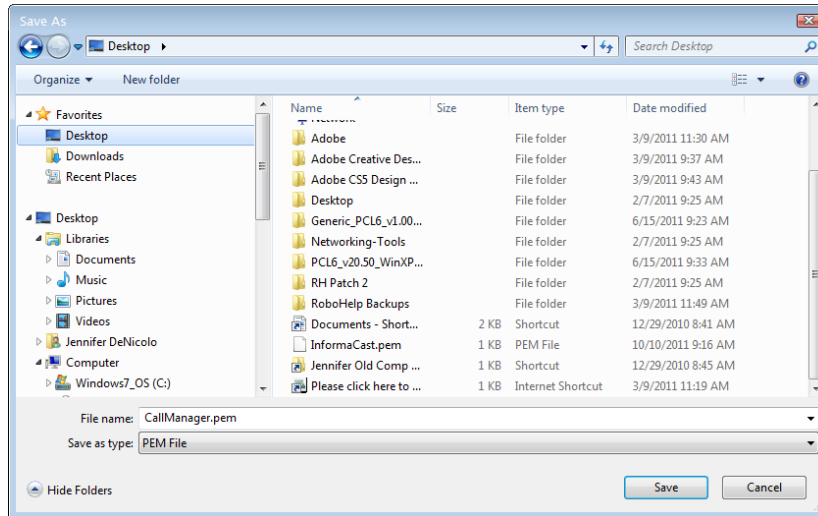
Certificate:
Data:
  Version: 3 (0x2)
  Serial Number:
    18:64:e7:75:bc:7a:05:a7
  Signature Algorithm: sha1WithRSAEncryption
  Issuer: CN=IPTAPPS-CCM60-PUB
  Validity
    Not Before: Jul  6 16:55:06 2009 GMT
    Not After : Jul  6 16:55:06 2014 GMT
  Subject: CN=IPTAPPS-CCM60-PUB
  Subject Public Key Info:
    Public Key Algorithm: rsaEncryption
    RSA Public Key: (1024 bit)
    Modulus (1024 bit):
      00:90:6c:4f:39:67:0a:4c:12:65:06:7b:92:68:76:
      2e:af:0f:6f:54:8d:eb:2f:4b:21:6b:3e:40:ce:53:
      f2:59:59:82:7f:20:88:25:33:ff:99:a4:3e:a1:25:
      c2:b2:d5:17:00:9f:d9:be:aa:27:6a:06:37:55:b5:
      64:a7:42:17:ed:70:fa:c2:f6:34:4f:7e:5f:50:e8:
      a9:1f:ef:12:ba:ec:fc:84:7b:c5:dc:8a:89:cb:72:
      e0:30:a1:89:4f:e1:9a:55:73:d8:a5:50:53:45:6a:
      34:1d:28:2b:e2:98:7a:15:5f:83:0b:26:76:42:1c:
  
```

At the bottom of the page, there are buttons for "Regenerate", "Download", and "Generate CSR". A note below the buttons states: "i * - indicates required item."

Step 6 Click the **Download** button. The File Download dialog box appears.



Step 7 Click the **Save** button. The Save As dialog box appears.



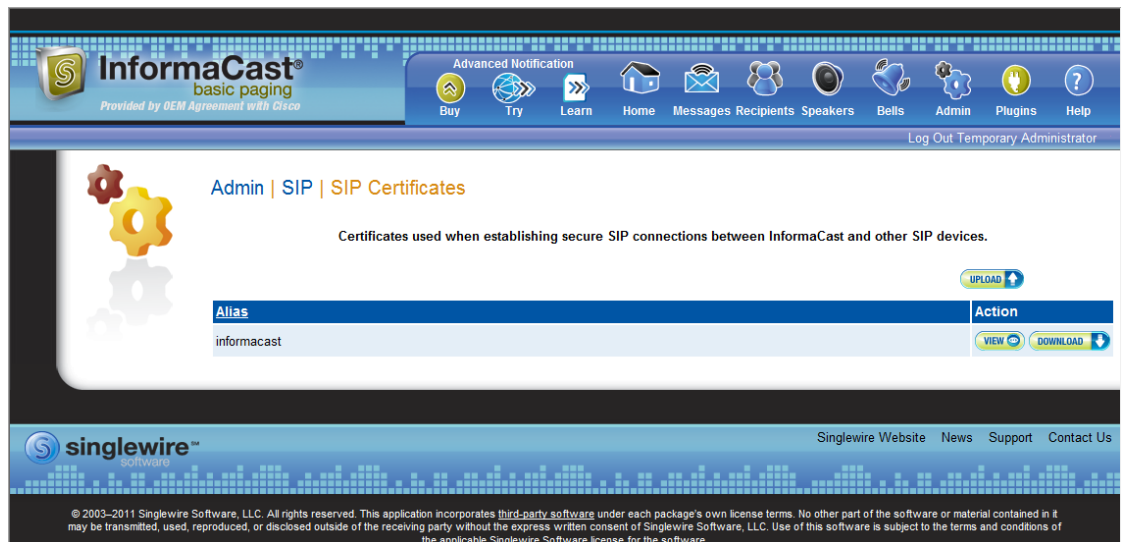
Step 8 Select a location accessible to your InformaCast server and click the **Save** button.



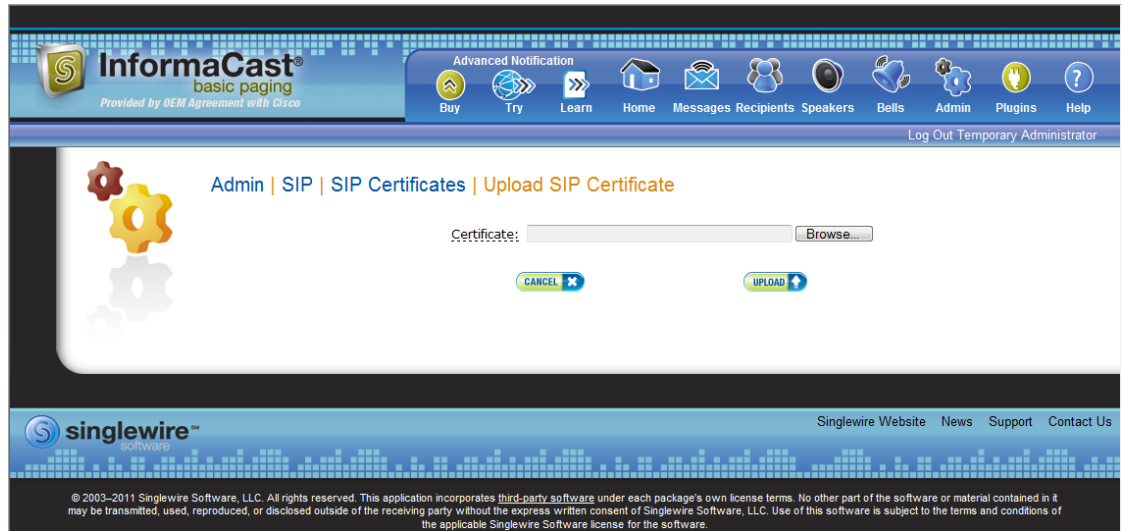
Note Perform Steps 1 through 8 for each Communications Manager server that will communicating to InformaCast.

Step 9 Go back to your InformaCast window.

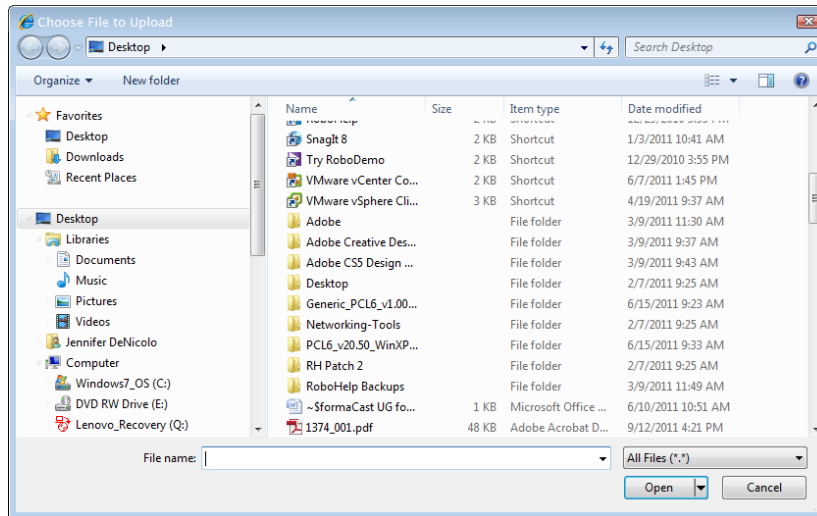
Step 10 Go to **Admin | SIP | SIP Certificates**. The SIP Certificates page appears.



Step 11 Click the **Upload** button. The Upload SIP Certificate page appears.



Step 12 Click the **Browse** button. The Choose File to Upload dialog box appears.



Step 13 Navigate to where you saved your CallManager.pem file, select it, and click the **Open** button.

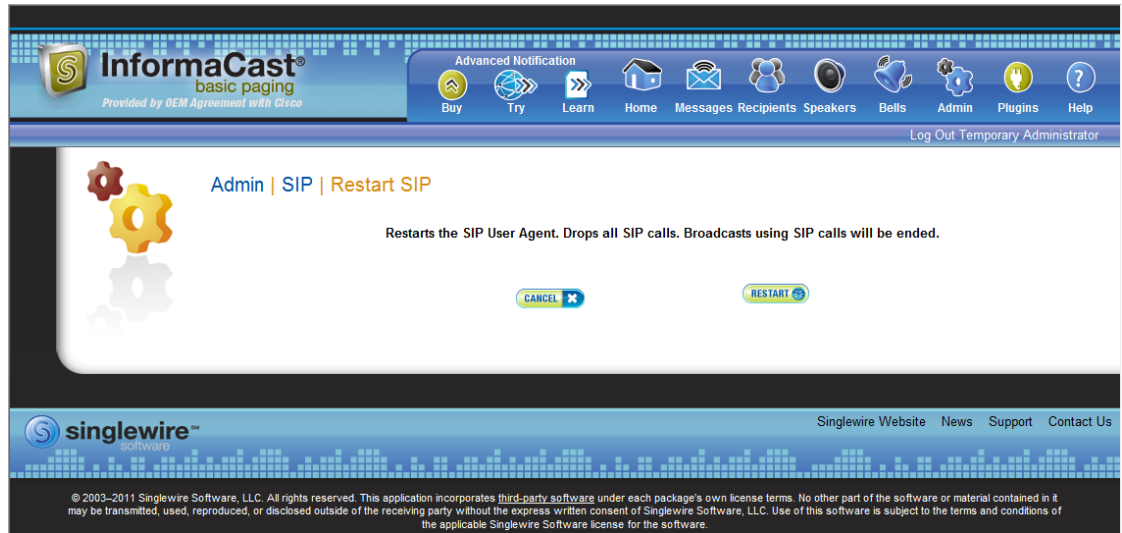
Step 14 Click the **Upload** button.

Step 15 Perform Steps 11 through 14 for each CallManager.pem file you downloaded.



Note Any changes made to InformaCast's certificate cache, including uploads and deletions, require a SIP restart before they take effect.

Step 16 Go to **Admin | SIP | Restart SIP**. The Restart SIP page appears.



Step 17 Click the **Restart** button. It may take a few moments for SIP to restart.



Caution

Restarting SIP causes all SIP calls to be dropped, i.e. any callers interacting with the DialCast IVR will have their calls dropped. Broadcasts using SIP calls will also be impacted by a restart. Live broadcasts using SIP calls will be stopped.

Manage the SIP Stack

InformaCast uses the National Institute of Standards and Technology (NIST) SIP stack to provide it with basic SIP functionality. The SIP stack provides InformaCast with fundamental low-level SIP functionality such as transaction handling, dialogs, utilities for SIP headers, maintenance of SIP timers, etc.



Tip

The logs generated for the SIP stack (SIP Stack Log and SIP Stack Debug Log) are accessible through the Support page (**Help | Support**).



Caution

Caution should be exercised when enabling detailed logging in the SIP stack because of the large size of the log files it produces and the degradation of stack performance due to extensive logging. Detailed logging is intended to be used only when troubleshooting SIP problems and should not be enabled for any longer than necessary. Two log files are generated in the InformaCast logs directory: sipStackDebug.log and sipStackServer.log.

Step 1 Go to **Admin | SIP | SIP Stack**. The SIP Stack page appears.

InformaCast®
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help
Log Out Temporary Administrator

Admin | SIP | SIP Stack

Provides low-level SIP functionality.

Click to restore to default settings **RESTORE**

UDP/TCP Port: 5060 (required)
TLS Port: 5061 (required)

Enable Detailed Logging:
Max Forwards: 70
Read Timeout: 1000

Cache Client Connections:
Cache Server Connections:

CANCEL **UPDATE**

singlewire™
software

Singlewire Website News Support Contact Us

© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.



Note

Most values on this page should not ever need to be changed. The values most likely to be changed are the SIP port numbers and the detailed logging checkbox. For more information about the fields/dropdown menus, see “Manage the SIP Stack” in the “InformaCast Virtual Appliance Installation and User Guide.” If you make any changes, click the **Update** button or click the **Restore** button to return to your default settings.

Changing the port numbers necessitates you changing them on the InformaCast Virtual Appliance’s firewall as well to allow inbound traffic on the new port.



Caution

You’ll need to restart SIP. Restarting SIP causes all SIP calls to be dropped, i.e. any callers interacting with the DialCast IVR will have their calls dropped. Broadcasts using SIP calls will also be impacted by a restart. Live broadcasts using SIP calls will be stopped.

Restart SIP

Changes to the SIP stack or certificates require a restart before they take effect. Other SIP changes, such as changes to access and authentication, take effect as soon as they are made.

**Caution**

Restarting SIP causes all SIP calls to be dropped, i.e. any callers interacting with the DialCast IVR will have their calls dropped. Broadcasts using SIP calls will also be impacted by a restart. Live broadcasts using SIP calls will be stopped.

Step 1 Go to **Admin | SIP | Restart SIP**. The Restart SIP page appears.



Step 2 Click the **Restart** button. It may take a few moments for SIP to restart.

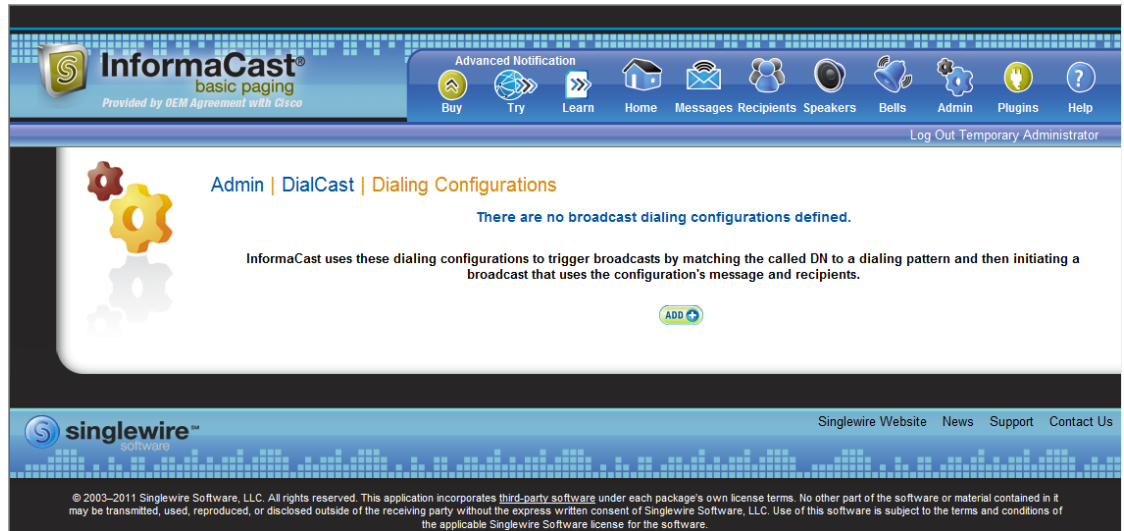
Manage DialCast Functionality

InformaCast's DialCast functionality allows you to dial a route point or SIP number to trigger an InformaCast broadcast. InformaCast is notified for each route point and SIP call it receives. The configured dialing pattern that matches the dialed DN determines which InformaCast message should be sent and which recipient groups should receive it.

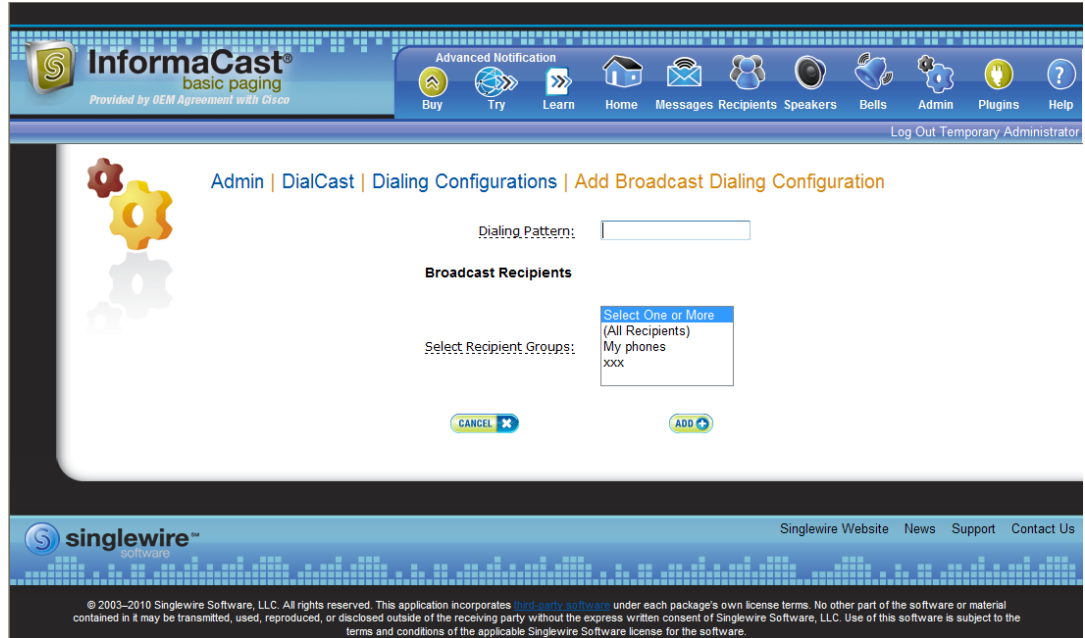
Add a Broadcast Dialing Configuration

Dialing patterns determine which recipient group will be used based on the number that is dialed.

Step 1 Go to **Admin | DialCast | Dialing Configurations**. The Dialing Configurations page appears.



Step 2 Click the **Add** button. The Add Broadcast Dialing Configuration page appears.



Step 3 Enter a dialing pattern (e.g. 8811) for a route point monitored by InformaCast in the **Dialing Pattern** field. This is the same route point you created in “Create Route Points” on page 2-12. You will need to add at least one dialing pattern configuration for each route point line monitored by InformaCast.

**Tip**

It is possible to use * or #, when setting up a dial pattern, but you must add \ before the character so that InformaCast doesn't treat it as a wildcard. For example, **1 would have a dial pattern of **1.

Step 4 Select a recipient group or groups from the **Select Recipient Groups** field.

Step 5 Click the **Add** button to save your current dialing pattern configuration.

Edit a Broadcast Dialing Configuration

Once you have added dialing configurations, you may need to modify them.

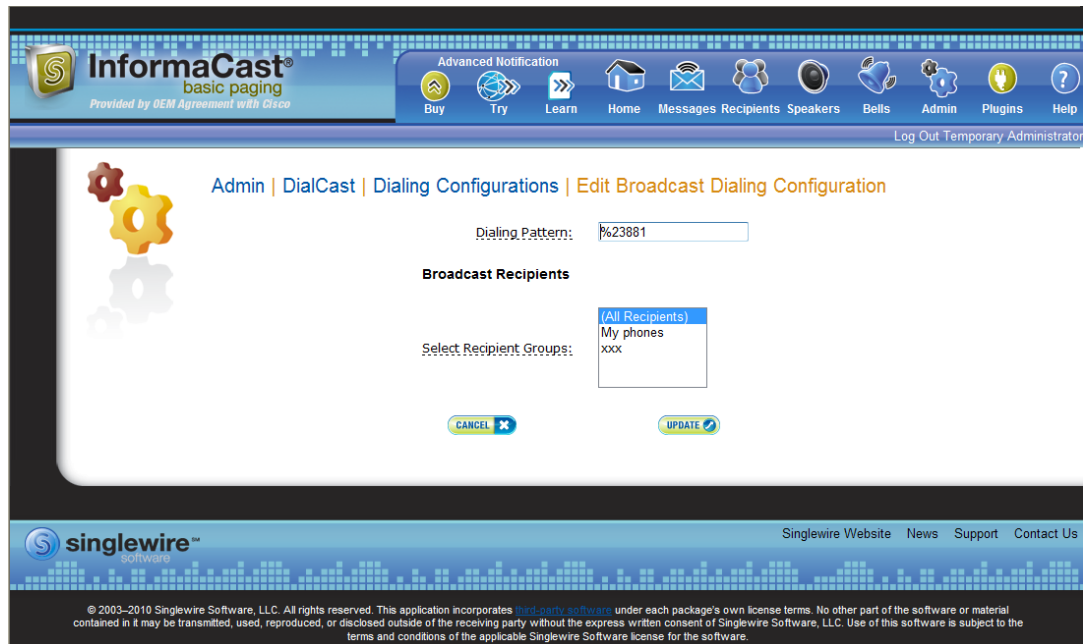
Step 1 Go to **Admin | DialCast | Dialing Configurations**. The Dialing Configurations page appears.

InformaCast uses these dialing configurations to trigger broadcasts by matching the called DN to a dialing pattern and then initiating a broadcast that uses the configuration's message and recipients.

Dialing Pattern	Recipient Groups	Action
881	(All Devices)	ADD EDIT DELETE

© 2003–2010 Singlewire Software, LLC. All rights reserved. This application incorporates [third-party software](#) under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

- Step 2** Click the **Edit** button next to the dialing configuration you want to change. The Edit Broadcast Dialing Configuration page appears.



- Step 3** Make your changes.
- Step 4** Click the **Update** button.

Delete a Broadcast Dialing Configuration

As your needs change, you may want to delete older dialing configurations from InformaCast.

Step 1 Go to **Admin | DialCast | Dialing Configurations**. The Dialing Configurations page appears.

InformaCast[®]
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Admin | DialCast | Dialing Configurations

InformaCast uses these dialing configurations to trigger broadcasts by matching the called DN to a dialing pattern and then initiating a broadcast that uses the configuration's message and recipients.

Dialing Pattern	Recipient Groups	Action
881	(All Devices)	EDIT DELETE

singlewire™
software

Singlewire Website News Support Contact Us

© 2003–2010 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Step 2 Click the **Delete** button next to the dialing configuration you want to delete. The Delete Broadcast Dialing Configuration page appears.

InformaCast[®]
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Admin | DialCast | Dialing Configurations | Delete Broadcast Dialing Configuration

You have chosen to delete the broadcast dialing configuration with the dialing pattern 881. Deleting this configuration will permanently remove it from the list of broadcast dialing configurations.

CANCEL DELETE

singlewire™
software

Singlewire Website News Support Contact Us

© 2003–2010 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Step 3 Click the **Delete** button. Your broadcast dialing configuration is deleted.

Send a Broadcast

**Tip**

Before you can send a broadcast, you must have DialCasts configured (see “Manage DialCast Functionality” on page 4-67) as well as either route points (see “Create Route Points” on page 2-12) or a SIP trunk (see “Configure a SIP Trunk” on page 4-30).

With Basic InformaCast functionality, you only have the ability to send Live Audio messages as broadcasts. With Advanced InformaCast functionality, there are eight types of messages that can be grouped into four separate broadcast categories:

- Text, Text and Pre-recorded Audio, and Pre-recorded Audio messages
- Text and Live Audio and Live Audio messages
- Text and Ad-hoc Audio and Ad-hoc Audio messages
- Talk and Listen messages

**Note**

For more information on Advanced InformaCast functionality, please [contact Singlewire Software](#).

To send a Live Audio broadcast, dial a directory number on your Cisco IP phone that corresponds to a broadcast dialing configuration (see “Add a Broadcast Dialing Configuration” on page 4-68), which is tied to either a route point (see “Create Route Points” on page 2-12) or a SIP trunk (see “Configure a SIP Trunk” on page 4-30) in Communications Manager. The call will be processed, and as soon as all the recipients specified in your broadcast dialing configuration have been activated (minus the phones already in use), you will be broadcasting live.

Cancel a Broadcast

Once you have sent a broadcast, you may need to cancel it.

- Step 1** Go to **Messages | Send or Edit Messages**. The Send or Edit Messages page appears with a note at the top of the page that, “InformaCast is currently broadcasting.”

InformaCast basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Messages | Send or Edit Messages

In Basic Paging, you have access to one message only, Basic Paging Live Broadcast. Upgrading to Advanced Notification will allow you to use the other messages listed on this page. You will also be able to create your own messages.

InformaCast is currently broadcasting. [VIEW](#) active broadcast(s).

PREVIOUS Page 1 of 1 NEXT Jump to page: GO Show 50 results per page ADD

Description	Display Short Text	Type	Action
Basic Paging Live Broadcast		Live Audio * *	SEND EDIT COPY DELETE
Example Ad-Hoc Broadcast	This is an ad-hoc broadcast.	Ad-Hoc Audio §	SEND EDIT COPY DELETE
Example failed mail server	Email is down at \$(time) on \$(date)	Text §	SEND EDIT COPY DELETE
Example Hammer	This is a broadcast of an industrial sounding hammer	Text and Pre-Recorded Audio §	SEND EDIT COPY DELETE
Example Humoctopus Alert	There is a Humoctopus in the building! --This is only a test.	Text and Pre-Recorded Audio * §	SEND EDIT COPY DELETE
Example Monthly Meeting	Monthly company wide meeting is at 8:00. Press the details soft-key.	Text §	SEND EDIT COPY DELETE
Example Ring tone - Bell 1		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Bell 2		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Bell 3		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Clock chime		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Ding dong		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Tone 1		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Ring tone - Tone 2		Pre-Recorded Audio *	SEND EDIT COPY DELETE
Example Severe Weather	Severe weather is in the area at \$(time) on \$(date).	Text §	SEND EDIT COPY DELETE
Example Singlewire Broadcast	This is a broadcast from Singlewire's Broadcast System!	Text and Pre-Recorded Audio §	SEND EDIT COPY DELETE
Example Tornado	There is a tornado in the area at \$(time) on \$(date).	Text §	SEND EDIT COPY DELETE
Example Winter Weather	There is severe winter weather in the area at \$(time) on \$(date).	Text §	SEND EDIT COPY DELETE

PREVIOUS Page 1 of 1 NEXT Jump to page: GO Show 50 results per page

* Message will skip phones that are in use.
§ Message is persistent.
* Message delivery is synchronized. It will start after a delay, and play only once.

singlewire™ Singlewire Website News Support Contact Us

© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Step 2 Click the **View** button to see a list of ongoing broadcasts. The Current Active Broadcasts page appears.

InformaCast[®]
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help
Log Out Temporary Administrator

Messages | Send or Edit Messages | Current Active Broadcasts

Description	Started	By User	Action
Sending broadcast (Example Singlewire Broadcast) to [Directory number: 71012]	Tue Dec 07 10:44:29 CST 2010	Temporary Administrator (admin)	END

singlewire™
Singlewire Website News Support Contact Us

© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

This list offers you the ability to end any of the active broadcasts. This is particularly useful if, for example, an attempt to capture audio has been accidentally directed to a voicemail system.

Step 3 Click the **End** button of the broadcast you'd like to cancel. InformaCast displays a confirmation screen to make sure you picked the right message and that you really want to end the broadcast.

Step 4 Click the **End** button. InformaCast will stop sending the broadcast, and take you back to the Send or Edit Messages page.

If the message ends on its own or is cancelled by another administrator while you're following these steps, InformaCast will tell you that there are no active broadcasts.



CHAPTER 5

Administering InformaCast

When you click the **Admin** icon, you will be brought to the Overview page. On this page, you can view various statistics associated with the administration of InformaCast, such as how long the current session of InformaCast has been running, your version of InformaCast, and the configuration of your backups and phone updates.

InformaCast® basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Admin | Overview

Welcome to the InformaCast configuration overview page. For specific configuration tasks, please use the "Admin" menu.

Times		Backup		Versions	
Current Server Time	2011-10-24 16:13:40	Backup Activated	false	InformaCast Version	8.3.0
Application Start Time	2011-10-24 14:48:29	Next Scheduled Backup		Communications Manager Versions	Default configuration 8.6
		Backup Location		JTAPI Version	Cisco Jtapi

Phone Updates		CTI Route Points		
Last Attempted Phone Rebuild	2011-10-24 16:10:00	Name	DN	State
Last Successful Phone Rebuild	2011-10-24 16:10:02	MarkRP	0XXXXX	IN_SERVICE
Last Attempted Phone Refresh	never	MarkRP	88X	IN_SERVICE
Last Successful Phone Refresh	never	MarkRP	*777	IN_SERVICE
Number of Phones Retrieved	13	MarkRP	#777	IN_SERVICE
Number of Phones Used / Licensed	1 / 1000			
Next Phone Rebuild	2011-10-24 17:10:00			
Phone Refresh Interval (minutes)	disabled			

SIP User Agent Status
User Agent is running

Singlewire Website News Support Contact Us

© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Beyond simply using InformaCast to send broadcasts, you can set up InformaCast backups and manage phone updates, SNMP monitoring, and session timeouts.

Manage InformaCast Backups

Using the native database and file export inside InformaCast, you can configure the timing behind scheduled backups of the InformaCast configuration, which includes the InformaCast database, configuration data, and phone display assets.



Note

If you do not set a time for backups, automatic backups will not occur.



Tip

The backup process described in the following sections illustrates how to backup to a Windows server. It is possible to back up InformaCast to other operating systems. When backing up to a non-Windows OS, you will need to establish an SFTP client connection to the InformaCast server and download the InformaCastBackup.zip file from the path that you specify in “Configure InformaCast Backups” on page 5-2. You can use the existing dobackup.cmd file as an example for how backups are triggered on a Windows server, but you will need to adapt dobackup.cmd to work on your operating system.

Configure InformaCast Backups

Follow these steps to configure InformaCast backups.

Step 1 Go to **Admin | System | Backup**. The Backup page appears.

InformaCast[®]
basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Admin | System | Backup

Use this page to configure when and if InformaCast data should be backed up. "InformaCast data" refers to the current database and any audio files that have been uploaded. Please read the documentation for more information.
If a field is not required, leaving it blank means "every". For example, leaving the "Hour" field blank would cause the update to be scheduled every hour of the day.
If you wish to manually backup InformaCast right now, please [click here](#).

Job Description: InformaCast Data Backup
Backup functionality activated:

Second: (required)
Minute:
Hour: (24-hour time)
Path:

singlewire™
SOFTWARE

Singlewire Website News Support Contact Us

© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates [third-party software](#) under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Step 2 Select the **Backup functionality activated** checkbox.

Step 3 Enter numeric values for when your scheduled backup should occur in the **Second**, **Minute**, and **Hour** fields.



Note The time for scheduled backups is calculated in military time.

- Step 4** In the **Path** field, enter `/usr/local/singlewire/InformaCast/backup`, which is the destination for a ZIP file containing all of InformaCast’s backup information.



Note You can only back up InformaCast when it is running. In order to achieve a consistent backup, perform it when configuration changes are not expected to be taking place.

If you are transferring your backup files to a Windows machine (described in “Move the InformaCastBackup.zip File to a Secure Location” on page 5-3), you will need to restart InformaCast whenever the content in the **Path** field changes. See “Start/Stop/Restart InformaCast and Reboot the InformaCast Virtual Machine” on page 8-18 for steps on restarting InformaCast.

- Step 5** Click the **Update** button to save your changes. On the Overview page, you can see your changes reflected in the *Backup* section.



Tip After performing these steps, you can also navigate back to the Backup page and click the **click here** link to manually back up InformaCast right away, bypassing the scheduled backup you just set up. New backups will overwrite previous backup files.

Move the InformaCastBackup.zip File to a Secure Location



Note This section is optional. Some VMware environments are automatically backed up using a Storage Area Network (SAN). If this is the case, and you have confidence in your virtual machine recovery process, you can skip moving the InformaCastBackup.zip file.

Once you’ve configured InformaCast for scheduled backups, you can choose to move the ZIP file InformaCast creates (InformaCastBackup.zip) to a more secure location on a Windows machine that is being backed up at another location. Singlewire has created a script that will facilitate this move, and when paired with a Windows scheduled task, will make backing up InformaCast and ensuring the ZIP file is in a safe location, easy and automatic.

-
- Step 1** Download Plink (<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>), a command-line SCP tool.
- Step 2** Download dobackup.txt. If InformaCast is running, the file is available at `https://<InformaCast Server IP Address>:8444/InformaCast/tools/dobackup.txt`, where `<InformaCast Server IP Address>` is the IP address of your InformaCast server. If InformaCast isn’t running, the file is available at `/usr/local/singlewire/InformaCast/web/tools/dobackup.txt`.
- Step 3** Save dobackup.txt to a Windows machine that is being backed up to disk.
- Step 4** Open dobackup.txt in your preferred text editor.

Step 5 Modify the following lines to suit your environment:

```
rem IP of the InformaCast server
set ip=172.30.238.12
rem OS admin password of the InformaCast server
set admin_password=changeMe
rem Location of plink.exe
set plink=c:\plink.exe
```

Change **172.30.238.12** to the IP address of your InformaCast server. Change **changeMe** to the InformaCast administrator password. Change **c:\plink.exe** to the location of Plink on your Windows machine.

Step 6 Save dobackup.txt as dobackup.cmd.

Step 7 Run dobackup.cmd once to ensure that InformaCastBackup.zip moves from your Linux environment to your backed up Windows machine.



Note Backing up InformaCast using dobackup.cmd does not create multi-generational backups. If this is a requirement for your environment, Singlewire recommends configuring them through your existing backup solution.

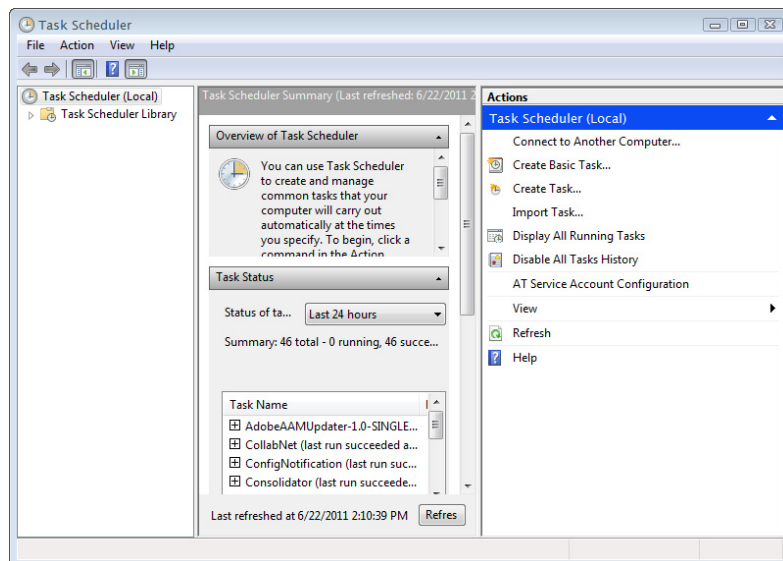
Step 8 Set up a Windows scheduled task to run the backup daily:

Step a. Go to **Control Panel | System and Security | Administrative Tools | Task Scheduler**.

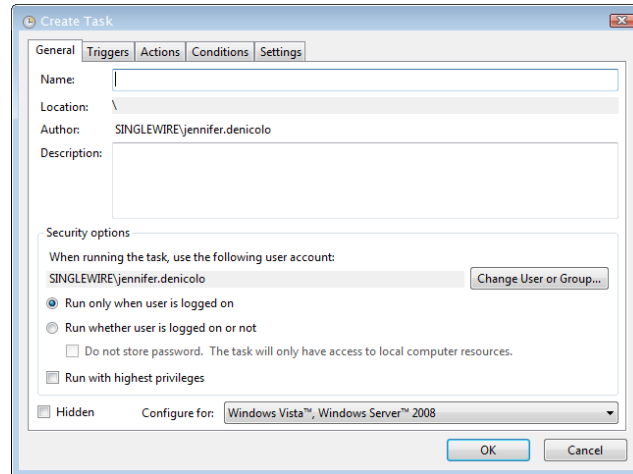


Note The scheduled tasks process is slightly different, depending on your version of Windows. The documented process may vary slightly from your environment.

The Task Scheduler window appears.



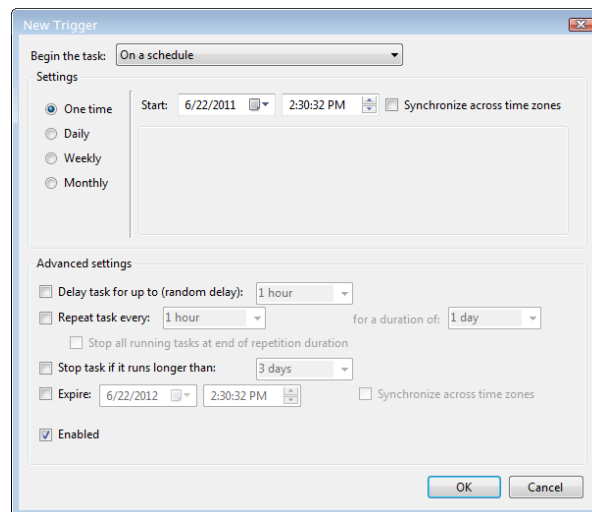
Step b. Go to **Action | Create Task**. The Create Task window appears.



Step c. Enter **InformaCast Backup** in the **Name** field.

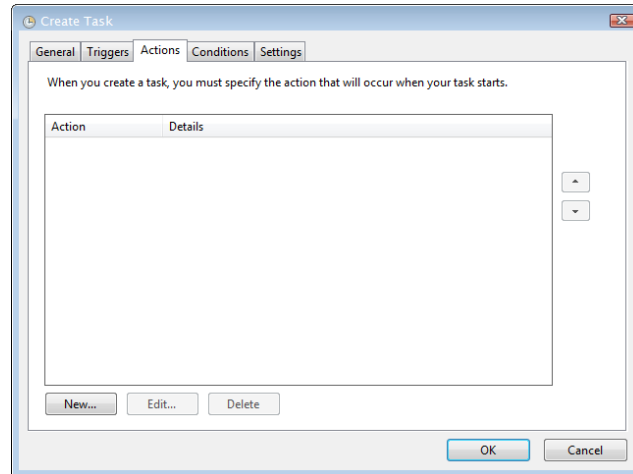
Step d. Select the **Run whether the user is logged on or not** radio button.

Step e. Click the **Triggers** tab and click its **New** button. The New Trigger dialog box appears.

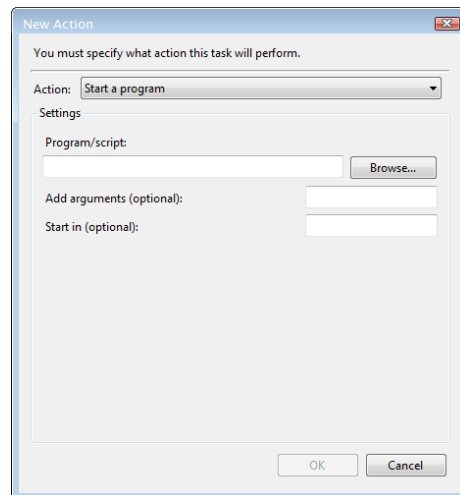


Step f. Configure the New Trigger dialog box to your specific environment and click the **OK** button.

Step g. Click the **Actions** tab. The Create Task window refreshes.



Step h. Click the **New** button. The New Action dialog box appears.



Step i. Choose **Start a program** from the **Action** dropdown menu.

Step j. Click the **Browse** button and navigate to where you saved the dobackup.cmd file.

Step k. Click the **OK** button.

Step l. Click the **OK** button on the New Action dialog box.

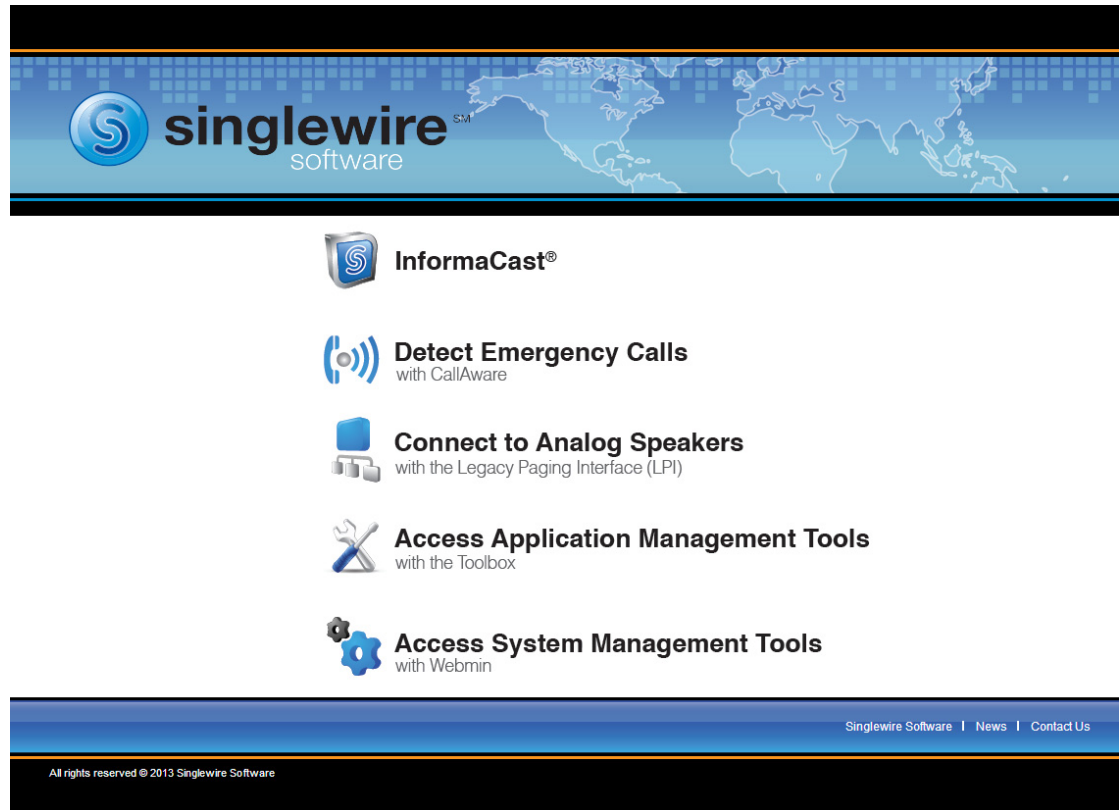
Step m. Click the **OK** button on the Create Task window.

Step n. Close the Task Scheduler.

Restore InformaCast

Use the following steps to restore InformaCast from a backup.

- Step 1** Stop InformaCast by opening a web browser, entering the IP address of your InformaCast Virtual Appliance server, and pressing the **Enter** key. The Singlewire Start page appears.



- Step 2** Click the **Access System Management Tools with Webmin** link. A separate tab/window opens to the Login to Webmin page.

Login to Webmin

You must enter a username and password to login to the Webmin server on 172.30.228.26.

Username

Password

Remember login permanently?



Note

You may have to accept a warning from your web browser about the security of this page's content.

Step 3 Enter your login credentials and click the **Login** button. By default, your username is **admin** and your password is **changeMe**. The Webmin homepage appears.

The screenshot shows the Webmin homepage for a singlewire virtual appliance. The left sidebar contains navigation links for System, Networking, and Hardware, with System Information and Logout options. The main content area displays system details:

- Virtual Appliance Version**: #.#.#
- System hostname**: singlewire
- Operating system**: Debian Linux 5.0
- Webmin version**: 1.530
- Time on system**: Thu Jun 16 15:48:10 2011
- Kernel and CPU**: Linux 2.6.30-voyage on i686
- Processor information**: Quad-Core AMD Opteron(tm) Processor 2382, 1 cores
- System uptime**: 3 days, 7 hours, 57 minutes
- Running processes**: 48
- CPU load averages**: 0.00 (1 min) 0.00 (5 mins) 0.00 (15 mins)
- CPU usage**: 0% user, 0% kernel, 0% IO, 100% idle
- Real memory**: 2.97 GB total, 32.40 MB used
- Virtual memory**: 3.73 GB total, 0 bytes used
- Local disk space**: 75.07 GB total, 1.78 GB used

Step 4 Go to **System | Bootup and Shutdown**. The Bootup and Shutdown page appears.

The screenshot shows the 'Bootup and Shutdown' configuration page in Webmin. The left sidebar is expanded to 'System | Bootup and Shutdown'. The main content area is titled 'Module Config' and 'Bootup and Shutdown'. It features a table of system services with checkboxes for configuration and descriptions. Below the table are buttons for creating new actions and managing the current configuration.

Action	At boot?	Description
<input type="checkbox"/> alsa-utils	No	This script stores and restores mixer levels on
<input type="checkbox"/> asterisk	No	Controls the Asterisk PBX
<input type="checkbox"/> atftpd	No	Launch atftpd server, a TFTP server useful
<input type="checkbox"/> awds	No	This script is used to start the AWDS daemon which provides
<input type="checkbox"/> batmand	No	/etc/init.d/batmand: start batmand
<input type="checkbox"/> bootlogd	No	Starts or stops the bootlogd log program
<input type="checkbox"/> bootmisc.sh	No	Some cleanup. Note, it need to run after mountnfs-bootclean.sh.
<input type="checkbox"/> checkfs.sh	No	Check all filesystems.
<input type="checkbox"/> checkroot.sh	No	Check to root file system.
<input type="checkbox"/> cron	Yes	cron is a standard UNIX program that runs user-specified
<input type="checkbox"/> dahdi	No	dahdi - load and configure DAHDI modules
<input type="checkbox"/> dnsmasq	No	DHCP and DNS server
<input type="checkbox"/> ebttables	No	Saves and restores the state of the ebttables rulesets.
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> hostapd	No	Userspace IEEE 802.11 AP and IEEE 802.1X/WPA/WPA2/EAP
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> single	No	executed by init(8) upon entering runlevel 1 (single).
<input type="checkbox"/> singlewireInformaCast	No	InformaCast application from Singlewire

Buttons: Start, Stop, Restart, Start On Boot, Disable On Boot, Start Now and On Boot, Disable Now and On Boot

Change to runlevel: 2

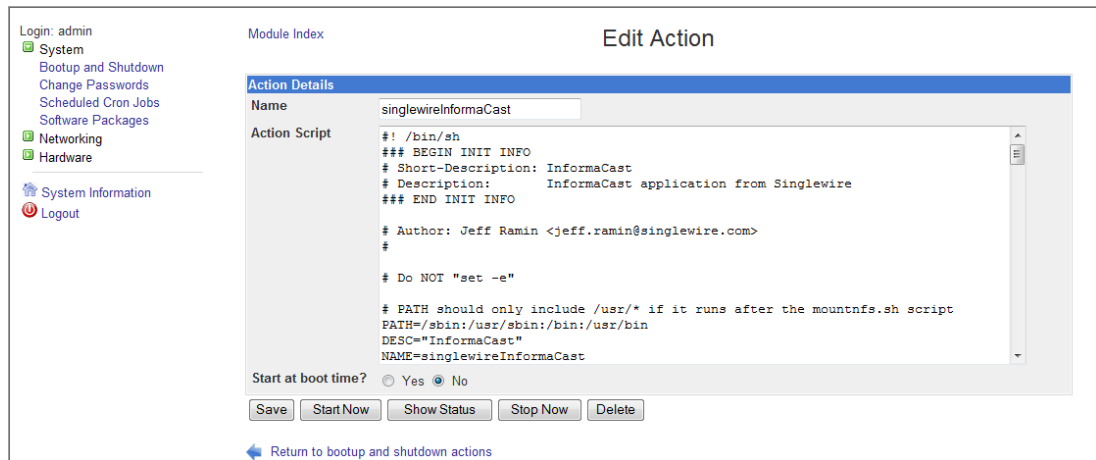
Buttons: Reboot System, Shutdown System

Click this button to switch your system from the current runlevel to the selected one. This will cause all the actions in the current level to be stopped, and then all the actions in the new runlevel to be started.

Click on this button to immediately reboot the system. All currently logged in users will be disconnected and all services will be re-started.

Click on this button to immediately shutdown the system. All services will be stopped, all users disconnected and the system powered off (if your hardware supports it).

- Step 5** Scroll down the list of actions until you come to **singlewireInformaCast**. Click its link. The Edit Action page appears.

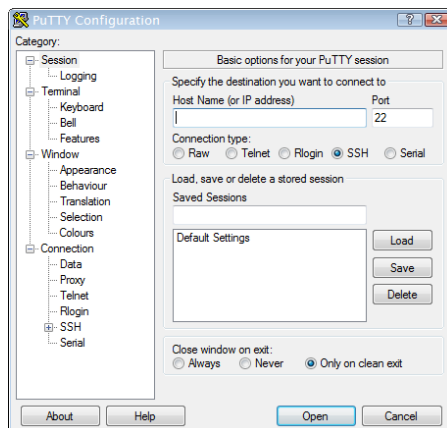


- Step 6** Click the **Stop Now** button. It will take a minute or so for InformaCast to stop.



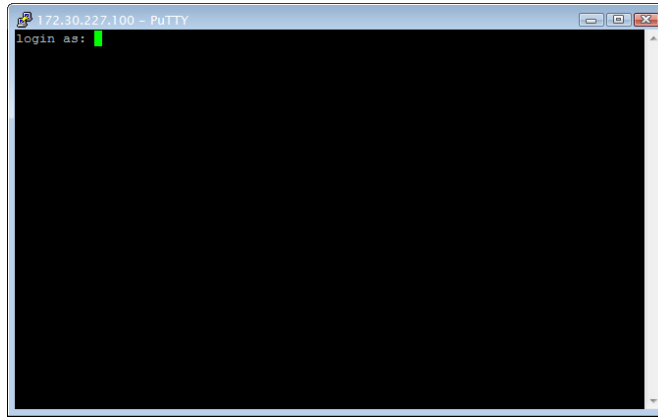
Note Leave this window open. You will come back to it.

- Step 7** Use an SSH client, like PuTTY (<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>), to access InformaCast's command line interface. The PuTTY Configuration window appears.

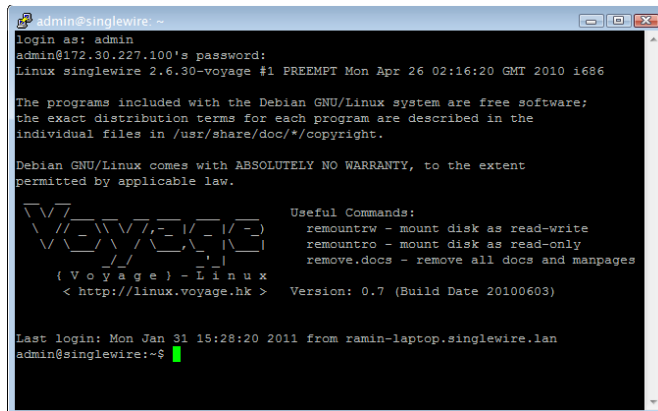


- Step 8** Enter InformaCast's IP address in the **Host Name (or IP address)** field.

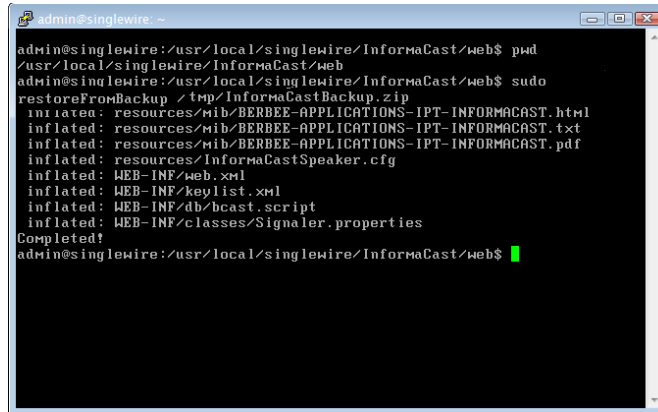
- Step 9** Leave the **Port** field at its default of 22.
- Step 10** Select the **SSH** radio button.
- Step 11** Click the **Open** button. The command-line interface for InformaCast appears.



- Step 12** Enter **admin** at the prompt and press **Enter**.
- Step 13** Enter **changeMe** at the prompt and press **Enter**. The command-line interface refreshes, showing you that you're logged in.



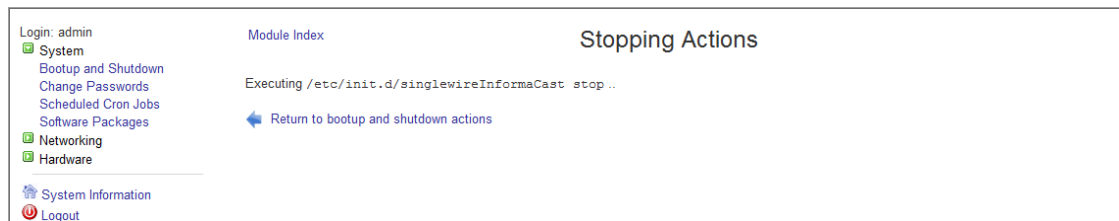
- Step 14** Enter `restoreFromBackup /<Directory of Backup>/InformaCastBackup.zip`, where `<Directory of Backup>` is the location of your `InformaCastBackup.zip` file, at the prompt and press **Enter**. The command-line interface refreshes, detailing the restoration process.



```

admin@singlewire: ~
admin@singlewire:/usr/local/singlewire/InformaCast/web$ pwd
/usr/local/singlewire/InformaCast/web
admin@singlewire:/usr/local/singlewire/InformaCast/web$ sudo
restoreFromBackup /tmp/InformaCastBackup.zip
inflated: resources/mib/BERBEE-APPLICATIONS-IPT-INFORMACAST.html
inflated: resources/mib/BERBEE-APPLICATIONS-IPT-INFORMACAST.txt
inflated: resources/mib/BERBEE-APPLICATIONS-IPT-INFORMACAST.pdf
inflated: resources/InformaCastSpeaker.cfg
inflated: WEB-INF/web.xml
inflated: WEB-INF/keylist.xml
inflated: WEB-INF/db/bcast.script
inflated: WEB-INF/classes/Signaler.properties
Completed!
admin@singlewire:/usr/local/singlewire/InformaCast/web$
  
```

- Step 15** Go back to your Stopping Actions page.



Step 16 Click the **Return to bootup and shutdown actions** link. The Bootup and Shutdown page appears.

Login: admin

System

- Bootup and Shutdown
- Scheduled Cron Jobs
- Software Packages
- Networking
- Hardware
- System Time

Search:

System Information

Logout

Module Config

Bootup and Shutdown

Create a new bootup and shutdown action.

Action	At boot?	Description
<input type="checkbox"/> alsa-utils	No	This script stores and restores mixer levels on
<input type="checkbox"/> asterisk	No	Controls the Asterisk PBX
<input type="checkbox"/> atftpd	No	Launch atftpd server, a TFTP server useful
<input type="checkbox"/> awds	No	This script is used to start the AWDS daemon which provides
<input type="checkbox"/> batmand	No	/etc/init.d/batmand: start batmand
<input type="checkbox"/> bootlogd	No	Starts or stops the bootlogd log program
<input type="checkbox"/> bootmisc.sh	No	Some cleanup. Note, it need to run after mountnfs-bootclean.sh.
<input type="checkbox"/> checkfs.sh	No	Check all filesystems.
<input type="checkbox"/> checkroot.sh	No	Check to root file system.
<input type="checkbox"/> cron	Yes	cron is a standard UNIX program that runs user-specified
<input type="checkbox"/> dahdi	No	dahdi - load and configure DAHDI modules
<input type="checkbox"/> dnsmasq	No	DHCP and DNS server
<input type="checkbox"/> ebttables	No	Saves and restores the state of the ebttables rulesets.
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> hostapd	No	Userspace IEEE 802.11 AP and IEEE 802.1X/WPA/WPA2/EAP
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> single	No	executed by init(8) upon entering runlevel 1 (single).
<input type="checkbox"/> singlewireInformaCast	No	InformaCast application from Singlewire

Create a new bootup and shutdown action.

Start Stop Restart Start On Boot Disable On Boot Start Now and On Boot Disable Now and On Boot

Change to runlevel: 2 Click this button to switch your system from the current runlevel to the selected one. This will cause all the actions in the current level to be stopped, and then all the actions in the new runlevel to be started.

Reboot System Click on this button to immediately reboot the system. All currently logged in users will be disconnected and all services will be re-started.

Shutdown System Click on this button to immediately shutdown the system. All services will be stopped, all users disconnected and the system powered off (if your hardware supports it).

Step 17 Scroll down the list of actions until you come to **singlewireInformaCast**. Click its link. The Edit Action page appears.

Login: admin

System

- Bootup and Shutdown
- Change Passwords
- Scheduled Cron Jobs
- Software Packages
- Networking
- Hardware
- System Information
- Logout

Module Index

Edit Action

Action Details

Name: singlewireInformaCast

Action Script

```
#!/bin/sh
### BEGIN INIT INFO
# Short-Description: InformaCast
# Description: InformaCast application from Singlewire
### END INIT INFO

# Author: Jeff Ramin <jeff.ramin@singlewire.com>
#

# Do NOT "set -e"

# PATH should only include /usr/* if it runs after the mountnfs.sh script
PATH=/sbin:/usr/sbin:/bin:/usr/bin
DESC="InformaCast"
NAME=singlewireInformaCast
```

Start at boot time? Yes No

Save Start Now Show Status Stop Now Delete

[Return to bootup and shutdown actions](#)

Step 18 Click the **Start Now** button. It will take a minute or so for InformaCast to start.



Step 19 Test the functionality.

Manage Phone Updates

Phone updates allow you to configure the timing for two scheduled jobs of how often InformaCast will update its phone information: build a list of registered phones and refresh a list of registered phones.

The time it takes for InformaCast to *rebuild* a list of phones is directly related to the number of phones you have. During a build of registered phones, Communications Manager's SNMP service obtains the IP address of all registered phones in the cluster. Because SNMP is throttled for each piece of data it sends, minutes may pass if many thousands of phones are registered. By comparison, the AXL requests used to *refresh* a list of registered phones are relatively quick.

Refreshing a list of registered phones picks up the changes to phones that use extension mobility as well as other configuration changes, e.g. adding/deleting/modifying a line, changing the phone description, etc. Updates can be performed as frequently as once per minute or even disabled if desired.



Note

Refreshing the list only updates the phones already in InformaCast's phone cache. Newly registered phones will not be seen in the cache until the next rebuild of registered phones.

Step 1 Go to **Admin | Telephony | CUCM Phone Updates**. The CUCM Phone Updates page appears.

InformaCast[®]
basic paging
Provided by OEM Agreement with CISCO

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help
Log Out Temporary Administrator

Admin | Telephony | CUCM Phone Updates

Build list of registered phones
This process creates a list of registered phones and involves querying Communications Manager to obtain the configuration and IP address for each registered phone.

If a field is not required, leaving it blank means "every." For example, leaving the **Hour** field blank would cause the update to be scheduled every hour of the day.

Job Description: Phone Data Update
Second: (Required)
Minute: (Required)
Hour: (24-hour time)
Month:
Day of Month:
Week Day:

Refresh list of registered phones
This process refreshes the configuration of previously registered phones. A refresh can be performed as frequently as once per minute.

Refresh Interval (minutes): (Blank or zero means do not perform refresh)

singlewire™
Singlewire Website News Support Contact Us

© 2003–2011 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.



Note By default, building a list of registered phones will occur at 10 minutes past the hour, every hour.

- Step 2** Enter numeric values in the **Second**, **Minute**, and **Hour** fields to specify when you'd like InformaCast to rebuild its list of registered phones.
- Step 3** Select **Every Month** or a specific month from the **Month** dropdown menu.
- Step 4** Enter a numeric value in the **Day of Month** field if you'd like InformaCast to only rebuild its phone information on a specific day.
- Step 5** Select **Every Day** or a specific day from the **Week Day** dropdown menu.
- Step 6** Enter a numeric value in the **Refresh Interval (minutes)** field. A positive numeric value enables updates. Zero or no value disables updates.



Note Refreshing a list of registered phones picks up the changes to phones that use extension mobility as well as other configuration changes. Refreshing the list only updates the phones already in InformaCast's phone cache. Newly registered phones will not be seen in the cache until the next rebuild of registered phones.

- Step 7** Click the **Update** button. On the Overview page, you can see your changes reflected in the *Phone Updates* section.

Configure SNMP Monitoring

InformaCast has an embedded SNMP agent that can be paired with your own Network Management Software (NMS) in order to monitor certain aspects of InformaCast (i.e. the number of broadcasts sent, the length of time the application has been running, etc.). Through the import of a Management Information Base (MIB), your NMS will know what InformaCast statistics are available for monitoring. The MIB is available in three formats—HTML, PDF, and TXT—and their default location is:

- `https://<InformaCast Server IP Address>:8444/InformaCast/resources/mib/BERBEE-APPLICATIONS-IPT-INFORMACAST.html`
- `https://<InformaCast Server IP Address>:8444/InformaCast/resources/mib/BERBEE-APPLICATIONS-IPT-INFORMACAST.pdf`
- `https://<InformaCast Server IP Address>:8444/InformaCast/resources/mib/BERBEE-APPLICATIONS-IPT-INFORMACAST.txt`



Note InformaCast's SNMP agent is listening on port 1161.

- Step 1** Go to **Admin | Network Parameters | SNMP Agent**. The SNMP Agent page appears.

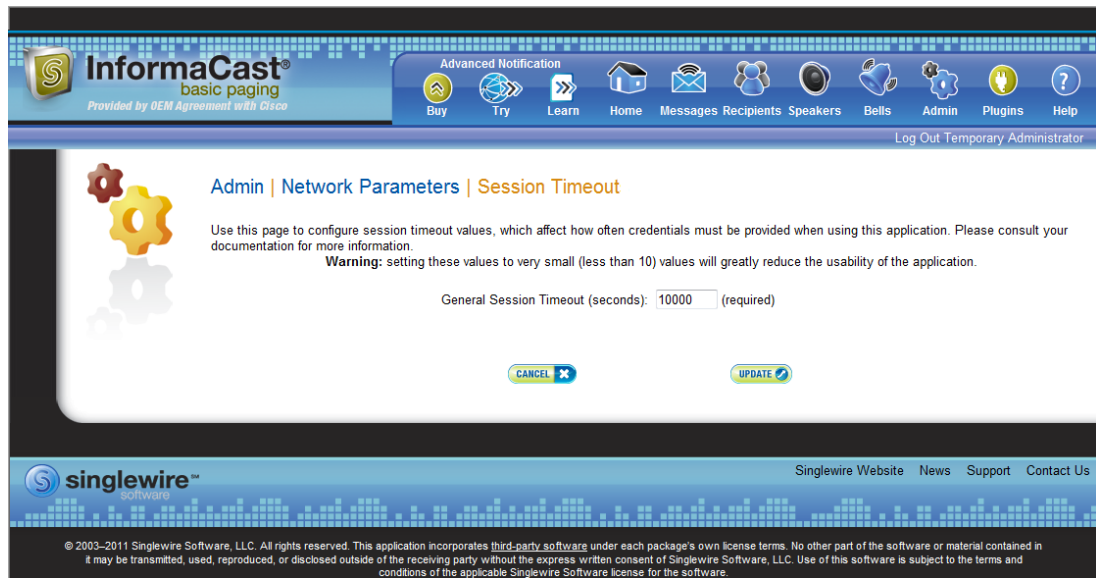
- Step 2** Enter an SNMP community name in the **SNMP Agent Community Name** field. This community name and the one that your NMS is configured to use when talking to InformaCast must match in order for SNMP monitoring to work.

Step 3 Click the **Update** button.


Configure Session Timeout

In its default configuration, an InformaCast session will time out after five minutes of inactivity. If you would like a session of InformaCast to remain valid longer, it is possible to change this value.

Step 1 Go to **Admin | Network Parameters | Session Timeout**. The Session Timeout page appears.



Step 2 Enter a numerical value in the **General Session Timeout (seconds)** field. This field controls when you will be asked to reenter your username and password after a certain amount of inactivity.

Warning  **Setting this value to a very small value (i.e. less than 10) will greatly reduce the usability of InformaCast.**

Step 3 Click the **Update** button to save your changes.



CHAPTER 6

Upgrading InformaCast from Basic to Advanced



Note

InformaCast Virtual Appliance is part of the larger InformaCast Virtual Appliance suite of products. If you are looking to upgrade your version of InformaCast Virtual Appliance (e.g. Aberdeen to 8.5.1), follow the upgrade steps in the “InformaCast Virtual Appliance Basic Paging” guide.

InformaCast’s functionality is based on its license, and depending on the license you have, you will be able to access all of InformaCast’s functionality or only parts of it. Basic InformaCast functionality includes the ability to send live audio broadcasts to up to 50 phones by dialing a number on your Cisco IP phone. Advanced InformaCast functionality includes the ability to send a number of different types of broadcasts (e.g. live audio, pre-recorded audio, pre-recorded audio and text, etc.) using your Cisco IP phone’s interface and/or InformaCast’s web interface, interact with InformaCast’s plugins (e.g. conduct conference calls, trigger contact closures, post to Facebook and Twitter, send broadcasts to email addresses, etc.), customize scripts that can be attached to broadcasts, and receive confirmation when broadcasts are sent, among other features.

All InformaCast users start with Basic InformaCast and can upgrade to Advanced InformaCast using the **Try** or **Buy** icons or by [contacting Singlewire](#) to obtain a license for a switch in functionality.



Note

Downgrading from Advanced InformaCast back to Basic is accomplished by clicking the **Stop Advanced Notification Trial** button on InformaCast’s Manage License Key page (**Admin | Manage License Key**). This will cause InformaCast to reboot, as will any future change in InformaCast functionality or license type.

In addition to Basic and Advanced functionality, InformaCast can also be obtained with a basic, trial, demonstration, subscription, or purchased license. For more information on InformaCast licenses, see “A Note on Licensing” on page 1-3.



Tip

If you want to learn more about InformaCast Advanced Notification, click the **Learn** icon to visit a Singlewire Software website that provides more information on the expanded functionality available to you with your upgrade.

Note the Differences

There are certain caveats to keep in mind when upgrading from Basic to Advanced InformaCast or downgrading from Advanced to Basic:

- If you upgrade from Basic to Advanced InformaCast through either the trial, demonstration, subscription or purchased licenses and you decide to return to Basic functionality, all additional information entered during your Advanced phase will not be saved (e.g. when you revert to Basic from Advanced, any information you entered after you upgraded initially—dialing configurations, users, recipient groups, etc.—will not be available once you downgrade to Basic InformaCast). If you choose to upgrade back to Advanced InformaCast, that information will reappear; however, any new information you entered after you reverted to Basic functionality will be unavailable.
- You will need a valid license key (if you are using Advanced InformaCast as a trial, your license key is already included), which should have been provided to you by your Singlewire salesperson (contact sales@singlewire.com if you didn't receive one)
- If you are moving from Basic InformaCast to Advanced InformaCast (and you have previously had Advanced InformaCast), InformaCast will be restarted with the installation of this new license. Please plan your upgrades accordingly.
- Because of the differences between Basic and Advanced InformaCast, there are two Installation and User Guides. When upgrading to Advanced InformaCast from Basic, you should receive a new guide that contains Advanced InformaCast features. [Contact Singlewire Software](#) if you have not received a new guide.
- InformaCast's web interface changes dramatically with your move from Basic to InformaCast, adding entirely new menus and richer functionality. Depending on your access level, you'll have access to:
 - **Home.** InformaCast's homepage, complete with RSS news feed.
 - **Messages.** The message administration page, allowing you to create, edit, and send messages as broadcasts.
 - **Recipients.** The recipient group administration page, allowing you to create and manage recipient groups.
 - **Speakers.** The IP speaker administration page, allowing you to detect, add, edit, test, and listen at IP speakers.
 - **Bells.** The bell schedule overview page, allowing you to view and access the ring lists, bell schedules, and exceptions you've created.
 - **Admin.** The configuration overview page, allowing you to view scheduled updates and backups; manage the license key, voice menus, and users; and set up the system, network, and broadcast parameters, along with DialCasts.
 - **Plugins.** The plugin administration page, allowing you to add, disable, and enable plugins and access their configurations.
 - **Help.** InformaCast's help pages, allowing you access to various aspects of the online help system and providing the ability to enter a support request.
- If you change your password in Basic InformaCast, upgrade to Advanced InformaCast, then downgrade to Basic InformaCast, your password will revert to your original Basic InformaCast password.
- If you plan to switch between Basic and Advanced InformaCast and you change your IP address, you will need to redeploy the InformaCast OVA (see "Install InformaCast Virtual Appliance" on page 2-34).

- If you fail to configure Communications Manager in Basic InformaCast, upgrading to Advanced InformaCast and then configuring Communications Manager before downgrading to Basic InformaCast will require you to perform all the steps in “Integrate Communications Manager” on page 2-2 again.

If you have questions about your upgrade, [contact Singlewire Support](#) through the online support request form. Please include:

- Account contact information
- Maintenance contract number
- Detailed description of problem
- Product name and version
- Communications Manager version
- InformaCast logs (go to **Help | Support**)

Upgrade InformaCast


All InformaCast users start with Basic InformaCast and can upgrade to Advanced InformaCast using the **Try** or **Buy** icons or by [contacting Singlewire](#) to obtain a license for a switch in functionality.




Note

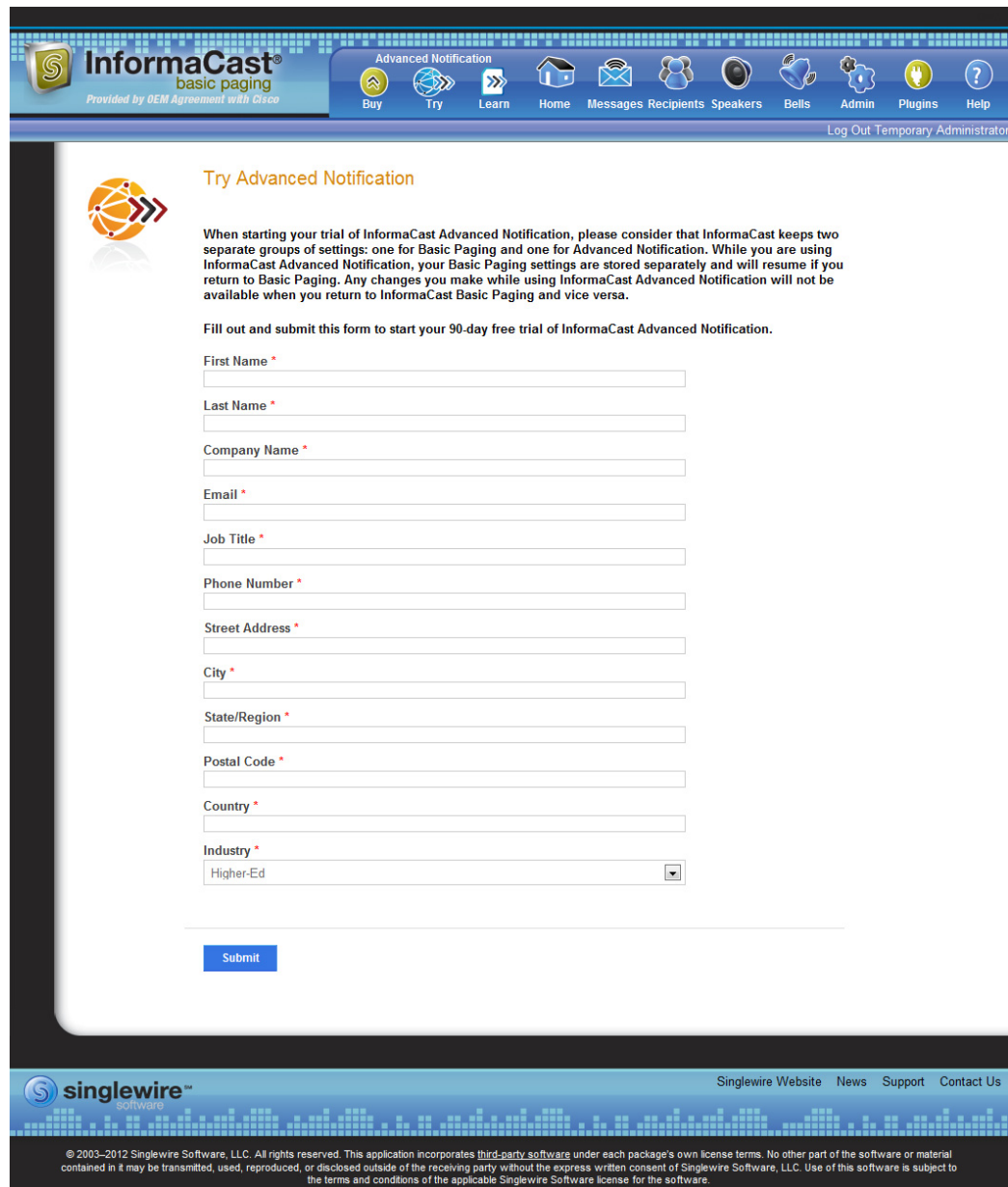
You will want to obtain the “InformaCast Virtual Appliance Installation and User Guide” for Advanced Notification in order to make full use of all of InformaCast’s functionality. After upgrading, it can be obtained from **Help | Install Guide**. If you are using the online help when you upgrade, you will need to close that window and reopen it to view the upgraded help.

Try Advanced Notification

By clicking the **Try** icon () , you start your 60-day free trial of Advanced InformaCast.

Step 1 Click the **Try** icon () any time while using Basic InformaCast.

If your server is connected to the Internet, you will see a form. Fill out the required information and click the **Submit** button.



InformaCast[®] basic paging
Provided by OEM Agreement with Cisco

Advanced Notification
Buy Try Learn Home Messages Recipients Speakers Bells Admin Plugins Help

Log Out Temporary Administrator

Try Advanced Notification

When starting your trial of InformaCast Advanced Notification, please consider that InformaCast keeps two separate groups of settings: one for Basic Paging and one for Advanced Notification. While you are using InformaCast Advanced Notification, your Basic Paging settings are stored separately and will resume if you return to Basic Paging. Any changes you make while using InformaCast Advanced Notification will not be available when you return to InformaCast Basic Paging and vice versa.

Fill out and submit this form to start your 90-day free trial of InformaCast Advanced Notification.

First Name *

Last Name *

Company Name *

Email *

Job Title *

Phone Number *

Street Address *

City *

State/Region *

Postal Code *

Country *

Industry *

Higher-Ed

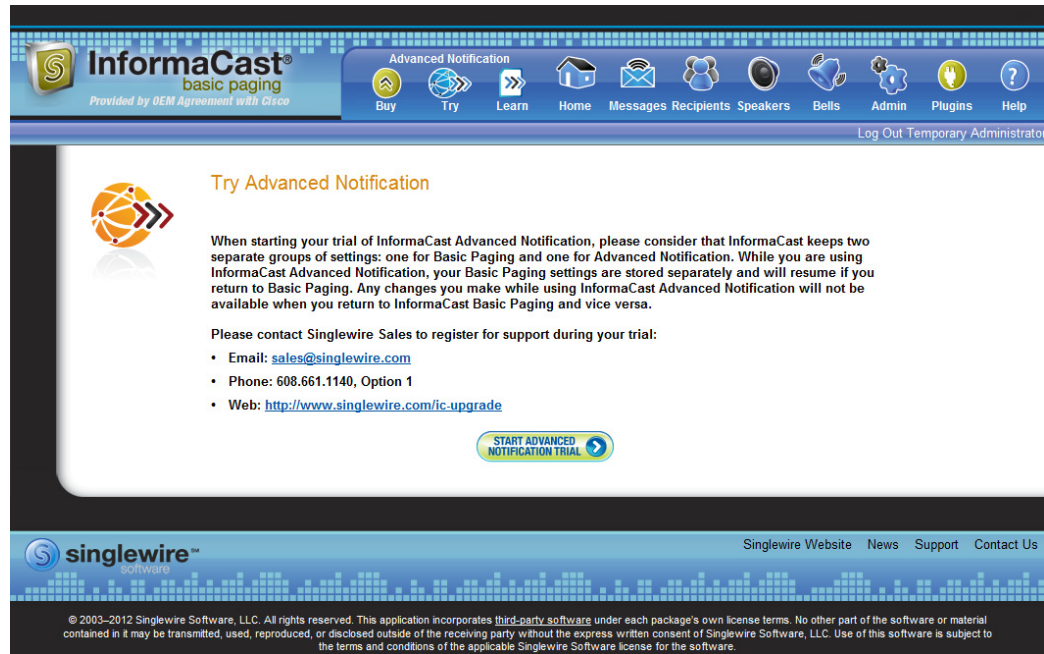
Submit

singlewire™ software

Singlewire Website News Support Contact Us

© 2003–2012 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

If your server is not connected to the Internet, you will see Singlewire Sales contact information, which you should use to register for support during your trial. Click the **Start Advanced Notification Trial** button.



The screenshot displays the InformaCast software interface. At the top, there is a navigation bar with the InformaCast logo and 'basic paging' text. Below the logo, it says 'Provided by OEM Agreement with Glisco'. The navigation bar includes icons for 'Buy', 'Try', 'Learn', 'Home', 'Messages', 'Recipients', 'Speakers', 'Bells', 'Admin', 'Plugins', and 'Help'. A 'Log Out Temporary Administrator' link is visible on the right side of the navigation bar.

The main content area features a section titled 'Try Advanced Notification' with an orange icon. The text reads: 'When starting your trial of InformaCast Advanced Notification, please consider that InformaCast keeps two separate groups of settings: one for Basic Paging and one for Advanced Notification. While you are using InformaCast Advanced Notification, your Basic Paging settings are stored separately and will resume if you return to Basic Paging. Any changes you make while using InformaCast Advanced Notification will not be available when you return to InformaCast Basic Paging and vice versa.'

Below this text, it says: 'Please contact Singlewire Sales to register for support during your trial:'

- Email: sales@singlewire.com
- Phone: 608.661.1140, Option 1
- Web: <http://www.singlewire.com/ic-upgrade>

A prominent blue button with a right-pointing arrow is labeled 'START ADVANCED NOTIFICATION TRIAL'.


The footer of the interface includes the Singlewire logo and 'software' text, along with links for 'Singlewire Website', 'News', 'Support', and 'Contact Us'. A small copyright notice is visible at the bottom: '© 2003–2012 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.'

The Singlewire InformaCast Software License Agreement page appears.

InformaCast®
advanced notification

Advanced Notification
Buy Learn Home Messages Recipients Speakers Bells Admin Plugins Help

license expiration: Jan 12, 2013 Log Out Temporary Administrator


 **Singlewire InformaCast® Software License Agreement**

Copyright © 2010-12 Singlewire Software, LLC. All rights reserved.

This Singlewire InformaCast Software License Agreement is made by and between You (as defined below) and Singlewire Software, LLC, a Wisconsin limited liability company ("SINGLEWIRE"). This Software License Agreement and any order forms or sales orders for Software issued by SINGLEWIRE are referred to collectively herein as this "Agreement."

This Agreement constitutes a binding contract between You and SINGLEWIRE (together, the "Parties" and individually, each a "Party"). BY CLICKING THE "I ACCEPT" BUTTON BELOW, BY ACCEPTING THE TERMS OF THIS AGREEMENT THROUGH AN ORDER FORM THAT INCORPORATES THIS AGREEMENT, AND/OR BY USING THE SOFTWARE, YOU ARE ACCEPTING AND AGREEING TO THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO BE BOUND BY THE TERMS OF THIS AGREEMENT, CLICK THE "I DECLINE" BUTTON BELOW AND DO NOT USE THE SOFTWARE. IF YOU ARE AGREEING TO THIS AGREEMENT ON BEHALF OF A COMPANY OR OTHER LEGAL ENTITY, YOU REPRESENT THAT YOU HAVE THE AUTHORITY TO BIND SUCH ENTITY TO THIS AGREEMENT, AND "YOU" AND "YOUR" AS USED HEREIN SHALL REFER TO SUCH ENTITY.

THIS AGREEMENT IS EXPRESSLY CONDITIONED UPON THE PROVISIONS CONTAINED HEREIN, AND THE SINGLEWIRE TERMS AND CONDITIONS DOCUMENT LOCATED AT WWW.SINGLEWIRE.COM/TERMS (THE "ADDITIONAL TERMS"), WHICH IS INCORPORATED BY REFERENCE INTO THIS AGREEMENT AS IF FULLY STATED HEREIN. IN THE EVENT OF A CONFLICT BETWEEN THE ADDITIONAL TERMS AND THE TERMS OF THIS SOFTWARE LICENSE AGREEMENT WITH RESPECT TO THE SOFTWARE, THE TERMS OF THIS SOFTWARE LICENSE AGREEMENT SHALL CONTROL. ANY ADDITIONAL OR DIFFERENT TERMS OR CONDITIONS IN ANY FORM DELIVERED BY YOU OR ON YOUR BEHALF, WHETHER IN A PURCHASE ORDER OR OTHERWISE, ARE HEREBY DEEMED TO BE MATERIAL ALTERATIONS, AND NOTICE OF OBJECTION TO THEM AND REJECTION OF THEM IS HEREBY GIVEN BY SINGLEWIRE.

 Singlewire Website News Support Contact Us

© 2003–2012 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.

Step 2 Click the **I Accept** button. Your window refreshes with InformaCast's homepage that now shows you are in your trial of InformaCast Advanced Notification.

The screenshot shows the InformaCast Advanced Notification homepage. At the top, there is a navigation bar with the InformaCast logo and a list of menu items: Buy, Learn, Home, Messages, Recipients, Speakers, Bells, Admin, Plugins, and Help. A license expiration notice for Oct 26, 2012 is visible on the left, and a 'Log Out Temporary Administrator' link is on the right.


The main content area features a 'LIMITED TIME TRIAL - InformaCast Advanced Notification' heading. Below this is the InformaCast logo and a description: 'InformaCast Advanced Notification is a powerful life-safety solution that will help you protect your people and property.' A link is provided to 'Learn how to implement and use these features in InformaCast Advanced Notification.'


A list of features is displayed, each in a grey box:

- Live Audio Paging to Cisco IP Phones
- Integration to Existing Overhead Paging (Not Available in Trial)
- Text and Audio to Cisco Phones and Endpoints
- Support for IP Speakers
- 911 (Emergency) Call Alerting/Recording (Not Available in Trial)
- Weather Notification
- Dynamic Conference Call
- Message Confirmation
- Pre-recorded and Scheduled Broadcasts
- Notification to Computers
- Reach Mobile/Remote Users
- Reach Social Media
- Bell/Shift Scheduler
- Regional/National Event Notification
- Send Notification from Events: Motion, Temperature, Door Opening, etc.
- Trigger Other Systems: Door Access, Lighting, Machines, etc.

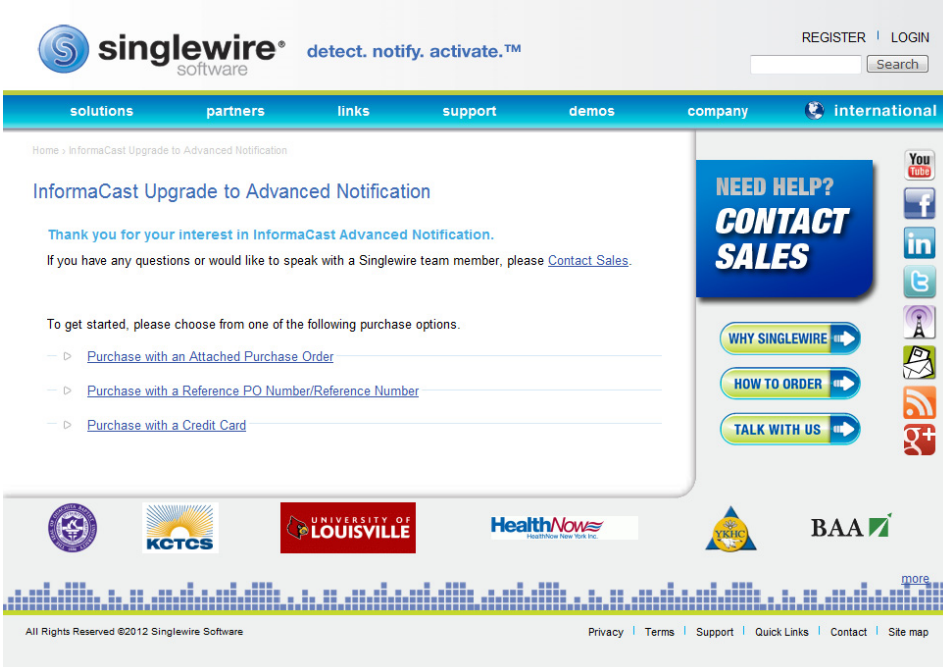
The footer contains the Singlewire logo and the text '© 2003-2012 Singlewire Software, LLC. All rights reserved. This application incorporates third-party software under each package's own license terms. No other part of the software or material contained in it may be transmitted, used, reproduced, or disclosed outside of the receiving party without the express written consent of Singlewire Software, LLC. Use of this software is subject to the terms and conditions of the applicable Singlewire Software license for the software.'

Buy Advanced Notification

By clicking the **Buy** icon () any time while using Basic InformaCast, you start the process of obtaining InformaCast Advanced Notification through either a demonstration, subscription, or purchased license.

Step 1 Click the **Buy** icon () any time while using Basic InformaCast.

If your server is connected to the Internet, you will be redirected to a Singlewire Software website. Follow the prompts to obtain a new license.



The screenshot shows the Singlewire Software website interface. At the top, there is a logo for 'singlewire software' with the tagline 'detect. notify. activate.™'. To the right of the logo are links for 'REGISTER' and 'LOGIN', and a search bar. Below the logo is a navigation menu with links for 'solutions', 'partners', 'links', 'support', 'demos', 'company', and 'international'. The main content area is titled 'InformaCast Upgrade to Advanced Notification' and includes a thank you message and a link to 'Contact Sales'. Below this, there are three purchase options: 'Purchase with an Attached Purchase Order', 'Purchase with a Reference PO Number/Reference Number', and 'Purchase with a Credit Card'. To the right of the main content is a 'NEED HELP? CONTACT SALES' button and a vertical column of social media icons (YouTube, Facebook, LinkedIn, Twitter, RSS, etc.). At the bottom, there are logos for various partners including KCTCS, University of Louisville, HealthNow, and BAA. The footer contains copyright information and links for 'Privacy', 'Terms', 'Support', 'Quick Links', 'Contact', and 'Site map'.

If your server is not connected to the Internet, you will see a QR code that you can scan with your smartphone to access the Singlewire website. Once there, follow the prompts to obtain your new license.

The information you're looking for is available online.



UPGRADE NOW

Use your mobile phone to scan this QR code or visit us online at:
www.singlewire.com/ic-upgrade

Step 2 Continue with “Enter Your New License Key” on page 6-9.

Enter Your New License Key

**Note**

If you are in your free trial of Advanced InformaCast, you can skip this section.

When you upgrade from Basic InformaCast to Advanced InformaCast (with the exception of your free trial of Advanced InformaCast), you will install a new license key to activate the various features of your InformaCast system. The license key will be in the form of an XML file that was sent to you by email from a Singlewire sales representative. Make sure to save this XML file to a safe location that can be accessed by the machine running your web browser.

**Note**

If you are participating in your free trial of Advanced InformaCast functionality, your license will already be installed for you and will be visible on InformaCast's Manage License Key page (**Admin | Manage License Key**). Your license will not appear on Singlewire's License Manager page until you upgrade to Advanced InformaCast on a demonstration, subscription, or purchased license.

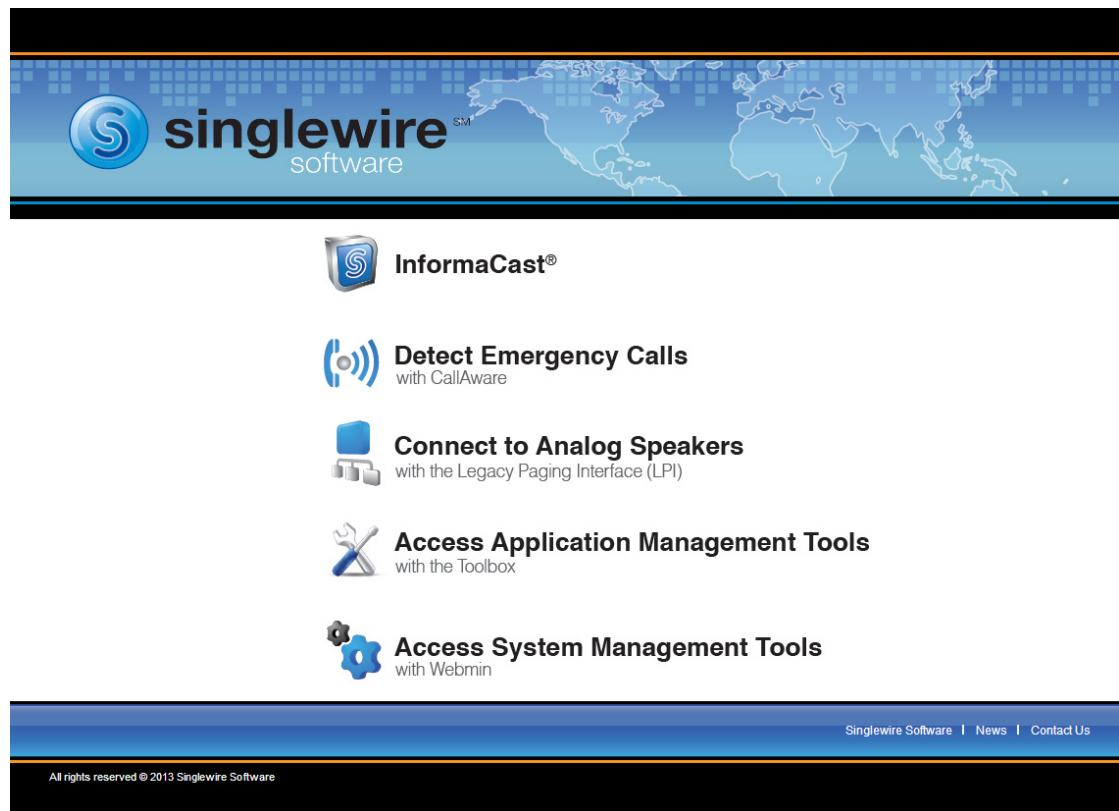
**Note**

Bell schedules, the number of IP phones and speakers, Communications Manager clustering, and message confirmation are all controlled by your license key. If you are expecting certain functionality and cannot access it, contact your [Singlewire salesperson](#).

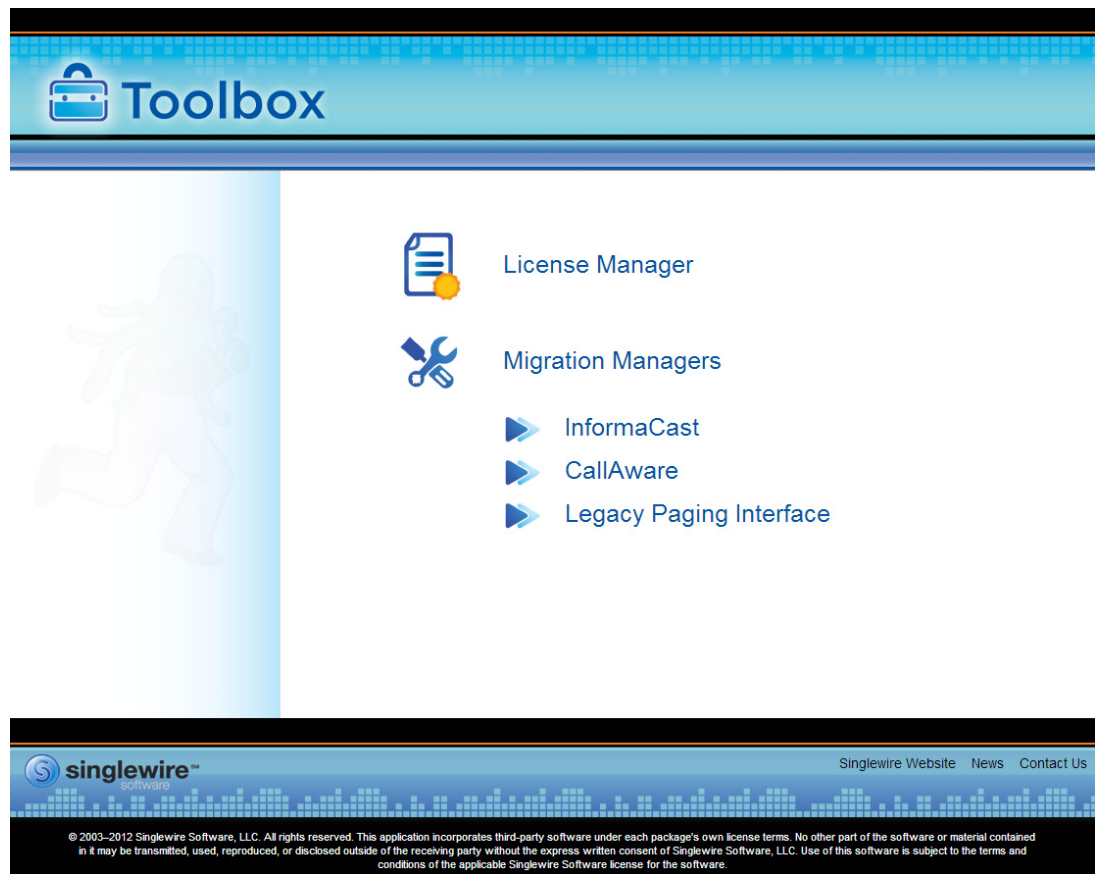
**Warning**

If you are moving from Basic InformaCast to Advanced InformaCast (and you have previously had Advanced InformaCast), InformaCast will be restarted with the installation of this new license. Please plan your upgrades accordingly.

- Step 1** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.

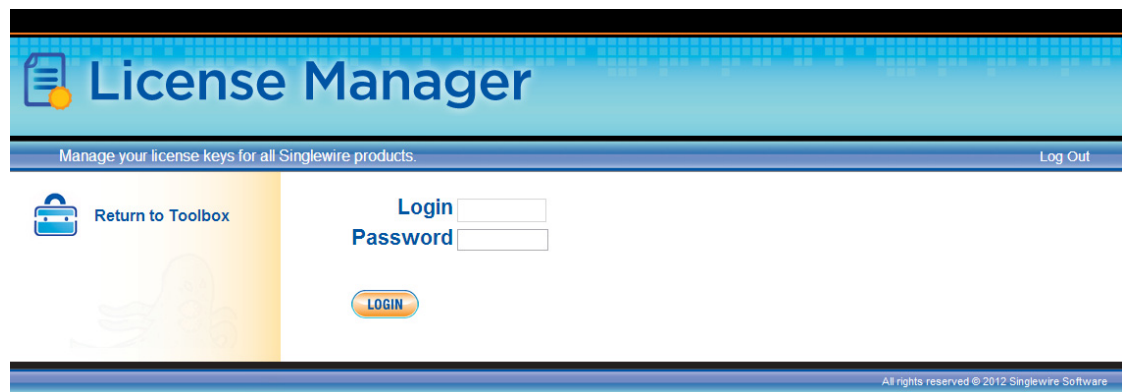


- Step 2** Click the **Access Application Management Tools with the Toolbox** link. A separate tab/window opens to the Toolbox page.

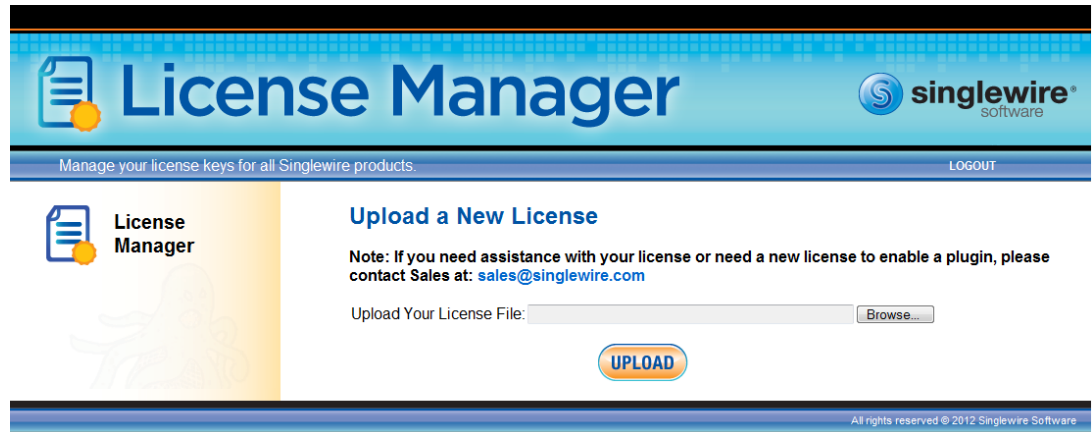


Note You may have to accept a warning from your web browser about the security of this page's content.

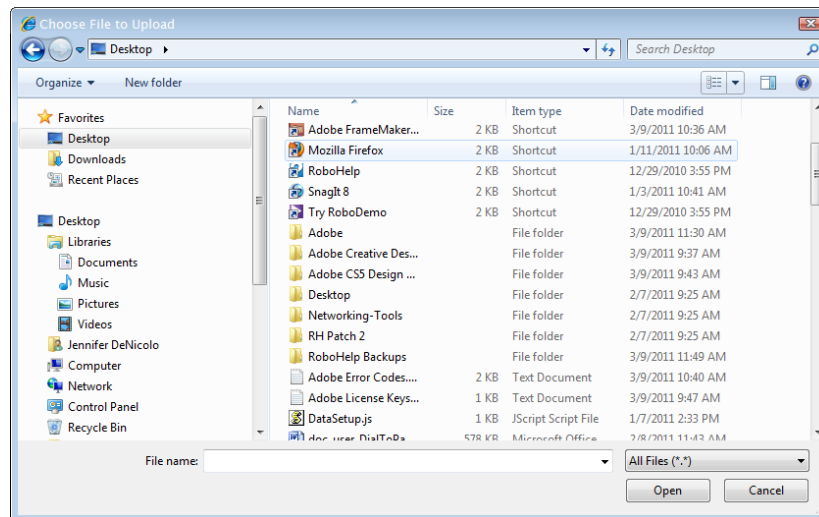
- Step 3** Click the **License Manager** link. The License Manager page appears.



- Step 4** Enter your username and password in the **Login** and **Password** fields, respectively. By default, your username is **admin** and your password is **changeMe**. Click the **Login** button. The Upload a New License page appears.




- Step 5** Click the **Browse** button. The Choose File to Upload dialog box appears.




- Step 6** Navigate to the license key file that was emailed to you. You can also enter the path to the license key file.
- Step 7** Select your license key file and click the **Open** button.


- Step 8** Click the **Upload** button on the Upload a New License page. The License Status page appears and you'll see confirmation that the license has been accepted.




License Manager



Manage your license keys for all Singlewire products.
LOGOUT



License Manager



License Status

License file installed. Restart any running applications that have had their license changed.

Note: If you need assistance with your license or need a new license to enable a plugin, please contact Sales at: sales@singlewire.com

The currently installed License Keys contain the following features:

InformaCast

Issuer: `nwiesmueller`
Created: Mon Feb 27 15:13:09 CST 2012
Licensee: nick
IP Restriction: 172.30.227.233
Expiration: No expiration
Features: Audio, Clustering, MessageConfirmation
Parameters: MaxBellSchedules=50, MaxIPSpeakers=100, MaxPhones=500, MaxVersion=8.3, Scheme=Subscription

CallAware

Issuer: `nwiesmueller`
Created: Mon Feb 27 15:14:15 CST 2012
Licensee: nick
IP Restriction: 172.30.227.233
Expiration: No expiration
Features:
Parameters:

IC Plugin: ICAP

Issuer: `katie henkel`
Created: Fri Jan 27 11:25:12 CST 2012
Licensee: Katie for Testing
IP Restriction: Not restricted
Expiration: No expiration
Features:
Parameters:


IC Plugin: ConferenceCall

Issuer: `katie henkel`
Created: Mon Jun 27 10:32:10 CDT 2011
Licensee: Katie for testing
IP Restriction: Not restricted
Expiration: No expiration
Features:
Parameters:

IC Plugin: DMM

Issuer: `katie henkel`
Created: Wed Jul 20 13:47:30 CDT 2011
Licensee: Katie for testing
IP Restriction: Not restricted
Expiration: No expiration
Features:
Parameters:

Replace Your License(s): No file chosen



All rights reserved © 2012 Singlewire Software

The License Manager holds all of your Singlewire licenses, unless you are participating in your Advanced InformaCast trial, in which case your license will be on InformaCast's Manage License Key page (**Admin | Manage License Key**). Depending on the software applications you are using, you will see different licenses housed on this page.

**Tip**

If the key is not accepted, check that you selected the proper file containing the XML key that was emailed to you, ensure that your IP address is correct, determine that your key has not expired, and ensure that the MaxVersion parameter in your license key matches or is greater than your version of InformaCast. If you're still having trouble, contact your [Singlewire sales representative](#) for assistance.

When you first register InformaCast, you will usually be emailed a temporary license key. Once you know the permanent IP address of the InformaCast server, email that information to sales@singlewire.com so a permanent license key can be sent to you. Once you have the permanent license key, you will want to upload this key to your InformaCast server using the steps in this section.

**Note**

Once you have exceeded the number of phones allowed by your license, you will receive a warning that you've attempted to broadcast to more phones than are allowed by your license key, causing some phones to be skipped. Consult the InformaCast Performance log (**Help | Support**) to see the phones that have been skipped and contact your [Singlewire salesperson](#) about obtaining a larger license. You can also retry your broadcast with a smaller group of phones. In Trial mode, your license limits you to 500 phones.

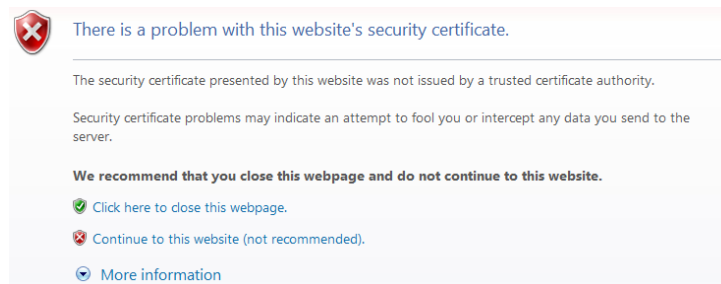


CHAPTER 7

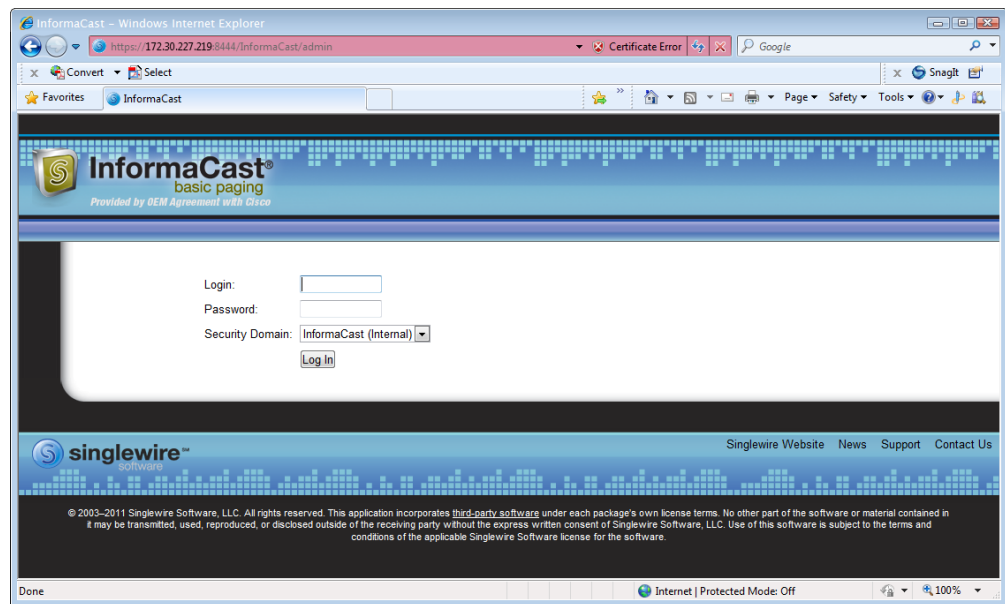
Frequently Asked Questions (FAQ)

- Q.** I opened InformaCast for the first time and I received an HTTP Status 500 error. What's going on?
- A.** This is normally caused by your web browser version being out of date. Update your web browser to the latest version.

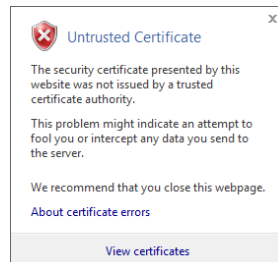
- Q.** Whenever I access InformaCast through Internet Explorer, I receive the error, "There is a problem with this website's security certificate." How can I get rid of this?
- A.** Since InformaCast, like Communications Manager, is a locally-installed server rather than a global, public Internet site, there is no practical way for web browsers to recognize its encryption certificate as safe. To permanently bypass this error, you can install InformaCast's SSL certificate.
 - Open InformaCast in Internet Explorer. The Certification Error: Navigation Blocked page appears.



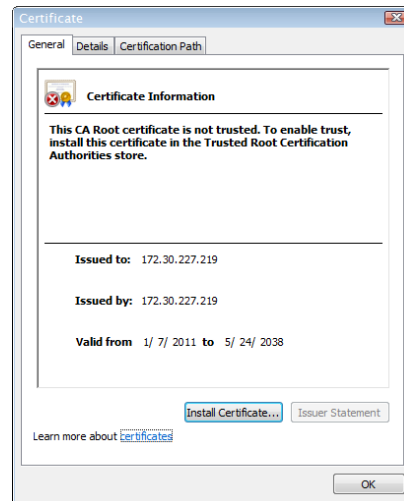
- Click the **Continue to this website (not recommended)** link. The InformaCast Administration page appears and your browser's address bar is highlighted in red.



- Click **Certificate Error** in your browser's address bar. The Untrusted Certificate pop-up window appears.



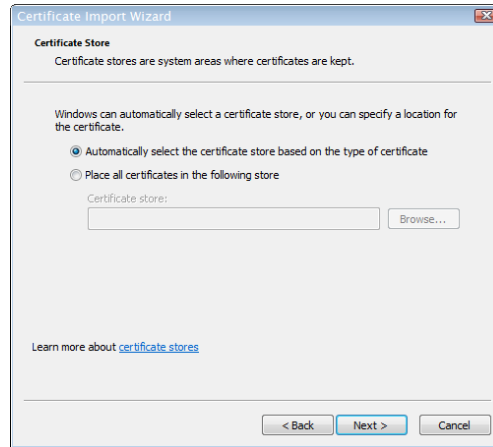
- Click the **View certificates** link. The Certificate dialog box appears.



- Click the **Install Certificate** button. The Certificate Import Wizard appears.



- Click the **Next** button. The Certificate Import Wizard refreshes.

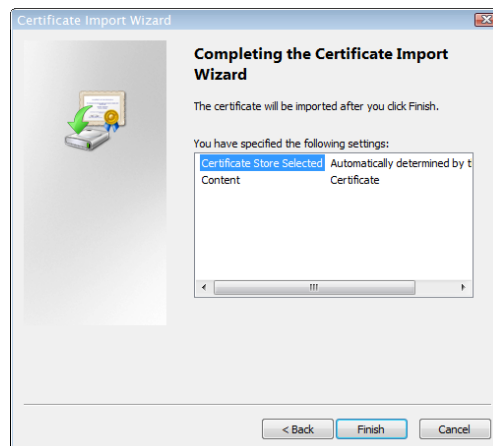


- Select the **Automatically select the certificate store based on the type of certificate** radio button and click the **Next** button.



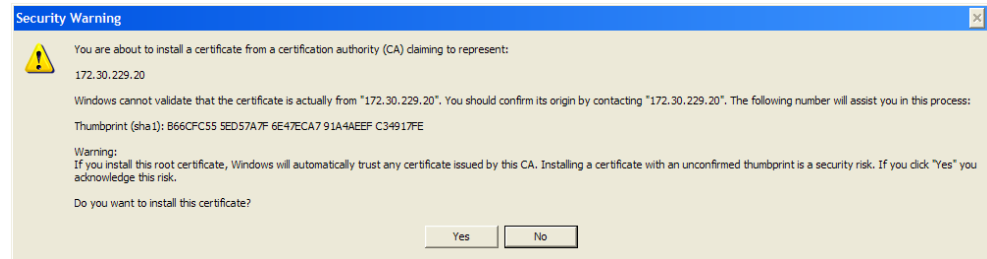
Note On Windows Server 2008, you will need to select the **Place all certificates in the following store** radio button, click the **Browse** button, select the **Trusted Root Certification Authorities** folder, and click the **OK** button.

The Certificate Import Wizard refreshes.



- Click the **Finish** button.

- Click the **OK** button letting you know the import was successful.
You may receive a Security Warning dialog box. Click the **Yes** button.



- Click the **OK** button on the Certificate dialog box.
- Close your browser window and access InformaCast through Internet Explorer again. You will no longer receive the “There is a problem with this website’s security certificate” error.

Q. How do I get rid of the warning about exceeding my license key?

A. As of InformaCast v8.0, the license key controls have changed. Once you have exceeded the number of phones allowed by your license, you will receive a warning that you’ve attempted to broadcast to more phones than are allowed by your license key, causing some phones to be skipped. You can consult the InformaCast Performance log (**Help | Support**) to see the phones that have been skipped. Your Performance log will include information similar to the following excerpt:

```
2010-09-08 10:44:54,209 [pool-41-thread-1] ERROR PhoneRegulator - Phone
(SEP001AA27AFC3, 'Auto 80051') will be skipped by broadcast; need a license
key that supports more phones

2010-09-08 10:44:54,209 [pool-41-thread-1] ERROR PhoneRegulator - Phone
(SEP3037A616CD9E, 'Auto 80059') will be skipped by broadcast; need a license
key that supports more phones

2010-09-08 10:44:54,209 [pool-41-thread-1] ERROR PhoneRegulator - Phone
(SEP000BBED8055C, 'Whip Dev Phone 80048') will be skipped by broadcast; need
a license key that supports more phones

2010-09-08 10:44:54,209 [pool-41-thread-1] ERROR PhoneRegulator - Phone
(SEP0022555EF1FE, 'Auto 80052') will be skipped by broadcast; need a license
key that supports more phones
```

Stopping and restarting InformaCast will clear the warning (see “Start/Stop/Restart InformaCast and Reboot the InformaCast Virtual Machine” on page 8-18), but as soon as you try to send to more phones than your license covers, the warning will reappear. Contact your [Singlewire salesperson](#) to obtain a larger license.

Q. Why doesn’t InformaCast work correctly on the phone?

A. Check the firmware on the phone.

Q. I followed the install guide, but I still cannot send audio broadcasts. What did I miss?

A. Maybe nothing, it could just be the phones not acting as they should and needing to be power cycled, but check these options as well:

- Were the phones reset? You can verify this on the phone viewing the authentication URL, which should point to the InformaCast server. The path for this information varies (e.g. **Settings | 3-Network Configuration | 36-Authentication URL** or **Settings | 3-Device Configuration | 10-Authentication URL** or **Settings | 3-Device Configuration | 2-HTTP Configuration | 5-Authentication URL**).
 - Did you enter the Accelerated Authentication URL into Communications Manager's Enterprise Parameters? Please see Steps 14 through 21 starting on page 3-7.
 - If the phone still does not work, obtain a traffic capture. Look for error messages being sent back from the phone to the InformaCast server.
 - View the InformaCast Performance log (**Help | Support**). Look to the bottom of the log for the most recent entries and look for the IP address of the phone you are troubleshooting. Are there errors?
- Q.** Sometimes a reset of the phones is not enough. You will have to remove the phone from its power source, let it sit for a few seconds, and then plug the phone back into the power source. How do I capture traffic?
- A.** See “Verify Multicast with a Network Traffic Capture” on page 8-2.
- Q.** The group to which I want to broadcast does not have an easily definable boundary (device pool or subnet). Is there another way that I can create groups?
- A.** The easiest way to make flexible groups is to be creative with the description of the phones in Communications Manager. If you are going to be creating groups based on building location, building floor, business unit, job title, etc., you can embed that information in the description and use a regular expression or the description suffix to build the group. See “Advanced Matching for Recipient Groups” on page 9-4.
- Q.** How do I stop calls from InformaCast from being routed to voicemail if they go unanswered?
- A.** Singlewire designed DialCast for this very reason. Instead of calling users to make a page, DialCast has a user call the system to create a page, eliminating broadcasts playing over voicemail. See “Manage SIP Functionality” on page 4-30 for more information.
- Q.** How do I change the IP address of the InformaCast server?
- A.** When changing the IP address of the InformaCast server, use the following steps:

**Warning**

If you plan to switch between Basic and Advanced InformaCast and you change your IP address, you will need to redeploy the InformaCast OVA (see “Install InformaCast Virtual Appliance” on page 2-34).

- Stop InformaCast (see “Start/Stop/Restart InformaCast and Reboot the InformaCast Virtual Machine” on page 8-18 for steps on starting and stopping the InformaCast).
- Install your new software package (see “Install InformaCast Virtual Appliance” on page 2-34)
- Use the vSphere client to access InformaCast's command line interface: select your InformaCast virtual machine and go to **Inventory | Virtual Machine | Open Console**.
- Press **Alt + F2** to reach the login prompt.
- Enter **admin** at the prompt and press **Enter**.

- Enter **changeMe** at the prompt and press **Enter**.
- Enter **change-ip-address** and press **Enter**.
- Enter **Y** and press **Enter**.
- Enter a routable IP address on your network that's not currently in use and press **Enter**.
- Enter a valid netmask for that IP address and press **Enter**.
- Enter the default gateway for your specified IP address and press **Enter**.
- Enter the IP address(es) of a DNS server(s) on your network and press **Enter**.
- Enter **Y** and press **Enter**.
- Enter **Exit** and press **Enter**.
- Log into Communications Manager, go to **System | Enterprise Parameters**, and change the **URL Authentication** field to reflect your new IP address. Also, go to **Device | Device Settings | Phone Services**, and change the IP address for any InformaCast service URLs you have created.



Note If you are using Communications Manager 8.x, you will need to enter this IP address in the **Secured Authentication URL** field as well.



Note You need to use the **Update Subscriptions** button whenever you change service information, so that any subscribed phones are properly updated.

- Reset all of your phones.



Warning

If you plan to switch between Basic and Advanced InformaCast and you change your IP address, you will need to redeploy the InformaCast OVA (see "Install InformaCast Virtual Appliance" on page 2-34).



CHAPTER 8

Troubleshooting

This section is intended to help track down and resolve the common problems people face when configuring and working with InformaCast. Please look it over and see if your issues are addressed. You can also check “Frequently Asked Questions (FAQ)” on page 7-1.

Multicast

Problem The audio portion of InformaCast’s broadcasts aren’t reaching the phones. Some symptoms include:

- No audio is heard through the phone
- A streaming icon displays on the phone’s screen, but no audio is heard through the phone
- A phone’s Speaker and Mute lights illuminate
- 7900 series phones makes a “bloop” noise

Solution Multicast isn’t routing properly. If you’ve followed the recommendations in “Prepare your Multicast Environment” on page 2-1, but you’re still unable to hear audio broadcasts through your recipients, use this section to further troubleshoot your multicast issues.

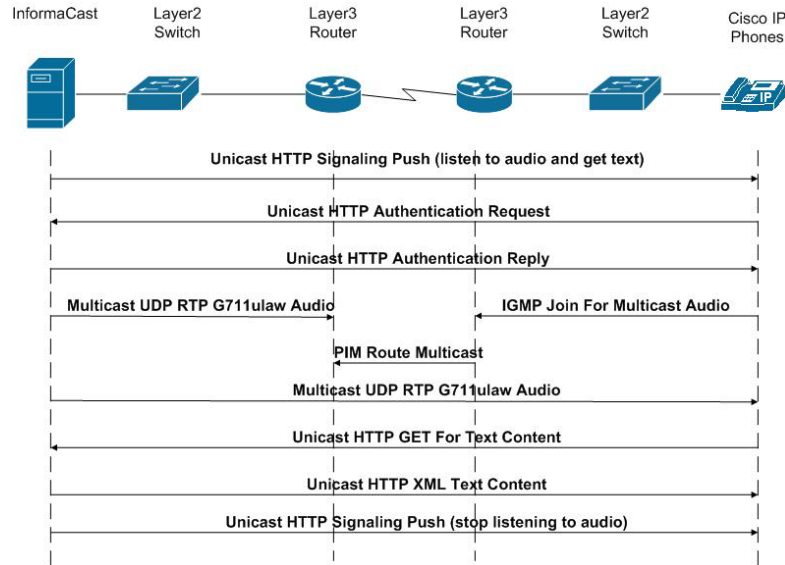
Multicast must be configured in order for InformaCast broadcasts to properly play on your recipients. The following recommendations can also apply:

- Protocol Independent Multicast (PIM) should be deployed in either sparse or dense mode across your Layer 3 devices (PIM is the most common protocol, but there are others)
- Your MPLS network provider should route multicast on its network; otherwise you will need to use GRE tunnels

In addition, sometimes Internet Group Management Protocol (IGMP) snooping can cause issues with varying revisions of IOS on some Cisco switches and may need to be turned off. Lastly, for recipients to receive the audio portion of InformaCast broadcasts, they make requests using IGMP. While most networks default to IGMPv2, newer recipients may use IGMPv3. If newer recipients are being deployed, be sure to enable the newer protocol version on network devices.

Verify Multicast with a Network Traffic Capture

Another way to verify multicast is configured is through a network traffic capture. It is important to note that the only piece of traffic that travels through the network via multicast routing is the audio portion of a broadcast. All signaling traffic is done with unicast HTTP. The diagram below outlines the traffic that occurs during an InformaCast broadcast that contains both text and audio.



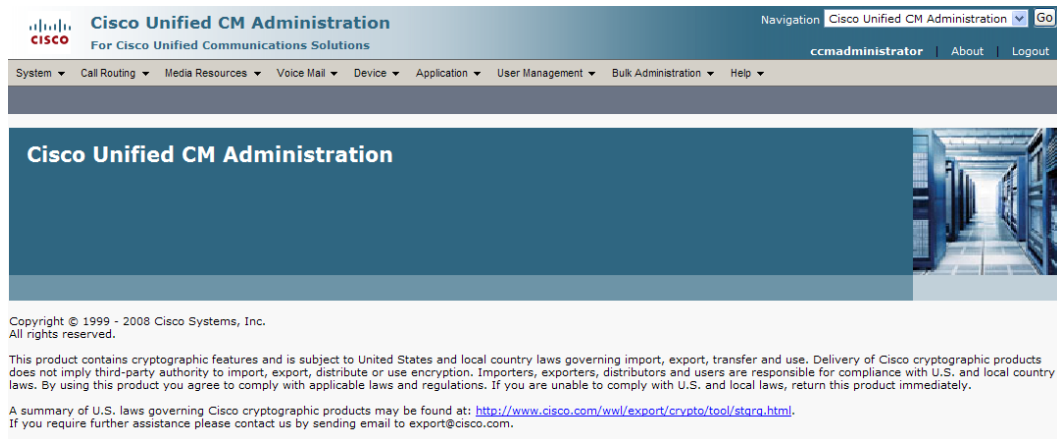
Now that you are familiar with the traffic flow created by InformaCast, you can use a protocol analyzer, such as Wireshark, to sniff the traffic on the network to see that multicast is enabled.

Obtain a Network Traffic Capture

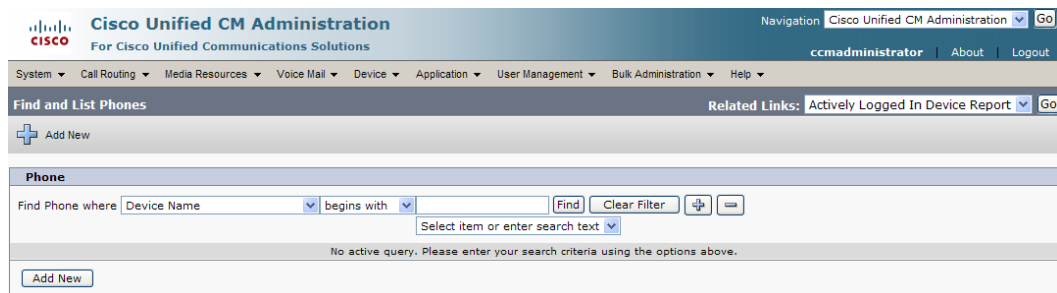
Use the following steps to obtain a network traffic capture from a phone to determine if multicast traffic is routing to that network segment.

-
- Step 1** Download and install a protocol analyzer like Wireshark (<http://www.wireshark.org/>) on a PC that's attached to a phone on your network on which you want to obtain a traffic capture.

Step 2 Open and log into your Communications Manager's administrative interface. The Cisco Unified CM Administration page appears.



Step 3 Go to **Device | Phone**. The Find and List Phone page appears.



Step 4 Use the dropdown menus and fields to locate the phone attached to the PC on which you downloaded Wireshark. Your results will appear below the fields.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration ccmadministrator | About | Logout

System | Call Routing | Media Resources | Voice Mail | Device | Application | User Management | Bulk Administration | Help

Find and List Phones Related Links: [Actively Logged In Device Report](#)

Status
75 records found

Phone (1 - 25 of 75) Rows per Page: 25

Find Phone where: Device Name begins with

Select item or enter search text

<input type="checkbox"/>		Device Name(Line) ^	Description	Device Pool	Device Protocol	Status	IP Address	Copy	Super Copy
<input type="checkbox"/>		AT211		Default	SCCP	Registered with iptapps-ccm61pub	172.30.227.211		
<input type="checkbox"/>		ATA0023EBC6AB6A	Auto 60018	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		ATA23EBC6AB6A01	Auto 60019	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		CTIFORNICK		Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		ICNick1	ICNick1	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		ICNick2	ICNick2	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		ICNick3	ICNick3	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		ICNick4	ICNick4	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		ICNick5	ICNick5	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		ICNick6	ICNick6	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		JessCTI1	JessCTI1	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		JessCTI2	JessCTI2	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		JessRCCCTI		Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		KatieLC1		Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		KatieLC2		Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>		KatieLC3		Default	SCCP	Unregistered	172.30.227.200		
<input type="checkbox"/>		KatieLC4		Default	SCCP	Unregistered	172.30.227.200		
<input type="checkbox"/>		PeteCTI1	PeteCTI1	Default	SCCP	Registered with iptapps-ccm61pub	172.30.227.211		
<input type="checkbox"/>		PeteCTI2	PeteCTI2	Default	SCCP	Registered with iptapps-ccm61pub	172.30.227.211		
<input type="checkbox"/>		RajCallAlert	RajCallAlert	RajInformaCast	SCCP	Unknown	Unknown		
<input type="checkbox"/>		RajCTIPort	RajCTIPort	RajInformaCast	SCCP	Unknown	Unknown		
<input type="checkbox"/>		RajCTIPort2	RajCTIPort2	RajInformaCast	SCCP	Unknown	Unknown		
<input type="checkbox"/>		RajCTIPort3	RajCTIPort3	RajInformaCast	SCCP	Unknown	Unknown		
<input type="checkbox"/>		RajCTIPort4	RajCTIPort4	RajInformaCast	SCCP	Unknown	Unknown		
<input type="checkbox"/>		SEP0004F2E67F44	Auto 60037	Default	SCCP	Unknown	Unknown		

1 of 3

Step 5 Select the phone attached to your PC with Wireshark on it. The Phone Configuration page for that phone appears.

The screenshot displays the Cisco Unified CM Administration interface for configuring a phone. The top navigation bar includes 'Cisco Unified CM Administration' and 'For Cisco Unified Communications Solutions'. The user is logged in as 'ccmadministrator'. The main content area is titled 'Phone Configuration' and includes a 'Related Links: Back To Find/List' dropdown.

Status: Ready

Association Information: A list of 16 items is shown, with item 1 selected: 'Line [1] - 60028 (no partition)'. Other items include 'None', 'Add a new SD', and 'Add a new DN'.

Phone Type: Product Type: Cisco 7937, Device Protocol: SCCP

Device Information: A table of configuration parameters:

Registration	Unknown
IP Address	Unknown
MAC Address*	0004F2E67F44
Description	Auto 60028
Device Pool*	Default
Common Device Configuration	< None >
Phone Button Template*	-- Not Selected --
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	Phones
Media Resource Group List	< None >
User Hold MOH Audio Source	< None >
Network Hold MOH Audio Source	< None >
Location*	Hub_None
User Locale	< None >
Network Locale	< None >
Built In Bridge*	Default
Privacy*	Default
Device Mobility Mode*	Default
Owner User ID	< None >
Phone Load Name	

Additional options: Ignore Presentation Indicators (internal calls only), Allow Control of Device from CTI, Logged Into Hunt Group, Remote Device.

Product Specific Configuration Layout: A table of configuration parameters:

Settings Access*	Enabled
Gratuitous ARP*	Enabled
PC Voice VLAN Access*	Enabled
Web Access*	Enabled
Load Server	
SSH Access*	Disabled

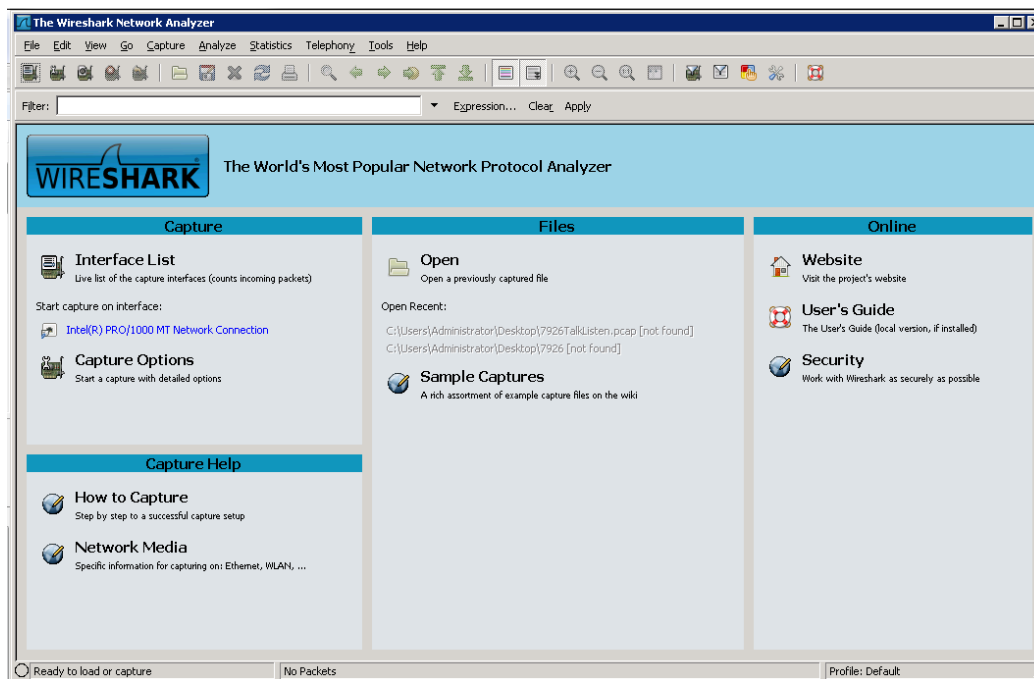
At the bottom, there are buttons for 'Save', 'Delete', 'Copy', 'Reset', and 'Add New'. A legend explains the asterisk symbols: '*' indicates required items, '**' indicates device reset is not required for changes to Packet Capture Mode and Packet Capture Duration, and '***Note: Security Profile Contains Addition CAPF Settings'.

Step 6 Scroll down to the *Product Specific Configuration Layout* area.

Step 7 Make sure that both the **Web Access** and **Span to PC Port** dropdown menus have **Enabled** selected.

Step 8 Click the **Reset** button.

Step 9 Start Wireshark. The Wireshark window appears.



Step 10 Send an InformaCast broadcast to the phone attached to the PC with Wireshark on it.

Step 11 Wait until the broadcast has finished and stop the network traffic capture.

Read a Network Traffic Capture

When analyzing a network traffic capture, look for the following:

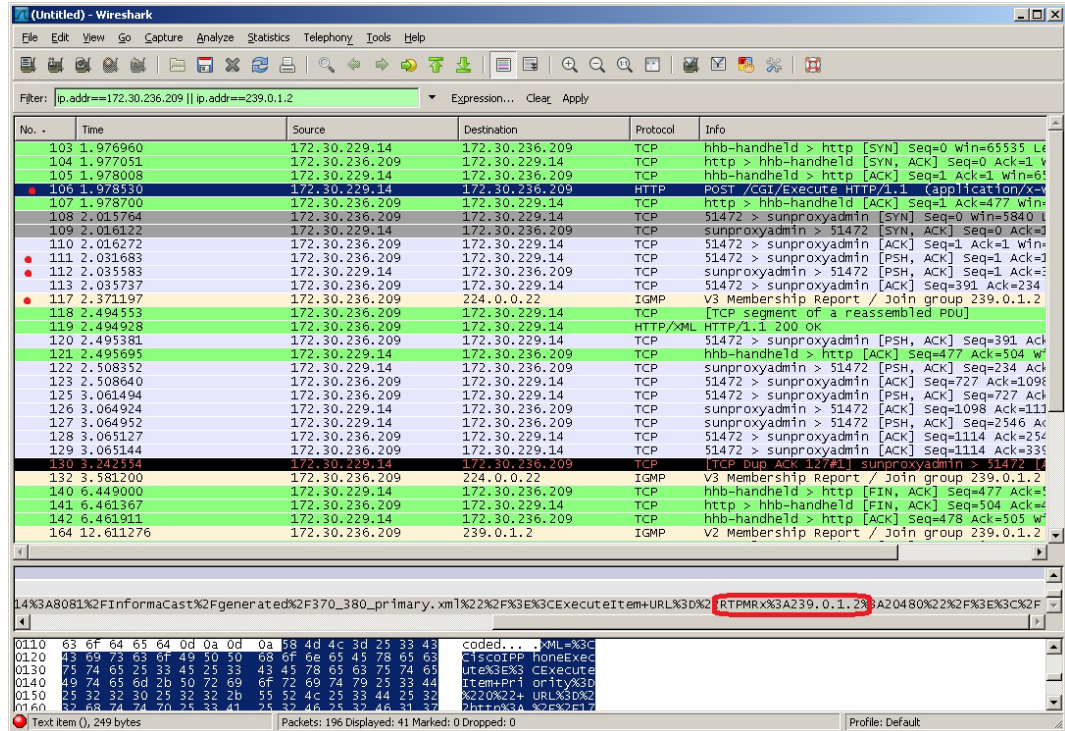
- A unicast HTTP command from InformaCast to the phone to join the multicast group
- Successful authentication
- An IGMP join from the phone to the multicast group
- A multicast audio stream

When there is no multicast audio present, InformaCast audio will not play through a phone, and you'll notice the following things in your traffic capture (reference with the following graphic):

- **Frame 106.** InformaCast pushes the unicast HTTP command to a phone to listen to audio. In the middle pane, the multicast IP address to listen for is circled in red.
- **Frame 111.** The phone makes a unicast HTTP authentication request. The protocol doesn't show as HTTP because the communication took place on port 8444. You can view the contents of the packet for the actual data or decode as HTTP.
- **Frame 112.** InformaCast replies in unicast HTTP to the authentication request as OK.
- **Frame 117.** The phone makes an IGMP join request for a multicast audio stream.

- **Frame 164.** There is a timestamp nine seconds after the IGMP join, but no multicast traffic is seen in the capture. Thus, multicast is not routing and no audio will be received at the phone.

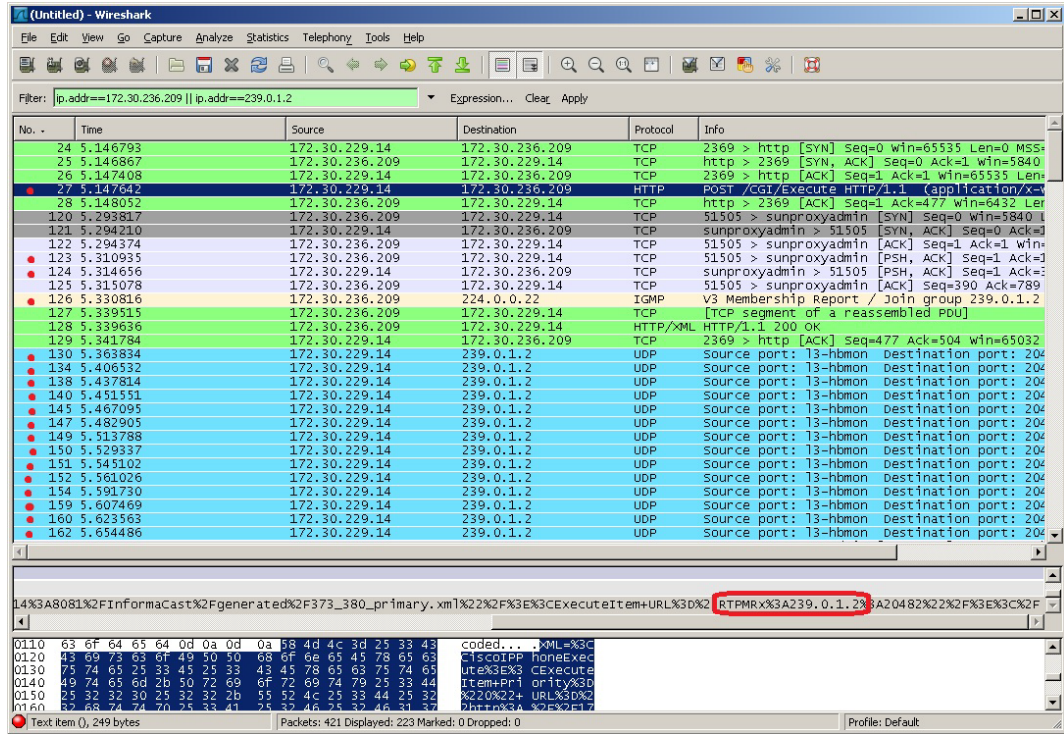
Each of the things to look for are marked with red in the following graphic.



When there is multicast audio present, InformaCast audio plays through phone, and you'll notice the following things in your traffic capture (reference with the following graphic):

- **Frame 27.** InformaCast pushes the unicast HTTP command to a phone to listen to audio. In the middle pane, the multicast IP address to listen for is circled in red.
- **Frame 123.** The phone makes a unicast HTTP authentication request. The protocol doesn't show as HTTP because the communication took place on port 8444. You can view the contents of the packet for the actual data or decode as HTTP.
- **Frame 124.** InformaCast replies in unicast HTTP to the authentication request as OK.
- **Frame 126.** The phone makes an IGMP join request for a multicast audio stream.
- **Frames 130 - 62 (plus more).** The multicast UDP is present. Audio should have played through the phone.

Each of the things to look for are marked with red in the following graphic.

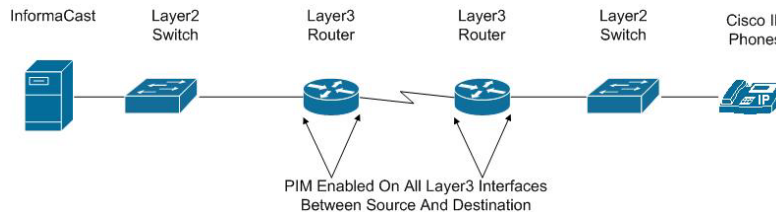


If multicast isn't working, troubleshoot the problems singly by frame(s). Work with your network administrator to configure multicast appropriately.

Verify PIM is Configured on All Layer 3 Interfaces

For audio broadcast traffic to route from a source (InformaCast) to a destination (IP phones), every Layer 3 interface in between must have PIM configured. If the switches on the network are also providing Layer 3, then PIM must be enabled on the VLANs configured on those switches providing Layer 3 functionality. PIM is deployed in either sparse or dense mode, and InformaCast will work with either.

The following graphic shows PIM enabled on all Layer 3 interfaces between the IP phones/speakers and InformaCast.



The following graphic shows an interface before PIM is properly configured and that same interface after applying PIM.

```

Tera Term Web 3.1 - 172.30.224.1 VT
File Edit Setup Web Control Window Help
IPTAPPS-SW3560-2#
IPTAPPS-SW3560-2#sh run int vlan 236
Building configuration...
Current configuration : 156 bytes
|
interface Vlan236
description Voice VLAN - Cisco IP Phones
ip address 172.30.236.1 255.255.255.0
ip helper-address 172.30.224.21
no ip redirects
end
IPTAPPS-SW3560-2#
IPTAPPS-SW3560-2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
IPTAPPS-SW3560-2(config)#int vlan 236
IPTAPPS-SW3560-2(config-if)#ip pim sparse-dense
IPTAPPS-SW3560-2(config-if)#ip igmp version 3
IPTAPPS-SW3560-2(config-if)#end
IPTAPPS-SW3560-2#
IPTAPPS-SW3560-2#sh run int vlan 236
Building configuration...
Current configuration : 201 bytes
|
interface Vlan236
description Voice VLAN - Cisco IP Phones
ip address 172.30.236.1 255.255.255.0
ip helper-address 172.30.224.21
no ip redirects
ip pim sparse-dense-mode
ip igmp version 3
end
IPTAPPS-SW3560-2#

```

If PIM isn't configured properly, work with your network administrator to configure PIM appropriately.

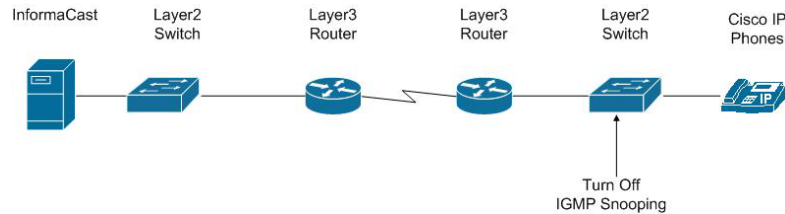
Verify your MPLS Provider Routes Multicast

When InformaCast audio broadcasts are successful at the same location where the InformaCast server is located, but remote locations do not receive the audio, that indicates that the multicast audio traffic is not routing across the WAN link. Many Multiprotocol Label Switching (MPLS) network providers will not route multicast traffic on their networks; check with your circuit provider to see if they do/will route your multicast.

For WAN links where your circuit provider will not route your multicast, you can use GRE tunnels, which carry your multicast traffic from the location where the InformaCast server is located to its recipients. The only traffic that needs to traverse these GRE tunnels is the multicast traffic you might want to route. The tunnels do not need to create a full mesh between sites; they only need to be configured from the hub location to the spoke location(s). Please see the following link for details: http://www.cisco.com/en/US/tech/tk828/technologies_configuration_example09186a00801a5aa2.shtml

Test Whether IGMP Snooping is Interrupting Multicast

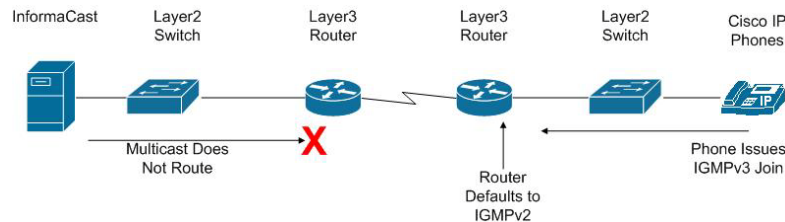
IGMP snooping has been seen to cause issues with Layer 2 switches. For this reason, if there are issues receiving the multicast audio stream at the phones, it would be worth testing if turning off IGMP snooping on the switches where phones are connected solves the problem. The following graphic illustrates where IGMP snooping should be turned off on the network.



Work with your network administrator to test if IGMP snooping is causing multicast to not function properly.

Ensure IGMPv3 is Enabled for Newer Phone Models

Newer phone models are using IGMPv3 where earlier phone models used IGMPv2. This is important because by default, IOS uses IGMPv2. If your network segment has a combination of older phones and newer phones, you may not perceive any issues. However, if a broadcast is sent only to devices using IGMPv3 on a network segment and the network has not been programmed for IGMPv3, the end result will be that multicast does not route to that network segment. The following graphic illustrates how the differences between IGMPv3 and IGMPv2 can affect your multicast traffic.



To verify if your phone(s) are using IGMPv3, you can take a network traffic capture using a protocol analyzer like Wireshark (see “Verify Multicast with a Network Traffic Capture” on page 8-2). In the capture, the phone will issue an IGMP join to listen to the multicast audio.

The version of the IGMP join can be seen on the packet (circled in red in the following graphic).

The screenshot shows a Wireshark packet capture with a filter of `ip.addr==172.30.236.209 || ip.addr==239.0.1.2`. The packet list table is as follows:

No.	Time	Source	Destination	Protocol	Info
103	1.976960	172.30.229.14	172.30.236.209	TCP	hhb-handheld > http [SYN] Seq=0 win=65535 Len=0
104	1.977051	172.30.236.209	172.30.229.14	TCP	http > hhb-handheld [SYN, ACK] Seq=0 Ack=1 Win=0 Len=0
105	1.978008	172.30.229.14	172.30.236.209	TCP	hhb-handheld > http [ACK] Seq=1 Ack=1 Win=0 Len=0
106	1.978530	172.30.229.14	172.30.236.209	HTTP	POST /CGI/Execute HTTP/1.1 (application/x-www-form-urlencoded)
107	1.978700	172.30.236.209	172.30.229.14	TCP	http > hhb-handheld [ACK] Seq=1 Ack=477 Win=0 Len=0
108	2.015764	172.30.236.209	172.30.229.14	TCP	51472 > sunproxysadmin [SYN] Seq=0 Win=5840 Len=0
109	2.016122	172.30.229.14	172.30.236.209	TCP	sunproxysadmin > 51472 [SYN, ACK] Seq=0 Ack=0 Win=0 Len=0
110	2.016272	172.30.236.209	172.30.229.14	TCP	51472 > sunproxysadmin [ACK] Seq=1 Ack=1 Win=0 Len=0
111	2.031683	172.30.236.209	172.30.229.14	TCP	51472 > sunproxysadmin [PSH, ACK] Seq=1 Ack=1 Win=0 Len=0
112	2.035583	172.30.229.14	172.30.236.209	TCP	sunproxysadmin > 51472 [PSH, ACK] Seq=1 Ack=1 Win=0 Len=0
113	2.035737	172.30.236.209	172.30.229.14	TCP	51472 > sunproxysadmin [ACK] Seq=301 Ack=234 Win=0 Len=0
117	2.371197	172.30.236.209	224.0.0.22	IGMP	V3 Membership Report / Join group 239.0.1.2
118	2.494553	172.30.236.209	172.30.229.14	TCP	HTTP segment of a reassembled packet
119	2.494928	172.30.236.209	172.30.229.14	HTTP/XML	HTTP/1.1 200 OK
120	2.495381	172.30.236.209	172.30.229.14	TCP	51472 > sunproxysadmin [PSH, ACK] Seq=391 Ack=234 Win=0 Len=0
121	2.495695	172.30.229.14	172.30.236.209	TCP	hhb-handheld > http [ACK] Seq=477 Ack=504 Win=0 Len=0
122	2.508352	172.30.229.14	172.30.236.209	TCP	sunproxysadmin > 51472 [PSH, ACK] Seq=234 Ack=391 Win=0 Len=0
123	2.508640	172.30.236.209	172.30.229.14	TCP	51472 > sunproxysadmin [ACK] Seq=727 Ack=1098 Win=0 Len=0
125	3.061494	172.30.236.209	172.30.229.14	TCP	51472 > sunproxysadmin [PSH, ACK] Seq=727 Ack=1098 Win=0 Len=0
126	3.064924	172.30.229.14	172.30.236.209	TCP	sunproxysadmin > 51472 [ACK] Seq=1098 Ack=1111 Win=0 Len=0
127	3.064952	172.30.229.14	172.30.236.209	TCP	sunproxysadmin > 51472 [PSH, ACK] Seq=546 Ack=1111 Win=0 Len=0
128	3.065127	172.30.236.209	172.30.229.14	TCP	51472 > sunproxysadmin [ACK] Seq=1114 Ack=254 Win=0 Len=0
129	3.065144	172.30.236.209	172.30.229.14	TCP	51472 > sunproxysadmin [ACK] Seq=1114 Ack=335 Win=0 Len=0
130	3.242554	172.30.229.14	172.30.236.209	TCP	[TCP dup ACK 127#1] sunproxysadmin > 51472 [ACK] Seq=1114 Ack=335 Win=0 Len=0
132	3.581200	172.30.236.209	224.0.0.22	IGMP	V3 Membership Report / Join group 239.0.1.2
140	6.449000	172.30.229.14	172.30.236.209	TCP	hhb-handheld > http [FIN, ACK] Seq=477 Ack=504 Win=0 Len=0
141	6.461367	172.30.236.209	172.30.229.14	TCP	http > hhb-handheld [FIN, ACK] Seq=504 Ack=477 Win=0 Len=0
142	6.461911	172.30.229.14	172.30.236.209	TCP	hhb-handheld > http [ACK] Seq=478 Ack=505 Win=0 Len=0
164	12.611276	172.30.236.209	239.0.1.2	IGMP	V2 Membership Report / Join group 239.0.1.2

The packet at time 2.371197 is circled in red in the original image. The packet details pane shows the IGMPv3 Membership Report for group 239.0.1.2.

To ensure multicast audio will route to network segments where the phones are using IGMPv3, the Layer 3 device must be programmed for IGMPv3. The following graphic shows an interface before and after configuring IGMPv3.

```

Tera Term Web 3.1 - 172.30.224.1 VI
File Edit Setup Web Control Window Help
IPTAPPS-SW3560-2#
IPTAPPS-SW3560-2#sh run int vlan 236
Building configuration...

Current configuration : 156 bytes
!
interface Vlan236
 description Voice VLAN - Cisco IP Phones
 ip address 172.30.236.1 255.255.255.0
 ip helper-address 172.30.224.21
 no ip redirects
end

IPTAPPS-SW3560-2#
IPTAPPS-SW3560-2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
IPTAPPS-SW3560-2(config)#int vlan 236
IPTAPPS-SW3560-2(config-if)#ip pim sparse-dense
IPTAPPS-SW3560-2(config-if)#ip igmp version 3
IPTAPPS-SW3560-2(config-if)#end
IPTAPPS-SW3560-2#
IPTAPPS-SW3560-2#sh run int vlan 236
Building configuration...

Current configuration : 201 bytes
!
interface Vlan236
 description Voice VLAN - Cisco IP Phones
 ip address 172.30.236.1 255.255.255.0
 ip helper-address 172.30.224.21
 no ip redirects
 ip pim sparse-dense-mode
 ip igmp version 3
end
IPTAPPS-SW3560-2#

```

Work with your network administrator to test if enabling IGMPv3 solves your multicast issues.

Log Files

Problem InformaCast is acting funny concerning errors, warnings, broadcasts, and security.

Solution When trying to find out what's going wrong with InformaCast, it often helps to look at the log files. The most commonly useful log, in which error messages will be logged when something unexpectedly goes wrong, is the Performance log (go to **Help | Support**).

When you're trying to check that a broadcast succeeded smoothly and reached all the recipients it should have, the Summary log (go to **Help | Support**) provides helpful information.

If you want to keep an eye on who is using the system and view other security-related information, the Audit log (<https://<InformaCast Server IP Address>:8444/InformaCast/logs/audit.log>) is the place to look.

Two other log files generated in the InformaCast logs directory are sipStackDebug.log and sipStackServer.log (go to **Help | Support**). Please see "Manage the SIP Stack" on page 4-65 for more information.

Log into InformaCast Virtual Appliance's Interfaces

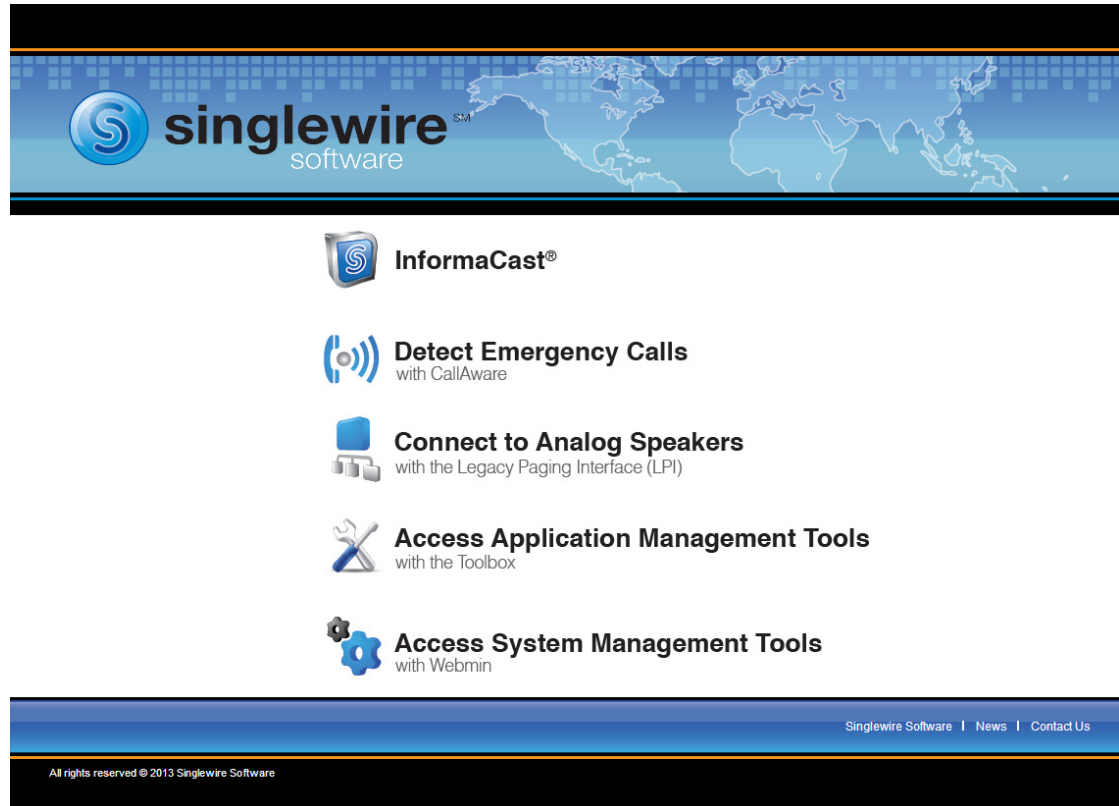
Problem How do I log into InformaCast? What are the different InformaCast interfaces and what do they do?

Solution When using this guide, you will need to log into the different interfaces that InformaCast has: InformaCast, the Toolbox, and Webmin. All of these interfaces are accessible through the Singlewire Start page, which is the IP address of your InformaCast Virtual Appliance.

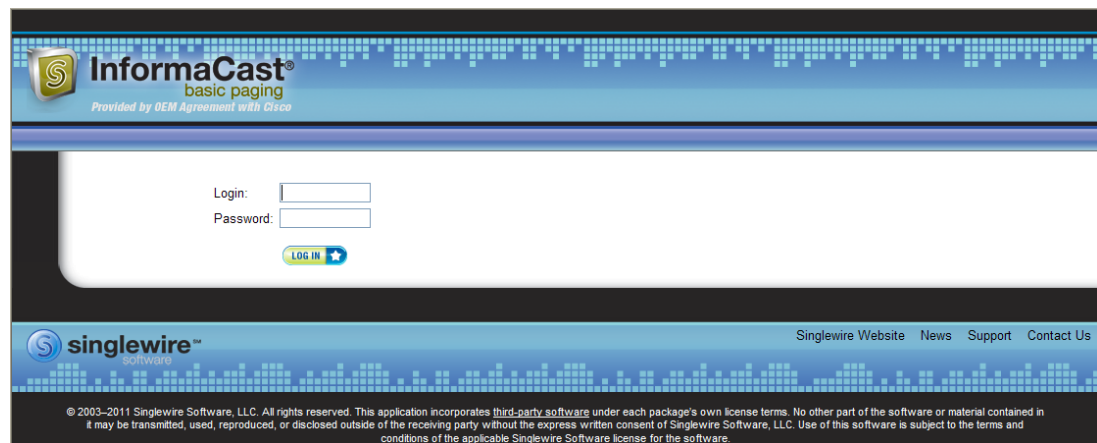
Log into InformaCast

InformaCast's web interface is where you will set up your InformaCast environment, e.g. messages, recipient groups, DialCasts, user roles, etc.

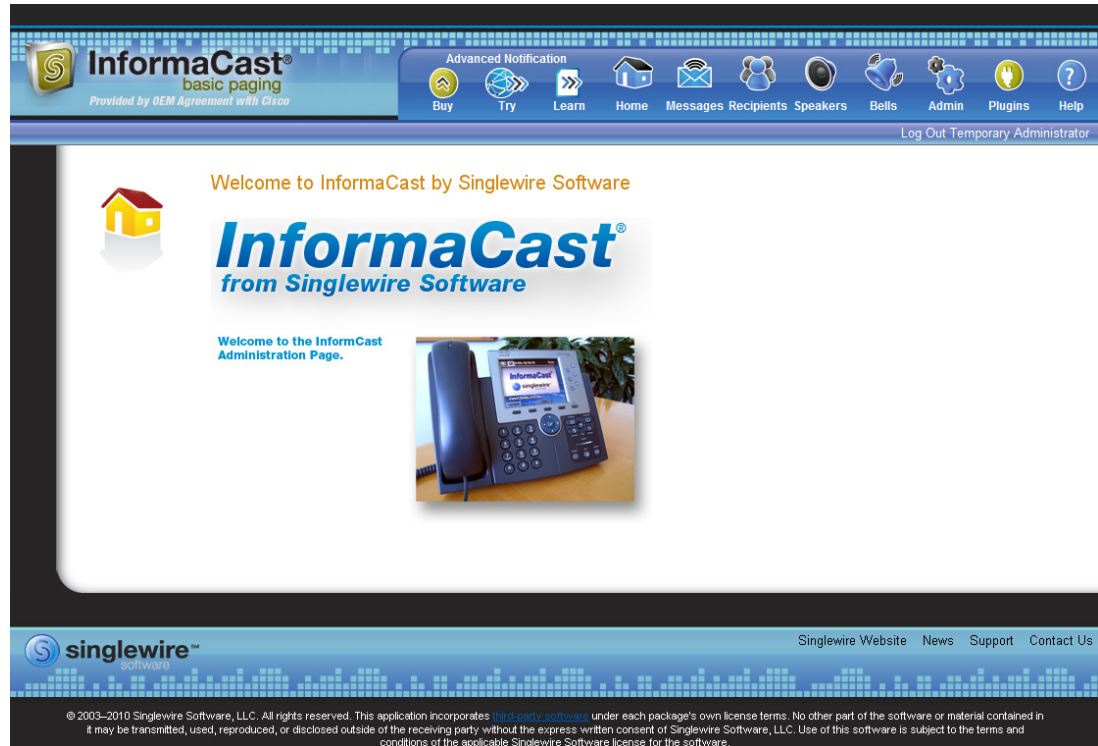
- Step 1** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.



- Step 2** Click the **InformaCast** link. A separate tab/windows opens to InformaCast's Login page.



- Step 3** Enter your username and password in the **Login** and **Password** fields, respectively. By default, these are **admin** and **changeMe**.
- Step 4** Click the **Log In** button. InformaCast's homepage appears.

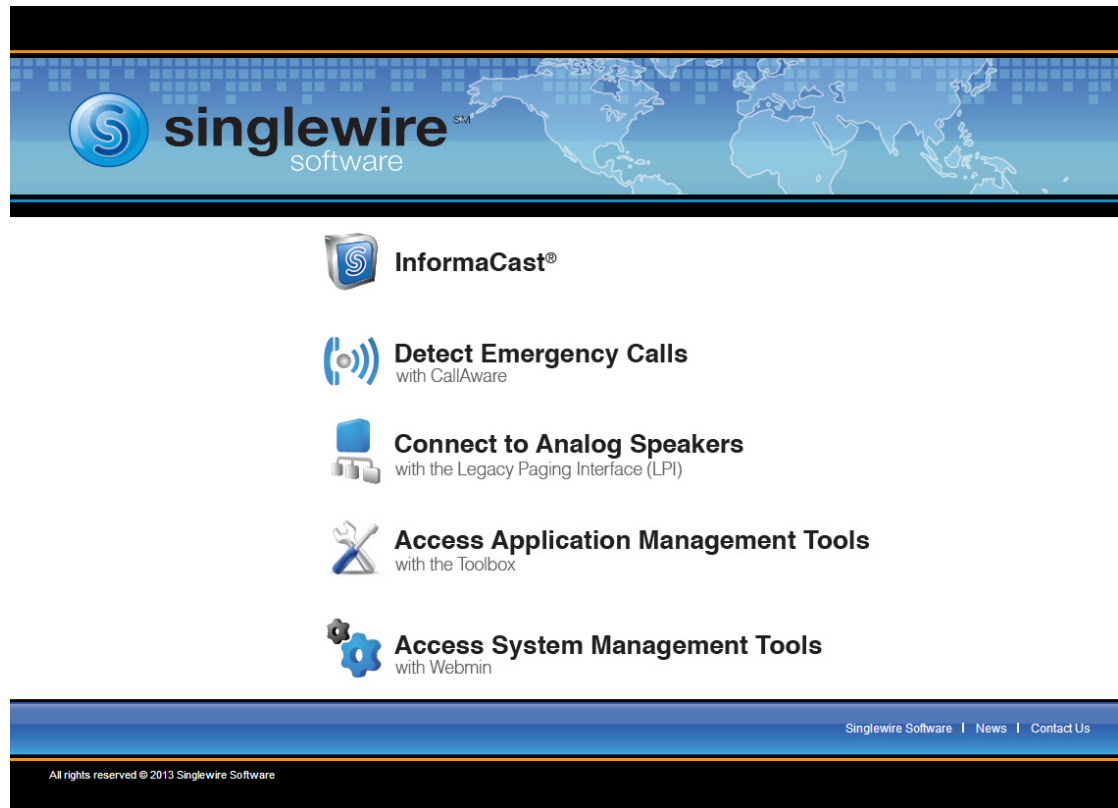


From InformaCast's homepage, you can access any of its web features through the icons at the top of the page.

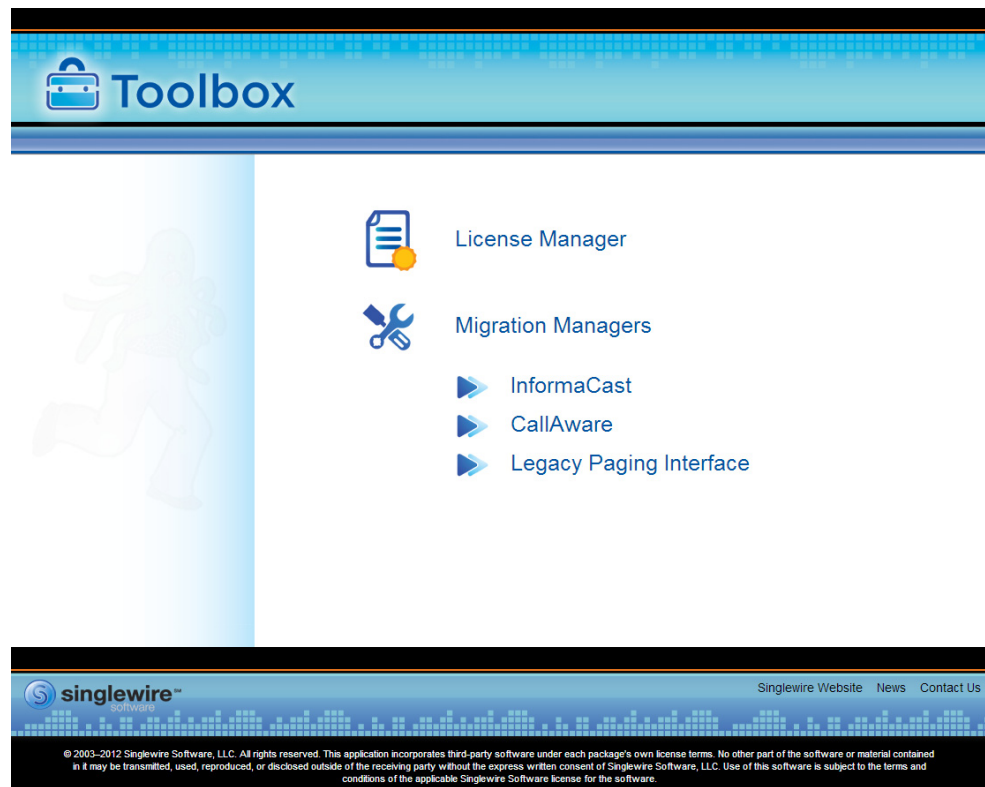
Log into the Toolbox

The Singlewire Toolbox is designed to be an inclusive destination for application-level accessories, e.g. licensing, migrating platforms, etc.

- Step 1** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.



Step 2 Click the **Access Application Management Tools with the Toolbox** link. A separate tab/window opens to the Toolbox homepage.



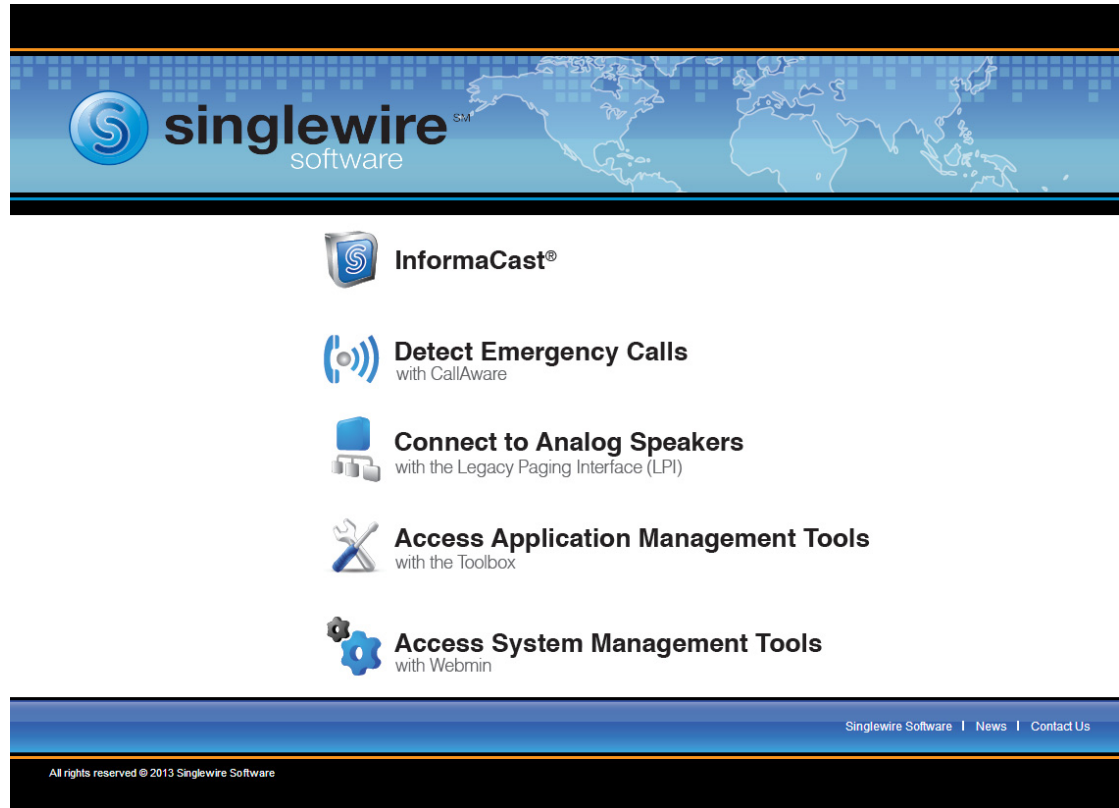
Note You may have to accept a warning from your web browser about the security of this page's content.

From the Toolbox homepage, you can access Singlewire's application-level tools.

Log into Webmin

Webmin's interface is used primarily for installing new software packages, starting/stopping/restarting Singlewire's applications, and rebooting the InformaCast virtual machine.

- Step 1** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.



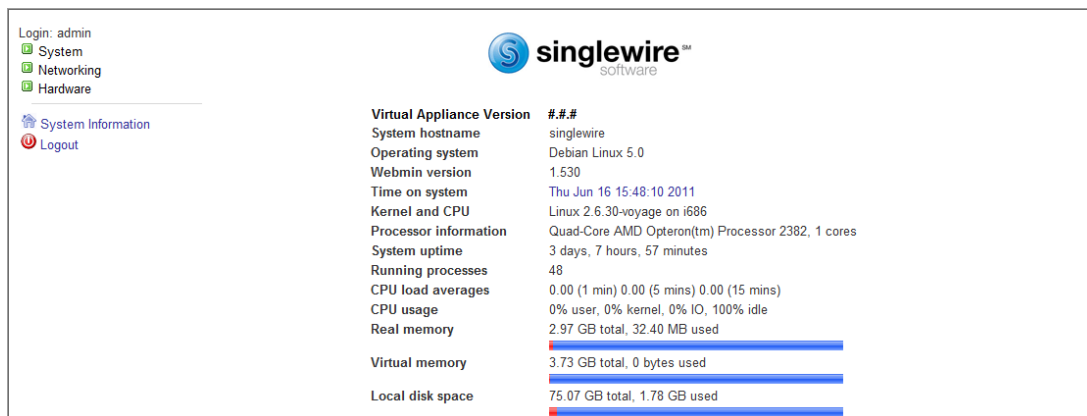
- Step 2** Click the **Access System Management Tools with Webmin** link. A separate tab/window opens to the Login to Webmin page.



Note

You may have to accept a warning from your web browser about the security of this page's content.

Step 3 Enter your login credentials and click the **Login** button. By default, your username is **admin** and your password is **changeMe**. The Webmin homepage appears.



The screenshot shows the Singlewire Webmin interface. On the left, there is a navigation menu with options: System, Networking, Hardware, System Information (selected), and Logout. The main content area displays the Singlewire logo and a table of system information.

Virtual Appliance Version	###
System hostname	singlewire
Operating system	Debian Linux 5.0
Webmin version	1.530
Time on system	Thu Jun 16 15:48:10 2011
Kernel and CPU	Linux 2.6.30-vooyage on i686
Processor information	Quad-Core AMD Opteron(tm) Processor 2382, 1 cores
System uptime	3 days, 7 hours, 57 minutes
Running processes	48
CPU load averages	0.00 (1 min) 0.00 (5 mins) 0.00 (15 mins)
CPU usage	0% user, 0% kernel, 0% IO, 100% idle
Real memory	2.97 GB total, 32.40 MB used
Virtual memory	3.73 GB total, 0 bytes used
Local disk space	75.07 GB total, 1.78 GB used

From the Webmin homepage, you can install a new software package (see “Install InformaCast Virtual Appliance” on page 2-34), start/stop/restart Singlewire’s applications, and reboot the InformaCast virtual machine (see “Start/Stop/Restart InformaCast and Reboot the InformaCast Virtual Machine” on page 8-18 for more information).

Start/Stop/Restart InformaCast and Reboot the InformaCast Virtual Machine

Problem I tried to start InformaCast and got the error, “You must accept the End User License Agreement (EULA) and configure networking before you can use InformaCast. Please go to the VM console in vSphere to continue the installation.” So, I went to the vSphere console and no EULA is displayed; I just see the default console with an IP address, etc.

Solution You have two options: run the **swiftstart** command or redeploy the InformaCast OVA. To run the **swiftstart** command:

- Open vSphere.
- Select your virtual machine and go to **Inventory | Virtual Machine | Open Console**.
- Press **Alt + F2**.
- Log into your virtual machine.
- Enter **swiftstart** and press **Enter**. The SwiftStart End User License Agreement (EULA) window appears.
- Click the **I Agree** button to accept the EULA.
- Continue with Step 16 on page 2-44.

To redeploy the InformaCast OVA, see “Install InformaCast Virtual Appliance” on page 2-34.

Problem You need to start, stop, or restart InformaCast or reboot InformaCast’s virtual machine.

Solution Backing up and restoring InformaCast and application malfunction are reasons you would need to start and stop InformaCast or reboot its virtual machine.

Stop InformaCast

Follow these steps to stop InformaCast.

- Step 1** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.



- Step 2** Click the **Access System Management Tools with Webmin** link. A separate tab/window opens to the Login to Webmin page.



Note

You may have to accept a warning from your web browser about the security of this page’s content.

Step 3 Enter your login credentials and click the **Login** button. By default, your username is **admin** and your password is **changeMe**. The Webmin homepage appears.

The screenshot shows the Singlewire Webmin interface. On the left is a navigation menu with options like System, Networking, Hardware, System Information, and Logout. The main content area displays system information for a virtual appliance. The Singlewire logo is at the top right.

Virtual Appliance Version	###
System hostname	singlewire
Operating system	Debian Linux 5.0
Webmin version	1.530
Time on system	Thu Jun 16 15:48:10 2011
Kernel and CPU	Linux 2.6.30-voyage on i686
Processor information	Quad-Core AMD Opteron(tm) Processor 2382, 1 cores
System uptime	3 days, 7 hours, 57 minutes
Running processes	48
CPU load averages	0.00 (1 min) 0.00 (5 mins) 0.00 (15 mins)
CPU usage	0% user, 0% kernel, 0% IO, 100% idle
Real memory	2.97 GB total, 32.40 MB used
Virtual memory	3.73 GB total, 0 bytes used
Local disk space	75.07 GB total, 1.78 GB used

Step 4 Go to **System | Bootup and Shutdown**. The Bootup and Shutdown page appears.

The screenshot shows the 'Bootup and Shutdown' page in the Singlewire Webmin interface. The left navigation menu is expanded to show 'System | Bootup and Shutdown'. The main content area is titled 'Module Config' and 'Bootup and Shutdown'. It features a table of system services with checkboxes to enable or disable them at boot. Below the table are buttons for creating new actions and managing the current configuration. At the bottom, there are buttons for changing the runlevel, rebooting, and shutting down the system.

Action	At boot?	Description
<input type="checkbox"/> alsa-utils	No	This script stores and restores mixer levels on
<input type="checkbox"/> asterisk	No	Controls the Asterisk PBX
<input type="checkbox"/> atftpd	No	Launch atftpd server, a TFTP server useful
<input type="checkbox"/> awds	No	This script is used to start the AWDS daemon which provides
<input type="checkbox"/> batmand	No	/etc/init.d/batmand: start batmand
<input type="checkbox"/> bootlogd	No	Starts or stops the bootlogd log program
<input type="checkbox"/> bootmisc.sh	No	Some cleanup. Note, it need to run after mountnfs-bootclean.sh.
<input type="checkbox"/> checkfs.sh	No	Check all filesystems.
<input type="checkbox"/> checkroot.sh	No	Check to root file system.
<input type="checkbox"/> cron	Yes	cron is a standard UNIX program that runs user-specified
<input type="checkbox"/> dahdi	No	dahdi - load and configure DAHDI modules
<input type="checkbox"/> dnsmasq	No	DHCP and DNS server
<input type="checkbox"/> ebttables	No	Saves and restores the state of the ebttables rulesets.
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> hostapd	No	Userspace IEEE 802.11 AP and IEEE 802.1X/WPA/WPA2/EAP
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> single	No	executed by init(8) upon entering runlevel 1 (single).
<input type="checkbox"/> singlewireInformaCast	No	InformaCast application from Singlewire

Buttons: Start, Stop, Restart, Start On Boot, Disable On Boot, Start Now and On Boot, Disable Now and On Boot

Change to runlevel: 2

Buttons: Reboot System, Shutdown System

Click this button to switch your system from the current runlevel to the selected one. This will cause all the actions in the current level to be stopped, and then all the actions in the new runlevel to be started.

Click on this button to immediately reboot the system. All currently logged in users will be disconnected and all services will be re-started.

Click on this button to immediately shutdown the system. All services will be stopped, all users disconnected and the system powered off (if your hardware supports it).

Step 5 Scroll down the list of actions until you come to **singlewireInformaCast**. Click its link. The Edit Action page appears.

Module Index

Edit Action

Login: admin

- System
 - Bootup and Shutdown
 - Change Passwords
 - Scheduled Cron Jobs
 - Software Packages
- Networking
- Hardware
- System Information
- Logout

Action Details

Name: singlewireInformaCast

Action Script

```
#!/bin/sh
### BEGIN INIT INFO
# Short-Description: InformaCast
# Description: InformaCast application from Singlewire
### END INIT INFO

# Author: Jeff Ramin <jeff.ramin@singlewire.com>
#

# Do NOT "set -e"

# PATH should only include /usr/* if it runs after the mountnfs.sh script
PATH=/sbin:/usr/sbin:/bin:/usr/bin
DESC="InformaCast"
NAME=singlewireInformaCast
```

Start at boot time? Yes No

Save Start Now Show Status Stop Now Delete

[Return to bootup and shutdown actions](#)

Step 6 Click the **Stop Now** button. It will take a minute or so for InformaCast to stop.

Module Index

Stop Action

Login: admin

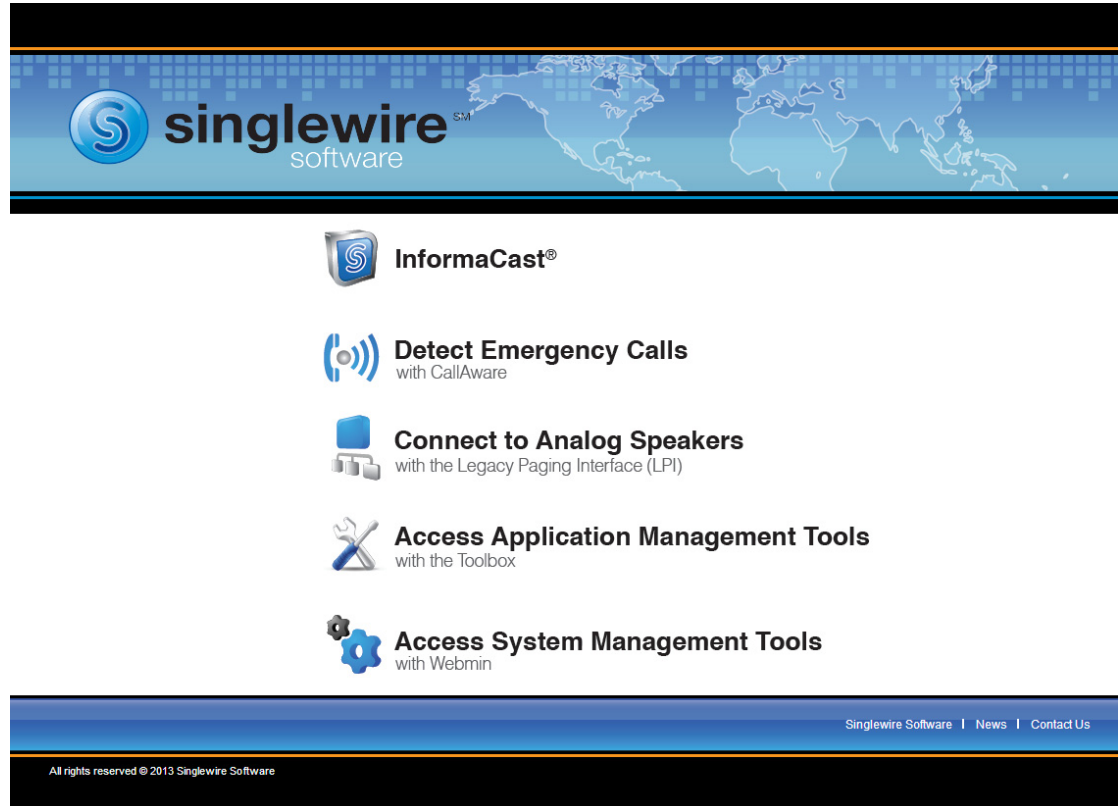
- System
 - Bootup and Shutdown
 - Change Passwords
 - Scheduled Cron Jobs
 - Software Packages
- Networking
- Hardware
- System Information
- Logout

Executing /etc/init.d/singlewireInformaCast stop ..

Start InformaCast

Follow these steps to start InformaCast.

- Step 1** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.



- Step 2** Click the **Access System Management Tools with Webmin** link. A separate tab/window opens to the Login to Webmin page.



Note

You may have to accept a warning from your web browser about the security of this page's content.

Step 3 Enter your login credentials and click the **Login** button. By default, your username is **admin** and your password is **changeMe**. The Webmin homepage appears.

The screenshot shows the Singlewire Webmin interface. On the left is a navigation menu with options like System, Networking, Hardware, System Information, and Logout. The main content area displays system information for a virtual appliance. The Singlewire logo is at the top right.

Virtual Appliance Version	###
System hostname	singlewire
Operating system	Debian Linux 5.0
Webmin version	1.530
Time on system	Thu Jun 16 15:48:10 2011
Kernel and CPU	Linux 2.6.30-voyage on i686
Processor information	Quad-Core AMD Opteron(tm) Processor 2382, 1 cores
System uptime	3 days, 7 hours, 57 minutes
Running processes	48
CPU load averages	0.00 (1 min) 0.00 (5 mins) 0.00 (15 mins)
CPU usage	0% user, 0% kernel, 0% IO, 100% idle
Real memory	2.97 GB total, 32.40 MB used
Virtual memory	3.73 GB total, 0 bytes used
Local disk space	75.07 GB total, 1.78 GB used

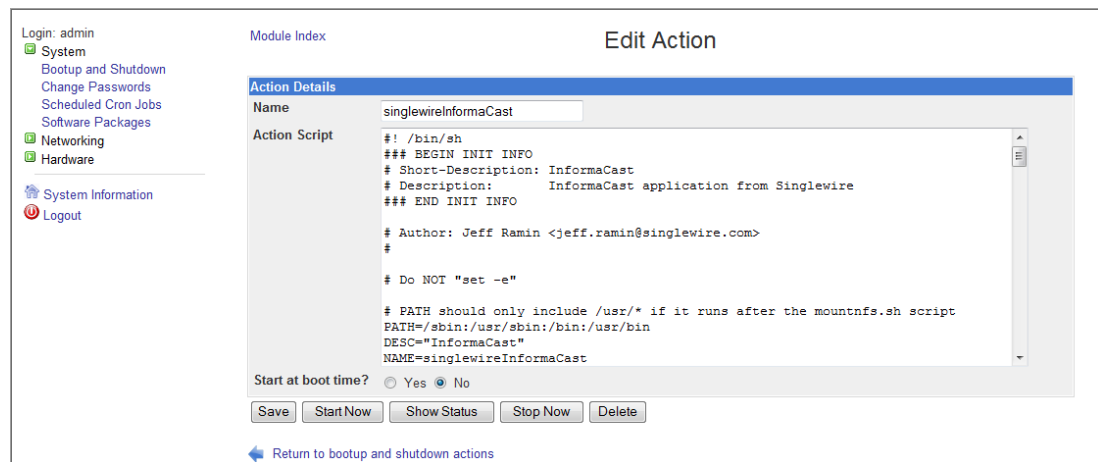
Step 4 Go to **System | Bootup and Shutdown**. The Bootup and Shutdown page appears.

The screenshot shows the 'Bootup and Shutdown' configuration page in Webmin. The left navigation menu is expanded to 'System | Bootup and Shutdown'. The main area is titled 'Module Config' and 'Bootup and Shutdown'. It contains a table of system services with checkboxes to enable or disable them at boot.

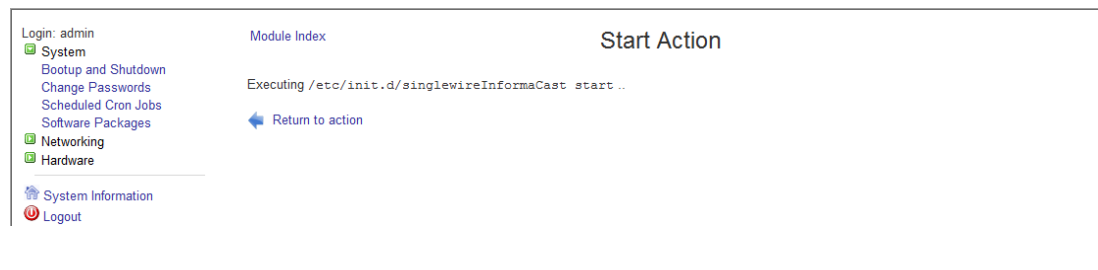
Action	At boot?	Description
<input type="checkbox"/> alsa-utils	No	This script stores and restores mixer levels on
<input type="checkbox"/> asterisk	No	Controls the Asterisk PBX
<input type="checkbox"/> atftpd	No	Launch atftpd server, a TFTP server useful
<input type="checkbox"/> awds	No	This script is used to start the AWDS daemon which provides
<input type="checkbox"/> batmand	No	/etc/init.d/batmand: start batmand
<input type="checkbox"/> bootlogd	No	Starts or stops the bootlogd log program
<input type="checkbox"/> bootmisc.sh	No	Some cleanup. Note, it need to run after mountnfs-bootclean.sh.
<input type="checkbox"/> checkfs.sh	No	Check all filesystems.
<input type="checkbox"/> checkroot.sh	No	Check to root file system.
<input type="checkbox"/> cron	Yes	cron is a standard UNIX program that runs user-specified
<input type="checkbox"/> dahdi	No	dahdi - load and configure DAHDI modules
<input type="checkbox"/> dnsmasq	No	DHCP and DNS server
<input type="checkbox"/> ebttables	No	Saves and restores the state of the ebttables rulesets.
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> hostapd	No	Userspace IEEE 802.11 AP and IEEE 802.1X/WPA/WPA2/EAP
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> single	No	executed by init(8) upon entering runlevel 1 (single).
<input type="checkbox"/> singlewireInformaCast	No	InformaCast application from Singlewire

Below the table are buttons for 'Start', 'Stop', 'Restart', 'Start On Boot', 'Disable On Boot', 'Start Now and On Boot', and 'Disable Now and On Boot'. At the bottom, there are buttons for 'Change to runlevel: 2', 'Reboot System', and 'Shutdown System', along with explanatory text for each.

- Step 5** Scroll down the list of actions until you come to **singlewireInformaCast**. Click its link. The Edit Action page appears.



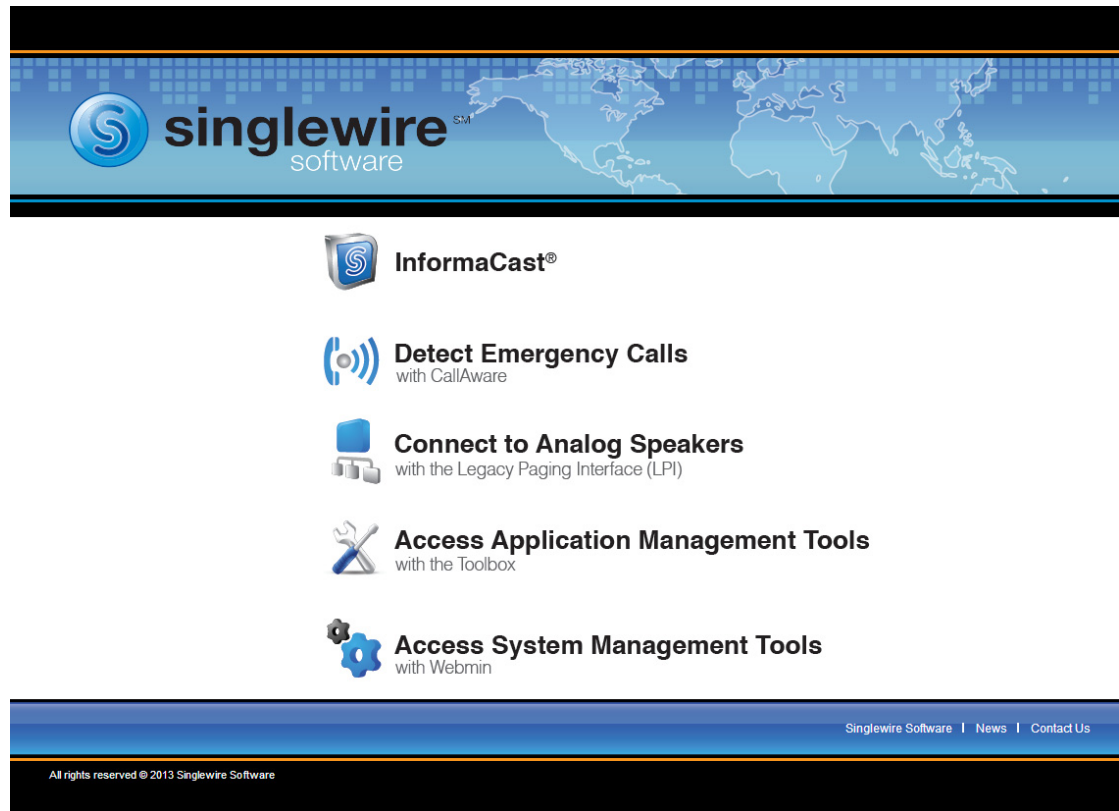
- Step 6** Click the **Start Now** button. It will take a minute or so for InformaCast to start.



Restart InformaCast

Follow these steps to restart InformaCast.

- Step 1** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.



- Step 2** Click the **Access System Management Tools with Webmin** link. A separate tab/window opens to the Login to Webmin page.



Note You may have to accept a warning from your web browser about the security of this page's content.

Step 3 Enter your login credentials and click the **Login** button. By default, your username is **admin** and your password is **changeMe**. The Webmin homepage appears.

The screenshot shows the Singlewire Webmin interface. On the left is a navigation menu with options like System, Networking, and Hardware. The main content area displays system information for a virtual appliance. The Singlewire logo is at the top right.

Virtual Appliance Version	###
System hostname	singlewire
Operating system	Debian Linux 5.0
Webmin version	1.530
Time on system	Thu Jun 16 15:48:10 2011
Kernel and CPU	Linux 2.6.30-voyage on i686
Processor information	Quad-Core AMD Opteron(tm) Processor 2382, 1 cores
System uptime	3 days, 7 hours, 57 minutes
Running processes	48
CPU load averages	0.00 (1 min) 0.00 (5 mins) 0.00 (15 mins)
CPU usage	0% user, 0% kernel, 0% IO, 100% idle
Real memory	2.97 GB total, 32.40 MB used
Virtual memory	3.73 GB total, 0 bytes used
Local disk space	75.07 GB total, 1.78 GB used

Step 4 Go to **System | Bootup and Shutdown**. The Bootup and Shutdown page appears.

The screenshot shows the 'Bootup and Shutdown' page in the Singlewire Webmin interface. The left navigation menu is expanded to show 'System | Bootup and Shutdown'. The main content area is titled 'Module Config' and 'Bootup and Shutdown'. It features a table of system services with checkboxes to enable or disable them at boot. Below the table are buttons for creating new actions and managing the current configuration. At the bottom, there are buttons for changing the runlevel, rebooting, and shutting down the system.

Action	At boot?	Description
<input type="checkbox"/> alsa-utils	No	This script stores and restores mixer levels on
<input type="checkbox"/> asterisk	No	Controls the Asterisk PBX
<input type="checkbox"/> atftpd	No	Launch atftpd server, a TFTP server useful
<input type="checkbox"/> awds	No	This script is used to start the AWDS daemon which provides
<input type="checkbox"/> batmand	No	/etc/init.d/batmand: start batmand
<input type="checkbox"/> bootlogd	No	Starts or stops the bootlogd log program
<input type="checkbox"/> bootmisc.sh	No	Some cleanup. Note, it need to run after mountnfs-bootclean.sh.
<input type="checkbox"/> checkfs.sh	No	Check all filesystems.
<input type="checkbox"/> checkroot.sh	No	Check to root file system.
<input type="checkbox"/> cron	Yes	cron is a standard UNIX program that runs user-specified
<input type="checkbox"/> dahdi	No	dahdi - load and configure DAHDI modules
<input type="checkbox"/> dnsmasq	No	DHCP and DNS server
<input type="checkbox"/> ebttables	No	Saves and restores the state of the ebttables rulesets.
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> hostapd	No	Userspace IEEE 802.11 AP and IEEE 802.1X/WPA/WPA2/EAP
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> single	No	executed by init(8) upon entering runlevel 1 (single).
<input type="checkbox"/> singlewireInformaCast	No	InformaCast application from Singlewire

Buttons: Start, Stop, Restart, Start On Boot, Disable On Boot, Start Now and On Boot, Disable Now and On Boot

Change to runlevel: 2

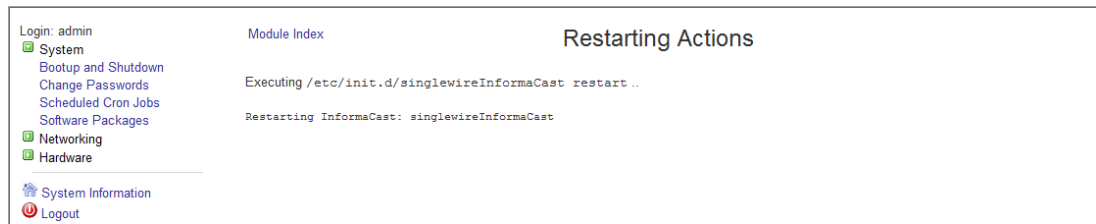
Buttons: Reboot System, Shutdown System

Click this button to switch your system from the current runlevel to the selected one. This will cause all the actions in the current level to be stopped, and then all the actions in the new runlevel to be started.

Click on this button to immediately reboot the system. All currently logged in users will be disconnected and all services will be re-started.

Click on this button to immediately shutdown the system. All services will be stopped, all users disconnected and the system powered off (if your hardware supports it).

- Step 5** Scroll down the list of actions until you come to **singlewireInformaCast**. Select it by placing a checkmark in its Action column and click the **Restart** button. The Restarting Actions page appears.

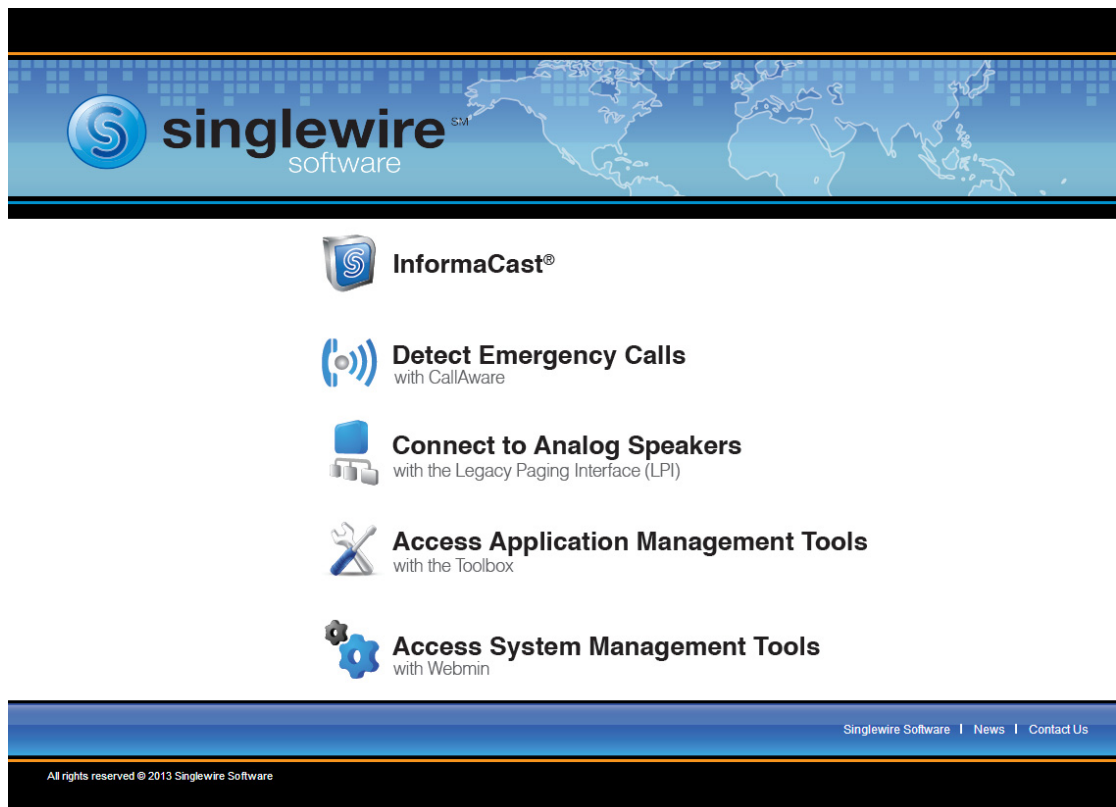


It will take a minute for InformaCast to restart.

Reboot the InformaCast Virtual Machine

Follow these steps to reboot the InformaCast virtual machine.

- Step 1** Open a web browser, enter the IP address of your InformaCast Virtual Appliance server, and press the **Enter** key. The Singlewire Start page appears.



Step 2 Click the **Access System Management Tools with Webmin** link. A separate tab/window opens to the Login to Webmin page.



Note You may have to accept a warning from your web browser about the security of this page's content.

Step 3 Enter your login credentials and click the **Login** button. By default, your username is **admin** and your password is **changeMe**. The Webmin homepage appears.

Virtual Appliance Version	###
System hostname	singlewire
Operating system	Debian Linux 5.0
Webmin version	1.530
Time on system	Thu Jun 16 15:48:10 2011
Kernel and CPU	Linux 2.6.30-vooyage on i686
Processor information	Quad-Core AMD Opteron(tm) Processor 2382, 1 cores
System uptime	3 days, 7 hours, 57 minutes
Running processes	48
CPU load averages	0.00 (1 min) 0.00 (5 mins) 0.00 (15 mins)
CPU usage	0% user, 0% kernel, 0% IO, 100% idle
Real memory	2.97 GB total, 32.40 MB used
Virtual memory	3.73 GB total, 0 bytes used
Local disk space	75.07 GB total, 1.78 GB used

Step 4 Go to **System | Bootup and Shutdown**. The Bootup and Shutdown page appears.

Login: admin

System

- Bootup and Shutdown
- Scheduled Cron Jobs
- Software Packages
- Networking
- Hardware
- System Time

Search:

System Information

Logout

Module Config

Bootup and Shutdown

Create a new bootup and shutdown action.

Action	At boot?	Description
<input type="checkbox"/> alsa-utils	No	This script stores and restores mixer levels on
<input type="checkbox"/> asterisk	No	Controls the Asterisk PBX
<input type="checkbox"/> atftpd	No	Launch atftpd server, a TFTP server useful
<input type="checkbox"/> awds	No	This script is used to start the AWDS daemon which provides
<input type="checkbox"/> batmand	No	/etc/init.d/batmand: start batmand
<input type="checkbox"/> bootlogd	No	Starts or stops the bootlogd log program
<input type="checkbox"/> bootmisc.sh	No	Some cleanup. Note, it need to run after mountnfs-bootclean.sh.
<input type="checkbox"/> checkfs.sh	No	Check all filesystems.
<input type="checkbox"/> checkroot.sh	No	Check to root file system.
<input type="checkbox"/> cron	Yes	cron is a standard UNIX program that runs user-specified
<input type="checkbox"/> dahdi	No	dahdi - load and configure DAHDI modules
<input type="checkbox"/> dnsmasq	No	DHCP and DNS server
<input type="checkbox"/> ebttables	No	Saves and restores the state of the ebttables rulesets.
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> hostapd	No	Userspace IEEE 802.11 AP and IEEE 802.1X/WPA/WPA2/EAP
<input type="checkbox"/> flashybrid	No	Flashybrid is a system to help in setting up and managing hybrid
<input type="checkbox"/> glibc.sh	No	
<input type="checkbox"/> gpsd	No	Start the GPS (Global Positioning System) daemon
<input type="checkbox"/> halt	No	
<input type="checkbox"/> single	No	executed by init(8) upon entering runlevel 1 (single).
<input type="checkbox"/> singlewireInformaCast	No	InformaCast application from Singlewire

Create a new bootup and shutdown action.

Start Stop Restart Start On Boot Disable On Boot Start Now and On Boot Disable Now and On Boot

Change to runlevel: 2 Click this button to switch your system from the current runlevel to the selected one. This will cause all the actions in the current level to be stopped, and then all the actions in the new runlevel to be started.

Reboot System Click on this button to immediately reboot the system. All currently logged in users will be disconnected and all services will be re-started.

Shutdown System Click on this button to immediately shutdown the system. All services will be stopped, all users disconnected and the system powered off (if your hardware supports it).

Step 5 Scroll to the bottom of the page and click the **Reboot System** button. The Reboot page appears.

Login: admin

System

- Bootup and Shutdown
- Change Passwords
- Scheduled Cron Jobs
- Software Packages
- Networking
- Network Configuration
- Hardware

System Information

Logout

Module Index

Reboot

Are you sure you want to reboot the system with the command `reboot` ?

RebootSystem

Return to bootup and shutdown actions

Step 6 Click the **Reboot System** button. The server will shutdown, then restart.

VMware Tools

Problem vSphere has an error flag that says that my version of VMware doesn't match my version of VMware tools. Also, my CPU usage seems elevated. How do I fix this?

Solution Upgrade your VMware tools to match the level of your VMware version. Open vSphere, select your virtual machine, and go to **Inventory | Virtual Machine | Guest | Install/Upgrade VMware Tools**. Select the **Automatic Tools** radio button and click the **OK** button. Your VMware tools are upgraded.

Authentication

Problem When attempting a broadcast, the phones do not respond (i.e. no audio is heard). The Summary log reports authentication errors for each phone attempted (go to **Help | Support**).

Solution Check the authentication URL. When InformaCast attempts a broadcast, the phones check whether the attempt should be permitted. Make sure that you've set up your phones to use InformaCast's built-in authentication service, and that Communications Manager's Enterprise System Parameters were updated to use the value displayed on InformaCast's Edit Telephony Configuration page as the URL for authentication.

On one of the phones being used with InformaCast, verify that the authentication URL shows the same value displayed on InformaCast's Edit Telephony Configuration page. The path for this information on a phone varies (e.g. **Settings | 3-Network Configuration | 36-Authentication URL** or **Settings | 3-Device Configuration | 10-Authentication URL** or **Settings | 3-Device Configuration | 2-HTTP Configuration | 5-Authentication URL**).

If it does not, correct the settings in the Communications Manager administrative interface: in the **System** menu, select **Enterprise Parameters** and edit the **URL Authentication** field. Once this is correct, you must reset all the phones so that they learn about the new URL.

**Note**

If you are using Communications Manager 8.x, you will need to fix the **Secured Authentication URL** field as well.

Problem I have errors on my Edit Telephony Configuration page.

Solution If you encounter errors on the Edit Telephony Configuration page, verify that the fields have the proper information entered into them. Check the following fields' information:

- **Communications Manager AXL User.** Access Communications Manager's administrative interface and log in with the same username/password combination. If you are unable to log in, InformaCast will be unable to log in.
- **Communications Manager IP Address(es).** Use the same test as for the **Communications Manager Admin User** field.
- **Communications Manager Application User.** Access Communications Manager's administrative interface and ensure that your application user's credentials in InformaCast match those in Communications Manager.
- **SNMP Community Name.** Verify that the value you entered here matches the value in Communications Manager. Use the [Multicast Testing Tool](#) to verify SNMP functionality.

Problem I'm seeing the error, "Default configuration Not Connected," in the Communications Manager Versions column on the Admin Overview page.

Solution Rebuild your phone cache. This problem occurs whenever your license changes and whenever you add/update/delete a cluster. If either the license or clusters change, the phone cache must be rebuilt to reflect those changes. The phone cache is automatically rebuilt every hour, but if you want it completed sooner than that, you can click the **Update** button on the Edit Recipient Groups page to discover current IP phone information from Communications Manager. Once this is done, the Communications Manager information appears correctly on the Admin Overview page.

Phone Discovery

Problem There are phones missing from my recipient groups.

Solution If InformaCast is unable to learn about the phones in your Communications Manager environment, it cannot work properly. It must do this by interacting with the Communications Manager server. If the Edit Recipient Groups page in InformaCast shows that the "All Recipients" group is empty, attempts to send broadcasts will result in an error message with a stack trace.

Phones are found from Communications Manager using SNMP and AXL. If you have phones missing from a recipient group, ensure the following:

- The Communications Manager Admin account has the correct username/password information. The top items on InformaCast's Edit Telephony Configuration page are used to set up an administrative password for InformaCast to interact with the Communications Manager server. Make sure that these are correct. Start by logging into your Communications Manager server's administrative interface using the same username and password, and make sure that you can use the **Device** menu's **Phone** option to list the phones in your installation. Once you're sure that the username and password are suitable, carefully re-enter them in InformaCast's Edit Telephony Configuration page to make sure they've been entered correctly.
- The Communication Manager's IP address is correct. InformaCast needs to know where to reach the Communications Manager server. Make sure the **Communications Manager IP Address** field on the Edit Telephony Configuration page contains the correct numeric IP address of your Communications Manager server.
- SNMP is properly enabled. Ensure that SNMP is enabled on the Communications Manager cluster node, the SNMP community strings have READ permissions on the Communications Manager cluster node, and that SNMP community strings are the same on the Communications Manager cluster node. See "Configure Communications Manager SNMP" on page 2-3. You can use the [Multicast Testing Tool](#) to troubleshoot SNMP further.
- Verify your Communications Manager version. You must have version 7.0 or later of Communications Manager in order to use InformaCast 8.2 (and later). If you're running an older version of Communications Manager, one of the symptoms will be InformaCast's inability to discover phone information from the server.
- Nothing is blocking UDP port 161 from the InformaCast server to the Communications Manager cluster node.
- Ensure there are usable phones registered. If everything else seems fine, it's worth double-checking, via the Communications Manager administrative interface, that there are actually some phones registered (they show up with IP addresses rather than "not found").

Broadcasts

Problem DialCast is failing and there are errors on the Edit Telephony Configuration page.

Solution One or more of the following may be to blame:

- You didn't associate your CTI route points to your application user
- You upgraded Communications Manager, but didn't upgrade JTAPI on the InformaCast server
- Communications Manager's CTIManager service has an issue

Check out Singlewire's Calling Terminal Diagnostics page (**Help | Support**), which shows the health of InformaCast's CTI connection to Communications Manager. Under normal circumstances, the Calling Terminal Diagnostics page shows you the status of your CTI route points, as shown in the following graphic.

InformaCast - Calling Terminal Diagnostics

CTI Ports

NAME	TERMINAL STATE	REGISTERED ON	MARKED FOR DELETION	DN	ACTIVE CALLS	USER DESCRIPTION
RajCT3	IN_SERVICE	172.30.227.11: 20480	false	3333		
RajCT2	IN_SERVICE	172.30.227.11: 20482	false	2222		
RajCT1	IN_SERVICE	172.30.227.11: 20484	false	1111		
RajCT7	IN_SERVICE	172.30.227.11: 20486	false	7777		

CTI Route Points

NAME	DN	STATE	ACTIVE CALLS
RajRP3	33XX	IN_SERVICE	Call ID : 60820/1 Calling : 8510000 Called : 3301
RajRP1	11XX	IN_SERVICE	
RajRP2	22XX	IN_SERVICE	

The Calling Terminal Diagnostics page can also show you the status of active calls/broadcasts, as shown in the following graphic.

InformaCast - Calling Terminal Diagnostics

CTI Ports

NAME	TERMINAL STATE	REGISTERED ON	MARKED FOR DELETION	DN	ACTIVE CALLS	USER DESCRIPTION
AT217	IN_SERVICE	172.30.227.217: 20480	false	25667	Call ID : 60808/1 Calling : 25667 Called : 8510028	com.berbee.ipt.rtp.k@01/13/2011 10:08:46 AM

CTI Route Points

NAME	DN	STATE	ACTIVE CALLS
AT217RP	23456	IN_SERVICE	

Because InformaCast uses CTI for call control, having errors with route points, JTAPI, or CTIManager would affect the ability to initiate DialCasts. You can use the Calling Terminal Diagnostics page to verify that your CTI devices in Communications Manager are registered with InformaCast. It is also recommended that you have your Network Monitoring Solution (NMS) view this page to ensure all items are "In Service," and send you an alert in case of server failures.

The Calling Terminal Diagnostics page should refresh every 15 seconds. However, if you are using Internet Explorer v8.x, you will need to take some extra steps to ensure the refresh rate of the page. Firefox is unaffected and should refresh as directed.

-
- Step 1** Open Internet Explorer.
- Step 2** Go to **Tools | Internet Options**. The Internet Options dialog box appears.
- Step 3** Click the **Security** tab and select the **Internet** zone.
- Step 4** Click the **Custom level** button. The Security Settings - Internet Zone dialog box appears.
- Step 5** Scroll down the Settings list until you find the **Allow META REFRESH** entry.
- Step 6** Click its **Enable** radio button.
- Step 7** Click the **OK** button on the Security Settings - Internet Zone dialog box.
- Step 8** Click the **Yes** button on the warning that pops up.
- Step 9** Click the **OK** button on the Internet Options dialog box.
-

Problem After a recent upgrade of InformaCast from pre-8.4 version to 8.4 or later, broadcasts sound choppy or robotic at remote sites or during times of heavy network traffic loads.

Solution In InformaCast versions prior to v8.4, applications' QoS settings were set in the code and did not match Cisco's default QoS DSCP values. On the Virtual Appliance, the QoS settings have been moved to the OS level and now match Cisco's default settings. These settings are:

- Media RTP traffic set to DSCP EF
- Call signaling traffic set to DSCP CS3 (call signaling traffic includes SIP and CTI traffic)
- HTTP traffic to IP phones set to DSCP 0
- Any other traffic set to DSCP 0

If you need to change from these default values, you will need to do so at the network level. Rewriting DSCP values is covered in the Cisco Quality of Service (QoS) Solution Reference Network Design (SRND) guide, found at <http://www.cisco.com/go/srnd> and should be handled by your network administrator.

Upgrading InformaCast Virtual Appliance

Problem I want to upgrade my version of InformaCast Virtual Appliance. Where do I find the steps for that process?

Solution InformaCast Virtual Appliance is part of the larger InformaCast Virtual Appliance suite of products. If you are looking to upgrade your version of InformaCast Virtual Appliance (e.g. Aberdeen to 8.5.1), follow the upgrade steps in the "InformaCast Virtual Appliance Administration Guide."

Upgrading from Basic to Advanced InformaCast

Problem I upgraded InformaCast (from Basic to Advanced trial/demonstration/subscription/purchased) and I'm seeing some of the following problems:

- I can't log in
- My recipients/user accounts/dialing configurations, etc. are missing

- I'm sending out broadcasts that have worked in the past, but they're not going through now

Solution If you upgrade from Basic to Advanced InformaCast through either the trial, demonstration, subscription or purchased licenses and you decide to return to Basic functionality, all additional information entered during your Advanced phase will not be saved. If you choose to upgrade back to Advanced InformaCast, that information will reappear; however, any new information you entered after you reverted to Basic functionality will be unavailable.

For the three examples cited in this problem, you have a few options:

- **I can't log in.** Did you change your administrator password while you were in Advanced InformaCast? If so, your password has reverted to what it was when you were initially in Basic InformaCast. Use that password for logging in. If you have forgotten that password, [contact Singlewire Support](#) to reset your password.
- **My recipients/user accounts/dialing configurations, etc. are missing.** If you added these recipients/user accounts/dialing configurations while you were in Advanced InformaCast, downgrading to Basic InformaCast reverts you to the information you last entered before your upgrade. You will need to enter this information again or upgrade again to Advanced InformaCast. Please note that any new information you entered in your second go-round with Basic InformaCast will not be available if you decide to upgrade again to Advanced InformaCast.
- **I'm sending out broadcasts that have worked in the past, but they're not going through now.** Did you change your IP address in Advanced InformaCast before reverting to Basic InformaCast? If so, your broadcasts will no longer work. You will need to redeploy the InformaCast OVA (see "Install InformaCast Virtual Appliance" on page 2-34) to fix this issue.

Problem I just upgraded InformaCast and I have errors on the Edit Telephony Configuration page.

Solution If you encounter errors on the Edit Telephony Configuration page, verify that the fields have the proper information entered into them. Check the following fields' information:

- **Communications Manager AXL User.** Access Communications Manager's administrative interface and log in with the same username/password combination. If you are unable to log in, InformaCast will be unable to log in.
- **Communications Manager IP Address(es).** Use the same test as for the **Communications Manager Admin User** field.
- **Communications Manager Application User.** Access Communications Manager's administrative interface and ensure that your application user's credentials in InformaCast match those in Communications Manager.
- **SNMP Community Name.** Verify that the value you entered here matches the value in Communications Manager. Use the [Multicast Testing Tool](#) to verify SNMP functionality.

Problem I just upgraded/downgraded InformaCast and I'm seeing the error, "Default configuration Not Connected," in the Communications Manager Versions column on the Admin Overview page.

Solution Rebuild your phone cache. This problem occurs whenever your license changes and whenever you add/update/delete a cluster. If either the license or clusters change, the phone cache must be rebuilt to reflect those changes. The phone cache is automatically rebuilt every hour, but if you want it completed sooner than that, you can click the **Update** button on the Edit Recipient Groups page to discover current IP phone info from Communications Manager. Once this is done, the Communications Manager information appears correctly on the Admin Overview page.

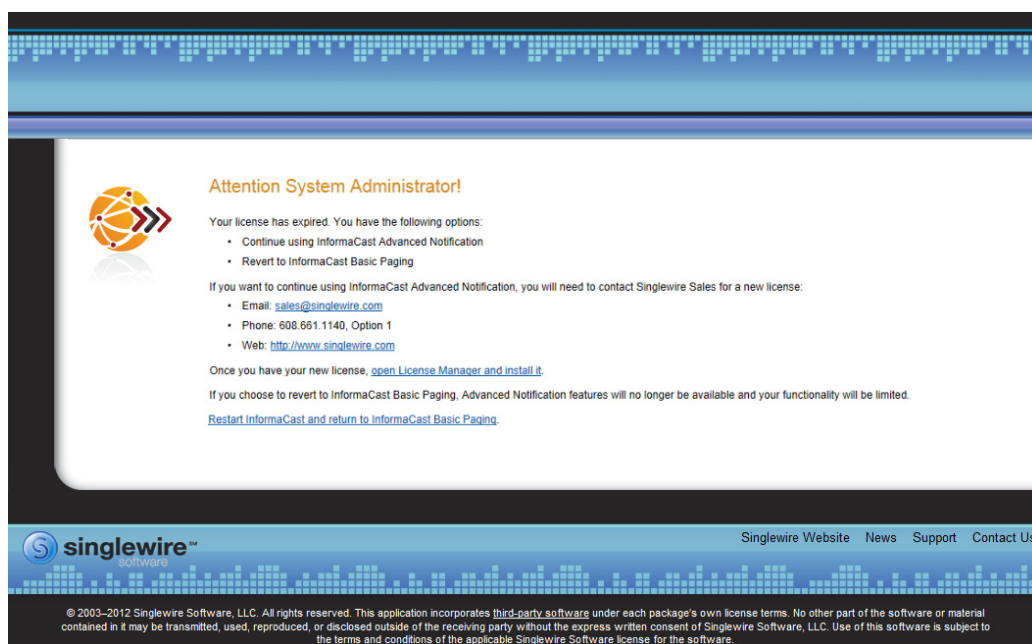
Problem I just upgraded InformaCast and there are phones missing from my recipient groups.

Solution Phones are found from Communications Manager using SNMP and AXL. If you have phones missing from a recipient group, ensure the following:

- The Communications Manager Admin account has the correct username/password information
- SNMP is enabled on all Communications Manager cluster nodes
- SNMP community strings have READ permissions on all Communications Manager cluster nodes
- SNMP community strings are the same on all Communications Manager cluster nodes
- Nothing is blocking UDP port 161 from the InformaCast server to all Communications Manager cluster nodes

You can use the [Multicast Testing Tool](#) to troubleshoot SNMP further.

Problem I just logged into InformaCast and I'm getting a message that my license has expired.



Solution Advanced Notification trial, demonstration, and subscription licenses all have expiration limits. If you want to continue using Advanced Notification, you will need to [contact Singlewire](#) to obtain a new license. If you decide to revert to Basic Paging by clicking the **Restart InformaCast and return to InformaCast Basic Paging** link, InformaCast will restart, you will lose Advanced Notification functionality and all additional data entered during your Advanced Notification phase will be unavailable (e.g. when you revert to Basic Paging from Advanced Notification, any data you entered after you upgraded initially—dialing configurations, users, recipient groups, etc.—will not be available once you downgrade to Basic Paging). If you choose to upgrade back to Advanced Notification, that data will be restored; however, any new data you entered after you reverted to Basic Paging functionality will be unavailable.



CHAPTER 9

Further Discussion

The following sections offer more detail on some of the more intricate aspects of InformaCast.

Determine the Busy State of a Phone with JTAPI's Device State Server

Cisco IP phones have become progressively less reliable at reporting whether they are in use during a broadcast. For those small number of phones where it is very important to be sure that message audio is always and only delivered if the phone is idle (a requirement for Basic InformaCast), it is now possible to associate these specific phones with InformaCast's application user, which will give InformaCast more accurate information about their status. Unfortunately, because of scalability limitations within Communications Manager itself, it is not practical or possible to monitor all phones in medium-to-large installations.



Note

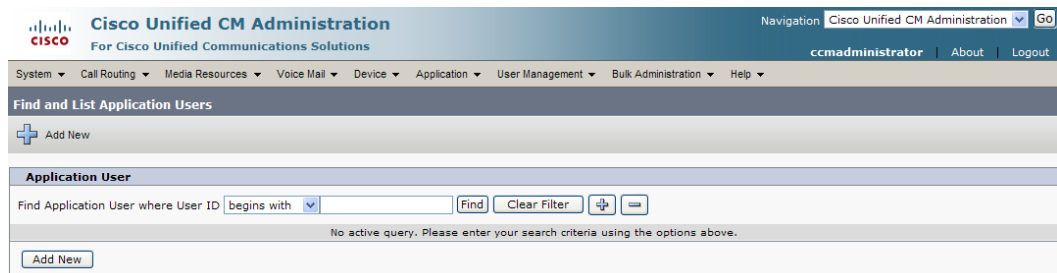
This procedure will only work when using Communications Manager 7.x or newer. It is not intended to be used with a medium or large number of phones, and must be applied in a targeted manner.



Note

The pictures in the following sections illustrate Cisco Communications Manager v7.x; however, the steps are consistent between versions of Communications Manager. Discrepancies are noted where they occur.

Step 1 Log into your Communications Manager's administrative interface and go to **User Management | Application User**. The Find and List Application Users page appears.



Step 2 Use the filters to search for the name of the application user you are using. Click the **Find** button. The Find and List Application Users page refreshes with your results.

The screenshot shows the Cisco Unified CM Administration interface. The page title is "Find and List Application Users". The status bar indicates "16 records found". The search criteria is "User ID begins with". The table below lists the application users:

<input type="checkbox"/>	User ID ^	Copy
<input type="checkbox"/>	AT214	
<input type="checkbox"/>	CCMORTSecureSysUser	
<input type="checkbox"/>	CCMORTSysUser	
<input type="checkbox"/>	CCMSysUser	
<input type="checkbox"/>	CUCService	
<input type="checkbox"/>	ICRai	
<input type="checkbox"/>	IPMASecureSysUser	
<input type="checkbox"/>	IPMASysUser	
<input type="checkbox"/>	MattS	
<input type="checkbox"/>	TabSyncSysUser	
<input type="checkbox"/>	WDSecureSysUser	
<input type="checkbox"/>	WDSysUser	
<input type="checkbox"/>	ccmadministrator	
<input type="checkbox"/>	ramin	
<input type="checkbox"/>	user	
<input type="checkbox"/>	whip	

Step 3 Click the **User ID** link of your user. The Application User Configuration page appears.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration Go
ccadministrator About Logout

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Application User Configuration Related Links: Back To Find/List Go

Save Delete Copy Add New

Status
Add successful

Application User Information
User ID* Test Edit Credential
Password
Confirm Password
Digest Credentials
Confirm Digest Credentials
Presence Group* Standard Presence group
 Accept Presence Subscription
 Accept Out-of-dialog REFER
 Accept Unsolicited Notification
 Accept Replaces Header

Device Information
Available Devices: AT214, EmergencyRP, MattS_CTI, RelicastRP, SEP000BBED8055C
Find more Phones
Find more Route Points
Find more Pilot Points
Controlled Devices: RelicastCTIport, RajCTI

CAPF Information
Associated CAPF Profiles
View Details

Permissions Information
Groups
View Details
Roles
View Details
Add to User Group
Remove from User Group

Save Delete Copy Add New

* - indicates required item.

Step 4 Scroll down to the **Device Information** area. Highlight all of the phones on which you would like to enable JTAPI monitoring and click the down arrow to move them into the lower box. All phones in the lower box will look to JTAPI for their current phone status.

Device Information
Available Devices: SEP001E138C7D81, SEP001E4A925F60, SEP003094C3F2DC, SEP243523452345, SEP432143214321
Find more Phones
Find more Route Points
Find more Pilot Points
Controlled Devices: RelicastCTIport, RajCTI, InformaCastRaj, RajInformaCast

Step 5 Click the **Save** button to save your changes.

Advanced Matching for Recipient Groups

InformaCast has a variety of powerful methods for creating very precise matches of recipients for recipient groups:

- **Subnet matching.** For when you want to match all recipients on a particular network based on the IP address range assigned to that network.
- **Regular expressions.** For when the value of a particular device parameter will let you select devices, but in a more complex way than literally matching all of or part of the value. For example, you may want to check that the description contains numeric digits, or a particular pattern of text that would be tedious or impossible to set up as an individual rule.

Subnet Matching

When you are setting up a recipient group rule based on recipients' IP addresses, in addition to the normal matching types, you will see a **Belong to Subnet** choice. This allows you to include or exclude recipients based on whether their network address falls within the range assigned to a particular network.

To specify a subnet in IP networking, you need to provide two pieces of information: an address that is part of the network, and information about how much of that address is allowed to vary. There are a variety of approaches for formatting this information, and the one InformaCast uses reflects the underlying Java networking system on which it is built.

To specify a subnet within InformaCast, supply an address and the number of “host bits” that should be ignored in that address. For example, look at how you'd match a very common style of LAN, which uses what is known as “Class C” addressing. In a Class C network, there are 24 bits of network address, which are always the same, and eight bits that identify the host, so they vary from device to device. (IP addresses always contain a total of 32 bits; when written in decimal notation with dots, as they are in InformaCast, each number contains eight of the bits).

So, assume your hypothetical network has a network address portion of 172.18.2 (since there are 24 bits of network address information, there are three eight-bit numbers that make up the network portion). Valid addresses on this network would range from 172.18.2.0 to 172.18.2.255 (although in practice some of those addresses are reserved for special purposes, that goes beyond the depth of this introduction).

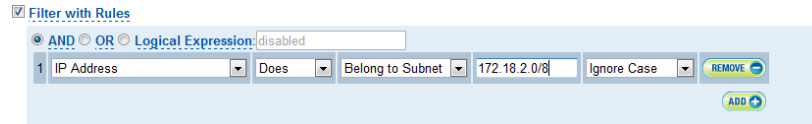
To match this subnet in InformaCast, select **IP Address** from the first dropdown menu in the *Filter with Rules* area, **Does** from the second dropdown menu, **Belong to Subnet** from the third dropdown menu, and enter the pattern **172.18.2.0/8** in the fourth field. The portion before the slash is the sample address that is part of the network, and the part after the slash tells InformaCast how many bits of the address are used for host information. In fact, the last value in the network address doesn't need to be zero in this case—it could be any valid value, 0 to 255—and will be ignored, since all eight bits of that value are reserved for host information.



Note

If you are coming from other tools that perform subnetting, or using one of the online subnet calculators, keep in mind that they often work differently, placing the number of “network” or “mask” bits after the slash. In the example above, using such a tool, you would see “172.18.2.0/24” instead of what would actually work in InformaCast. To convert from network bits to host bits, you must subtract from 32.

Trying to use a subnet pattern of “172.18.2.0/24” in InformaCast will match many more recipients than you intend because it says that there are 24 host bits, meaning there are only eight network bits, so any address from 172.0.0.0 to 172.255.255.255 will match.



Regular Expressions and Recipient Groups

Regular expressions are an extremely powerful way to specify patterns to be matched. InformaCast lets you use them to choose recipients that belong in a recipient group. To use this feature you need to have a solid basic understanding of the syntax and use of regular expressions, and in particular, the variety used in the Perl programming language. This section does not attempt to provide this background information. If you need a reference for Perl regular expressions, consider picking up *Programming Perl* (O’Reilly & Associates) and looking at the relevant parts of Chapters 1 and 2. If you want to start at an even more basic level, O’Reilly also publishes *Learning Perl*, and if you want a great deal of detail, depth, and practical advice, they have an entire book on *Mastering Regular Expressions*.

The basic structure of an expression you will enter is as follows:

```
[m]/pattern/[i][m][s][x]
```

The *m* prefix is optional and the meaning of the optional trailing options are:

Option	Description
<i>i</i>	Case-insensitive match
<i>m</i>	The input is treated as consisting of multiple lines
<i>s</i>	The input is treated as consisting of a single line
<i>x</i>	Enable extended expression syntax incorporating white space and comments

As with Perl, any non-alphanumeric character can be used in lieu of the slashes.

You’ll generally want to match things regardless of whether they are uppercase or lowercase, so you’ll usually want the trailing “*i*” option (regular expressions control whether matches are case-sensitive directly, rather than using a checkbox in the rule to determine this). So, most recipient group regular expressions will look like:

```
m/pattern/i
```

Examples

Assume for a moment the descriptions of all recipients in your installation contain the name of the corporate division in parentheses. To select everyone in Marketing, we want all recipients whose description attribute contains the word “Marketing” surrounded by parentheses. Parentheses have a special meaning in regular expressions, so you’ll have to escape them using backslashes, but other than that, it’s pretty straightforward. Create a rule for the **Description** parameter to match this expression:

```
m/(Marketing\)/i
```

This pattern searches the parameter for the string “(Marketing).” The “i” modifier just means you don’t care about capitalization, so “(marketing)” would match just as well. Of course, you wouldn’t need a regular expression for this, you could just use a **Contain** match (using the dropdown menus and fields provided in the *Filter with Rules* area) for “(Marketing).”

In something a bit trickier, suppose you want to have a group containing all phones whose extensions are 27xx. In other words, four digits long, starting with “27.” Set up a rule with the **Directory Numbers** parameter, and set it to match this expression:

```
m/27[0-9][0-9]/
```

This rule will match any phone whose list of directory numbers contains the digit “2” followed by the digit “7,” then any two additional digits.

These examples convey the basics of setting up regular expressions. The references cited at the beginning of the section will help in constructing even more sophisticated and powerful expressions.

Seeing What's Out There

There’s a trick you can use to quickly see the data that is available for forming your regular expressions. Within the Add Recipient Group page, set the rule to **InformaCast Device Type Does Contain**, make sure there is nothing in the last field, and click the **View** button. This will open the View Recipients pop-up window, showing you all the recipients about which InformaCast knows. You can click on down arrow next to any recipient to pop up the Target Details window that shows you all the parameters available that describe that recipient and their values. Once you’ve figured out how to proceed, set the rule back to the parameter you want to use, pick **Logical Expression** for the constraint, and start setting it up.



CHAPTER 10

Release Notes

The following sections contain the release notes for InformaCast from version 1.1 through the current version.

What's New in InformaCast 8.5.1

Compatibility

InformaCast Basic Paging is compatible with the following versions of Cisco Unified Communications Manager server (including Business Edition 6000): 8.5, 8.6, 9.0, 9.1, 9.12, and 10.0.

New Features

- **Newly Supported Phones.** The following Cisco IP phone models are now supported by InformaCast: 3905, 7821, 7841, 7861, and 8831. Of these, only the 3905 model has special firmware requirements: it must be running firmware version 9.41 or later.
- **Newly Supported Communications Manager.** Cisco's Unified Communications Manager 10.0 is now supported by InformaCast.

Known/Resolved Issues

None

Resolved Caveats

None

New Caveats

CDETs ID	Title
CSCui86392	Leading spaces on DialCast configuration. The InformaCast web interface incorrectly accepts spaces as characters in DialCast dialing patterns. Workaround: remove spaces from these configurations.
CSCuh28628	Provide a more user-friendly interface/functions on the Start Page
CSCuh28601	IP endpoints labeled as required but aren't on Basic sign-in form
CSCuh28499	Learn More about InformaCast links don't hold focus
CSCuh30592	change-ip-address script for backed up databases
CSCuh30601	Phone caches persist after transitioning back to Basic mode

What's New in InformaCast 8.4.a

Compatibility

InformaCast Basic Paging is compatible with the following versions of Cisco Unified Communications Manager server (including Business Edition 6000): 8.5, 8.6, 9.0, 9.1, and 9.12.

New Features

- **Added Content to the Support Page.** The InformaCast Support page (**Help | Support**) now includes links to both SIP stack logs and a link to the Singlewire Plugins page on the Singlewire website. These links were added to increase your ease of access to InformaCast content.
- **Improved SIP Logging.** New parameters (called DN and callID) have been added to the Performance log. By logging the SIP call ID along with the calling DN and called DN, you can more easily track calls in the Performance log (e.g. when the call started, ended, various modes, etc.).
- **Improved Recipient Group Display.** When sending a message from the InformaCast web interface, recipient groups are now displayed alphabetically by name on the Send Message page instead of randomly, which is now consistent with how recipient groups display on the Edit Recipient Groups page.
- **Enhanced DialCast Usability.** Due to customer requests, the initial DialCast welcome prompt ("Welcome to the Singlewire InformaCast...") has been removed.
- **Upgraded Tomcat Version.** Tomcat was upgraded from version 7.0.16 to 7.0.35. This should have no effect on your user experience.
- **Updated QoS Settings.** In InformaCast versions prior to v8.4.a, the QoS settings were set in the code and did not match Cisco's default QoS DSCP values. On the Virtual Appliance, the QoS settings have been moved to the OS level and now match Cisco's default settings. These settings are:
 - Media RTP traffic set to DSCP EF
 - Call signaling traffic set to DSCP CS3 (call signaling traffic includes SIP and CTI traffic)
 - HTTP traffic to IP phones set to DSCP 0

- Any other traffic set to DSCP 0

If you need to change from these default values, you will need to do so at the network level. Rewriting DSCP values is covered in the Cisco Quality of Service (QoS) Solution Reference Network Design (SRND) guide, found at www.cisco.com/go/srnd and should be handled by your network administrator.

Resolved Issues

- **Fixed DN Retrieval from AXL (Mantis ID #4154).** Under certain circumstances (e.g. with Communications Manager v 6.1.3, if there were more than 26,300 DNs, or if there were multiple DNs per phone), InformaCast was not always retrieving all the necessary DNs from AXL when building the phone cache. This issue has been resolved.
- **Fixed Broadcast Jitter (Mantis ID #4300).** Previously, sending as-available messages to a large number of devices could result in degraded audio quality (jitter). This issue has been resolved.
- **Fixed Webmin Access through Internet Explorer (Mantis ID #4066).** Previously, accessing Webmin through Internet Explorer was prevented due to an out-of-date SSL certificate. This issue has been resolved.
- **Fixed Release Notes; Changed Version Number.** The release notes have been separated into Basic and Advanced categories, which necessitated a version number change from 8.4 to 8.4.a.
- **Fixed Spelling Inconsistencies, Hover Text, and Display Issues.** Many pages received new hover text, standardized hover text, and standardized word spellings to improve overall user experience.

Resolved Caveats

CDETs ID	Title
CSCuh28590	Voice prompt changed for Basic Paging
CSCuh28557	Standardize all tooltips
CSCuh28540	Missing the “please complete...” hover text on the Basic sign-in form
CSCuh28521	Phone license limit warning text incorrectly refers to Adv mode license
CSCuh22651	Webmin - Unable to get beyond the security cert error page with IE

New Caveats

CDETs ID	Title
CSCuh28628	Provide a more user-friendly interface/functions on the Start Page
CSCuh28601	IP endpoints labeled as required but isn't on Basic sign-in form
CSCuh28499	Learn More about InformaCast links don't hold focus
CSCuh30592	change-ip-address script for backed up databases
CSCuh30601	Phone caches persists after transitioning back to Basic mode

What's New in InformaCast 8.3.a

Compatibility

InformaCast Basic Paging is compatible with the following versions of Cisco Unified Communications Manager server (including Business Edition 6000): 8.5, 8.6, 9.0, and 9.1

Known Issues

- **Updated Graphics.** Black and white graphics in the documentation were changed to color on request.
- **Incorrect Error Message.** In Basic Paging, when you exceed the limit of the number of phones to which you can broadcast in a recipient group, the error message you receive is wrong (i.e. “There are more phones associated with your Communications Manager server than your InformaCast license key supports. Broadcast messages will be limited to 50 total phones. The number of phones in the list that will participate in a broadcast depends on how many other phones have been broadcast participants. For example, if 50 other phones have been broadcast participants, then no phones in the list can participate. Otherwise, either all or some of the phones can participate. Please contact Singlewire at www.singlewire.com for support or to upgrade your key.”). In actuality, each recipient group is limited to 50 phones, and you can send to another separate recipient group of 50 phones. This differs from Advanced Notification where if you exceed your license limit of recipients in one recipient group, you will be unable to send to another separate group of additional phones.

What's New in InformaCast 8.3

Compatibility

InformaCast Basic Paging is compatible with the following versions of Cisco Unified Communications Manager server (including Business Edition 6000): 8.5, 8.6, 9.0, and 9.1

New Features

- **New Functionality.** InformaCast 8.3 now comes in two new versions: Basic and Advanced. Basic functionality includes live paging only. Advanced functionality contains the full-featured version of InformaCast: the ability to send a number of different types of broadcasts (e.g. live audio, pre-recorded audio, pre-recorded audio and text, etc.) using your Cisco IP phone's interface and/or InformaCast's web interface, interact with InformaCast's plugins (e.g. conduct conference calls, trigger contact closures, post to Facebook and Twitter, send broadcasts to email addresses, etc.), customize scripts that can be attached to broadcasts, and receive confirmation when broadcasts are sent, among other features. Basic functionality comes automatically installed on the Cisco Unified Communications Manager Business Edition 6000, and you have the option to upgrade to Advanced functionality.
- **New InformaCast Licensing.** Advanced InformaCast can be obtained through a limited, free trial, purchased as a subscription service, or purchased outright with a maintenance contract (which is how InformaCast has traditionally been purchased). The InformaCast trial and subscription licenses allow you to try InformaCast's full functionality without committing to a long-term contract (subscription) or without a contract at all (free, limited-time trial).
- **New Backup Location.** The default backup location setting in previous versions of InformaCast could produce unusable backups. As such, a new backup location was created: `/usr/local/singlewire/InformaCast/backup`. You should examine the InformaCast backup location that you are currently using and consider changing it to the new recommended location.
- **New License Parameter.** The `MaxVersion` parameter, a new license parameter, must be present in all 8.3 and later releases of InformaCast and its number must match or be greater than your version of InformaCast in order for you to access any of InformaCast's functionality.
- **Disk Performance Increase.** VMware and storage vendors recommend that virtual machines align on 64Kb boundaries to minimize disk reads, and InformaCast's partitions are now in line with this recommendation. Fewer reads with the same result means better performance, and if you are running VA/EX on SAN disks, you may notice lower IOPS (I/O operations per second) as a result of this change.

Known Issues

- **Unable to Access Webmin with Internet Explorer 9 After Installing Microsoft Security Update KB2661254.** If you've installed Microsoft Security Update KB2661254 and use Internet Explorer 9 to access Webmin (`https://<InformaCast Server IP Address:10000>`), the site will fail. To avoid this issue, use Google Chrome or Firefox to access Webmin or use the solutions described by Microsoft at <http://support.microsoft.com/?kbid=2661254>.
- **InformaCast Not Functioning Correctly After Changing its IP Address in Advanced Notification and Switching Back to Basic Paging.** Changing InformaCast's IP address while using Advanced Notification and switching back to Basic Paging can make broadcasts unavailable to phones. There is currently a warning that occurs when executing the script that changes InformaCast's IP address; users can elect to abort or continue.

- **Phone Cache Becomes Unavailable with a License Change.** Whenever you change InformaCast's license or add/update/delete a cluster, "Default configuration Not Connected" appears for the **Communications Manager Versions** field on the Overview page. If either the license or clusters change, the phone cache must be rebuilt to reflect those changes. The phone cache is automatically rebuilt every hour, but if you want it completed sooner than that, you can click the **Update** button on the Edit Recipient Groups page to discover current IP phone info from Communications Manager. Once this is done, the Communications Manager information appears correctly on the Overview page.

What's New in InformaCast 8.2.a

Updated Documentation. In order to increase usability and meet customers' needs more easily, an "InformaCast EX Administration Guide" has been created from the content contained in the "Upgrading InformaCast" chapter, which has subsequently been removed from this guide.

What's New in InformaCast 8.2

- **New InformaCast EX.** InformaCast EX is a new offering from Singlewire Software that bundles InformaCast, CallAware, the LPI, and all of InformaCast's plugins into one OVA, available for download for InformaCast Virtual Appliance users.
- **New Steps for SIP Configuration in the HRE Environment.** If you are configuring SIP functionality in an HRE environment, you can now choose to configure an ATA to handle the SIP proxy instead of configuring SIP registrars.
- **New License Manager for InformaCast EX.** The Singlewire Toolbox houses the License Manager for InformaCast EX. This new management system allows you to manage all of your Singlewire Virtual Appliance licenses from one interface.

What's New in InformaCast 8.1

- **More Precise Scheduling for Scheduled Broadcasts.** The functionality behind scheduled broadcasts has been improved:
 - You can select multiple recipient groups when creating a scheduled broadcast
 - There are two separate user interfaces for one-time and repeating scheduled broadcasts
 - For a repeating scheduled broadcast, you can select **Last Day of Month, Last Weekday of Month, First Monday of Month, Fourth Thursday of Month, Last Tuesday of Month**, etc.
 - The listing of scheduled broadcasts on the Scheduled Broadcasts page is more intelligible
 - Expired scheduled broadcasts display with a pink highlight on the Scheduled Broadcasts page
 - You can delete multiple scheduled broadcasts at once on the Scheduled Broadcasts page
- **Improved Organization for Edit IP Speakers Page.** Headings have been added to the Edit IP Speakers page to improve organization and allow for easier scanning ability among users.

- **Delete Non-registered Speakers En Masse.** When IP speakers or Singlewire Desktop Notification System machines lose their registered status (e.g. students graduate, users get new computers, licenses expire, etc.), you may want to delete these non-registered speakers. You can now delete all of these speakers at once from the Edit IP Speakers page instead of hunting them down individually and deleting them singly.
- **Mass Volume Adjustment for Speakers.** The *Adjust Volume of IP Speakers* area on the Edit IP Speakers page now allows you to increment/decrement all registered speakers or only those selected. This feature will increment or decrement a speaker's volume based on the value set on its Edit IP Speaker page; it will not set all speakers to the same volume level.
- **Confirm Messages and Track their Confirmation Statistics.** You can now confirm the receipt of certain messages, escalate messages to new recipients if your confirmation settings aren't met and track the confirmation statistics of your sent broadcasts. The **Confirmation** tab has been added to the Add/Edit Message page, allowing you to specify your message's confirmation parameters such as whether confirmation will be required, how confirmation will be configured, whether there will be escalation upon confirmation, etc. Correspondingly, the Confirmation Statistics page (**Messages | Confirmation Statistics**) allows you to see statistics on your messages that are configured with confirmation, such as an overview of the corresponding message, when it was sent, how many confirmations have been received so far, what response was chosen if the message requires responding, who the message was sent to, whether the recipient was activated, the response each recipient gave, and when they confirmed the broadcast, whether the broadcast's confirmation period has expired (if it is limited) and whether the desired number of certain responses have been received, if the message was set up to register only specific numbers of responses.
- **Re-organized LDAP Integration Page.** The LDAP Integration page (**Admin | System | LDAP Integration**) has been re-organized to allow you to configure access to your LDAP directory without having to choose between security and grouping, when you may not actually use either in your environment.
- **Remove Defunct Phones.** Defunct phones are recipients that are no longer available to Communications Manager when the regular polling interval occurs. A large number of defunct phones can degrade InformaCast's performance, and they should be removed. The **Show All** and **Remove** buttons on the Edit Recipient Groups and Defunct Phones pages now allows you to remove all defunct phones.
- **Improved InformaCast Backups.** All of InformaCast's backup information is now contained within a ZIP file, InformaCastBackup.zip. For InformaCast Virtual Appliance, the manual restoration process was replaced by single command, `sudo restoreFromBackup /<Directory of Backup>/InformaCastBackup.zip`.
- **Greater Access to Functionality through SIP.** InformaCast now handles Session Initiation Protocol (SIP). For Communications Manager environments, this means that you can choose between CTI or JTAPI and SIP in your configurations. For Communications Manager Express environments and the HRE, this means you can now configure InformaCast with SIP and gain access to DialCast and voice menu functionality, which was unavailable previously.
- **New Way to Create Recipient Groups and a Re-formatted Edit Recipient Groups page.** When creating recipient groups, you can now choose to build groups based on existing recipient groups. Any rules you also create would apply to those existing recipient groups as well. To allow for this change, the Edit Recipient Groups page was redesigned.

- **New Name for Non-telephony Environment.** With the addition of SIP to InformaCast, users using InformaCast in a non-telephony environment who want access to phone, DialCast, or voice menu functionality can now access it. However, the old non-telephony environment is still in existence, meaning there are now two environments included in one guide, necessitating a name change. The Hybrid Runtime Environment (HRE) is the new name for the Non-telephony Environment.
- **Improved InformaCast Structure for Plugins.** Two structural changes were made to InformaCast to improve its interaction with plugins: access to the LDAP connection was made available to plugins and at the beginning of a broadcast, InformaCast is able to notify a plugin as to which of its recipients will be activated.
- **Newly Supported Phones.** Cisco's 8941 and 8945 IP phone models are now supported by InformaCast.
- **Streamlined Support of Windows OS.** Singlewire is streamlining support for supported Windows OS versions. This release, 8.1, is the last release of InformaCast in which the 32-bit version of Windows OEM Server will be supported.
- **Streamlined Support of Communications Manager.** InformaCast no longer supports versions of Communications Manager prior to v6.0.
- **Streamlined Support for ReliCast.** InformaCast v9.0 will be the last version of InformaCast to support ReliCast. Because DialCast brings such an improvement in functionality and reaches a broader audience, ReliCast will no longer be supported. Migration directions from ReliCast to DialCast will be provided.
- **Streamlined Support for Speaker-sourced and Communications Manager Express Softscreen Live Broadcasts.** Because of the advantages of SIP, users are being encouraged to migrate away from sourcing their live audio through Singlewire Desktop Notification System machines or the softscreen interface of Communication Manager Express phones and instead use a SIP call.
- **Possible Streamlined Support for InformaCast Installers.** Depending on customer feedback, InformaCast v9.0 may be the last version of InformaCast to have a Windows installer. Subsequent versions of InformaCast will be on an InformaCast Virtual Appliance for your virtualized environment. Please [contact Singlewire Software](#) and voice your opinion on this issue.
- **Improved Authentication Algorithm.** InformaCast's phone URL Authentication service uses a new algorithm to determine if the credentials supplied by the phone match the CTI credentials about which InformaCast knows for that phone. This speeds up activation time for large installations.
- **Optimized the Performance of Reporting Data.** Hibernate now stores InformaCast's broadcast history records to the database in a new way, which uses less CPU and should result in better activation performance for customers who send broadcasts to large recipient groups.
- **Improved the Display Speed of the List Recipient Groups Page.** The List Recipient Groups page now determines the full set of recipients once, rather than once for each recipient group. This results in a performance improvement for customers with large numbers of recipient groups.
- **Improved the Display of Information for Messages.** The Send or Edit Messages page now displays symbols for messages that contain persistent text (§) or have a synchronized delivery method (*).

- **New Allowance for messageSender Role.** Previously, you had to have the role of Administrator or messageAdministrator to cancel a broadcast that was currently running. Now, if you are the originator of the actual broadcast, you can cancel the message even if you don't have one of those two roles.
- **Better Filtering of the List of User Groups Retrieved from LDAP.** The InformaCast administrator can now set up a filter to only retrieve certain user groups from the LDAP directory. In earlier versions of InformaCast, only LDAP users could be filtered. For instance, the administrator could enter this text into the **Valid User Filter** field on the LDAP Integration page to only allow users with the last name Smith to log into the application: (sn=Smith). In InformaCast v8.1, a new input field was added to the LDAP Integration page: **Valid User Group Filter**. By filtering LDAP user groups, the administrator can control which LDAP groups can have roles in the application. For example, the following filter will only allow user groups named Security or Emergency to have roles in InformaCast: (|(cn=Security)(cn=Emergency)).
- **Upgraded to Tomcat v7.** InformaCast upgraded to Tomcat 7 in order to use features available in specifications Servlet 3.0, JSP 2.2, and EL 2.2. This should not have an effect on customers' experience.
- **Resolved InformaCast/Phone Reboot Issue.** When users restarted InformaCast, the phones weren't available until they manually updated their recipient groups. This issue has been resolved.
- **Resolved Mishandled InformaCast Intercom Command.** Some phones mishandled InformaCast's command to initiate an intercom session before terminating the connection for the initial command. This overlapping of HTTP connections prevented InformaCast from being ready for the request sent by the phone. This issue has been resolved.

What's New in InformaCast 8.0.2

- **InformaCast Virtual Appliance.** InformaCast is now available for virtual environments. A separate group of user guides has been created, supporting InformaCast for Communications Manager, Communications Manager Express, and non-Telephony for the virtual environment.
- **New InformaCast Backup File.** When performing InformaCast backups, all of the relevant folders (Uploads, Database, Plugins, and Generated) will now be included in one ZIP file, InformaCastBackup.zip.
- **New Telephony Support for Plugins.** Several changes were made to InformaCast's backend to add support to InformaCast's plugins and their use of InformaCast's telephony resources.
- **Improved SNMP Interaction with Communications Manager.** Previously, InformaCast issued one SNMP request to Communications Manager for all the nodes in a cluster running Communications Manager and their versions; this information was used to build InformaCast's phone cache. With Communications Manager 8.6, the response changed to include information from only the node handling the SNMP request; all other nodes' responses were reported as "unknown," disrupting InformaCast's ability to build its phone cache. InformaCast has been improved to send separate SNMP requests to each node to correct this behavior.
- **Recording Limitations.** At this time, the Singlewire Desktop Notification System cannot be used as a source for Live or Ad-hoc messages (or to replace audio in Pre-recorded Audio messages) in InformaCast Virtual Appliance. This will be corrected in a future release.

- **Restoration of InformaCast Virtual Appliance Files.** When using InformaCast Virtual Appliance, if you wish to restore backed up data, you will need to contact [Singlewire Support](#) to complete this process.
- **CallAware, Communications Manager 8.6, and InformaCast.** Because of the AXL schema versions issue mentioned in the release notes for InformaCast 8.0.1, if you are using Communications Manager 8.6 and InformaCast 8.0.2 in conjunction with CallAware, you will need to upgrade to CallAware 1.0.1 in order for all the applications to communicate correctly.

What's New in InformaCast 8.0.1

- **Clarified InformaCast Upgrade Steps for v5.1 to v8.0 and Later.** Several notes of interest and additional steps were added to the “Upgrading InformaCast” chapter to clarify the upgrade from InformaCast v5.1 to InformaCast v8.0 and later.
- **Clarified ReliCast to DialCast Migration.** Several sections were added to the “Upgrading InformaCast from Basic to Advanced” chapter to clarify the migration from ReliCast to DialCast.
- **Fixed Speaker Registration Issue.** An issue with the SLP subsystem was causing it to become unresponsive to multicast SRVLOC packets, which prevented speakers from finding their configuration file and registering with InformaCast. This issue has been resolved.
- **Fixed Phone Groups and User-specific Filters.** When upgrading from InformaCast v5.1 to InformaCast 8.0, some v5.1 databases in which user-specific filters were configured were not correctly upgrading to v8.0. An error, “Couldn’t register phone group sources,” would occur and InformaCast wouldn’t start. This issue has been resolved and all databases are upgrading to the correct version.
- **Fixed messageEditor Role and Phone Interface.** When sending broadcasts from a phone interface and using the messageEditor role, the phone interface would revert to the login prompt after you selected your recipient groups instead of continuing with a broadcast. This issue has been resolved.
- **Fixed Issue with Communications Manager and AXL Schema Versions.** When InformaCast starts, a Communications Manager cluster is added/changed/modified, or the Communications Manager version is upgraded/changed, InformaCast uses AXL to obtain phone data from Communications Manager in order to create a phone cache. In previous versions of Communications Manager, AXL’s schema version always matched the Communications Manager version. This is no longer the case, and the version differences were causing InformaCast to report an error when trying to create a phone cache. InformaCast has now been upgraded to query AXL to find out the highest schema version that it supports (this will only be done when CUCM 8.6 is being used; earlier versions do not suffer version inconsistencies), and then decrement the schema version until AXL responds affirmatively. InformaCast’s user interface was not affected with this change and the AXL queries should be invisible to end users.
- **Fixed Intermittent Audio Issues.** InformaCast wasn't always passing audio data to its plugins correctly: live audio messages initiated by DialCast weren't broadcasting audio, and audio messages to plugins intermittently failed and eventually could have caused InformaCast to run out of memory. This issue has been resolved, and requires anyone using the Singlewire Paging Gateway to have, at minimum, InformaCast v8.0.1.

What's New in InformaCast 8.0

- **Tighter License Key Controls.** Once you have exceeded the number of phones allowed by your license, you will receive a warning that you've attempted to broadcast to more phones than are allowed by your license key, causing some phones to be skipped. Contact your [Singlewire salesperson](#) about obtaining a larger license.
- **Copy a Message.** You can now copy the details of an existing message instead of having to create similar messages from scratch. To copy messages, you must have the appAdmin, messageAdmin, or messageEditor role. When you copy a message, everything about that message, i.e. the same icon file, pre/post tone file, audio file, script, etc. (if applicable) will be copied, and the message's description will have "copy" appended to it.
- **New Message Names and Order.** InformaCast's messages have been renamed and reordered to improve ease of use with the new InformaCast interface. The old names (and order) were:
 - Text Only
 - Text and Audio
 - Audio Only
 - Audio Ad-hoc
 - Live Audio Only
 - Live Text and Audio
 - Talk and Listen
 - Text with Ad-hoc AudioThe new names (and order) are:
 - Text
 - Text and Pre-recorded Audio
 - Text and Live Audio
 - Text and Ad-hoc Audio
 - Pre-recorded Audio
 - Live Audio
 - Ad-hoc Audio
 - Talk and Listen
- **New, Improved User Interface.** InformaCast's user interface has gone through a dramatic makeover: the left navigation menu has been transformed into a top navigation menu with icons and dropdown menus, and the overall look and feel of the application has been updated.
- **ReliCast Added to InformaCast.** ReliCast's functionality has been added to InformaCast and renamed as "DialCast." DialCast functionality appears in the **Admin** dropdown menu and allows users to dial a route point number to trigger an InformaCast broadcast. You can now create dialing configurations and phone exceptions within the InformaCast user interface.

- **New, Transparent Controls for Voice Menus.** Three voice menus have been added to InformaCast's web interface (**Admin | Voice Menus**) to allow you easier control over how InformaCast's Interactive Voice Response (IVR) works in your environment. You can upload new audio, control how users will log into the system (if applicable), and set the phone keys that control how/if audio will be skipped and new recordings are accepted.
- **“Expire” a Message's Text on a Phone.** The **Persistent Text** checkbox on the **Text** tab of the Add/Edit Message page provides an InformaCast administrator with the ability to control whether the message's text sent to phones during a broadcast is persisted on the phone's display. Deselecting the **Persistent Text** checkbox means that messages with a textual component will not be put into a phone's stack of viewable objects: the text will be visible only when displayed on the phone; once it is covered by subsequent text messages, it is gone and cannot be uncovered and viewed again.
- **New CTI Roles for Application Users.** InformaCast needs an application user set in Communications Manager so that it can establish a CTI connection and gain access to the telephony features Communications Manager offers. You also need an application user for AXL phone data requests. Those requests must include the credentials for a user who has been granted access to the AXL API. To improve AXL functionality, several new CTI roles need to be added to your application user.
- **Granular Scheduling Access.** Sub-minute scheduling has been added to InformaCast v8.0. This feature affects bell schedules, phone updates, LDAP updates, backups, and scheduled broadcasts. A **Second** field has been added to each feature's page, allowing users more control over scheduled events. Whereas events previously occurred at the top of every minute, e.g. 12:13:00 p.m., now they can occur anywhere within a minute, e.g. 12:13:45 p.m.
- **Categorize Recipient Groups.** Recipient group tags allow for finer control over the display results of recipient groups when assigning them to ring lists. When many recipient groups exist, selecting from them for ring lists can be difficult. Recipient group tags are used to (optionally) categorize recipient groups. For example, a school district with seven schools can create an “Elementary School” tag and assign it to recipient groups comprised of devices that are part of their elementary schools. When an administrator is creating a bell schedule for the elementary schools, he/she can filter the groups that are listed down to just those tagged as “Elementary School,” reducing the number of displayed recipient groups and making it easier to assign the appropriate recipient groups.
- **Use AXL Credentials.** You now have the capability to choose whether the Communications Manager application user or AXL user credentials are used when building the phone cache through the **Use Application User for AXL** checkbox on the Edit Telephony Configuration page. The credentials are sent with each SOAP request sent to AXL. This allows for a single Communications Manager user to be created, providing access to JTAPI and AXL. If the user is created with the standard AXL API access and standard CTI-enabled roles, it can be used for both purposes.
- **Reach More People in More Ways with Plugins.** InformaCast plugins are a way of further expanding the number of people reached with InformaCast broadcasts. Depending on the plugin you have, you can send broadcasts to email accounts and Twitter, attach SchoolMessenger jobs to broadcasts, or initiate broadcasts when an email containing certain text is received to your network. For InformaCast v8.0, you can download the following plugins:
 - The Outbound Email plugin allows you to send text and/or audio InformaCast broadcasts to email accounts.

- The Twitter plugin allows you to send text broadcasts from InformaCast to Twitter.
 - The Facebook plugin allows you to send text broadcasts from InformaCast to a Facebook user's wall.
 - The SchoolMessenger plugin allows you to trigger SchoolMessenger jobs with an InformaCast broadcast.
 - The Inbound Email plugin allows you to trigger InformaCast broadcasts (and tweets in conjunction with the Twitter plugin) when an email with a certain From address and/or specific text in Subject line is sent to a monitored account.
- **Improved Interaction with SchoolMessenger.** InformaCast v8.0 allows for the use of plugins, and the SchoolMessenger plugin was developed to facilitate simple and easy communication between InformaCast and SchoolMessenger, allowing you to trigger SchoolMessenger jobs with an InformaCast broadcast. Because of this enhancement, the SchoolMessenger event script has been removed from InformaCast, and users are encouraged to contact their salesperson to receive the SchoolMessenger plugin. If you'd still like to use the SchoolMessenger event script, contact Singlewire Support for assistance.
 - **Improved Sort Order for Activating Recipient Devices.** Previous versions of InformaCast sorted recipient devices by their IP addresses regardless of their type. In InformaCast v8.0, before a broadcast is sent to its recipients, all of the recipients are divided into two groups: IP speakers and all other devices. Each of the two groups is again sorted by IP address. The IP speakers get activated first followed by all other devices. The purpose of this change is to ensure that IP speakers get a broadcast in as timely a manner as other recipient devices.
 - **Improved Visualization of Role Assignments.** InformaCast v8.0 makes determining how a role is assigned to a user or user group easier by letting you know whether roles are inherited through membership in a group, and allowing you to expand tree views to see the groups to which a role is assigned.
 - **Improved Application Start-up Time.** A new file, PhoneGroupSourcePrimer.xml, has been created to hold cached phone information from Communications Manager, and thus decrease the start-up time of InformaCast in environments with many phones, and allow you to send broadcasts more quickly after restarting InformaCast. In the past, when starting up InformaCast, the user interface would be disabled until the first collection of phone information from Communications Manager was completed. This was done to avoid errors about empty recipient groups, but it caused InformaCast to start slowly. The solution was cache the values last seen when the InformaCast was running, and use them to speed startup. Every time InformaCast gathers phone data, it gets saved in a cache file (a separate file exists for each configured Communications Manager cluster). When InformaCast starts up, it kicks off a new data gathering task in the background so that updated information is available as soon as it can be, but it no longer waits for that to complete before allowing broadcasts. Instead, it loads up the information it cached during the previous phone data gathering, and lets you send broadcasts based on that information.
 - **Updated Tomcat Version.** The Tomcat version that InformaCast uses has been upgraded from version 5.5.20 to 6.0.29 in InformaCast v8.0.
 - **Clarified Allow Customization Issue.** If the **Allow Customization** checkbox in InformaCast is not selected, broadcast requests through the Web Services API (e.g. external applications programmed to initiate InformaCast broadcasts like InformaCast Director, DORA, and

CallAware) will be blocked if you chose to override text or audio in the external application. To remedy this situation, make sure that the **Allow Customization** checkbox has been checked for any messages that will be sent out through CallAware or the Web Services API.

- **Play Volume Dropdown Menu Added Back In.** InformaCast v7.1 inadvertently excluded the Play Volume menu from the Audio tab of Talk and Listen messages. It has been added back into the user interface for InformaCastv8.0.
- **New Backlight Display Period Setting.** Communications Manager and Communications Manager Express phone models that support backlight display can be separately configured with InformaCast v8.0. The **Backlight Display Period** field on the Broadcast Parameters page overrides the Communications Manager/Communications Manager Express setting in the event of a broadcast. However, if the displays are off, and a phone call is made to the phones, the phones' displays will remain on according to the Communications Manager/Communications Manager Express's Backlight Display Period setting. This setting was added to fix the issue of phones' displays not lighting up for InformaCast broadcasts.
- **Fixed Issue with Quotation Marks in Users' Names.** Users whose names contained quotation marks (“”) generated errors when user groups were added to them. This has been fixed.
- **Added New Display Command.** 797X, 89XX, and 99XX model Cisco IP phones' displays were not lighting up when InformaCast broadcasts containing only text were sent to them. An internal command was configured to be sent with every text-only broadcast to remedy this situation.
- **Improved InformaCast Backups.** New directories were added to InformaCast's backup functionality to ensure a comprehensive restore: generated and plugins. Typically these files reside in C:\Program Files\Singlewire\InformaCast\webapp\WEB-INF\plugins and C:\Program Files\Singlewire\InformaCast\webapp\generated.
- **Added New Communications Manager Field.** When configuring your default Communications Manager cluster or adding a new one, if you're using Communications Manager v8.x, you'll need to paste the URL you copied from InformaCast's *XML Authentication* area into the **Secured Authentication URL** field in the *Secured Phone URL Parameters* area as well.
- **Released Patches for the LPI and Apache CXF.** Singlewire released two InformaCast patches between v7.1 and v8.0. One allowed InformaCast and the LPI to reside on the same server. The second contained an upgraded Apache CXF package to correct a problem where speakers' IP addresses were being incorrectly identified.
- **Streamlined Support of Communications Manager Express.** Singlewire is dropping support of Cisco Communications Manager Express 3.x. Previous versions of InformaCast used Communications Manager Express's XML interface when building the phone cache. Since Communications Manager Express 4.0, Cisco has been pushing the newer IXI XML interface, and has made the older interface obsolete. Because of the differences in interfaces, Singlewire is dropping support of Communications Manager Express 3.x.
- **Streamlined Support of Communications Manager.** Releases of InformaCast subsequent to v8.0 will not support versions of Communications Manager before v6.x.
- **Current Cisco Bug.** In Communications Manager Express 7.1 and 8.1, there is currently a Cisco bug (#CSCtg26274) that generates errors on phones when using the phones' **Services** buttons if you enter the InformaCast address shown in “Configure IP Phone URLs.” As a temporary fix,

leave the **Services URL** field blank and apply the service URL to an ephone template instead of through the telephony-services command. Contact Cisco for more information on this bug and ephone templates.

What's New in InformaCast 7.1

- **Phone Updates for CallManager Express.** You can now rebuild the phone cache (on the Phone Updates page) as frequently as once per minute. Previously, you could only rebuild the phone cache every hour when using CallManager Express.
- **InformaCast Session Timeouts.** It is now possible to control InformaCast's session timeouts from its user interface instead of modifying the web.xml file. The **Session Timeouts** link in the **Edit Configuration** menu allows you to control not only the length of active sessions between InformaCast and your web browser, but also the length of active sessions between InformaCast and your phones, which was not possible before InformaCast v7.1.
- **Skip Broadcast Initiator Logic Reworked.** InformaCast v7.1's logic has been modified so that if the audio source of a live message (which is either a phone, speaker, or Desktop Notification System machine) is initially contained in the list of recipient devices, it will be removed. For example, if a live broadcast is made from a phone to the All Devices recipient group, that initiating phone will not receive the message, even though it is a member of the All Devices recipient group.
- **SLP Parameters.** It is now possible to control InformaCast's SLP parameters from its user interface instead of modifying the web.xml file. The **SLP Parameters** link in the **Edit Configuration** menu allows you to control how InformaCast responds when a speaker requests the location of a configuration file server during its boot process, how InformaCast responds to a device or application's request for the location of an InformaCast SOAP service, and the location of your Configuration File Server.
- **LDAP Improvements.** Several improvements have been made to the LDAP environment in InformaCast v7.1:
 - *Different Kinds of LDAP Directories Are Now Supported*—Previously, only Microsoft Active Directory and OpenDS could be integrated with InformaCast. Now, user authentication in InformaCast can be done via OpenLDAP, Sun Java System Directory Server, Apache Directory Server, and any other kind of LDAP v3-compliant server. To allow this change, a number of new fields were added to the LDAP Integration page of InformaCast.
 - *An Additional Authentication Method is Now Supported*—Earlier versions of InformaCast only allowed using simple LDAP authentication. This authentication method might pose a security risk if used over an unencrypted communication channel. InformaCast v7.1 now also supports user authentication via Kerberos v5, which is more secure, and can be used with SSL for better protection. Another advantage of Kerberos is that the configuration of LDAP integration in InformaCast can be done using the LDAP administrator's regular login name instead of the distinguished name that consists of a number of components. With the addition of Kerberos authentication, several new fields were added to the LDAP Integration page.
 - *LDAP Integration*—The length of the **Valid User Filter** field on the LDAP Integration page has been increased from 256 to 4096 characters, and the list of LDAP user groups on the LDAP Integration page is no longer limited by 1,000 entries.

- **New User Role.** There is a new role called `messageSenderDNsRestricted`. This role is very similar to the `messageSender` role, except that when a user specifies directory numbers (DNs) in the **IP Phone Extension (DN)** field on the Send Message page, those DNs are analyzed. If a given DN is not contained in a recipient group to which the user has been granted access (through the use of user or group filters), that DN will be removed from the list of recipients.
- **SOAP Interface Changes.** The SOAP interface has been rewritten, using Apache CXF as the new underlying infrastructure. This change allows developers to initiate live and ad-hoc messages programmatically and provide dynamic audio within the SOAP request (μ Law or HQ format is required for audio). Backward compatibility in the SOAP interface has been preserved, meaning that applications using the old interface, such as DORA, don't need any updates. To deal with the changes made to the SOAP interface, a Programmer's SOAP Guide is being developed.
- **Section 508 Compliance.** Section 508, an amendment to the United States Workforce Rehabilitation Act of 1973, is a federal law mandating that all electronic and information technology developed, procured, maintained, or used by the federal government be accessible to people with disabilities (definition provided by Tech Target (http://searchcio.techtarget.com/sDefinition/0,,sid182_gci914785,00.html)). In compliance with Section 508, InformaCast v7.1 has a number of improvements:
 - *Row and column headers shall be identified for data tables*—Data tables have the column and row headers appropriately identified (using the `<th>` tag). Tables used strictly for layout purposes do not have header rows or columns.
 - *Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers*—Table cells are associated with the appropriate headers (e.g. with the ID, headers, scope, and/or axis HTML attributes).
 - *Electronic forms comply with assistive technology*—When electronic forms are designed to be completed online, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues. All form controls should have text labels adjacent to them. Form elements should have labels associated with them in the markup. Dynamic HTML scripting of the form should not interfere with assistive technologies.
 - *A method shall be provided that permits users to skip repetitive navigation links*—Skip navigation allows assistive technology to jump over repetitive information on a page. The value of this can be understood by noting how many times a webpage refreshes when simple actions are taken. This ability allows the user to save a lot of time.
- **Cisco Communications Manager v8.** Support has been added for Cisco Communications Manager v8.
- **Intercom Functionality.** Combine InformaCast v7.1 and PushToTalk v2.3 and gain the ability to facilitate intercom functionality between two phones, or a phone and a speaker.
- **Newly Supported Phones.** InformaCast now supports new Cisco IP phones: 6921, 6941, 6961, 7937, 7971, 8961, 9951, and 9971.
- **Key Pair Regeneration.** For any users experiencing browser problems with importing InformaCast SSL certificates, there is a new section in the Troubleshooting chapter dealing with regenerating a key pair.

- **Multiple CPUs.** Some customers with multiple CPUs were seeing erroneous behavior during broadcasts. The problem was due to InformaCast not being designed for concurrent operation on multiple CPUs. The CPU affinity of the process has now been set to only run on the first CPU, which does not hamper performance because InformaCast broadcasts are not CPU-intensive.
- **Recipient Groups.** For recipient groups with many rules, Internet Explorer would display a “Page cannot be displayed” error when a user clicked on the Edit Exceptions button because the URL was too long for Internet Explorer to handle. Those URLs have now been shortened.
- **Firmware.** A firmware change shrunk the displayable size of images on the Cisco7945 and 7965 IP phones, so images sent to those phones weren’t displaying. The size of the image has been reduced to avoid this problem.
- **Nested Diagnostic Contents.** Log4j Nested Diagnostic Contexts were being created, but not deleted. Under certain circumstances, some users were seeing out of memory warnings while using InformaCast. Singlewire issued a script to customers who had this problem, and then integrated the logic of the script into InformaCast v7.1.
- **Out of Memory Errors.** For customers who send many broadcasts to large groups of phones, the job that cleans up the Broadcast History was using too much memory while deleting database entries. Singlewire reduced the batch size to avoid the out of memory errors that were occurring.
- **DSCP Value.** The default Differentiated Services Code Point (DSCP) value in InformaCast has changed from AF11 to CS5. InformaCast’s traffic class for RTP packets is set to this value to provide users with the ability to prioritize InformaCast’s multicast traffic according to the Quality of Service (QoS) scheme that they are using. Users still have the ability to customize the DSCP value by modifying the multicast traffic class context parameter in the web.xml file. This will not be an issue on Windows 2008 Server, which ignores the InformaCast QoS setting and instead sets QoS based on a value provided by the user through the group policy editor.
- **CallManager.** Releases of InformaCast subsequent to v7.1 will not support versions of Communications Manager before v5.x

What’s New in InformaCast 7.0

- **Message Scripting.** There are three new scripting features:
 - *Dynamic Text in the **Short** or **Long Text** Fields*—Add simple variables to the **Short** or **Long Text** fields on the **Text** tab of the Edit Message page to include dynamic text (i.e. the current time or date, the user who sent the message, the user’s directory number, etc.) within a message.
 - *Data Setup Script*—Create a script within a text file that pulls dynamic information (e.g. RSS feeds, weather warning details, security threat levels, etc.—anything you can access programmatically over a network) from other sources.
 - *Audio Replacement Script*—Create a script within a text file that pulls dynamic audio (e.g. weather reports, stock tickers, synthesized text using text-to-speech software, etc.) from other sources and attach it to a message using the **Update** button for the Audio Replacement script on the **Scripting** tab of the Edit Message page.
- **Edit Message Page Re-design.** The Edit Message page has gone through a dramatic overhaul to improve usability and efficiency:

- *New Tabs*—Instead of one long page to scroll through, four new tabs have been created for the Edit Message page: **Text**, **Audio**, **Re-broadcasting**, and **Scripting**. Depending on your message type, all or some of these tabs will be visible. All previous functionality has been divided between these tabs and new functionality has been added.
- *Tool Tips/Help Buttons*—All of the fields/checkboxes on the tabs of the Edit Message page now have tool tips that pop up when you hover your mouse over the field/checkbox's name. On the **Scripting** tab, **Help** buttons appear next to each script to provide you with a detailed definition of the script's functionality and the variables available for your script's use.
- *Synchronized vs. As Available Delivery*—Urgent message delivery has a new name: **As Available**, and **Synchronized** is the complementary form of delivery. On the **Audio** tab, synchronized delivery will wait until all devices capable of playing audio are ready to play the broadcast. As available delivery will play your broadcast immediately to any devices ready to play the broadcast and, as each new device becomes available, the broadcast will play at that time.
- *Pre and Post Tones for Live, Ad-hoc, and Recorded Messages*—Configure your live, ad-hoc, and pre-recorded messages to contain tones that play before and/or after a broadcast using the **Pre Tone** and **Post Tone** checkboxes on the **Audio** tab of the Edit Message page. A message with a pre tone does not have to use a post tone and vice versa. Pre and post tones are only used with synchronized messages. As available messages cannot have pre or post tones.
- *Customizable Short and Long Text Fields with Allow Customization Checkbox*—Click the **Allow Customization** checkbox on the **Text** tab of the Edit Message page to allow users to customize the **Short** and **Long Text** fields of a message when sending it. For example, users could update a recommended exit route depicted in a message depending on the type of emergency experienced, regardless of whether they had the messageEditor role.
- *Scroll Speed and Duration Fields*—Two new fields were added to the **Text** tab: **Scroll Speed** and **Scroll Duration**. Select **Repetitions** or **Seconds** from the **Scroll Duration** dropdown menu and enter a value in its field to control the number of times a message scrolls across your device or the number of times a message scrolls within a specified period of time, respectively. Select a value from **1** to **10** from the **Scroll Speed** dropdown menu to control how fast a message scrolls across a display. These fields only work in conjunction with new speakers being released in conjunction with InformaCast v7.0.
- *Re-broadcasting Tab*—The **Re-broadcasting** tab on the Edit Message page allows you to control whether your message repeats, how often it does so, and if there should be a pause in between repetitions.
- *Scripting Tab*—Two new scripts have been added: Audio Replacement and Data Setup (discussed previously). The Message Sent script has been re-named to Send in Progress. Its functionality remains the same, and we also provide the means for connecting with Twitter (contact your Singlewire salesperson for more details).
- **Phone Updates Improvements.** The **Phone Updates** link now takes you to a page where you can configure builds of the list of registered phones or refreshes of the list of previously registered phones. *Build list of registered phones* creates a list of registered phones and involves querying CallManager to obtain the configuration and IP address for each registered phone. *Refresh list of registered phones* refreshes the configuration of previously registered phones. A refresh can be performed as frequently as once per minute.

- **Language Support.** InformaCast now supports non-Roman alphabets for display on phones. As long as the phone's region supports the appropriate alphabet, broadcasts containing text comprised of non-Roman alphabet characters (entered in the **Short** and **Long Text** fields on a message's **Text** tab) will display properly.
- **Reporting.** InformaCast now has the ability to generate reports. The **Reporting** link in the side menu contains the functionality for three reports: Broadcast Events, Broadcasts Counts By User, and Event Details. The Broadcast Events report provides a list of all broadcasts sent out between the dates specified. Break out your events by which user triggered the message or if it was a bell schedule. The Broadcasts Counts By User report allows you to see a list of broadcasts sent out by each user broken into separate months. The Event Details report shows the details of a broadcast event: the text and audio if they exist, and sending details, such as the number of times the message was sent, etc.
- **Audio Broadcasts.** The **Audio Broadcasts** link has been changed to **Broadcasts**. The functionality remains the same.
- **Contact Closures.** When a speaker with General Purpose Input Output (GPIO) capability (i.e. contact closures) registers with InformaCast, you will gain the ability to initiate an intercom session with a directory number (DN) you have assigned to that speaker.
- **SNMP Monitoring.** Through Simple Network Management Protocol (SNMP) and a Management Information Base (MIB) file, InformaCast can respond to your Network Management Software's queries with information about the application, such as how long the application has been running, current broadcasts' information, configuration parameters, etc.
- **MIDlets.** InformaCast v7.0 adds support (the actual functionality is still being developed) for the forthcoming message replay MIDlet, allowing you to replay old messages. New Cisco IP phones (as yet unreleased) are going to be able to run third-party software directly on the phone in the form of Java MIDlets. The InformaCast MIDlet is designed to let you replay and skip through the content of messages that have been sent to a particular phone.
- **RoboHelp.** InformaCast's online help system has become even better through the use of RoboHelp, which provides a much more comprehensive, user-friendly interface and improved search functionality.
- **Cisco 7925 IP Phone.** The 7925 model of Cisco IP phone is now supported by InformaCast.
- **Singlewire.** In April 2009, the developers, sales personnel, and support staff involved with IPT applications at CDW/Berbee spun off into a new company: Singlewire Software. Singlewire will focus on building applications for the Unified Communications and physical security spaces.
- **Improvements in Broadcast Coordination.** The parts of InformaCast that were responsible for managing the process of sending a broadcast have been made more robust, fixing a number of issues which could result in stuck broadcasts and resource exhaustion, especially when many simultaneous broadcasts were sent over a period of time. Organizations with large networks and powerful servers now have more options for tuning performance as well.
- **SSL Certificate for Internet Explorer.** The InformaCast installer now generates a self-signed SSL certificate with the machine's IP address in the **Common Name** field. This allows Internet Explorer users to bypass the "Website Security Certificate" warning by importing the certificate.
- **Support for CallManager 4.x.** Cisco Unified CallManager 4.x will still be supported for InformaCast v7.0, but starting with the next release of InformaCast, CallManager 4.x will no longer be a supported environment for InformaCast. Cisco has declared it "end of life."

What's New in InformaCast 6.1.1

- **Recipient devices.** Some recipient devices were being improperly skipped during a broadcast and the audio portion of the broadcast was not being delivered to such devices. Restarting the InformaCast service would temporarily fix the problem. This has now been fixed consistently.
- **Concurrent audio broadcasts.** Another defect was fixed that affected how InformaCast handled concurrent audio broadcasts sent to the same device or the same group of devices. Under certain conditions, the deactivation of such devices might fail and they would remain activated for receiving a multicast audio stream. Eventually, such devices would fail to receive any audio broadcasts until they were rebooted and the InformaCast service was restarted. This has now been fixed.
- **Live audio broadcasts.** InformaCast was incorrectly counting a certain type of activation failure twice, leading it to cancel live audio broadcasts because it wasn't detecting any active recipients. This has been fixed.

What's New in InformaCast 6.1

- **Message Priorities.** You can now assign a priority level to InformaCast messages, allowing you to control how messages will be played by recipient devices (with the exception of text only and talk and listen messages, which will play right away). For example, a principal's message about a tornado in the area (with a priority setting of 1) would override the students' daily announcements (with a priority level of 3).
- **Scripting.** In this new release of InformaCast, you can assign scripts to run each time the InformaCast backup job is run, each time the InformaCast application is started, and each time the InformaCast application is shut down.
- **Bulk IP Speaker Volume Adjustment.** This feature allows you to increment or decrement the volume of registered IP speakers. You can apply the volume adjustment to all registered speakers or to a subset of registered speakers.
- **Ad-hoc Audio File Available in Scripting Environment.** InformaCast can be configured to run a script after a broadcast has been sent. If an ad-hoc message was used in a broadcast, the audio file that was recorded will now be available for use by the script. For example, a broadcast triggers an email to be sent with the ad-hoc audio file attached to the email.
- **Ad-hoc Audio File Clean-up.** Prior to InformaCast v6.1, audio files generated by ad-hoc broadcasts accumulated in the InformaCast directory unless manually removed. InformaCast v6.1 includes a maintenance task that runs once daily (at 4:00 a.m.) to delete ad-hoc audio files older than a value you have set in InformaCast's configuration.
- **SchoolMessenger/SOAP Interaction.** If you use the SchoolMessenger application, you can now create a message script that is attached to an InformaCast message. When the InformaCast message is broadcast, it will prompt SchoolMessenger's application to execute a specific job. The SchoolMessenger application normally performs message delivery through phone calls, emails, and SMS.

- **Profile Description Filter Option for Recipient Groups.** You can now use the Cisco Unified Communications Manager's (CUCM) user device profile description to determine which phones belong in a recipient group. Phones that are using extension mobility or a profile when logged out are eligible to be filtered in this way. This option is only available when using Communications Manager version 6 or later.
- **Multicast Address Range.** You can now specify a range of multicast IP addresses to be used for broadcasts, which may reduce network traffic. InformaCast will cycle through this range of addresses, using the next address in the range for each broadcast. Previous versions of InformaCast used the same multicast address for all broadcasts, which will still be the default setting.
- **Extension Mobility.** Previously, InformaCast was unable to correctly gather phone data from Communications Manager for phones logged into extension mobility when using Communications Manager 6.0 or later. These phones were being erroneously reported by InformaCast to be using their permanent configuration instead of their extension mobility profile. This problem has been fixed.
- **LDAP Integration.** In the previous release, when InformaCast tried to open a large list of LDAP users, an "Out of Memory" error would be triggered. Also, LDAP users were unable to log into the application because InformaCast would try to load all the user groups from the directory, leading to another "Out of Memory" error. This issue has been solved; first by adding an additional LDAP integration parameter (the **Maximal Number of Users** field on the LDAP Integration page) that limits the number of users that can be displayed in the administrative interface, and secondly, InformaCast's determination of an LDAP user's group memberships and roles during logon has been optimized to use a constant amount of memory regardless of the directory size.
- **schedEditor Role.** The previous release of InformaCast contained a bug with the schedEditor role where users assigned to the role were able to see and edit any bell schedule that was not filtered from their accounts. They were also able to see all existing (non-filtered) ring lists available to that account, but were unable to edit them as expected given the role. This bug has been fixed, allowing the role to work as originally planned.
- **Bell Schedules with Exceptions.** Bell schedules with exceptions weren't ringing bells on the days with exceptions assigned to them. This has been fixed.
- **ReliCast.** Ad-hoc and live broadcasts initiated by ReliCast were failing when using Communications Manager 7. Those same broadcasts would also fail (if initiated by ReliCast) when the initiating phone was associated with the InformaCast CTI user in Communications Manager. These issues have been fixed.
- **Support for Windows 2000 Server.** Windows 2000 Server will still be supported for InformaCast v6.1, but starting with InformaCast v7.0, Windows 2000 Server will no longer be a supported environment for InformaCast.

What's New in InformaCast 6.0.1

- **Extension Mobility Problems.** Previously, InformaCast was unable to correctly gather phone data from CallManager for phones logged into extension mobility when using CallManager 6.0 or later. These phones were being erroneously reported by InformaCast to be using their permanent configuration instead of their extension mobility profile. This problem has been fixed.

- **Ad-hoc Message Recording.** Recording of ad-hoc messages was failing when the recording party was to be reached at a call park directory number. The process of unparking the parked call caused the voice recorder to prematurely terminate due to unanticipated JTAPI events. This problem has been fixed.

What's New in InformaCast 6.0

- **Support for Multiple CallManager Clusters.** Multiple CallManager clusters are now supported (InformaCast can still only connect to a single CallManager Express environment). InformaCast comes with default configuration clusters and you must designate a **primary** cluster (if you have more than one) with which InformaCast will perform telephony operations. You can also rotate non-primary clusters into the primary cluster role.
- **CallManager Cluster Name and Location.** There are now two new fields when you view matching devices for recipient groups: **CallManager Cluster Name** and **Location**, and you can filter by these fields. The **CallManager Cluster Name** field is tied to the name of your CallManager cluster in LDAP, and is also logged in order to help with diagnosing SNMP problems. With the **Location** field, each phone in CallManager and InformaCast can be assigned a location that can be used when setting up recipient groups, allowing for more meaningful groups.
- **Edit Configuration Menu Change.** To improve usability, the **Edit Configuration** page has been broken into multiple pages based on specific application areas. **Overview**, **Telephony**, **Audio Broadcasts**, and **Scripting** all house the same functionality as in the previous InformaCast version; they are just now on their own pages. **LDAP Integration**, **Phone Updates**, **LDAP Updates**, and **Backup** all offer new functionality.
- **LDAP Integration.** With **LDAP Integration** turned on, InformaCast can access an LDAP directory, such as Microsoft Active Directory, when it is looking up user information for the purposes of authentication and authorization. Another use for **LDAP Integration** is as a way to set up recipient groups. You can tie the attributes of people in the LDAP directory, through their phone number, to their phones. By doing this, you can create a recipient group that would broadcast to people in a particular office, or a particular department, or whatever other features you can extract from the directory, such as names, which are not available within CallManager itself.
- **LDAP Updates.** In InformaCast v6.0, you can configure the timing of a scheduled job that will update InformaCast's LDAP information. If you do nothing and InformaCast is set up for LDAP grouping, this job will occur every hour at 40 minutes past the hour.
- **Back Up the InformaCast Database.** **Backup** allows you to configure the timing behind scheduled backups of the InformaCast configuration. If you do not set a time for backups, automatic backups will not occur. New backups will overwrite previous backup files.



Note The time for scheduled backups is calculated in military time and is set to 3:00 a.m. by default.



Note You can only back up InformaCast when it is running. In order to achieve a consistent backup, perform it when configuration changes are not expected to be taking place.

- **Phone Updates.** The functionality in **Phone Updates** has been moved from a configuration file to its own webpage. Previously, you could only specify the minute value for when this job was performed, and it would occur every hour at 10 minutes past the hour. You are now able to configure the timing for a scheduled job of how often InformaCast will update its phone information; it no longer needs to happen every hour.
- **New Role.** The **messageEditor** role is new in InformaCast v6.0. This role allows users to send and edit existing messages, and such users can be filtered so that they have access only to specific messages.
- **Bell Scheduler.** The Bell Scheduler functionality in InformaCast has been completely redone to provide a better user interface. The concepts of ring lists and day schedules have been merged into a single, more powerful ring list, making it easier to define, view, and update the pattern and destinations of bells.
- **SOAP Interface.** InformaCast v6.0 has a Simple Object Access Protocol (SOAP) interface, which allows third-party applications to interact with InformaCast in a programmatic manner. SOAP is a simple XML-based protocol to let applications exchange information over HTTP. The SOAP services provided by InformaCast are: Message and Recipient Group.

The Message service can be used to retrieve information regarding available messages in InformaCast. It can also initiate the sending of a broadcast. The Recipient Group service can be used to retrieve information regarding existing recipient groups.

- **Security Certificate Error.** When you access the InformaCast website, you will be greeted with a certificate error, “There is a problem with this website’s security certificate.” This is normal. InformaCast is now using an encrypted session for all web browser interaction to avoid potential risks of network eavesdropping, just as CallManager does. Since InformaCast, like CallManager, is a locally-installed server rather than a global, public Internet site, there is no practical way for web browsers to recognize its encryption certificate as safe. Just as with CallManager, you will need to tell the browser to accept the certificate to proceed to the application’s interface. If you would like to avoid seeing this prompt, consult your browser documentation about how to accept the certificate permanently, or talk to your network administrator about purchasing and installing a certificate for your InformaCast server from a recognized public Certificate Authority.
- **Large Log Files.** After integrating InformaCast with the Windows Event Log database, the number of log files was overwhelming for some Windows administrators. In response, v6.0 cut back drastically on the amount of information placed in the Windows Event Log. That information remains available in InformaCast’s own log files. You can also now tweak what gets logged where by editing a new logging configuration file.
- **IP Speaker Import.** The IP Speaker Import spreadsheet has been updated to better handle leading zeroes. If you still encounter problems with the MAC address in any rows, the addition of a leading “X” is now an option to coax the import to a successful conclusion.
- **External Paging.** As announced in June 2006, the complicated approach for integrating legacy external paging systems with InformaCast is no longer available. It has been replaced by InformaCast Zone Controller technology.
- **Microsoft IIS.** Microsoft IIS is no longer used within InformaCast. Apache Tomcat has replaced its functionality.

What's New in InformaCast 5.1.1

- **Configurable Communication s.** Recent releases of CallManager, especially in large installations, sometimes take longer than expected to respond to AXL and SNMP queries for collecting recipient group information. To address this, the default s have been increased and a configuration file, `Connection.properties`, has been added which can be modified in the field to accommodate even more extreme environments.
- **Error Message Elaboration.** InformaCast now tries to be more explicit in reporting when it seems to be suffering s while trying to perform network communication in order to facilitate troubleshooting and configuration using the new mechanism described in the previous bullet. Also, the error message InformaCast reports when it is unable to open a socket for CTI audio traffic has been expanded to explain that a likely cause is a discrepancy between the actual server IP address and the address configured in the `web.xml` file.
- **New IP Phone Support.** You can now use Cisco 7906 and 7921 devices as recipients for InformaCast text and audio messages. (You may need to update your CallManager in order for them to be reported to InformaCast.)

What's New in InformaCast 5.1

- **Support for Cisco Unified CallManager 6.0.** Release 5.1 of InformaCast can work with IP phones managed by Cisco Communications Manager v6.0.
- **Scripting.** Using a script, users can extend the capabilities of InformaCast to trigger a non-InformaCast event. For example, if an emergency page is sent, a script can be used to trigger an email to administrators to notify them about this event. At present, only the JavaScript language is supported. Several sample scripts are shipped with InformaCast.
- **Talk and Listen Improvements.** Now each phone participating in a talk and listen session has an improved interface making it easier for users to navigate between the Talk, Listen, and Details states.
- **Bell Scheduler Same Bell Tones Issue.** Added logic for resolving the problem when Bell Scheduler sent the same tone to the same speakers several times. Now, InformaCast can detect if the same speaker is assigned as a recipient of two or more different bells occurring at the same time and using the same ring tone. In previous versions, such a speaker would try to play all of the ring tones simultaneously and the resulting sound quality was quite low. Such speakers now play only one ring tone, which improves the quality of the sound.
- **Handling of non-InformaCast Authentication Requests Modified.** Before redirecting such a request, the servlet analyzes its type and if it is GET, then a copy of the query string is appended to the redirection URL.
- **Data Sorting in Tables.** For pages that use tables for displaying data (messages, recipient groups, bell schedules, etc.), it is now possible to sort the tables by any column in ascending or descending order (click on the column title to sort by that column). Also, the controls used for navigating through table pages are now shown both at the top and bottom of tables.

- **Granularity in Speaker Reboot Process and New Filter for Viewing Speakers Based on Registration Status.** Checkboxes have been added to the Edit IP Speakers page, allowing users to specify what speakers need to be rebooted (this applies only to registered speakers). Users can now reboot individually selected speakers or all available ones. A new attribute has also been added to the filter on that page: IP speakers can be filtered by their registration status.
- **Failure Tone for Live Audio Devices.** If no devices are activated for a live broadcast, the originator will hear a failure tone informing that no devices were able to join the broadcast.
- **SLP Service.** The ability to independently advertise speaker configuration and HTTP services (for DORA service discovery) through SLP has been added.
- **Logging of InformaCast Events Through Windows System.** If InformaCast is installed on a Windows system, it will log its events in the operating system log, which is located in **Start | Programs | Administrative Tools | Event Logs**.
- **Live Broadcast Alert Tone Error.** In some situations, notifying alert tones for live broadcasts were not being terminated after the broadcast ended. This has been fixed.
- **QuickPage Recipient Group Selection.** Previously, some users experienced an error while using the QuickPage Integration URL mechanism. This has been resolved.

What's New in InformaCast 5.0.4

InformaCast 5.0.4 is primarily an update to enable and document the new SLP mechanism for configuring IP speakers on an InformaCast network to replace the previous use of CallManager's TFTP server. It also builds on the documentation improvements started in 5.0.3. There are also some corrections to new features.

- **SLP Server Enabled.** This release provides an SLP server that IP speakers can use to configure themselves without requiring a separate TFTP mechanism.
- **Documentation Improvements.** A thorough review of the documentation was performed. Stale information was removed, while structure, clarity, and consistency were improved.
- **SNMP Robustness.** This release properly handles differing SNMP data types between CallManager 4.x and 5.x, to correctly interpret IP addresses returned within SNMP responses. This corrects a defect that could cause certain IP addresses to prevent gathering phone information when interacting with CallManager 5.x. InformaCast can also now deal with SNMP responses from nodes in a CallManager cluster that are not running the CallManager service, as long as at least one of the IP addresses entered into InformaCast's configuration corresponds to a node that is running the CallManager service.
- **Broadcasts Continue During Recipient Group Updates.** Beginning with InformaCast v5, broadcasts could not occur while recipient groups were being updated. Specifically, while phone information was being collected from CallManager, it was impossible to calculate group membership. This was a problem at sites with large numbers of phones and slower CallManager servers, since broadcasts could be delayed for a noticeable amount of time. Version 5.0.4 allows the phone information to be collected in the background, so broadcasts can continue uninterrupted using the old information in the mean time.
- **Multiple External Paging Device Support in Recipient Groups.** The new grouping mechanism introduced with InformaCast v5 could previously only detect the first external paging source defined within InformaCast, which prevented the others from being selected as part of

recipient groups, whether through rules or the simpler checkbox mechanism. This update allows all defined external paging sources to work with the grouping mechanism and participate in broadcasts.

- **Ability to Check Recipient Group Membership of IP Speakers.** The new grouping mechanism introduced in InformaCast v5 goes far beyond the simple speaker-to-group association that existed in previous releases. However, the older mechanism did provide a quick way to check which recipient groups include a particular speaker, which was not possible in InformaCast v5. Since some users had come to rely on this accidental feature of the old interface, a new informational section on the Edit IP Speaker page has been added, which provides a list of all groups to which the speaker belongs.
- **CallManager Device Type Names Corrections.** When setting up a recipient group rule based on **CallManager Device Type**, previously choosing **Cisco IP Phone 7960** would instead match 7940s, and choosing **Cisco IP Phone 7940** would match 7960s. This has been corrected, and the proper device name will now be displayed. If you have any such rules, you should double-check them after installing release 5.0.4 and fix the device type if needed.
- **Source of “Stuck Broadcasts” Eliminated.** In rare cases, an audio broadcast was canceled before it actually began. InformaCast was failing to clean up the information about the broadcast, leaving an error in the log and a permanent entry in the list of active broadcasts (which could be removed manually by clicking the **End** button). This situation is now detected reliably and the broadcast is removed from the active list without error.
- **Default Authentication URL.** InformaCast delegates authentication requests for other applications back to the CallManager unless configured otherwise. CallManager 5.x uses a different path for its built-in authentication server, and InformaCast will now correctly use this path when working in a CallManager 5.x environment.
- **Multicast Port Range.** Recent Cisco phone firmware has placed even more strict limits on the valid ports available for multicast audio. This update keeps InformaCast from trying to use ports outside the new, smaller range (20,480 to 32,768).
- **Speaker Configuration Assistant.** The Help page tool, which builds speaker configuration files, now allows you to specify FPGA and boot loader firmware files in addition to the main speaker firmware file.

What’s New in InformaCast 5.0.3

- **Phones Available After Failed Update.** When an attempt to gather phone information from CallManager fails, InformaCast will continue operating with the stale information it obtained during the last successful update, rather than discarding all phone information. This restores behavior that was seen in all versions of InformaCast prior to 5.0, and allows more reliable operation even under adverse CallManager conditions.
- **Ability to Recover Administrative Access.** Sites that have lost the ability to log in and administer their InformaCast server can now regain access with the help of Singlewire’s support staff, regardless of whether the problem was caused by a lost password (such as through employee turnover), deleting the administrative user, or revoking permissions.

- **Runaway Thread Issue.** Certain kinds of failures to communicate with phones could cause problems for the new statistics collection mechanism in version 5.0.2, causing the Tomcat Java process running InformaCast to consume all available CPU cycles until the service was restarted. This has been corrected.
- **Spurious Stop Commands.** Version 5.0.2 added the ability to avoid sending `Stop` commands when InformaCast skipped trying to send a broadcast to a phone, but if it tried and failed, it would still try to stop the failed broadcast later on. The only way to avoid the problem was through the **Skip Phones in Use** feature. This release allows InformaCast to detect when the phone has rejected a broadcast attempt, and thereby refrain from trying to stop it. Such failures are also now reflected in the Summary Log, and the log format has been made more readable.
- **Recipient Group Rule Validation Improved.** It was previously possible to create a recipient group rule with a badly-formed regular expression, as long as there were no devices registered against which they could be compared. Later, when such devices appeared, the recipient group page became unavailable since the regular expression rule would be used, and would cause the application to fail. This change prevents you from creating these rules in the first place. It also provides better feedback when you try to create a rule with a badly-formed subnet match.
- **Configuration Validation Improved.** InformaCast now rejects attempts to save the configuration page if any required parameters are missing, and better indicates which parameters are required.
- **Filtering by Regular Expression Enabled.** When viewing lists of IP speakers and lists of potential additions and exclusions to recipient groups, InformaCast offers a filter interface for narrowing the list of interesting devices. Previously, attempting to use a regular expression for filtering would result in an exception. This now works properly.
- **Log Search Tool Updated.** The tool that helps analyze InformaCast logs and locate interesting information has been updated to reflect the changes in InformaCast v5.
- **Documentation Improvements.** Loose ends within the documentation have been cleaned up, and consistency improved.

What's New in InformaCast 5.0.2

InformaCast v5.0.2 was an update release to address loose ends related to the major changes introduced in v5 with respect to CallManager interaction. These changes were made to support migration to CallManager 5.x, and offer a richer set of grouping choices.

- **Fixed Memory Issue.** Previously, InformaCast would eventually run out of memory after repeatedly updating phone information from CallManager. This has been corrected.
- **Phone Discovery.** All compatible phones, as reported by CallManager, are now discovered. This includes those whose MAC address have been manually entered and contain lowercase letters.
- **SNMP Configuration.** “Installing InformaCast” on page 2-1 now explains how to configure SNMP when working with CallManager 5.x.
- **Avoid Spurious Stop Commands.** Previously, an extra `Stop` command was sent to phones that were skipped during an audio broadcast (because they were otherwise in use). This could prematurely end an ongoing broadcast, or in the case of 7920 wireless phones, place an active call on hold. InformaCast now sends `Stop` commands only for broadcasts it actually attempted to start.

- **Summary Log Updated.** The Summary log now reports how many phones were skipped because they were in use, and the collection of all statistics uses new Java 5 capabilities, which improve performance by eliminating costly synchronization.

What's New in InformaCast 5.0

- **Greatly Enhanced Grouping.** The way groups are formed has been completely reworked. Administrators can choose between **Select Devices** and **Rules**. Selecting devices can have filters whose values are dynamically populated based on the filtering type. Rules can have additions and exceptions, and also a dynamic component, so that you won't get values that don't make sense. An advanced mode gives you more control over the case (capitalization) and allows rules to follow a logical expression.
- **Direct Dial Broadcasts.** Previously, every broadcast was sent to a recipient group. A broadcast to a single phone had to have its own recipient group. Now, broadcasts can be sent to a DN, or a group of DNs.
- **Migration from Tomcat 4 to Version 5.5.** There were several reasons to upgrade Tomcat. First, version 4 was quite old. Second, the upgrade takes advantage of some of the JSP tags that Tomcat provides.
- **Fixed a Bug in the Recorder.** Upon completion of a recording, an extra Java thread was left. These could add up and degrade the performance of the system. This has been corrected.
- **Reboot All Speakers from a Single Button.** Previously, it was a time-consuming process to reboot speakers. This release includes a button on the bottom of the Edit IP Speakers page, which when pressed, will cause all the registered IP speakers to reboot.
- **Splash Page Displayed During Startup.** Smaller installations might not have noticed, but during the startup process, InformaCast needs to gather information about each phone. In previous versions, larger installations would see a blank page (with nothing to watch but that little hourglass) during startup. This has been replaced with a splash page that says, "Please stand by." The humoctopus graces the top of the page.
- **InformaCast Will Automatically Detect the DN of a Line.** Previously, when subscribing the phone to an IC service in CallManager, you had to provide the DN of the phone (in order NOT to be prompted for the information during a broadcast). You would have to do this for every phone that you wanted to subscribe. Now, you can enter the word **Auto** in the **Sending Phone DN** field. This will cause InformaCast to look up the requesting phone's DN.
- **QuickPage Parameters.** These new parameters will make it a bit easier to compare the values with CallManager. QuickPage parameters were reordered to match the order of CallManager.
- **Show DN in the QuickPage URL.** The QuickPage Helper was changed to show the DN in the URLs that it creates.
- **Help Area Only Available When Logged In.** The online help was confusing because there wasn't consistency in what you saw. Now, if you are not logged into InformaCast, you will see a subset of the help. You get enough instruction to log in or contact Technical Support. Once you've logged in, you get the full compliment of help pages.

- **Make Send Once the Default Parameter.** Previously, when a user sent a broadcast from a phone, they would be taken back to a list of messages. The **Send Once** parameter could be enabled if the user wanted to just send the message and be done. This is the way that the majority of people use the system, so this parameter is now on by default.
- **'Push To Talk' to 'Talk and Listen.'** A separate product called 'PushToTalk' is being developed for wireless phones. This was causing confusion with the InformaCast message of the same name. InformaCast's 'Push To Talk' has been renamed 'Talk and Listen.'
- **'Audit.log' to 'Summary.log.'** The audit.log file has been renamed to summary.log, which makes its intended use more obvious.
- **Job Scheduler Bug.** The bug, which prevents access to a job scheduler if there are no text messages defined, has been fixed. Also, this would occur if the user had no access to text messages for other reasons.

What's New in InformaCast 4.2.1

Regression Corrected. A problematic interaction between the high-quality audio feature introduced in InformaCast v4.2 and the per-user message filtering capability has been fixed. This problem could prevent filtered users from seeing the list of available messages, instead yielding an error screen.

What's New in InformaCast 4.2

- **Support for CallManager Express.** InformaCast can now work with Cisco IP phones even in the more limited and economical CallManager Express environment. This is a third major deployment alternative (in between full-blown CallManager environments, and those with no telephony at all). Broadcasts can be sent to, as well as initiated and recorded from, IP phones operating in a CallManager Express environment even though such environments lack the JTAPI interface used by InformaCast in standard CallManager installations. InformaCast also provides a **Services** menu to the phones, since the CallManager Express server cannot do this. External paging system integration through voice gateways still requires a standard CallManager, although you can use InformaCast IP speakers and zone controllers with CallManager Express.
- **Intercom Service.** Phones may be subscribed to a new service offered by InformaCast that provides an intercom session between the phone and a single microphone-equipped speaker. The session is half-duplex (each end can either listen or talk, but not both at once), and control of the session is managed from the phone. Speaker selection is by dial code only.
- **High-quality Audio Option.** Messages that are to be used with only Singlewire IP speakers and Desktop Notification System machines (in other words, which will never need to reach phones or external paging systems via voice gateways) can now be recorded with higher fidelity (16 bits per sample, 44,100 samples per second). This is equivalent to the CD Audio standard, although broadcasts remain intrinsically monaural. Note that such messages consume far more network bandwidth (roughly 11 times, about 800Kb/sec) than the standard G.711 format, which must still be used if telephony devices are to receive the message.
- **Can Monitor Phones for "Skip" Control.** Over time, Cisco IP phones have become less reliable at reporting whether they are in use during a broadcast, preventing InformaCast's **Skip Phones in Use** message configuration option from guaranteeing the correct behavior. For phones where it is very important to be sure that message audio is always and only delivered if the phone is idle, it is

now possible to associate these specific phones with InformaCast's CTI user, which will give InformaCast more accurate information about their status. Unfortunately, because of scalability limitations within CallManager itself, it is not practical or possible to monitor all phones in medium-to-large installations. Therefore, this feature needs to be applied in a targeted manner.

- **Application Configuration Simplified.** InformaCast now provides more clear guidance about the database credentials needed when configuring integration with external paging devices through voice gateways, and no longer needs domain information to determine which version of CallManager's database is being contacted.
- **Improved Feedback During Application Changes.** Under some circumstances, changes made in the administrative interface (such as deleting a recipient group, renaming a speaker, or the like) were not showing up immediately upon returning to the list of groups/speakers/etc. even though the change did take effect immediately. This display issue has been corrected.
- **Better Feedback for Error Conditions.** If JTAPI has not been installed on the application server, this is now clearly explained when attempting to access the application. Several other potential configuration issues are also more clearly diagnosed to aid troubleshooting.
- **Improved Management of the Application's CTI Ports.** Precautions have been added to prevent a CTI port from appearing multiple times in the application's pool of available CTI ports used for broadcasting. Also, active broadcasts will be cancelled when the CTI port being used by the broadcast is disassociated from the CTI user.
- **Phones and Other Broadcast Recipients Now Leave a Cancelled Urgent Broadcast Immediately.** When the user cancels the broadcast, the recipients will immediately be told to leave the broadcast and stop playing audio. Previously, although the audio stream would stop immediately, recipients could not be shut down until the first regularly scheduled deactivation took place.
- **Speaker Installation Instructions Added.** The online help now includes instructions on how to install and configure Singlewire IP speakers.

What's New in InformaCast 4.1.1

- **Better Handling of Simultaneous Broadcasts.** When sending a large number of broadcasts at exactly the same time, such as might occur when many bell schedules are running, it was possible for the application to lose track of the status of one or more broadcasts. This has been corrected.
- **New IP Phone Support.** You can now use Cisco 7920, 7941, 7941-GE, 7961, 7961-GE, and 7971 devices as recipients for InformaCast text and audio messages. (You may need to update your CallManager in order for them to be reported to InformaCast.)
- **Auto-registration Capability Restored.** The dial code support introduced in the 4.1 release interfered with InformaCast's ability to automatically create new IP speaker definitions in conjunction with the Desktop Notification System's auto-registration plug-in. This conflict has been resolved.
- **Reduced Buffering of Live Audio Packets.** In some environments, it was possible for audio from the phone to "pile up" at the InformaCast server while a live broadcast was being set up. This would cause an audible delay between speaking into the mouthpiece and hearing the broadcast through recipient phones and speakers. InformaCast now discards any accumulated packets when starting the actual broadcast and always forwards the live audio in real time.

- **Log Directory and Files Renamed.** The application server's log directory has been changed from "logs" to "tomcatLogs" to make it easier to find the actual InformaCast log directory when troubleshooting configuration issues. InformaCast's own log files have been renamed to include the suffix ".log" which makes them easier to work with in a Windows environment.
- **Better Use of Server Memory.** InformaCast is now configured to make more use of available physical RAM in the server to improve performance in large deployments.

What's New in InformaCast 4.1

- **User-specific Access Filters.** InformaCast can now be set up to restrict particular users and groups of users so they can access only specific recipient groups, messages, IP speakers (for recording), bell schedules, day schedules and ring lists. These filters are applied to the new limited-access user roles, as well as to the IP Phone service interface.
- **Limited Access Web Users.** Users can now be assigned more limited roles on the web, so that they can (for example) only send existing messages without being able to edit them, or only edit the bell schedules to which they have access, or only assign exceptions to specific bell schedules.
- **Monitoring Audio Through IP Speakers.** InformaCast can now monitor the audio in a room containing a microphone-equipped IP speaker, and play this audio through the Desktop Notification System.
- **Numeric Selection of Recipients.** InformaCast can be configured so that the IP Phone service interface prompts the user for a numeric dial code to determine the recipient group(s) and IP speaker(s) that will receive a broadcast, rather than scrolling through a menu of all recipient groups. Even IP speakers that have not been individually assigned a recipient group can be selected in this manner. This is particularly useful when there are large numbers of recipient groups or speakers that may be addressed by, for example, the receptionist in a school.
- **Phone Interface Multi-group Selection Improved.** When a phone subscription is configured to allow the user to select multiple recipient groups, this setting is now preserved even if the user sends more than one message per InformaCast service session.
- **Service Parameter "Once" Logs Out After Broadcast.** Previously, the IP Phone service parameter, **once**, was used to prevent access to the menu after sending QuickPages, since there was no other way to filter a user's access to messages and recipient groups. This is now much less important, thanks to the user-specific access filters. However, there are some environments in which it's desirable to force users to log in each time they want to send a broadcast, and this can now be achieved by setting the **once** parameter in a service subscription, regardless of whether or not the subscription is a QuickPage. When **once** is given a non-empty value, InformaCast will automatically log out the phone as soon as it sends a single broadcast.
- **Skip Phones In Use More Defensively.** Recent phone firmware releases have sometimes returned unpredictable values when InformaCast tries to inquire when the phone is in use. Previous releases of InformaCast would assume that as long as the phone did not report "Active" that it must be "Not Ready" (meaning not in use). Now, the phone is only considered to be available for broadcasts if it specifically reports its call audio state as "Not Ready."
- **QuickPage Integration.** The ability for external applications and web shortcuts to trigger InformaCast broadcasts has been improved, and a new section at the bottom of the QuickPage Assistant screen now explains how to access this capability.

- **Upgrade Process Improved.** In version 4.0, it became more complicated to upgrade from versions older than 2.0. It was necessary to first upgrade to 2.0, and then complete the upgrade process to 4.0. Starting with version 4.1, this intermediate step is again unnecessary. It is possible to upgrade directly to version 4.1 from any older version of InformaCast.
- **Cleanly Ending Failed Ad-hoc Broadcasts.** Previously, it was possible that if an attempt to send an ad-hoc broadcast failed because there were no CTI ports available, part of the broadcast would get stuck repeatedly generating warning messages like the following:

```
2005-04-14 16:08:51,937 [BroadcastHandle QueueManager, id=st:11] WARN
    com.berbee.ipt.broadcastsystem.core.BroadcastHandle - Capture has exceeded
    recording time limit at 168494 seconds. Forcibly ending. Client: nullJitter
```

This problem has been fixed, so that the broadcast is cleaned up properly even in these circumstances.

- **Multicast Ports Reused Less Frequently.** Phone firmware loads are sometimes unreliable, especially for the newer 7905 and 7912, and this can cause the phones to fail to stop playing audio when instructed to do so by InformaCast. In an effort to reduce the chances of this causing a broadcast to be heard on inappropriate phones, InformaCast now uses a different multicast port each time it sends a broadcast, until it is forced to start over at the lowest working port.
- **Multicast Port Removed from Configuration Interface.** The port non-reuse change mentioned previously means that it no longer makes sense to provide an interface for selecting a default multicast port. InformaCast assigns a different port to each broadcast. This means it is even more important to follow the long-standing best practice recommendation of reserving the entire multicast address used by InformaCast for its own use.
- **Jitter Calculations Corrected.** The information that InformaCast reports in the Performance log about audio stream jitter is now calculated in a way which provides far more useful information. This will help determine whether a server is able to properly keep up with the demands placed on it in a particular installation.
- **Spurious Log Entries Cleaned Up.** When InformaCast is used via an IP phone's service interface, and a user has remained logged in at that phone from a previous session, InformaCast will no longer display an incorrect message in the log reporting an invalid login attempt by that user.
- **QuickPage Helper Renamed.** In order to help new users notice and understand the capabilities of the QuickPage Helper tool, it has been renamed the QuickPage Assistant.
- **Major Documentation Improvements.** The InformaCast manuals and support documentation have been radically reorganized and improved to help existing and new users familiarize themselves with the many capabilities of the system.
- **Support Page Improved.** The built-in Support page is now easier to find (there is also a **Help** link in the side navigation menu) and it provides more and better organized information.

What's New in InformaCast 4.0

- **Support for Non-telephony Deployments.** InformaCast is now able to operate even in environments without IP phones or CallManager servers. Customers wishing to use InformaCast IP speakers and the new InformaCast PC client can do so even if they have not yet adopted Voice over IP (VoIP) telephony. Of course, if they later set up a CallManager infrastructure, their InformaCast environment will still seamlessly integrate.

- **Recording and Making Live Broadcast from PC Client.** As part of the new support for non-telephony environments, InformaCast is now able to obtain audio from the PC client for the purpose of recording messages (ad-hoc or for later use) and for sending live broadcasts. Of course, this requires the PC client to have a sound card with an attached microphone.
- **Broadcast Time Limits.** InformaCast can now be configured to set time limits for the recording process and for live broadcasts. By default, InformaCast now automatically cancels a recording process if it hasn't finished by five minutes after it was initiated. No time limit is enforced for live broadcasts by default. Both of these settings can be changed as desired by the site administrator.
- **Cancellation of Broadcasts.** The InformaCast administrator is now able to view a list of ongoing broadcasts, regardless of their source, and terminate any problem ones (i.e. if an incorrect extension was dialed for recording, perhaps reaching a voice mail system).
- **Recipient Groups Without Phones.** InformaCast now allows you to set up recipient groups without any phones in them. While obviously necessary for non-telephony deployments, this feature has also been requested for telephony environments to enable (for example) sending to just a group of IP speakers or external paging devices.
- **Auto-registration of PC Clients.** InformaCast and the PC client can be configured to automate the process of registering new clients. When this is done, the **COMPUTERNAME** Windows environment variable on the PC client workstation (if available) is used as the name by which to register the PC client. No administrator intervention is required, which greatly simplifies large-scale deployments of the client software.
- **Recipient Groups Page Shows All Device Types.** When viewing the list of recipient groups, you can see the number of external paging sources and IP speakers currently associated with a recipient group in addition to the number of phones. Each type of device is listed separately, if your license supports that type.
- **Simplified Compatibility with CallManager 4.1.** The process of enabling InformaCast to communicate with the encrypted administrative interface of CallManager 4.1 has been automated, and some finicky manual configuration steps that were previously required to set up communication with such servers have been eliminated.
- **Improved Integration with External Paging Systems.** The mechanism used to gather voice gateway hold music information is now easier to set up and places fewer constraints on the relationship between the InformaCast and CallManager servers.
- **QuickPages from Other Computers.** InformaCast now provides a way to send QuickPages using a single HTTP request even from devices other than IP phones. This makes it easier to trigger InformaCast broadcasts programmatically from other applications or from web browser bookmarks.
- **QoS Marking on Windows.** The mechanism used by InformaCast to mark its audio traffic as voice traffic for priority routing was being suppressed by the default Windows operating system configuration. The installer now instructs Windows to allow this tagging to take place, so the traffic can be properly prioritized and routed on the voice network.
- **Broadcasts May Include Originating Device.** The previous release of InformaCast suppressed sending broadcasts to the device from which they were initiated (e.g. when sending from a phone, that phone would not receive the broadcast). Although this is generally the desired behavior (and can help protect against subtle firmware issues), there are circumstances in which this feature may be usefully turned off (typically these are small demonstration environments where there are few phones available). The site administrator can now change this setting as needed.

- **Underlying Platform Upgraded.** The InformaCast environment has been upgraded to Java 1.5, providing better performance and offering new opportunities for future features and improvement.

What's New in InformaCast 3.2

- **Compatibility with CallManager 4.1.** Cisco changed the interface used by InformaCast to gather phone information starting with CallManager version 4.1. InformaCast v3.2 is able to detect this change and properly use the new mechanism.
- **Skip Devices That Initiate Pages.** InformaCast will no longer send a broadcast to the device that is used to send it. For example, if you are using a phone's Service interface to send a live broadcast, that phone will not receive the broadcast. If you use the web interface from a workstation, the PC client running on that workstation will not receive the broadcast.

What's New in InformaCast 3.1

- **Increased Performance.** This release followed rapidly on the heels of 3.0 in response to real-world experience with the new IP speakers. Version 3.1 can handle much larger numbers of IP speakers by taking the same parallel activation approach InformaCast has always used for phones.
- **Speaker Debugging.** InformaCast v3.1 adds support for a new feature of the IP speaker firmware, which allows detailed console logs to be captured from individual speakers to help analyze the performance and behavior of the speakers themselves. It also adds the ability to remotely reboot a speaker when necessary (for example, to upgrade to a new speaker firmware load).
- **Improved Robustness.** The application is able to start up even when there are problems communicating with the CallManager database. (This is attempted only to perform integration with third-party overhead paging devices.)
- **Cleanup.** InformaCast v3.1 removes the standard set of demonstration applications that ship with the Tomcat application server. This slims down the installation, and eliminates unnecessary interfaces that might have been discovered by curious users.

What's New in InformaCast 3.0

- **Bell Scheduler.** InformaCast now includes an optional Bell Scheduler, suitable for managing and ringing complex schedules of time- and date-based bells, for one or several schools or offices.
- **Support for the Singlewire Broadcast Client (IP speaker).** InformaCast can now register, manage, and control a group of individually addressable network speakers, allowing coverage of locations where phones are impractical or insufficient, without the expense and complexity of a centralized paging amplifier.
- **Live Broadcasts.** InformaCast is now capable of sending a live audio broadcast, enabling you to have your voice heard live as you are speaking. Unlike Push to Talk messages, live broadcasts can be sent to any audio destination, including the new IP speaker and integrated external paging devices.

- **Send to Multiple Recipient Groups.** When sending a message, you are now able to select more than one recipient group. The message will be sent simultaneously to all selected groups. Since this changes the flow of the phone interface, you need to explicitly request this new behavior in the InformaCast service subscriptions for the phones on which you want it enabled. (This is done with a new service parameter, **multi**.)
- **Audio Preview.** The Edit Message page now has a **Play** button available when there is audio associated with the message. You can use this to preview the message's audio in your web browser, without having to actually send it to a recipient group.
- **Message Recording from Remote Phones.** The process of recording audio for a message, whether ad-hoc or prerecorded, may now be performed reliably, even through a gateway, to non-IP phones (such as home phones or cellular phones).
- **Defining Recipient Groups by Device Type.** The regular expression support offered by InformaCast's recipient group configuration pages has been enhanced to allow you to define recipient groups based on the numeric code associated with the device types of the phones. This enables you to create recipient groups that contain only particular types of phones.

What's New in InformaCast 2.1

- **Push to Talk Messaging.** This is a new type of broadcast, in which a group of phones will be activated to listen to a shared multicast stream, and all participants can take turns speaking to the group in real time by pressing a **Talk** softkey.
- **Text with Ad-hoc Audio Messaging.** A new message type has been added, combining predefined text with an ad-hoc audio recording. (This is the way ad-hoc messages worked prior to the introduction of audio-only messages in v2, and was a useful combination for some sites).
- **Multicast Traffic Class Marking.** InformaCast now marks the RTP traffic it sends to carry audio messages, setting a Differentiated Services Control Point (DSCP) value of 0x28. This is the same value used by other Cisco voice applications, and should be helpful to customers using DSCP to control their routing policies and quality of service configurations. If needed, this header can also be set to other values through a configuration parameter.
- **Multicast Time-to-Live Configuration.** The IP TTL value for InformaCast RTP traffic defaults to 16 (as it has for some time), but this can now be altered through a configuration parameter in case there are deployment considerations that would benefit from such a change.
- **Multicast Interface Selection.** InformaCast now requests that multicast packets be sent on the same network interface it is using for its web and phone interfaces, in an effort to work more reliably on multi-homed servers (machines with more than one network interface card). We still do not recommend this configuration, as it is not one of our core tested platforms.
- **CTI Port Management Improvements.** InformaCast is now more cautious and deliberate in examining the state of CTI ports when it allocates them for use, and ensures that they are in a clean and idle state before and after using them.

What's New in InformaCast 2.0

- **Overhead Paging Integration.** External paging systems can be integrated with InformaCast using compatible voice gateways. These paging sources can be associated with recipient groups, and thereby participate in audio broadcasts. In order to use this feature, you must have a Cisco voice gateway that supports multicast music on hold and disconnect supervision on the voice ports, connected to an appropriately matched paging system.
- **New Phone Supported.** InformaCast can send text and audio broadcasts to Cisco's new color 7970 phone, and this phone can be used to initiate broadcasts as well.
- **More Phones Supported.** InformaCast can now send messages to Cisco's low-cost 7905G and 7912G phones, provided they're running a recent enough firmware load. At present, only text messages are supported; Cisco anticipates that audio messages will work in CallManager 3.3(4) and 4.0. These phones can also be used to initiate broadcasts.
- **Audio Only Messages.** There is a new category of message that can be created and sent. Audio only messages do not have a textual component, so they do not affect the displays of the phones to which they are sent.
- **Ad-hoc Flexibility.** It is now possible to create multiple ad-hoc messages with different characteristics (e.g. one can be non-urgent and skip phones in use, another could be for emergencies). Ad-hoc messages now also take advantage of InformaCast's audio only messaging ability, and do not affect the phones' displays.
- **Message Volume Control.** You can specify the volume level at which a message should be played, overriding the current stream volume settings of each phone receiving the broadcast. (Use of this feature requires a compatible phone firmware load; currently only the 7940 and 7960 loads for 3.3(3) or later are known to support it.)
- **Message Editing Improvements.** The user interface for adding and editing messages has become more interactive and sophisticated, in order to support the new flexibility offered by this release.
- **QuickPage "Once Only" Flag.** A QuickPage can now be configured to send one message only, displaying a confirmation page instead of going back to the message/group menus. This allows a phone to be configured so that it can never access certain recipient groups or messages.
- **Simultaneous Recording Possible.** By configuring additional CTI ports to be associated with the InformaCast CTI user, administrators can support the simultaneous recording of multiple broadcasts. This enables organizations spread across several offices to perform ad-hoc paging within their groups from a single InformaCast server without resource conflicts during peak periods.
- **More Flexible CTI Port Use.** InformaCast now detects and uses all CTI ports associated with its JTAPI credentials. The user need no longer identify a port and DN to be used. This supports both the external paging integration and the simultaneous recording features.
- **Recording Starts Immediately.** Previously, there was a gap of about half a second between when the prompt finished and when InformaCast started recording audio. This gap has been eliminated, so it is now possible to begin speaking as soon as you hear the tone without losing the first fragment of your message.
- **New QuickPage Assistant.** There is a new section of the InformaCast interface that helps administrators figure out the right XML service parameters for subscribing a phone to a particular QuickPage, and the right URL for setting up the QuickPage service itself.

- **QuickPage and CallManager Parameter Defaults.** Current CallManager versions have a limitation that prevents them from accepting the value, **-1**, as a default value for an XML service parameter, which prevented setting up the “All Phones” recipient group or the ad-hoc message as default choices for new subscriptions. The ad-hoc message issue is taken care of by the fact that you can now create any number of ad-hoc messages, whose keys will not be **-1**. To address the “All Phones” recipient group issue, InformaCast now accepts the value, **all**, for the recipient group parameter, and translates it internally to **-1**. This allows you to configure a QuickPage service with **all** as the default value for recipient group.
- **Embedded Authentication Server.** InformaCast now provides its own authentication server, eliminating the need to configure and maintain the `icauth.asp` page on CallManager, a frequent source of installation hang-ups. The embedded authentication server delegates non-InformaCast authentication requests to the standard server.
- **Broadcast Port Minimum Value Raised.** Recent phone loads no longer permit multicast streams to occur on ports numbered less than 20,480 (previously anything above 16,384 was fine). InformaCast now enforces this lower bound when editing the configuration. When upgrading to version 2.0, if your configuration is using a lower numbered port for sending broadcasts, it will be raised automatically to 20,480.
- **Underlying Platform Upgraded.** The InformaCast environment has been upgraded to Java 1.4 and Tomcat 4, providing better performance and reliability, and offering new opportunities for future features and improvement.

What's New in InformaCast 1.3

InformaCast 1.3 contains no new features or interface changes. Internally, it incorporates a new, more powerful scheduler for more robust support of the current scheduling interface. This scheduler will also allow more flexible scheduling options with a new interface in the future. This release also synchronizes data more effectively within an InformaCast cluster to support failover.

What's New in InformaCast 1.2.3

- **Non-urgent, One-time Broadcasts.** You can define an audio broadcast as non-urgent, which means that it will start after a delay, giving phones a chance to join the broadcast before it begins, and then send the audio exactly one time.
- **Improved Recipient Group Detection.** InformaCast now uses a newly available service for collecting phone information from the CallManager server in order to set up its recipient groups. This interface, available in CallManager 3.2(3) and expected in 3.3(3), is much more efficient than what was previously available, so InformaCast can collect large groups of phones far more quickly and reliably than with previous CallManager releases. It also reduces load on the CallManager. This change does mean that InformaCast 1.2.3 will not work with earlier releases of CallManager.
- **New, Flexible Recipient Group Types.** Taking further advantage of the new phone information service, InformaCast allows you to define recipient groups based on network subnets, using powerful regular expressions that provide complete flexibility for advanced configuration.
- **Preview Recipient Group Members.** When defining or editing a recipient group, a new **View** button lets you examine exactly which phones are included in the group.

- **Better Support for Redundant CallManager Servers.** The CallManager failover support introduced with InformaCast 1.2 has been extended to include the recording of new broadcast audio as well as the previous broadcast-only failover.
- **Self-service Password Change.** Users are now able to change their own password, rather than having to rely on a user administrator.
- **Many Other Minor Improvements.** Various error messages and user interface elements have been clarified to improve the experience of administrators and users installing and working with the application.

What's New in InformaCast 1.2

- **Optionally Skip Phones in Use.** When defining an audio message, you can indicate that it should not be sent to phones that are being used (engaged in a call). This is suitable for non-urgent information.
- **DN Configurable for Phone Interface.** You can now add an optional **DN** parameter when defining the InformaCast XML service within CallManager. If you do this and provide the DN value when subscribing a phone to the service, the user will not need to key in this information when sending an ad-hoc broadcast from that phone, which streamlines the user experience.
- **QuickPage Mode for Phone Interface.** When defining the XML service for sending InformaCast messages from an IP phone, you can also add optional parameters that specify any or all aspects of the message to be sent (the message key, the recipient group that should receive it, and even the login and password to be used). Any options that are left blank will issue prompts when the message is sent. At the most extreme, if you supply all possible information, you have a one-button paging capability. Different pages can be assigned to different buttons by subscribing multiple times, and using descriptive names for the **Services** menu. Note that the login and password information should only be configured on phones that are considered to be in secure areas, as they will allow anyone with physical access to the phone to send the broadcast.
- **Failover to Backup CallManager Servers.** You can now configure multiple CallManager server addresses, and InformaCast will rely on alternates if the primary server becomes unavailable.
- **Installer Integrates with IIS.** If you're installing InformaCast on Windows 2000 Server or Windows 2003 Server with IIS installed (these are recommended base operating systems) the installer will offer to configure IIS to serve the text and graphical pages the phones need to display during a broadcast. This can provide much better performance because it spares InformaCast from having to respond to the requests from each activated phone, and allows it to focus on the task of initiating the broadcast to the remaining phones.
- **Message Cleanup Improved.** Audio files and uploaded icons are now always cleaned up when messages are deleted.
- **Special Characters Handled Better.** Previously, creating messages or recipient groups with characters such as "&" or angle brackets could cause display problems on the web interface and parse errors on the phone that prevented use of the application. These characters are now dealt with in a way that ensures proper display on both interfaces.

What's New in InformaCast 1.1

- **Clustering Support.** Multiple InformaCast servers can be set up in a cluster in conjunction with a Cisco Content Switch to provide failover capability and load balancing for large installations. (This is an optional feature with a separate license.)
- **Recipient Groups Based on Device Description Suffix.** In addition to using calling search spaces and device pools, InformaCast can now populate a recipient group by looking at the device descriptions of phones registered in CallManager, and matching them against a particular suffix. This gives you freedom to define groups that are not related to calling search spaces or device pools, based on whatever logical organizational groupings you desire, by simply adding structured information at the end of the device descriptions.
- **Finer-grained Application Roles.** Previously, a message administrator could control all aspects of the application. Version 1.1 adds additional roles with more focused capabilities, allowing you to flexibly grant authority as needed:

The Superuser group has been updated to include all these roles, so any users you have set up as members of the Superuser group will retain full access to the application. In order to work smoothly with future upgrades, you should continue to use the Superuser group in this manner; you are also free to create other groups for your own purposes.

Role	Description	Menu Options Available
appAdmin	Modify application configuration settings	Edit Configuration, Edit Recipient Groups, Install Guide
keyAdmin	View and update the application's license key	Manage License Key
messageAdmin	Manage and send messages	Send or Edit Messages
schedAdmin	Schedule future and repeating messages	Schedule Broadcasts
userAdmin	Administer security by defining users, groups, and roles	Edit Users, Edit Roles, Edit Groups

- **Install Guide Link Available Only to Administrators.** The **Install Guide** link will not appear in the InformaCast menu unless the user has logged in as an Application Administrator (i.e. a user with membership in the “appAdmin” role).
- **Compatibility with Multi-level Administration Access.** InformaCast can now be used even if you've installed Cisco's new MLA access control system. There is a new checkbox on the InformaCast configuration page to tell it that MLA is installed, and “Installing InformaCast” on page 2-1 includes instructions on how to set up an InformaCast-compatible script that will be used when this option is checked.
- **Size of “All Phones” Group Displayed.** On the Edit Recipient Groups page, InformaCast now includes a row showing the size of the built-in All Phones recipient group. This can help you verify that your CallManager configuration has been successfully established, and that the right phones are registering.

- **Feature-specific Configuration.** You no longer need to supply a broadcast IP address or port, nor a CTI port name or directory number if InformaCast is not licensed for audio broadcasts. In such installations, InformaCast will no longer try to set up a CTI port for message recording.
- **Installs as Windows Service.** The installer now sets InformaCast up to run as a Windows service from the beginning.

This version also includes the patches that were released to address issues in the first release (Multicast Time-To-Live setting and phone name parsing robustness) as well as several other small fixes and enhancements.



CHAPTER 11

Acknowledgments

Without the following products and software, InformaCast wouldn't be the revolutionary broadcast system that it is.

Apache Axis2

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache Software

This product includes software developed by the Apache Software Foundation (<http://www.apache.org/>) including Jakarta Tomcat, Jakarta Commons, Jakarta log4j, Jakarta ORO, Apache Xerces, and Apache XML-RPC.

Copyright 2004, The Apache Software Foundation.

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

CSVToXML

This product contains CSVToXML, a library for converting CSV files to XML. The code is available here: <http://www.dpawson.co.uk/java/csv2xml.html>

Hibernate

This product uses Hibernate for object persistence. Hibernate is distributed under the GNU Lesser General Public License version 2.1. The source code can be found in the directory, /usr/local/singlewire/InformaCast/web/doc, within your InformaCast installation.

hsqldb

This product contains the HSQL database engine.

Copyright © 2001-2002 The HSQL Development Group. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer, including earlier license statements (above) and comply with all above license conditions.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution, including earlier license statements (above) and comply with all above license conditions.
- Neither the name of the HSQL Development Group nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL HSQL DEVELOPMENT GROUP, HSQLDB.ORG, OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Hypersonic SQL

This product contains Hypersonic SQL.

Copyright © 1995-2000 by the Hypersonic SQL Group. All rights reserved. Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the Hypersonic SQL Group nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

This software is provided “as is” and any expressed or implied warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose are disclaimed. In no event shall the Hypersonic SQL Group or its contributors be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption). However caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of this software, even if advised of the possibility of such damage.

This software consists of voluntary contributions made by many individuals on behalf of the Hypersonic SQL Group.

Java Platform

This product relies on the Java platform and includes code licensed from RSA Security, Inc.

Some portions licensed from IBM are available at <http://oss.software.ibm.com/icu4j/>.

Java, Sun, and Sun Microsystems are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and other countries. IBM is a registered trademark of International Business Machines Corporation in the United States and other countries.

JAXB

This product contains JAXB, whose code is available from: <http://jaxb.java.net/>

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

- 1.1. Contributor means each individual or entity that creates or contributes to the creation of Modifications.
- 1.2. Contributor Version means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.
- 1.3. Covered Software means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.
- 1.4. Executable means the Covered Software in any form other than Source Code.
- 1.5. Initial Developer means the individual or entity that first makes Original Software available under this License.
- 1.6. Larger Work means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.
- 1.7. License means this document.

- 1.8. Licensable means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.
- 1.9. Modifications means the Source Code and Executable form of any of the following:
 - A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;
 - B. Any new file that contains any part of the Original Software or previous Modification; or
 - C. Any new file that is contributed or otherwise made available under the terms of this License.
- 1.10. Original Software means the Source Code and Executable form of computer software code that is originally released under this License.
- 1.11. Patent Claims means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.
- 1.12. Source Code means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.
- 1.13. You (or Your) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, You includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

- (a) Under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and
- (b) Under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).
- (c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.
- (d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

- (a) Under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and
- (b) Under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).
- (c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.
- (d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You

hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipients rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions.

Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN AS IS BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

- 6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.
- 6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as Participant) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.
- 6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTYS NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a commercial item, as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of commercial computer software (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and commercial computer software documentation as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdictions conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

JDOM

This product includes software developed by the JDOM Project (<http://www.jdom.org/>).

Copyright © 2000-2002 Brett McLaughlin & Jason Hunter. All rights reserved.

Licensed under the Apache License, Version 2.0 (the “License”); you may not use this file except in compliance with the License. You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

jTDS

This product contains the jTDS JDBC driver, <http://jtds.sourceforge.net/>.

This product includes software developed by CDS Networks, Inc.

Copyright 1998, 1999 CDS Networks, Inc., Medford Oregon. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- All advertising materials mentioning features or use of this software must display the following acknowledgement: "This product includes software developed by CDS Networks, Inc."
- The name of CDS Networks, Inc. may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY CDS NETWORKS, INC. "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL CDS NETWORKS, INC. BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Linux/Voyage

This product from Singlewire Software runs on a Linux kernel and the Voyage Linux distribution.

The Linux kernel and Voyage Linux are distributed under the following license:

- This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation.
- This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.
- To see a copy of the GNU public license, see this URL:
<http://www.gnu.org/licenses/gpl-2.0.html>.
- You may also write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA.
- Modifications Singlewire Software has made to the Voyage Linux distribution can be found here:
<http://www.singlewire.com/pgl>.

Quartz

This product includes the Quartz Enterprise Job Scheduler, <http://www.quartz-scheduler.org/>.

Copyright James House © 2001-2003, PartNET Inc. 2002. All rights reserved.

Licensed under the Apache License, Version 2.0 (the “License”); you may not use this file except in compliance with the License. You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

SLP Mesh Enhancement, Customization, and Global Attributes

Copyright (c) 2001-2005, Columbia University. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the Columbia University; nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS “AS IS” AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

SNMP4J

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

Terms and Conditions for Use, Reproduction, and Distribution

1. Definitions.

“License” shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

“Licensor” shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

“Legal Entity” shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, “control” means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

“You” (or “Your”) shall mean an individual or Legal Entity exercising permissions granted by this License.

“Source” form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

“Object” form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

“Work” shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

“Derivative Works” shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

“Contribution” shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, “submitted” means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as “Not a Contribution.”

“Contributor” shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination

of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
 - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
 - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
 - (d) If the Work includes a “NOTICE” text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.



CHAPTER 12

Glossary

In order to fully understand your InformaCast environment, you should familiarize yourself with the terms in this section.

API

Application Programming Interface. A language and message format used by an application program to communicate with the operating system or some other control program such as a database management system (DBMS) or communications protocol.

Application User

A user within Cisco Communications Manager that has been granted privileges to work with CTI resources. InformaCast needs to know the username and password of an application user that has been associated with the route points/CTI ports it will be using to place calls for recording messages and integrating with legacy paging systems. This is set up in the Communications Manager Administration interface.

Audio Stream RTP Packets

Packets capable of conducting real-time voice data over connectionless networks such as IP. See also “RTP” on page 12-8.

Authentication

The process of determining the identity of a user attempting to access a system.

AVVID

Cisco Architecture for Voice, Video, and Integrated Data. Cisco AVVID provides the framework for today’s Internet business solutions. As the industry’s only enterprise-wide, standards-based network architecture, Cisco AVVID provides the roadmap for combining your business and technology strategies into one cohesive model.

Cisco AVVID provides the baseline infrastructure that enables enterprises to design networks that scale to meet Internet business demands. Cisco AVVID delivers the eBusiness infrastructure and intelligent network services that are essential for rapid deployment of emerging technologies and new Internet business solutions.

AXL

AVVID XML Layer (AXL). A Cisco API and web service designed to give applications access to Cisco Communications Manager and Communications Manager Express configuration and provisioning services. AXL is implemented as a Simple Object Access Protocol (SOAP) over HTTP web service in

which requests in the form of extensible markup language (XML) documents are sent from the application to the Cisco Communications Manager's web server, which responds with an XML-formatted response. InformaCast uses AXL to gather phone information from Communications Manager and Communications Manager Express.

BAT

Bulk Administration Tool. A web-based application for Cisco Communications Manager that enables bulk system modifications, including adding and deleting phones, modifying phones, and adding users and mailboxes.

Break Key

The key on a phone you press to signal InformaCast that you do not want to hear the remainder of any message.

Broadcast

An audio message sent to a group of phones, made up of one or more recipient groups. A message that is sent to a group of devices, made up of one or more recipient groups and/or dial codes.

Browser

A GUI-based hypertext client application, such as Internet Explorer, Firefox, and Netscape Navigator, used to access the InformaCast administrative interface, as well as hypertext documents and other services located on innumerable remote servers throughout the World Wide Web and Internet. See also "GUI" on page 12-5.

Calling Search Space

Determines which partitions a calling device searches when attempting to complete a call. One of the ways in which InformaCast recipient groups can be defined.

Communications Manager

See "Cisco Communications Manager."

Cisco Communications Manager

Software-based call processing component of the Cisco IP telephony solution, which extends enterprise telephony features and functions to packet telephony network devices such as IP phones, media processing devices, voice-over-IP (VoIP) gateways, and multimedia applications. See also "Cisco Communications Manager Administration."

Cisco Communications Manager Administration

The web interface used to administer a Communications Manager's configuration settings and operation.

Cisco IP Phone

A full-feature telephone that provides voice communication over an IP network while functioning much like a traditional analog phone. Allows you to place and receive telephone calls, and supports features such as call forwarding, redial, speed dialing, call transfer, and conference calling. Also allows you to access voicemail, providing connectivity to Cisco IP Telephony Solutions.

Client

Node or software program (front-end device) that requests services from a server. The Cisco IP Phone is an example of a client.

Codec

Coder-decoder:

- A device that typically uses pulse code modulation to transform analog signals into a digital bit stream, and digital signals back to analog. See also “G.711” on page 12-5.
- In Voice over IP, Voice over Frame Relay, and Voice over ATM, a software algorithm used to compress/decompress speech or audio signals.

CTI

Computer Telephony Integration or Computer Telephony Interface. An interface exported by Communications Manager that allows application developers to create programs that work with the telephone system.

CTI Port

Computer Telephony Interface ports. Virtual devices that are used by Cisco Communications Manager applications and InformaCast to create virtual lines. CTI ports are configured through the same Cisco Communications Manager Administration area as phones, but require different configuration settings.

Device Association

A link that allows a specific Communications Manager user to control a device (such as a CTI port) within the Communications Manager environment. InformaCast will take control of all CTI ports that are associated with its application user, and make them available for recording.

Device Description

A free-form text entry within the Communications Manager Administration interface that is intended for the user to describe and identify a specific telephony device (such as a physical phone or CTI port). Because this field is entirely under the administrator’s control, it provides the best opportunity for organizing phones into recipient groups to meet an organization’s paging needs. Also, a popular method of defining InformaCast recipient groups.

Device Loads

Files that contain updated application software for phones or gateways. Provided automatically during installation or upgrades.

Device Name

The logical name by which a specific telephony device (such as a physical phone or CTI port) is known within the Communications Manager Administration interface.

Device Pool

In Cisco Communications Manager, a collection of commonly configured devices (such as phones, computers and gateways) that belong to a common database, cluster, and group. Use device pools to define common characteristics for devices, including region, date/time group, Cisco Communications Manager group, and calling search space for automatic definition. One of the ways in which InformaCast recipient groups can be defined.

DialCast

A broadcast triggered by dialing a route point or SIP number configured with dialing pattern that determines which InformaCast message should be sent and which recipient groups should receive it.

Dial Pad

Buttons on a phone that are used to dial a phone number. The dial pad on a Cisco IP phone operates like the dial pad on a traditional telephone.

Directory Number (DN)

Directory Number. The telephone number or internal extension assigned to a Cisco IP phone. The directory number is assigned to the phone itself, not a location or a user, so if the phone is moved, it still retains the same directory number. Also called subscriber number. One of the ways in which InformaCast recipient groups can be defined.

DN Not Recognized Audio

When you pick up a phone and dial your set pattern for a DialCast broadcast, if that pattern doesn't match a configuration you've set, you hear this message.

DSCP

Differentiated Services Code Point, or DiffServe CodePoint. A marker in the header of each IP packet that prompts network routers to apply differentiated grades of service to various packet streams, forwarding them according to different Per-Hop Behaviors (PHBs). Part of DiffServe, a set of technologies proposed by the IETF that allows Internet and other IP-based network service providers to offer differentiated levels of service to customers and their information streams. InformaCast tags its voice traffic to facilitate assured delivery in network environments where this is important.

Dynamic Host Configuration Protocol (DHCP)

A TCP/IP protocol that enables PCs and workstations to get temporary or permanent IP addresses out of a pool from centrally-administered servers. Like its predecessor, BOOTP, DHCP provides a mechanism for allocating IP addresses manually, automatically, and dynamically, so that addresses can be reused when hosts no longer need them. The DHCP server provides Cisco IP phones and InformaCast IP speakers with an IP address, subnet mask, default gateway, and DNS server.

ESXi

VMware ESXi is an enterprise-level computer virtualization product offered by VMware, Inc. ESXi is a component of VMware's larger offering, VMware Infrastructure, and adds management and reliability services to the core server product. VMware ESXi is a bare-metal embedded hypervisor that is VMware's enterprise software hypervisors for servers that run directly on server hardware without requiring an additional underlying operating system.

Ethernet

Baseband LAN specification invented by Xerox Corporation and developed jointly by Xerox, Intel, and Digital Equipment Corporation. Used to connect computers, workstations, terminals, printers, and other devices located in the same building or campus.

Filter

The term "filter" is used to select a defined subset (e.g. matching constructs that select devices to be placed in a recipient group).

G.711

An audio compression standard used for digital telephones on a digital PBX/ISDN. In G.711, encoded voice is already in the correct format for digital voice delivery in the PSTN or through PBXs. G.711 uses a bandwidth of 64 Kbps. G.711-compliant devices can communicate with other G.711 devices, but not with G.723 devices. Described in the ITU-T standard in its G-series recommendations. InformaCast audio broadcasts through phones must use G.711 encoding.

Go Tone

The tone you hear through a phone when InformaCast has finished activating devices in your recipient group in preparation for a live broadcast.

GUI

Graphical User Interface. User environment that uses pictorial as well as textual representations of the input and output of applications and the hierarchical or other data structure in which information is stored. Conventions such as buttons, icons, and windows are typical, and many actions are performed using a pointing device (such as a mouse).

Handset

The portion of a telephone set containing the transmitter and receiver, usually designed to be hand-held when the telephone is in use.

HTTP

HyperText Transfer Protocol. Used by the web server and the client browser to communicate over the Internet. InformaCast also uses HTTP to communicate with Communications Manager and Cisco IP phones.

Humoctopus

A genetic experiment gone horribly awry.

InformaCast

Singlewire's flexible, scalable IP paging solution. Server software which manages, schedules, and delivers textual, audible, and graphical alerts to a variety of endpoints including Cisco IP phones, InformaCast IP speakers, Desktop Notification System machines, and legacy paging systems.

Invalid License Audio

When you pick up a phone and dial your set pattern for a DialCast broadcast, if that pattern matches a configuration you've set and the route point's DN, and InformaCast has an invalid license, you hear this message.

IOS

The Cisco Internetworking Operating System (IOS) is a sophisticated operating system optimized for internetworking. Cisco IOS provides the unifying principles around which an internetwork can be maintained cost-effectively over time. It is a software architecture, disassociated from hardware, that can be dynamically upgraded to adapt to changing technologies (hardware and software) as they evolve within a networking infrastructure. Cisco IOS can be thought of as an internetworking brain, a highly intelligent administrator that manages and controls complex, distributed network resources and functions.

IP Address

Internet Protocol Address. A 32-bit address assigned to hosts using TCP/IP. An IP address belongs to one of five classes (A, B, C, D, or E) and is written as four octets separated by periods (dotted decimal format). Each address consists of a network number, an optional subnetwork number, and a host number. The network and subnetwork numbers together are used for routing, while the host number is used to address an individual host within the network or subnetwork. A subnet mask is used to extract network and subnetwork information from the IP address. Also known as an Internet address. See also "Subnet Mask" on page 12-9.

IP Phone

See "Cisco IP Phone" on page 12-3.

Java

Programming language and runtime environment from Sun Microsystems in which InformaCast is implemented.

Jitter

A type of distortion caused by the variation of a signal from its reference that can cause data transmission errors, particularly at high speeds.

JTAPI

Java Telephony Application Programming Interface. The mechanism by which InformaCast is able to place and control calls in a Cisco Communications Manager environment.

Login

A word or string of characters recognized by automatic means, generally paired with a password, that identifies a user and permits specific access to a place or to protected storage, files, or input/output devices.

MAC Address

Standardized data link layer address that is required for every port or device that connects to a LAN. Other devices in the network use these addresses to locate specific ports in the network and to create and update routing tables and data structures. MAC addresses are six bytes long and are controlled by the IEEE. Also known as a hardware address, MAC-layer address, and physical address. Compare with Network Address.

Message

The basis of any InformaCast broadcast, a message predefines the characteristics of the broadcast.

μLaw

(mu-law) North American companding standard used in conversion between analog and digital signals in PCM systems. This is the kind of audio encoding used in G.711.

Multicast

Single packets copied by the network and sent to a specific subset of network addresses. A process of transmitting messages from one source to many destinations. Used by InformaCast to allow scalable paging to thousands of devices. Contrast with “Unicast” on page 12-10.

Multicast Address

Single address that refers to multiple network devices. These use a special numbering scheme distinct from ordinary unicast IP addresses.

Network Address

Network layer address referring to a logical, rather than a physical, network device. Also called a protocol address. Compare with MAC Address.

NIC

- Network Interface Card. Board that provides network communication capabilities to and from a computer system. Also called an adapter.
- Network Interface Controller. An intelligent device that connects a workstation to a network.

No Active Devices Audio

The tone you hear through a phone if there are no active devices in the recipient group for your live broadcast.

Password

A word or string of characters recognized by automatic means, generally paired with a login, that permits a user access to a place or protected storage, files, input/output devices, or other system resources.

PBX

A PBX (private branch exchange) is a telephone system within an enterprise that switches calls between enterprise users on local lines while allowing all users to share a certain number of external phone lines. The main purpose of a PBX is to save the cost of requiring a line for each user to the telephone company's central office.

Phone Loads

See "Device Loads" on page 12-3.

Protocol

A set of rules or conventions that govern the format and relative timing of data in a communications network. There are three basic types of protocols: character-oriented, byte-oriented, and bit-oriented. The protocols for data communications cover such things as framing, error handling, transparency, and line control. Ethernet is an example of a LAN protocol.

Proxy

A device that relays network connections for other devices that usually lack their own network access.

Recipient

An endpoint capable of receiving an InformaCast broadcast. Currently, these can include Cisco IP phones.

Recipient Group

A logical, pre-defined group of recipients that can receive InformaCast broadcasts. One recipient can be part of one or more recipient groups.

Recipient Group Tags

Recipient group tags allow you finer control over the display results for recipient groups.

RTP

Real-Time Transport Protocol. A network protocol used to carry packetized audio and video traffic over an IP network. The audio portions of InformaCast broadcasts are sent as a multicast RTP stream.

Scalable

Indicates that a software application or a hardware device has the ability to migrate from small operations to large operations.

Server

Node or software program that provides services to clients. In an InformaCast environment, the computer on which InformaCast is running is a server. If you are in a telephony environment, there will be at least one separate Communications Manager server as well.

SIP

Session Initiation Protocol is an IETF-defined signaling protocol used for controlling communication sessions such as voice and video calls over Internet Protocol (IP). The protocol can be used for creating, modifying, and terminating two-party (unicast) or multi-party (multicast) sessions. Sessions may consist of one or several media streams.

SNMP

Simple Network Management Protocol. Forms part of the Internet protocol suite as defined by the Internet Engineering Task Force. The protocol is used by network management systems for monitoring network-attached devices for conditions that warrant administrative attention. Starting with Communications Manager 5, Cisco requires InformaCast to use SNMP rather than the previous DeviceListX mechanism for obtaining dynamic information about registered phones (such as their IP address) needed for sending broadcasts.

Stall Tone

The tones you hear through a phone while waiting for InformaCast to activate the recipients in your recipient group during a live broadcast.

Start Page

The Singlewire Start page is accessible through a web browser addressed with the IP address of your Virtual Appliance server, and it contains links to your applications' user interfaces, the Toolbox, and Webmin.

Subnet Mask

A 32-bit address mask used in IP to indicate the bits of an IP address that are being used for the subnet address. See also "IP Address" on page 12-6. One of the ways in which InformaCast recipient groups can be defined.

TFTP

Trivial File Transfer Protocol. A simplified version of the FTP protocol, TFTP servers generally provide configuration information and firmware files to Cisco IP phones.

TLS

Transport Layer Security (TLS) is a cryptographic protocol that provides communication security over the Internet. TLS encrypts the segments of network connections above the Transport layer, using asymmetric cryptography for key exchange, symmetric encryption for privacy, and message authentication codes for message integrity. Several versions of the protocol is in widespread use in applications such as web browsing, electronic mail, Internet faxing, instant messaging, and voice-over-IP (VoIP).

Toolbox

The Toolbox is designed to be an inclusive destination for application-level accessories.

UDP

The User Datagram Protocol (UDP) is one of the core members of the Internet Protocol Suite, the set of network protocols used for the Internet. With UDP, computer applications can send messages, in this case referred to as datagrams, to other hosts on an Internet Protocol (IP) network without requiring prior communications to set up special transmission channels or data paths.

Unicast

A process of transmitting messages from one source to one destination. Compare with “Multicast” on page 12-7.

Unicast Address

Address specifying a single network device. See also “Unicast.” The IP addresses that you encounter in ordinary use of the Internet are generally unicast addresses.

User

A person who will use InformaCast. He/she will be assigned an individual login and password, which can be used to configure the roles and filters that determine the features and resources available to him/her.

Via Header

With SIP, the Via header indicates the path taken by a SIP request so far. Via headers can be used to prevent request looping and ensure replies take the same path as the requests.

Virtual Appliance

A virtual appliance is a virtual machine image designed to run on a virtualization platform (e.g., VirtualBox, Xen, VMware Workstation, Parallels Workstation).

Virtual Machine

A virtual machine (VM) is a software implementation of a machine (i.e. a computer) that executes programs like a physical machine.

VMware

A company providing virtualization software. VMware’s desktop software runs on Microsoft Windows, Linux, and Mac OS X, while VMware’s enterprise software hypervisors for servers, VMware ESX and VMware ESXi, are bare-metal embedded hypervisors that run directly on server hardware without requiring an additional underlying operating system.

VoIP

Voice over Internet Protocol. Enables users to transfer voice communications over a data network using IP.

Web Interface

A software application that runs on the World Wide Web and is usually accessed through a web browser running on a computer workstation. InformaCast and Cisco Communications Manager Administration use web interfaces.

Webmin

The virtual machine administrative web interface is used for administering the underlying operating system of the virtual machine, e.g. configuring the network interface, stopping and starting InformaCast and shutting down the virtual machine. You can access it at <https://<InformaCast Server IP Address>:10000>.

XML

eXtensible Markup Language. A general-purpose specification for creating custom markup languages. It is classified as an extensible language because it allows its users to define their own elements. Its primary purpose is to help information systems share structured data, particularly via the Internet, and it is used both to encode documents and to serialize data.



Index

A

- Access InformaCast 2-45, 2-48, 8-13, 8-17
- Acknowledgements 11-1
 - Apache Axis2 11-1
 - Apache Software 11-1
 - CSVToXML 11-1
 - Hibernate 11-2
 - hsqldb 11-2
 - Java Platform 11-3
 - JAXB 11-3
 - JDOM 11-8
 - jTDS 11-8
 - Linux/Voyage 11-9
 - Quartz 11-10
 - SLP Mesh Enhancement 11-10
- Active Broadcasts 4-74
- Add
 - Dialing Configuration 4-68
 - Recipient Group Exclusion 4-11
 - Recipient Groups 4-2
 - Recipient Group with Existing Recipient Groups 4-6
 - Recipient Group with Individual Recipients 4-3
 - Recipient Group with Rules 4-8
 - SIP Access Exception 4-38
 - SIP User Credentials 4-46
- Administer InformaCast 5-1
- Advanced Functionality Definition 1-3, 6-1
- Advanced InformaCast 6-1
- AXL Credentials 3-3

B

- Backup
 - Configure InformaCast 5-2
 - InformaCast 5-2
 - Move ZIP File to a Safe Location 5-3
- Basic Functionality Definition 1-3, 6-1
- Basic InformaCast Upgrade 6-1
- Basic License Definition 1-3
- Broadcast
 - Cancel 4-73
 - Parameters 3-13
 - Send a Broadcast 4-72
- Broadcasts
 - Troubleshooting 8-33
- Buy Advanced Notification 6-8

C

- Calling Terminal Diagnostics 8-32
- Cancel
 - Audio Broadcast 4-73
- Change IP Address 7-6
- Command Line Interface 1-7

- Communications Manager
 - Add User Group 2-22
 - Application User 2-26
 - Calling Search Space 2-16
 - Configure SNMP 2-3
 - Create a Community String 2-5
 - Create CTI Ports 2-17
 - Create Route Partition 2-11
 - Create Route Points 2-12
 - Device Pool 2-9
 - Enable SNMP 2-3
 - G.711 Codec 2-7
 - Integrate 2-2
 - JTAPI and Phones' Busy States 9-1
 - Route Points 2-12
 - Web Access for Phones 2-29
- Communications Manager Clusters
 - Default 3-3
- Communications Manager Express
 - Web Access for Phones 2-29
- Configure
 - Default Communications Manager Cluster 3-3
 - InformaCast 3-1
 - InformaCast Backups 5-2
 - InformaCast Server 3-2
 - Messages 4-27
 - Recipient Groups 4-1
 - Session Timeouts 5-16
 - SIP Trunk 4-30
 - SNMP Monitoring 5-15
 - Update JTAPI 3-14
- Copy
 - Recipient Group 4-19
- Create
 - Route Pattern 4-35
 - Route Points 2-12
 - SIP Trunk 4-33
 - SIP Trunk Security Profile 4-31
- CTI Credentials 3-3
- D**
- Defunct Phones 4-20
- Delete
 - Defunct Phones from InformaCast 4-20
 - Dialing Configuration 4-71
 - Recipient Group 4-23
 - SIP User Credentials 4-48
- Demonstration License Definition 1-3
- Determine Phones' Busy States 9-1
- DialCast
 - Add Dialing Configuration 4-68
 - Delete Dialing Configuration 4-71
 - Edit Dialing Configuration 4-69

- Fail, see Calling Terminal Diagnostics 8-32
- Manage 4-67
- Route Points 2-12
- Dialing Configuration
 - Add 4-68
 - Delete 4-71
 - Edit 4-69
- E**
- Edit
 - Dialing Configuration 4-69
 - Recipient Group 4-15
 - SIP User Credentials 4-47
- Enable
 - Audio Broadcast Support 3-13
 - Multicast 3-14
 - Web Access for Individual Phones 2-29
 - Web Access for Multiple Phones 2-32
 - Web Access for Phones 2-29
- ESXi 2-34
- EULA Error 8-18
- F**
- FAQ 7-1
 - Capture Traffic 7-6
 - Create Recipient Groups 7-6
 - Exceeded License Key 7-5
 - HTTP Status 500 Error 7-1
 - IP Address 7-6
 - New IP Address 7-6
 - No Text or Audio Broadcasts 7-5
 - SSL Certificate 7-1
 - Voicemail 7-6
- Free Trial 6-4
- Frequently Asked Questions, see FAQ 7-1
- Further Discussion 9-1
- H**
- Help 1-7
- Hypersonic SQL 11-2
- I**
- InformaCast Backup.ZIP 5-3
- InformaCast IP Address 2-45, 2-48, 8-13, 8-17
- InformaCast Virtual Appliance
 - Administer 5-1
 - Administrative Interface 2-45
 - Administrator Password 2-53
 - Command Line Interface 1-7
 - Configure 3-1
 - Configure Backups 5-2
 - Configure Server 3-2
 - Documentation 1-7
 - Embedded SNMP Agent 5-15
 - Font Usage 1-4
 - Hardware Requirements 1-2
 - Help 1-7
 - Icons, Description of 1-6
 - Illustrations 1-4
 - Install 2-1, 2-34
 - Install SIP Certificate 4-51
 - Install SIP Device Certificates 4-60
- Intended Audience 1-1
- License 2-54
- Licensing 1-3
- Log In 2-48
- Manage Backups 5-2
- Multicast 3-14, 8-2, 8-8, 8-9, 8-10
- Notification Boxes Explained 1-4
- Open 2-45, 2-48, 8-13, 8-17
- Orientation 1-5
- Prepare your Multicast Environment 2-1
- Prerequisites 1-1
- Remove Defunct Phones 4-20
- Restore from Backup 5-7
- Start 2-45
- Start Page 1-5
- Support 1-7
- Toolbox Interface 1-7
- Troubleshooting 1-7
- Update JTAPI 3-14
- Upgrade License 6-9
- Upgrading from Basic to Advanced 6-1
- Use 4-1
- Virtual Machine Administrative Interface 1-7
- Web Interface 1-6
- InformaCast Virtual Appliance Version 2-46
- Install
 - Communications Manager 2-2
 - Communications Manager SNMP 2-5
 - Configure Communications Manager SNMP 2-3
 - Create a Calling Search Space 2-16
 - Create Application User 2-26
 - Create AXL User Group 2-22
 - Create CTI Ports 2-17
 - Create Route Partition 2-11
 - Create Route Points 2-12
 - Device Pool 2-9
 - Enable Communications Manager SNMP 2-3
 - Enable Web Access for Phones 2-29
 - InformaCast SIP Certificate 4-51
 - InformaCast Virtual Appliance 2-34
 - Set G.711 Codec 2-7
 - SIP Device Certificates on InformaCast 4-60
- Install InformaCast 2-1
- IP Address, Change 7-6
- J**
- JTAPI 3-14, 9-1
- L**
- License Definitions 1-3
- License Key 1-3, 2-54, 6-9
 - Exceed 2-54, 6-14, 7-5
- License Key, Dependent Features 6-9
- Live Audio Broadcast 4-72
- Log into InformaCast 2-48, 8-12, 8-13
- Log into the Toolbox 8-15
- Log into Webmin 8-17
- Logs
 - Performance 2-54, 6-14, 7-5, 7-6, 8-12
 - Summary 8-12, 8-30

M

Manage

- DialCast Functionality 4-67
- Digest Authentication with SIP User Credentials 4-45
- InformaCast Administrator Password 2-53
- InformaCast Backups 5-2
- New License Key 6-9
- Phone Updates 5-13
- SIP Access to InformaCast 4-37
- SIP Authentication for InformaCast 4-40
- SIP Certificates 4-49
- SIP Functionality 4-30
- SIP Stack 4-65

Management Information Base 5-15

Messages

- Ad-hoc Audio, Description of 4-28
- Configure 4-27
- Live Audio, Description of 4-27
- Pre-recorded Audio, Description of 4-27
- Talk and Listen, Description of 4-28
- Text, Description of 4-27
- Text and Ad-hoc Audio, Description of 4-27
- Text and Live Audio, Description of 4-27
- Text and Pre-recorded Audio, Description of 4-27

Multicast

- IGMP Snooping 8-10
- IGMPv3 8-10
- MPLS Provider 8-9
- Network Capture 8-2, 8-6
- PIM 8-8
- Traffic Capture 8-2
- Troubleshooting 8-1
- Verify Configuration 3-14

Multicast Environment Preparation

- InformaCast Virtual Appliance 2-1

N

Network Management Software 5-15

Network Traffic Capture

- Obtain 8-2
- Read 8-6

Notification Box

- Caution 1-4
- Note 1-4
- Tip 1-4
- Warning 1-4

P

Performance Log 2-54, 6-14, 7-5, 7-6, 8-12

Purchased InformaCast 6-8

Purchased License Definition 1-3

R

Reboot InformaCast Virtual Machine 8-18, 8-27

Recipient Groups

- Add 4-2
- Add Exclusions 4-11
- Add with Existing Recipient Groups 4-6
- Add with Individual Recipients 4-3
- Add with Rules 4-8
- Advanced Matching 9-4
- Configure 4-1

Copy 4-19

Delete 4-23

Edit 4-15

Regular Expressions 9-5

Remove Defunct Phones 4-20

Remove Rules 4-11

Subnet Matching 9-4

Tag 4-24, 4-25, 4-26

View Recipients 4-17

Recipient Group Tags

Add 4-24

Delete 4-26

Description of 4-24

Edit 4-25

Regular Expressions

Group Recipients 9-5

Release Notes 10-1

8.2.a 10-6

8.3 10-5

8.3.a 10-4

8.4.a 10-2

8.5.1 10-1

InformaCast 1.1 10-39

InformaCast 1.2 10-38

InformaCast 1.2.3 10-37

InformaCast 1.3 10-37

InformaCast 2.0 10-36

InformaCast 2.1 10-35

InformaCast 3.0 10-34

InformaCast 3.1 10-34

InformaCast 3.2 10-34

InformaCast 4.0 10-32

InformaCast 4.1 10-31

InformaCast 4.1.1 10-30

InformaCast 4.2 10-29

InformaCast 4.2.1 10-29

InformaCast 5.0 10-28

InformaCast 5.0.2 10-27

InformaCast 5.0.3 10-26

InformaCast 5.0.4 10-25

InformaCast 5.1 10-24

InformaCast 5.1.1 10-24

InformaCast 6.0 10-22

InformaCast 6.0.1 10-21

InformaCast 6.1 10-20

InformaCast 6.1.1 10-20

InformaCast 7.0 10-17

InformaCast 7.1 10-15

InformaCast 8.0 10-11

InformaCast 8.0.1 10-10

InformaCast 8.0.2 10-9

InformaCast 8.1 10-6

InformaCast 8.2 10-6

Remove

Defunct Phones 4-20

Recipient Group Rules 4-11

Restart

SIP 4-66

Restart InformaCast 8-18, 8-24

Restore InformaCast from Backup 5-7

S

Send

- Live Audio Broadcast 4-72
- Session Timeouts, Configure 5-16
- Singlewire Start Page 2-45
- SIP 4-30
 - Add Access Exception 4-38
 - Add User Credentials 4-46
 - Allow/Disable Access to InformaCast 4-37
 - Configure a SIP Trunk 4-30
 - Create a Route Pattern 4-35
 - Create a SIP Trunk 4-33
 - Create a SIP Trunk Security Profile 4-31
 - Delete SIP User Credentials 4-48
 - Edit User Credentials 4-47
 - Enable Authentication for InformaCast 4-40
 - Enable Digest Authentication with SIP User Credentials 4-45
 - Install InformaCast SIP Certificate 4-51
 - Install SIP Device Certificates on InformaCast 4-60
 - Manage SIP Certificates 4-49
 - Manage SIP Stack 4-65
 - Modify the SIP Trunk to Use TLS 4-57
 - Modify the Trunk Security Profile 4-55
 - Restart 4-66
 - View InformaCast SIP Certificate 4-49
- SIP Functionality
 - Manage 4-30
- SNMP, Configure Monitoring 5-15
- SNMP4J 11-10
- Start/Stop InformaCast 8-18
- Start InformaCast 2-45, 8-22
- Start Page 2-45, 2-48, 8-13, 8-17
- Stop InformaCast 8-19
- Subnet Matching 9-4
- Subscription InformaCast 6-8
- Subscription License Definition 1-3
- Summary Log 8-12, 8-30
- Support 1-7

T

TLS

- Definition 4-49
- Install SIP Device Certificates on InformaCast 4-60
- Install the InformaCast SIP Certificate 4-51
- Manage SIP Certificates 4-49
- Modify the SIP Trunk 4-57
- Modify the SIP Trunk Security Profile 4-55
- Trial License Definition 1-3
- Troubleshooting 1-7, 8-1
 - Authentication 8-30
 - Broadcasts 8-32
 - EULA Error 8-18
 - Log Files 8-12
 - Log into InformaCast 8-12
 - Multicast 8-1
 - Phone Discovery 8-31
 - Start/Stop/Restart and Reboot InformaCast 8-18
 - Upgrade from Basic to Advanced 8-33
 - Upgrade InformaCast Virtual Appliance 8-33
 - VMware Tools 8-30
- Try Advanced Notification 6-4

U

- Update InformaCast's Phone Information 5-13
- Upgrade
 - How To Steps 8-33
- Upgrade InformaCast 6-1
 - Basic to Advanced 6-1
 - Buy Advanced Notification 6-8
 - Enter New License Key 6-9
 - Errors on Telephony Configuration 8-34
 - Missing Communications Manager Information. 8-34
 - Missing Phones 8-35
 - Note the Differences 6-1
 - Try Advanced Notification 6-4
- Use
 - InformaCast 4-1

V

- Version, InformaCast Virtual Appliance 2-46
- View
 - Active Broadcasts 4-74
 - InformaCast SIP Certificate 4-49
 - License Key 2-54
 - Recipients in a Recipient Group 4-17
- Virtual Appliance 2-34
- Virtual Machine 2-34
- Virtual Machine Administrative Web Interface 1-7
- Virtual Machine Start Page 1-5
- Virtual Machine Toolbox Interface 1-7
- VMWare 2-34
- VMware Tools 8-30

W

- Web Access, Individual Phones 2-29
- Web Access, Multiple Phones 2-32
- Web Access, Phones 2-29
- Web Interface 1-6
- Webmin 1-7