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**Nortel Application Gateway 1000/2000**

Nortel Application Gateway Release 6.2

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# **Broadcast Server User Guide**

## Configuration and Operation

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# Preface

This preface describes who should read the *Broadcast Server User Guide*, how it is organized, and related documentation.

## Audience

This user guide is intended for administrators who will configure and use the Broadcast Server.

## Organization

This guide is organized as follows:

Chapter	Title	Description
Chapter 1	Introduction to Broadcast Server	Describes the features and functionality of Broadcast Server.
Chapter 2	Application Gateway and Broadcast Server Operation	Provides a conceptual background to Application Gateway operation with Broadcast Server.
Chapter 3	System Management	Describes system-level control options.
Chapter 4	System Messages	Describes how to work with Broadcast Server status messages.
Chapter 5	User Management	Describes how to define users and assign privileges to them.
Chapter 6	Subscriber Management	Describes how to manage subscribers, the IP telephones that can receive content posted by Broadcast Server.
Chapter 7	Distribution List Management	Describes how to group subscribers together as recipients for alerts.

## Related Documentation

Chapter	Title	Description
Chapter 8	Media Management	Describes how to manage image and audio files stored on the Broadcast Server.
Chapter 9	External Service Management	Describes how to define and manage network-based applications that can be launched from IP telephones.
Chapter 10	Broadcast Alert Management	Describes how to create, modify, and manage alerts.
Chapter 11	My Preferences	Describes how to change your password and set preferences for how information should be displayed.
Chapter 12	Troubleshooting	Describes how to troubleshoot common issues.
Appendix A	Push XML API	Describes the Push XML API and how to use it to send alerts from third-party applications to IP phones.

## Related Documentation

For deployment and installation information for Broadcast Server, refer to the “Broadcast Server Installation” chapter in the *Application Gateway Administration Guide*. For upgrade information, refer to the *Application Gateway Release Notes*.



# Chapter 1

## Introduction to Broadcast Server

With Broadcast Server you can create alerts for display on the screens of your Nortel IP telephones. You direct alerts to distribution lists. The phones to receive alerts might be in reception areas and conference rooms, guest rooms, staff members' offices, factory floors, warehouses, and so on. The alerts can include meeting reminders, announcements, company logos, lunchtime menus, revenue-generating advertising content, the latest sales figures, company news, and anything other information that you want to share.

Broadcast Server includes the following features:

- "Pushed" priority alerts with audio notifications
- Flexible subscriber distribution lists
- Automatically generated and updated distribution lists, from one or more LDAP directories and/or directories that can be saved in CSV (Comma-Separated Value) format
- Shared media libraries
- Alert protection
- Alert links to external services and applications
- Retrieval of missed alerts from the phone
- Audit trails and logging
- Simple installation and configuration
- Open XML API to support broadcasting from third-party applications

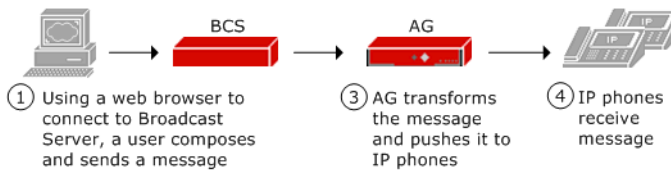
The following topics provide an overview to Broadcast Server:

- [Broadcast Server Overview, page 2](#)
- [Opening and Using the Broadcast Server Interface, page 6](#)
- [Configuring Broadcast Server, page 7](#)

# Broadcast Server Overview

Broadcast Server, a server-based application, manages *alerts* created by Broadcast Server *users* and sent to *subscribers*, according to rules and schedules defined by the Broadcast Server administrator and the individual alert creators. Broadcast Server users are individuals with an account on Broadcast Server. Subscribers are Nortel IP telephones.

Broadcast Server requires the Application Gateway for operation. While Broadcast Server provides an interface for creating and scheduling alert delivery, the Application Gateway manages alerts and transforms alerts for delivery to IP telephones. The Application Gateway also provides the Broadcast Server with device information and handles all communication with the IP telephones. The following illustration shows the general flow of an alert from a user to an IP telephone.



The following topics describe the basic concepts of Broadcast Server:

- [Users, page 3](#)
- [Subscribers and Distribution Lists, page 3](#)
- [Alerts, page 4](#)
- [Sending Alerts, page 5](#)
- [BCS Interaction with Phones, page 5](#)

## Users

Broadcast Server has one administrative user (Administrator) with full access to all Broadcast Server controls. The Broadcast Server Administrator can create accounts for other users who will compose and send alerts in Broadcast Server. Users log in to the Broadcast Server through Microsoft Internet Explorer from anywhere in the organization or securely over the Internet.

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**Note** The documents that you can download from the Application Gateway includes a document, *Sending Alerts to Nortel Internet Telephones from a PC*, that you can change as needed and distribute to Broadcast Server users. The document explains how to perform the options available by default to Broadcast Server users.

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When you create a user account, you specify the options available to the user. By default, a user can create, change, and delete alerts. You can restrict a user from creating or changing alerts. A user account can be further customized as described in [“General user permissions,” page 20](#).

## Subscribers and Distribution Lists

Subscribers (IP telephones) are added to Broadcast Server automatically. You configure the Application Gateway to add subscribers to Broadcast Server when IP telephones come online.

A particular list of subscribers is a *distribution list*. Distribution lists enable you to group subscribers and other distribution lists as recipients for alerts. When composing an alert, a user selects the distribution list(s) to receive the alert. By default, a user cannot add individual subscribers to a distribution list. The Application Gateway supports 256 lists.

You can configure the Application Gateway to automatically create distribution lists from the department information (“Department” field) obtained from your LDAP or CSV directory sources. Broadcast Server truncates department names longer than 50 characters.

When an IP telephone comes online, the Application Gateway adds entries to the distribution list, using the phone extension (and dialing rules) to locate the associated department name in the directories. For information

on configuring connections to LDAP and CSV directory sources, refer to the “LDAP/CSV Directory Configuration” chapter in the *Application Gateway Administration Guide*.

The Broadcast Server administrator can see all distribution lists while individual users can only see those lists they own and those that have been shared with them by the administrator. By default, the distribution lists created automatically from LDAP or CSV information are available only to the administrator (private).

To make a distribution list available to other users, the administrator must change the list ownership to shared, and then specify which users can use the list. For more information on distribution lists, see “[Distribution List Management](#)” on page 27.

## Alerts

An alert is the basic content item in the Broadcast Server and represents the information to be pushed to a phone. Alerts are delivered to the subscriber without requiring the subscriber to request outstanding alerts. An alert might consist of a meeting reminder that is scheduled for delivery at a particular date and time, or an Emergency announcement that takes precedence over other audio activity, including the playing of voicemail messages.

Alerts can include an audio notification which plays on the phone’s speakerphone or in the earpiece if the user is on the phone.

Alert content can consist of text and/or graphics (not all phones support graphics). An alert can also include up to two soft keys which cause the phone to either dial a number or link to a URL or an external service. For example, a soft key might:

- Cause the phone to go off-hook and dial a number associated with the alert (perhaps dialing the number for the restaurant whose menu is currently being displayed on the phone).
- Link to an external service that allows an alert to serve as the “front-end” for a specialized back-end system (such as a company’s Human Resources Web site).
- Display a Web URL (perhaps a page that contains event information).

## Sending Alerts

Creating and sending an alert is easy through the Broadcast Server. You use a Web-based interface to configure the alert, a delivery schedule, and the distribution list(s) to receive the alert. An alert can consist of plain text and/or a graphic, audio, and soft keys.

## BCS Interaction with Phones

The interaction of Broadcast Server with an IP phone depends on the priority of an alert.

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**Note** When an alert is queued, it remains in the queue until the alert expires or it is deleted from Broadcast Server.

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For Emergency alerts:

- Alert is delivered to the phone if the phone is idle, whether on- or off-hook
- Text/graphic is displayed and a transducer alert tone sounds if the phone is busy, whether on- or off-hook, or if the audio is idle but the set is in use. However, an emergency alert interrupts the playing of a voice mail from the Voice Office menu.

For Normal alerts:

- Alert is delivered to the phone if the phone is idle, whether on- or off-hook
- Alert is queued for delivery if the audio is busy. However, if the Alert includes text, the text will be displayed on the phone during the playing of a voice mail from the Voice Office menu. The user can stop playing the voice mail to listen to the broadcast.
- Alert is queued for delivery if the audio is idle but the phone GUI is in use (for example, set is being programmed or Directory search is in progress)
- Alert is queued for delivery if the phone is powered down

For Background alerts:

- Alert is pushed directly to the Alerts list in the Voice Office menu.
- Alerts remain in the Alerts list until they expire or are deleted from Broadcast Server.

## Opening and Using the Broadcast Server Interface

All administrative and user tasks are performed through a web-based interface. To open the interface, enter the following URL in a web browser:

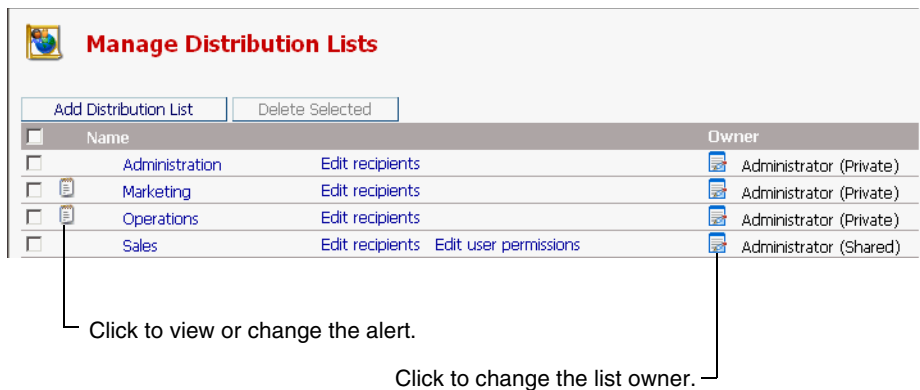
`http://ipAddress/BCS`

where *ipAddress* is the IP address of the server on which Broadcast Server is running.

After you enter your login credentials, the Broadcast Server home page appears.

The home page for the Broadcast Server administrator provides access to all tasks. The home page for a Broadcast Server user provides access to a subset of tasks.

Many pages in the Broadcast Server interface contain icons that you can mouse over to view helpful information as well as click to make changes. The following example highlights two of the icons.



# Configuring Broadcast Server

The following information, intended for Broadcast Server administrators, assumes that you have installed Broadcast Server and performed the tasks described in the “Broadcast Server Installation” chapter in the *Application Gateway Administration Guide*.

## Initial Configuration

In typical usage, the Broadcast Server administrator enables a select group of users to broadcast alerts to distribution lists obtained from the Application Gateway (which is synchronized with LDAP or CSV directory sources). The general configuration steps in this topic apply to that scenario.

To initially configure the Broadcast Server, follow these general steps.

1. Make sure that the Application Gateway is synchronized with the connected directories. For information, refer to the “LDAP/CSV Directory Configuration” chapter in the *Application Gateway Administration Guide*.
2. Create user accounts  
To enable a user to log in to Broadcast Server and work with alerts, you must create an account for the user. The user privileges are described in “[General user permissions](#),” page 20.
3. Define the items that should be available to users when they compose alerts:
  - a. Distribution Lists

By default, a distribution list obtained from a directory source is owned by the administrator and is private (meaning only the administrator can use the list).

To make a distribution list available to other users, change the ownership of the list from private to shared and then give all or individual users permission to send alerts to the list. For more information, see “[Sharing distribution lists](#),” page 29 and “[The Distribution List User Permissions Page](#),” page 32.

b. Media Files

Media files consist of alert tones and images files. (Image files are not supported on all phones.) The system media files provided with Broadcast Server are available to all users.

To make additional media files available to all users, add the files to the media library and change their owner to Administrator (shared). For more information, see [“Media Management” on page 35.](#)

c. External Services

External services are network-based applications that can be launched from IP telephones. Users can provide IP phone users access to external services by adding a soft key to a broadcast alert.

To enable Broadcast Server users to include a soft key link to an external service in an alert, you must specify the service URL, as described in [“External Service Management” on page 41.](#)

## Broadcast Server Maintenance

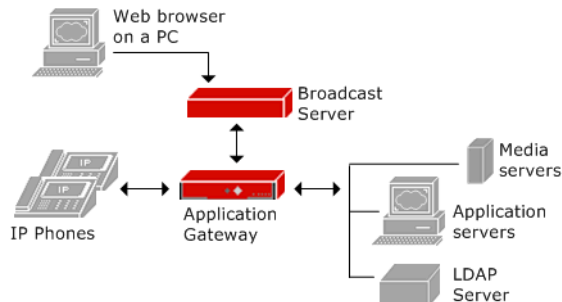
After initial setup, you will need to change Broadcast Server only when you add a user or add a distribution list, media file, or external service that you want to share. Distribution lists imported from a directory source are private unless you change their owner to Administrator (Shared).



# Chapter 2

## Application Gateway and Broadcast Server Operation

As shown in the following illustration, Broadcast Server communicates only with the Application Gateway. The Application Gateway provides Broadcast Server with device information and manages all communication with other servers and IP telephones. The Application Gateway also transforms alerts so that they are in the appropriate format for display and delivery to IP telephones.



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**Note** Sites using a cluster of Application Gateways should configure all Application Gateways in the cluster with the same Broadcast Server.

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The *Application Gateway Administration Guide* explains the IP phone setup required for Broadcast Server. To enable communication between the Application Gateway and Broadcast Server, you specify in the Application Gateway Administration Tool the base URL where Broadcast Server is running. That is the only information that the Application Gateway needs to register with Broadcast Server.

You can also configure connection information for one or more LDAP servers or CSV-formatted directory files, enabling the Application Gateway to automatically supply Broadcast Server with distribution lists.

When the Application Gateway detects that an IP telephone has come online, the Application Gateway collects from the IP telephone its MAC address, which it then uses to look up the phone's extension in the IP/DN map. The Application Gateway sends that information to Broadcast Server where the information is used to update the subscriber list. The Application Gateway also uses the phone extension to locate the associated department name in the directory. The Application Gateway sends the department information to Broadcast Server where it is used to update the distribution list.

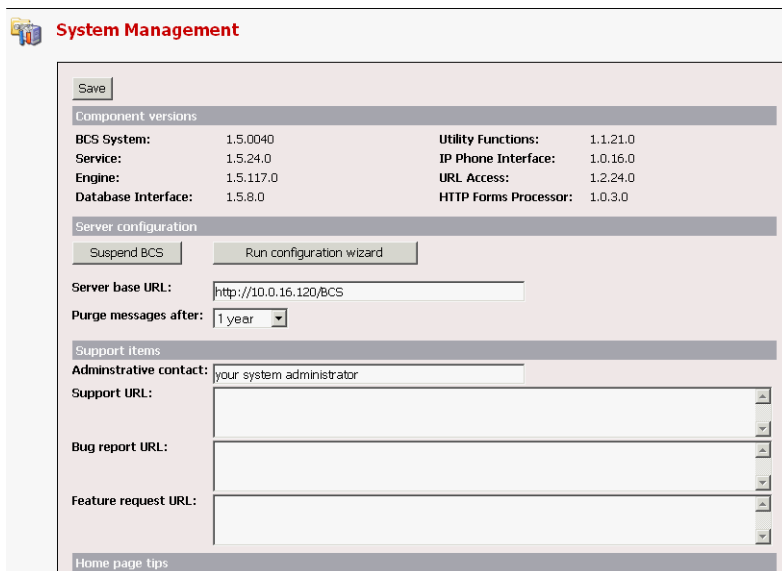
Any time that a particular telephone is updated, the Application Gateway collects the updated extension, user name, and department and sends that information to Broadcast Server.

If an extension is no longer used, it is not automatically removed from the distribution list, as the system has no way to determine if the extension is temporarily or permanently out of use. To remove an unneeded extension from distribution lists, use the Distribution List Membership page.

# Chapter 3

## System Management

The System Management page is a single location for defining all Broadcast Server control parameters and for performing system-level tasks such as temporarily disabling the system.



The screenshot shows the 'System Management' web interface. At the top left, there is a 'Save' button. Below it is a 'Component versions' section with a table of system components and their versions. The 'Server configuration' section contains buttons for 'Suspend BCS' and 'Run configuration wizard', along with input fields for 'Server base URL' (containing 'http://10.0.16.120/BCS') and 'Purge messages after' (set to '1 year'). The 'Support items' section includes text input fields for 'Administrative contact' (containing 'your system administrator'), 'Support URL', 'Bug report URL', and 'Feature request URL', each with a small arrow icon to its right. At the bottom, there is a 'Home page tips' section.

Component versions			
<b>BCS System:</b>	1.5.0040	<b>Utility Functions:</b>	1.1.21.0
<b>Service:</b>	1.5.24.0	<b>IP Phone Interface:</b>	1.0.16.0
<b>Engine:</b>	1.5.117.0	<b>URL Access:</b>	1.2.24.0
<b>Database Interface:</b>	1.5.8.0	<b>HTTP Forms Processor:</b>	1.0.3.0

## Component Versions

This section lists the versions of the various components used by Broadcast Server and its supporting software. Technical support personnel typically use this information for troubleshooting.

## Server configuration

Item	Description
Suspend BCS button	Click this button to temporarily disable the Broadcast Server messaging functionality. Only use this feature if you believe that the Broadcast Server is causing a problem on your network or Communication Manager system.
Run configuration wizard button	Click this button to re-run the Configuration Wizard at any time.
Purge alerts after	The period that inactive alerts will be retained in the Broadcast Server database before being automatically deleted.

## Support items

Item	Description
Administrative contact	The name of the Broadcast Server system administrator. This name is displayed on help windows.
Support URL	The URL where Broadcast Server users are directed to when they have a support question.
Bug report URL	The URL where Broadcast Server users are directed to when they want to report a bug in the software.
Feature request URL	The URL where Broadcast Server users are directed to when they want to request a product feature.

## Home page tips

Item	Description
<b>Tip 1</b>	The text to display in the first blue tip box on the Broadcast Server home page.
<b>Tip 2</b>	The text to display in the second blue tip box on the Broadcast Server home page.
<b>Tip 3</b>	The text to display in the third blue tip box on the Broadcast Server home page.
<b>Tip 4</b>	The text to display in the fourth blue tip box on the Broadcast Server home page.






# Chapter 4

## System Messages

System messages are status messages that the Broadcast Server places in the database when it detects system errors.

Note that these messages are **not** sent to subscribers or distribution lists – they are reserved for the Broadcast Server system administrator only. When you are logged into the Broadcast Server as the administrator, the system will check the messages list for any critical error messages. Each Broadcast Server page will display a red note indicating if you have critical messages waiting.

Icon	Description
	The message is informational only.
	The message is a critical error.
	The message has not been viewed.

## Quick FAQ

How do I ...	Description
View message details	Click the message in the record you want to view
Delete one or more messages	Check the box next to each record you want to delete, or check the box in the list's title to select all records displayed. Then, click the <b>Delete Selected</b> button.
Remove the "new" indicator from a message	View the record and click the <b>OK</b> button.
See only new, critical messages	Check the <b>Show only new, critical messages</b> checkbox at the top of the list.
Email the contents of an message to our support organization	View the record by clicking the message, and then click the <b>Click here to send this message to the support group</b> link.





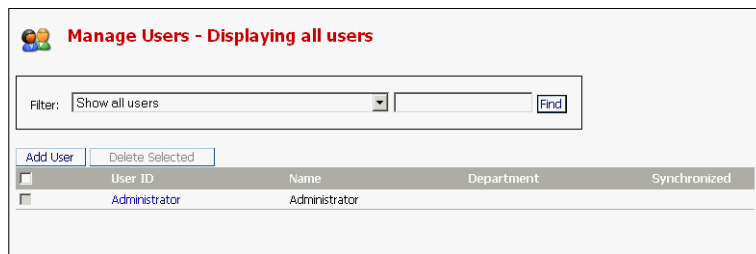
# Chapter 5

## User Management

Broadcast Server users are individuals who can log in to Broadcast Server to create and manage content. The administrator's task is to define users and assign privileges to those individuals. Privileges dictate to which distribution lists a user may send alerts, which portions of an alert that users may modify, and so on. You create and manage login IDs, user names, and passwords within Broadcast Server.

### The User Management List

The user management page presents the list of Broadcast Server users that fulfill your current filter criteria. Individual user records are displayed with helpful icons to the left of each entry where required.





**Manage Users - Displaying all users**

Filter:

<input type="checkbox"/>	User ID	Name	Department	Synchronized
<input type="checkbox"/>	Administrator	Administrator		

**Note** If too many user records are returned for the filter criteria entered, you will need to modify your filter criteria or change your settings in the **My Preferences** page.

Icon	Description
	The user record has been deactivated. The user will not be allowed to login to Broadcast Server.
	The user does not have a password assigned.

## Quick FAQ

How do I ...	Description
Change my filter criteria	Select the filtering type from the drop-down list and enter a criteria value for the specific type (except for <b>Show all users</b> ). Then, click the <b>Find</b> button.
Add a new user	Click the <b>Add User</b> button at the top of the list. This will open the User Page.
Edit a user	Click the user ID in the record you want to modify. This will open the User Page.
Delete one or more users	Check the box next to each record you want to delete, or check the box in the list's title to select all records displayed. Then, click the <b>Delete Selected</b> button. Note that Broadcast Server will not allow you to delete the <b>Administrator</b> user.
Prevent a user from logging in to Broadcast Server	Edit the user record, uncheck the <b>Active</b> checkbox and save your changes.
Prevent a user from sending alerts to all subscribers	Edit the user record, uncheck the <b>May send to Everyone</b> checkbox and save your changes.

# The User Page

## User information

The screenshot shows a web form titled "User information" with several sections:

- User information:** Includes a checked "Active" checkbox, and input fields for "User ID:", "Name:", and "Department:".
- Password:** Includes input fields for "Password:" and "Verify password:".
- Shared distribution list(s) this user may send alerts to:** A red warning box with a yellow triangle icon stating: "No shared distribution lists have been defined. Users may only send alerts to their own distribution lists."
- General privileges:** A list of checkboxes:
  - May send emergency alerts
  - May send to Everyone (all subscribers)
  - May only view their own alerts
  - May add subscribers to private distribution lists
  - May upload media
- Alert access:** Includes a dropdown menu for "User may access:" (set to "Only priority alerts") and another dropdown for "User may:" (set to "Create, modify and delete alerts").
- A "Save" button is located at the bottom of the form.

The **Active** checkbox indicates whether the user record is active in Broadcast Server – that is, whether the user may log in to the system. At minimum, a Broadcast Server user must have a user ID and a name defined. You can also provide a department name or number but this information is not required for the user to be considered valid within Broadcast Server.

## Password

The password section of the user page allows you to change the user's password. Leave both fields blank if you do not wish to change the current password. As new user records do not have a password assigned you will need to fill out both the **Password** and **Verify password** fields to set a password for a new user.

## Shared distribution list access

This section allows you to select the shared distribution lists to which the user may send alerts. Note that these are not *all* the distribution lists in the system – only those shared among users at the discretion of the system administrator. See **Distribution List Management** for further information on setting up distribution lists and distribution list sharing.

## General user permissions

Privilege	Description
Allowed to send emergency alert	If checked, allows the user to send emergency alerts. Emergency alerts take precedence over all other types of alerts and cause Broadcast Server to ignore subscriber-specific settings such as <b>Do-Not-Disturb</b> and whether the subscriber wishes to receive priority alerts or not. Most ordinary Broadcast Server users should <b>not</b> have this privilege assigned to them.
Allowed to send to Everyone	If checked, allows the user to send alerts to every subscriber in Broadcast Server. Most non-administrative Broadcast Server users should <b>not</b> have this privilege assigned to them.
Restrict users to view only their alerts	If this option is checked, a user will only be able to see alerts they own – that is, those alerts they originally created and those created by another user and whose ownership has been assigned to them by the administrator. Most ordinary Broadcast Server users should have this privilege assigned to them.

Allow user to add subscribers to distribution lists	If this option is checked, a user will be able to add subscribers to their private distribution lists. Most non-administrative Broadcast Server users should <b>not</b> have this privilege assigned to them. Instead, the system administrator should create distribution lists and share them among selected users. Users will still be able to create their own distribution lists but not select individual subscribers as members of those lists – only other distribution lists they have access to.
Allow user to upload media	If this option is checked, the user can upload graphics to private media libraries. By default, this privilege is off.

## Alert access

This section allows you to specify the kinds of alerts a user may access and what operations they may carry out on those types of alerts.



# Chapter 6

## Subscriber Management

Subscribers are IP telephones that can receive content posted by Broadcast Server users. A subscriber entry is created when Broadcast Server receives subscriber information from the Application Gateway when an IP telephone comes online.

### The Subscriber Management List



The subscriber management page presents the list of subscriber records that fulfill your current filter criteria. Individual entries are displayed with helpful icons to the left of each entry where required.





The screenshot shows a web interface titled "Manage Subscribers - Displaying all subscribers". It features a search filter with a dropdown menu set to "Show all subscribers" and a "Find" button. Below the search bar is a "Delete Selected" button. The main content is a table with three columns: "Extension", "Description", and "Department".

	Extension	Description	Department
<input type="checkbox"/>	1983	Payne Gordon	Marketing
<input type="checkbox"/>	2009	Montemayor Josh	Marketing
<input type="checkbox"/>	2931	Bruce Lee	Sales

**Note** If too many subscriber records are returned for the filter criteria entered, modify your filter criteria or change your settings in the **My Preferences** page.

Icon	Description
	The subscriber record has been deactivated. The subscriber will not receive alerts from Broadcast Server.
	The subscriber is an IP telephone.

	The subscriber is not a member of any distribution lists.
	The subscriber's information was changed during the last synchronization. Edit the record to view the changes and to remove the warning.

**Note** Broadcast Server will display the name of the user who is currently logged into a device.

## Quick FAQ

How do I ...	Description
Change my filter criteria	Select the filtering type from the drop-down list and enter a criteria value for the specific type (except for <b>Show all subscribers</b> ). Then, click the <b>Find</b> button.
Delete one or more subscribers	Check the box next to each record you want to delete, or check the box in the list's title to select all records displayed. Then, click the <b>Delete Selected</b> button.
See which distribution lists a subscriber belongs to	Edit the subscriber record. The <b>Distribution list membership</b> section will show the lists the subscriber is a member of.
Add a subscriber to a distribution list	Go to the <b>Distribution List Management</b> page, select the distribution list you want to remove the subscriber from and edit that distribution list's membership.
Remove a subscriber from a distribution list	Edit the subscriber record and click on the distribution list you want to remove the subscriber from. Once in the list, edit the list's membership. You can also go to the <b>Distribution List Management</b> page and modify the list's membership from there.
Stop a subscriber from receiving alerts	Edit the subscriber record, uncheck the <b>Active</b> checkbox, and save your changes.



# The Subscriber Page

## Subscriber information

The screenshot shows a web-based configuration page for a subscriber. It is divided into several sections:

- Subscriber information:** This section contains a description of the subscriber as a "device that supports IP Phone Push". Below this is a checked "Active" checkbox. There are five input fields: "Extension" (1983), "Description" (iphone), "Department" (empty), "Phone #:" (1983), and "Static IP Address:" (10.10.0.152). Each field has a help icon to its right.
- Subscriber settings:** This section includes a "Types of alerts to receive:" dropdown menu set to "Priority alerts". Below it, a message states "Do-Not-Disturb (DND) is currently not set" with a "Set DND for:" dropdown menu set to "No change".
- Distribution list membership:** A red box with a warning icon indicates "Distribution list membership" and states "The subscriber is not a member of any distribution lists."
- Synchronization:** A blue box with an information icon states "This subscriber was last synchronized with AG on 11/18/2005 4:10:39 PM".

A "Save" button is located at the bottom center of the form.

The **Active** checkbox indicates whether the subscriber record is active in Broadcast Server – that is, whether the subscriber will receive alerts posted by Broadcast Server users.

The **IP Address** field contains the network address for the subscriber (IP telephone). The value of this field is especially important to Broadcast Server as the Application Gateway uses the device's IP address to determine where to send alerts to on the network and, when a device obtains information from the Application Gateway, to determine the name of that device.

## Subscriber settings

Subscriber settings are options set for a particular subscriber.

Setting	Description
Types of alerts to receive	Dictates the types of alerts that can be delivered to the subscriber. <b>Emergency alerts are not subject to this setting.</b>
Set Do Not Disturb (DND) for	If set, prevents alert delivery for the period specified. <b>Emergency alerts are not subject to this setting.</b>
Enable audio alerts for this device	If checked, allows Broadcast Server to play an audio alert associated with priority alerts on the device.

## Distribution list membership

This section lists the distribution lists the subscriber belongs to. Click a distribution list to edit the membership for that list.

# Chapter 7

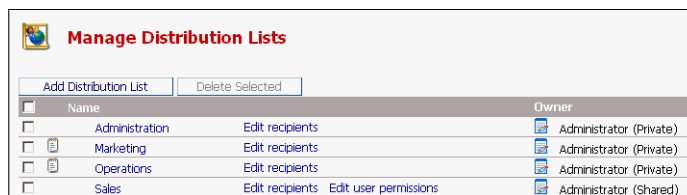
## Distribution List Management

Distribution lists enable you to group subscribers together as recipients for alerts. These lists can be created and maintained by the system administrator. You can also configure the Application Gateway to add entries to the distribution list when an IP telephone comes online. If LDAP or CSV directory sources are configured in the Application Gateway Administration Tool, the Application Gateway uses the phone extension to locate the associated department name in the directories. The Application Gateway sends the department information to Broadcast Server where it is used to update the distribution list.




For information on configuring connections to LDAP and CSV directory sources, refer to the “LDAP/CSV Directory Configuration” chapter in the *Application Gateway Administration Guide*.

### The Distribution List Page

This page shows the distribution lists available to you. The system administrator can see all distribution lists while individual users can only see those lists they own and those that have been shared with them by the system administrator.



<input type="checkbox"/>	Name		Owner
<input type="checkbox"/>	Administration	Edit recipients	Administrator (Private)
<input type="checkbox"/>	Marketing	Edit recipients	Administrator (Private)
<input type="checkbox"/>	Operations	Edit recipients	Administrator (Private)
<input type="checkbox"/>	Sales	Edit recipients Edit user permissions	Administrator (Shared)

Icon	Description
	The distribution list item has been deactivated. The recipients on the list will not receive alerts from Broadcast Server.
	Alert have been sent to the distribution list. Click the icon to see the individual alerts.
	The distribution is automatically updated during the Application Gateway synchronization with your LDAP server or CSV directory file.

## Automatically created distribution lists

If you have configured the Application Gateway to obtain department information from a directory source (LDAP or CSV), Broadcast Server will automatically create and update distribution lists based on the department corresponding to each IP telephone extension. Department names longer than 50 characters are truncated.

The distribution list is updated each time that the Application Gateway detects a new or changed IP telephone. If you move users and devices between different “departments”, the changes are reflected in Broadcast Server after you resynchronize the server. If a device becomes obsolete, you can manually remove it from Broadcast Server.

**Note** Automatically created distribution lists cannot be renamed or have their recipients changed. Broadcast Server updates this information.

By default, an automatically created distribution list is privately owned by the administrator.

## List ownership

The **Owner** column (available to the system administrator only) contains the name of the user who currently owns the distribution list. The administrator can change ownership of distribution lists, assigning them to another user for their private use, or sharing them among other Broadcast Server users.

## Sharing distribution lists

Sharing distribution lists is a way to standardize on a set of distribution lists across the organization and is easy to do in the Broadcast Server. Only the system administrator can perform this function. Users can share only the lists that are owned by the **Administrator** user.

To share a list, click the notepad icon (📝) to the left of the current owner's name and select **Administrator (Shared)** from the popup window. Once this step is complete, a new link titled **Edit user permissions** appears in the distribution list record. Click this icon to display the Distribution List User Permissions Page where you can select the Broadcast Server users who will be able to send alerts to the distribution list.

To "unshare" a list, simply change the ownership to **Administrator (Private)** and assign ownership to another Broadcast Server user. All users who were previously able to send to the shared list will no longer have that privilege.

---

**Note** Broadcast Server users who have permission to send to a shared list cannot modify details of the list including its name, comments, or recipients. Only the administrator can perform this action.

---

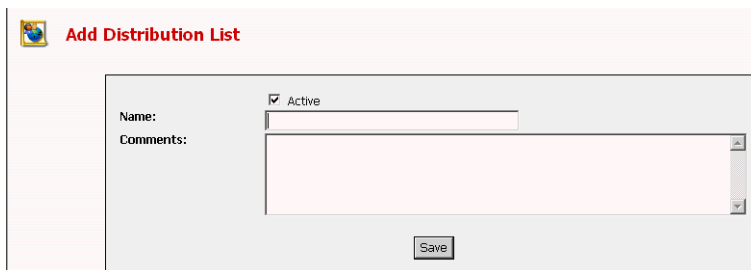
To share a distribution list owned by a user, the user must have the administrator change the owner from the user's name to Administrator (Shared).

## Quick FAQ

How do I ...	Description
Add a new distribution list	Click the <b>Add Distribution List</b> button at the top of the list. This will open the Distribution List Page.
Edit a distribution list	Click the description in the record you want to modify. This will open the Distribution List Page.

Delete one or more distribution lists	Check the box next to each record you want to delete, or check the box in the list's title to select all records displayed. Then, click the <b>Delete Selected</b> button. Note that the Broadcast Server re-instates created distribution lists during its next synchronization if these are deleted.
Add or remove recipients for a distribution list	Click the <b>Edit recipients</b> link in the record you want to modify to open the Distribution List Membership Page.
Prevent the Broadcast Server from sending alerts to a distribution list	Edit the media record, uncheck the <b>Active</b> checkbox, and save your changes.
Assign ownership of a distribution list to another user	Click the notepad icon (📝) beside the name of the current owner. Select the new owner from the list.
Share a distribution list with other Broadcast Server users	Click the notepad icon (📝) beside the name of the current owner. Select <b>Administrator (Shared)</b> from the list. Then, click the <b>Edit user permissions</b> link to assign permissions to individual Broadcast Server users.

## The Distribution List Page



The screenshot shows a web form titled "Add Distribution List". At the top left is a globe icon. Below it, the title "Add Distribution List" is displayed in red. The form itself is a light gray box containing the following elements: a "Name:" label followed by a text input field; a checked "Active" checkbox; a "Comments:" label followed by a large text area with a vertical scrollbar; and a "Save" button at the bottom center.

The **Active** checkbox indicates whether the distribution list is active— that is, whether the recipients on the list will receive alerts from Broadcast Server. A distribution list must be named; comments are optional. Distribution list names can be a maximum of 50 characters.

Unless you are creating a new distribution list, Broadcast Server displays a link titled **Edit recipients** next to the list's name. Clicking this link will take you to the Distribution List Membership page where you can select the subscribers that are members of the list.

A shared distribution list will also have a link titled **Edit user permissions** – allowing you to link to the Distribution List User Permissions page where you can select the Broadcast Server users who can send alerts to the distribution list.

**Note** You cannot change the name of an automatically created distribution list, nor can you modify the recipients.

**Note** If you are not the system administrator, Broadcast Server will allow you to view details of a distribution list including recipients and user permissions (if any) even if you are not the owner of the list. You will not however be able to change information of a list you do not own.

## The Distribution List Membership Page

**Edit Recipients - Sales (Read Only)**

This distribution is automatically created and maintained by BCS during synchronization with the AG. Edits are not allowed.

**Current members**

Filter: Show all entries

Extension	Name	Department
5004	Donahue Ed	Sales
8302	Smith John	Sales

**Non-members**

Filter: Show all entries





Extension	Name	Department
1983	Montemayor Josh	Sales
2009	Rivera Jose	Sales

This page contains two columns showing on the left side the current members of the distribution list and, on the right, those that are not.

In addition to containing subscribers, a distribution list can also contain other distribution lists. This makes it possible for you to “nest” lists within each other. By nesting distribution lists you can customize alert delivery to your needs. For instance you can create distribution lists for Eastern Seaboard locations in your organization (say **New York**, **Boston**, and **Miami**), and then place those distribution lists into a “super” distribution list named **East Coast**. You can then go further by placing the **East Coast**

distribution list into one named **United States** along with other regional US lists. You could do the same for locations in other cities in other countries, or any combination or configuration that suits your needs.

Like other screens in Broadcast Server, the records displayed on this page contain icons that show the status of an item.

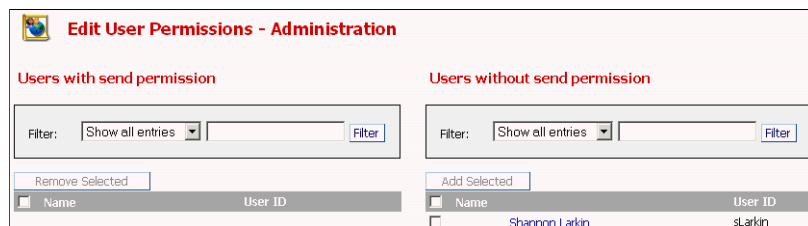
Icon	Description
	The member has been deactivated and will not receive alerts from Broadcast Server.
	The member is another distribution list.
	The member is an IP telephone.
	The member is a device previously imported but the device no longer exists. Broadcast Server will not attempt to send alerts to this device. You should remove the subscriber record from Broadcast Server.

## Adding and removing distribution list members

To add members, check the boxes in the right-side column next to the items you want to add and click the **Add Selected** button.

To remove members check the boxes in the left-side column next to the items you want to remove and click the **Remove Selected** button.

## The Distribution List User Permissions Page



**Edit User Permissions - Administration**

**Users with send permission**

Filter: Show all entries [dropdown] [input] Filter

Remove Selected

<input type="checkbox"/>	Name	User ID
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**Users without send permission**

Filter: Show all entries [dropdown] [input] Filter

Add Selected

<input type="checkbox"/>	Name	User ID
<input type="checkbox"/>	Shannon Larkin	sLarkin



This page is available from the Edit User Permissions link on the Manage Distribution Lists page if ownership of the list has been shared, as described in ["Sharing distribution lists," page 29](#).

This page contains two columns showing on the left side Broadcast Server users that can send alerts to the list and, on the right, those that cannot.

Icon	Description
	The user record has been deactivated. The user will not be allowed to log in to Broadcast Server.

## Granting users permission to send to the list

Check the boxes in the right-side column next to the items you want to add and click the **Add Selected** button. To select all users, click the box in the column heading (to the left of "Name").

Users who have been granted rights to send to the lists can select the list as a recipient when creating or modifying alerts. These users not will however be allowed to modify the list's details – although they can view these details.

## Revoking users' permission to send to the list

Check the boxes in the left-side column next to the items you want to remove and click the **Remove Selected** button. Once this action is perform, those users who were removed will no longer be able to send alerts to recipients on the distribution list.



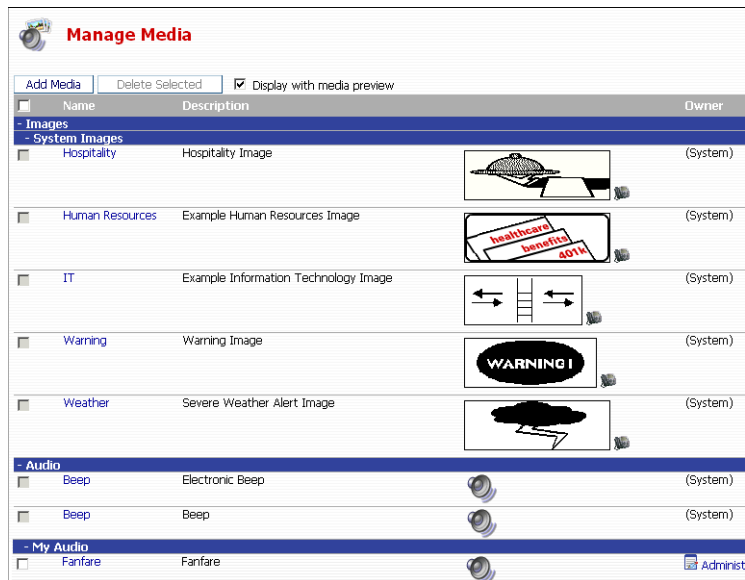
# Chapter 8

## Media Management



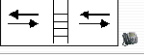





Media in Broadcast Server consists of image and audio files stored on the Broadcast Server. These files are stored in media libraries maintained by the system administrator and/or individual Broadcast Server users. Not all phones support the display of images.

Both image and audio files stored in the media library can be selected for inclusion in alerts. If a user wants an image file to be available to other users, the administrator must change the owner of the file to Administrator (Shared).

### The Media List





The screenshot shows the 'Manage Media' interface. At the top, there are buttons for 'Add Media' and 'Delete Selected', and a checked checkbox for 'Display with media preview'. Below this is a table with columns for 'Name', 'Description', and 'Owner'. The table is divided into sections: '- Images', '- System Images', '- Audio', and '- My Audio'. Each row includes a checkbox, the name of the media file, a description, a preview image, and the owner's name.

<input type="checkbox"/>	Name	Description		Owner
<b>- Images</b>				
<b>- System Images</b>				
<input type="checkbox"/>	Hospitality	Hospitality Image		(System)
<input type="checkbox"/>	Human Resources	Example Human Resources Image		(System)
<input type="checkbox"/>	IT	Example Information Technology Image		(System)
<input type="checkbox"/>	Warning	Warning Image		(System)
<input type="checkbox"/>	Weather	Severe Weather Alert Image		(System)
<b>- Audio</b>				
<input type="checkbox"/>	Beep	Electronic Beep		(System)
<input type="checkbox"/>	Beep	Beep		(System)
<b>- My Audio</b>				
<input type="checkbox"/>	Fanfare	Fanfare		Administ

The media list includes these sections:

- **System Images** – graphics used internally by Broadcast Server (available to the system administrator only)
- **Shared Images** – graphics available to Broadcast Server users
- **My Images** – graphics that are owned by the current user
- **Other Users' Images** – graphics owned by all other Broadcast Server users (available to the system administrator only)
- **Audio** – audio clips used internally by Broadcast Server (available to the system administrator only)
- **My Audio** – audio clips used internally by Broadcast Server (available to the system administrator only)

**Note** While all sections are visible to the **Administrator** user, regular Broadcast Server users are restricted to **Shared Images** and **My Images** only. In addition, only the administrator can see the **Owner** column.

Icon	Description
	The media item has been deactivated. Users will not be able to use the item in an alert.
	Click this icon to change ownership of the media item (administrator only).

## System media

Broadcast Server is installed with some system media items, including an audio clip used for notifying subscribers of priority alerts.

**Note** You can change the system media items (except the Broadcast Server logo) but you cannot delete them, share them, or change their ownership.

## Media ownership

The **Owner** column (available to the system administrator only) contains the name of the user who currently owns the media item. The administrator can change ownership of audio items, assigning them to another user, or sharing them among all other Broadcast Server users. Sharing media items is a way to conserve disk space usage on Broadcast Server and to standardize on a set of media across the organization.

## Media linkage

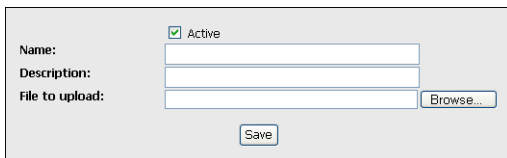
Media items are *linked* to alerts instead of being embedded in them. This means that you can create multiple alerts that link to a single image, change that one image in the media library, and all the alerts are automatically updated.

Changes to media items are immediately reflected throughout the system in all alerts as soon as the media item is changed.

## Quick FAQ

How do I ...	Description
Add a new media item	Click the <b>Add Media</b> button at the top of the list. This will open the Media Page.
Edit a media item	Click the description in the record you want to modify. This will open the Media Page.
Delete one or more media items	Check the box next to each record you want to delete, or check the box in the list's title to select all records displayed. Then, click the <b>Delete Selected</b> button. Note that Broadcast Server will not allow you to delete system image or audio items.
Prevent users from using a media item	Edit the media record, uncheck the <b>Active</b> checkbox, and save your changes.
Assign ownership of a media item to another user	Click the notepad icon (📝) beside the name of the current owner. Select the new owner from the list. Note that Broadcast Server will not allow you to change the ownership of system image or audio items.

## The Media Page



The screenshot shows a web form for adding a media item. It features a 'Name:' label followed by a text input field. To the right of the 'Name' field is a checked checkbox labeled 'Active'. Below the 'Name' field is a 'Description:' label followed by another text input field. Underneath the 'Description' field is a 'File to upload:' label followed by a third text input field and a 'Browse...' button. At the bottom center of the form is a 'Save' button.

The **Active** checkbox indicates whether the media item is active– that is, whether the item can be used by users when creating alerts.

All media items must have a name and a short description, as well as a file containing the actual media.

If the media item is a graphic, Broadcast Server displays a thumbnail of the original graphic below the current file name.

## Uploading a media file

If you want to replace the existing media item (if any) you need only enter the name of a file on your computer or click the **Browse** button to open a selection box. Once you have located the file you want to upload, click the **Save** button to send the file to Broadcast Server.

The Application Gateway will convert media files into a format suitable for display on IP phones.

## Supported graphic formats

File Type	Description
GIF	Graphics Interchange Format
JPEG	Joint Photographic Experts Group format
JPG	Same as JPEG
WBPM	Wireless bitmap
BMP	Microsoft Windows bitmap
PNG	Portable Network Graphics

---

**Note** Graphics converted to a format that can be displayed on IP phones may suffer degradation depending on the size, aspect ratio, and color-depth of the picture. For best results use a file with a resolution and color model appropriate for the IP phone screen.

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## Supported audio formats

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File Type	Description
WAV	Microsoft Windows wave audio format

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**Note** Broadcast Server is capable of converting most wave files into a format compatible with IP phones. For best results use a wave file in G.711 or PCM format, 8 KHz sampling rate, with 8 or 16 bits per sample.

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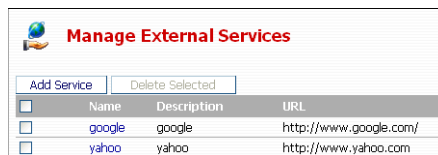
# Chapter 9

## External Service Management

External Services are network-based applications that can be launched from IP telephones. Broadcast Server allows users to link their alerts to such services in order to provide content and functionality beyond the scope of the Broadcast Server system. Such applications may include third-party products, solutions from other vendors, or applications developed internally by your IT staff.


The Broadcast Server system administrator must first define the service using the External Service Management functionality of Broadcast Server before a user can link to an external service. Available services are presented in a drop-down list during alert creation allowing users to select from the services defined by the administrator. See **Linking alerts to external applications** for more information.

### The External Services Management List



	Name	Description	URL
<input type="checkbox"/>	google	google	http://www.google.com/
<input type="checkbox"/>	yahoo	yahoo	http://www.yahoo.com

The External Services management page presents the list of service records that fulfill your current filter criteria. Individual entries are displayed on this page with helpful icons displayed to the left of each entry where required.

Icon	Description
	The service record has been deactivated. This service will not be available to Broadcast Server users when they create alerts.

## Quick FAQ

How do I ...	Description
Add a new External Service	Click the <b>Add Service</b> button at the top of the list. This will open the External Service Page.
Edit an External Service	Click the description in the record you want to modify. This will open the External Service Page.
Delete one or more External Services	Check the box next to each record you want to delete, or check the box in the list's title to select all records displayed. Then, click the <b>Delete Selected</b> button.
Prevent users from using an External Service	Edit the service record, uncheck the <b>Active</b> checkbox, and save your changes.
Disable an External Service in existing alerts	Edit the service record, uncheck the <b>Active</b> checkbox, and save your changes.

## The External Service Page



The screenshot shows a form for defining an external service. It includes a checkbox labeled 'Active' which is checked. Below it are three text input fields labeled 'Name:', 'Description:', and 'URL:'. A 'Save' button is located at the bottom of the form.

The **Active** checkbox indicates whether the External Service record is active in Broadcast Server – that is, whether the service is available to Broadcast Server users when they create alerts. At minimum, an External Service definition must have a name, description, and URL. You must provide this information before you can save the record.

The **URL** field contains the URL that will be passed to devices that allows them to access the service.

---

**Note** Be aware that your IP phones must be capable of accessing the URL exactly as typed. For instance: If your IP phones cannot use DNS to resolve a URL you must enter an IP address instead of a host name in the URL.

---

In addition to ensuring that the URL is accessible by your IP phones, you must also ensure that the URL will return information that the IP phone can display. Be sure to verify that the URL does display information correctly on the phone.



# Chapter 10

## Broadcast Alert Management

Alerts can be created and updated by Broadcast Server users and posted to distribution lists. This section describes alert creation, modification and management.

### The Alert List

The alert list page shows the alerts available to the currently logged-in user.

**Manage Alerts**








Show the following alerts type:  
Filter by: **Priority** All Today Tomorrow Complete Future

Add Priority Alerts Delete Selected  Show only my alerts  Display all alerts in Expanded view

Title	Main Page	Extended Information	Recipients
<input type="checkbox"/> Fire Drill at noon tomorrow Deliver: 4/19/2004 - 4/19/2004, Every day, 2:27 PM - 11:59 PM Sent by Administrator	We will conduct a fire drill in Bldg. 1 around noon tomorrow.		Everyone

Broadcast Server will display an alert to a user if a) The user is the current owner of the alert, or b) The user can send alerts to a distribution list that the alert has been sent to. (This criterion depends on the **Restrict users to view only their alerts** setting for a particular user in their user record.)

**Note** The system administrator has access to all alerts in the system and is not subject to the restrictions imposed on regular Broadcast Server users.

Icon	Description
	The alert has been disabled and will not be sent to subscribers.
	The alert's delivery schedule dictates that the alert should be delivered at the current time.
	The alert's delivery schedule dictates that the alert will be delivered in the future.
	The alert has been delivered.
	The alert is owned by the currently logged-in user.
	Click this icon to change ownerships of the alert. (Only available to the system administrator.)
	Click this icon to contract or expand the current alert record.

## Column Descriptions

Column	Description
Title	This column contains the title of the alert. Click the title for an alert to view or edit that alert.
Main Page	This shows the content of the first page of the alert – graphic or text.
Extended Information	Shows the textual content of the extended page of the alert (if any).
Recipients	Shows the distribution lists the alert is being sent to.

## Alert Types

Broadcast Server allows users to send three types of alerts – emergency, normal, and background alerts.

### Emergency alerts

Emergency alerts are pushed immediately, override other alerts, and are sent with barge priority.

Alerts automatically “rotate” for their display duration. This means that if multiple alerts are sent to a phone; Broadcast Server will display each alert for the display period set for that alert and then move on to the next alert. This cycle keeps repeating until the subscribing user presses the “Exit” button.

### Normal alerts

Normal alerts are pushed to a phone when it is idle.

### Background alerts

Background alerts are pushed directly to the Alerts list in the Voice Office menu.

## Quick FAQ

How do I ...	Description
Add a new alert	Click the <b>Add Priority alert</b> button at the top of the list to create an alert. This will open the alert Page.
Edit an alert	Click the title of the record you want to modify. This will open the alert Page.
Delete one or more alert	Check the box next to each record that you want to delete, or check the box in the list's title to select all records displayed. Then, click the <b>Delete Selected</b> button. Note that you can only delete alerts you own. (The system administrator can delete any alert.)
Change the ownership of an alert	Click the notepad icon (📝) to the right of the alert title and select the new owner from the popup list.
Send an alert containing a graphic	Edit the alert record, check the <b>alert graphic</b> option and select a graphic from the media library using the <b>Select a Graphic</b> button. Then, save your changes.
Stop an alert from being delivered to subscribers	Edit the alert record, uncheck the <b>alert active</b> checkbox, and save your changes.
Send an alert to every phone in the organization	Edit the alert record, check the <b>Everyone</b> distribution list and save your changes. Note that you can only send to <b>Everyone</b> if the system administrator has granted you this privilege.
Change the recipients of an alert	Edit the alert record, select the distribution lists and save your changes.
Change the delivery schedule for an alert	Edit the alert record, change the schedule in the <b>Delivery schedule</b> section and save your changes.
Add or remove buttons on an alert	Edit the alert record, change the button definitions, and save your changes.



# The Alert Page

The alert page allows you to manage the content of alerts.

This page is divided into sections – some may not be available depending on the privileges assigned by the system administrator.

Item	Description
<b>Alert active</b> checkbox	Indicates whether the alert is active. Inactive alerts are not delivered to subscribers.
<b>Title</b>	The title of the alert. This text displays in the title area of a phone’s screen. A title can be a maximum of 30 characters.
<b>Deliver this alert for</b>	Available for new emergency and normal alerts only – indicating the length of time (from the current time) that an alert should be sent to subscribers). The default is 10 minutes but you can choose a custom delivery schedule by selecting <b>Set a custom delivery schedule</b> .

<b>Priority</b>	Informs Broadcast Server how it should treat the alert. Emergency alerts take precedence over Normal alerts and are not subject to subscriber settings that would prevent barge-ins.
<b>Send to the following distribution list(s)</b>	This section contains all the distribution lists to which the current user may send the alert.
<b>Top Page: Alert Text</b>	If selected, this text will be displayed on the first page of the alert. An alert can be a maximum of 1000 characters.
<b>Extended Alert: Alert graphic</b>	If selected, this graphic will be displayed on the second page of the alert. Use the <b>Select a Graphic</b> button to select a graphic from the <b>Media Library</b> .
<b>Extended Alert: Alert Text</b>	The text to display for this page. An alert can be a maximum of 1000 characters.
<b>Button definitions</b>	<p>This section allows you to define buttons displayed on each page of an alert. Subscribers reading the alert can press the buttons defined here to carry out an action.</p> <p>A button definition consists of a <b>Button Type</b>, <b>Caption</b> and <b>Value</b>. The <b>Caption</b> is the text displayed on the phone's screen above the button. A caption can have a maximum of 7 characters. The <b>Value</b> has different meanings depending on the <b>Button Type</b>.</p> <p>The number of buttons that can be defined is set in the <b>Alert Parameters</b> section of the <b>System Management</b> page.</p> <p>Button Types are as follows:</p> <ul style="list-style-type: none"> <li>• <b>Dial</b> — When pressed, causes the phone to dial the number defined in <b>Value</b>. Not available for Button #1.</li> <li>• <b>URL</b> — When pressed, causes the phone to display a Web page.</li> <li>• <b>Service</b> — When pressed, causes the phone to open the external service selected in the <b>Value</b> field. The service must be defined in <b>External Services Management</b> before it will be available for selection.</li> </ul>

---

<b>Use audio alert</b>	<p>If checked, indicates to Broadcast Server that an audio alert must be played on the phone when the alert is pushed to the device.</p> <p>The current <b>System Audio</b> clip in the <b>Media Library</b> is used for all alert audio notifications.</p>
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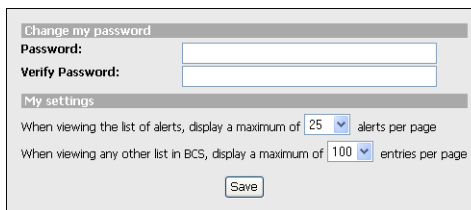
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# Chapter 11

## My Preferences

The Preferences page allows you to change your password as well to set preferences for how information should be displayed.



The screenshot shows a web form with two main sections. The first section is titled 'Change my password' and contains two input fields: 'Password:' and 'Verify Password:'. The second section is titled 'My settings' and contains two lines of text with dropdown menus. The first line says 'When viewing the list of alerts, display a maximum of 25 alerts per page'. The second line says 'When viewing any other list in BCS, display a maximum of 100 entries per page'. At the bottom of the form is a 'Save' button.

### Changing your password

Fill out both fields and click the **Save** button to save your password.

You can also clear your existing password if the system administrator has chosen to allow blank passwords, and you have a password defined.

### Set the number of alerts per page

The alert list has numerous options for display including a feature that divides the entire alert list into manageable pages. This setting allows you to indicate to Broadcast Server how many alert records you want displayed on a single page.

### Setting the maximum list entries to display

This value allows you to specify the maximum number of items to display in other lists in the system including, the user list, distribution lists, subscriber list, etc.



# Chapter 12

## Troubleshooting

This section discusses common problems and possible resolutions.

### Common problems

Issue	Description/Resolution
Priority alerts are not being displayed on phones as soon as they are sent	Priority alerts typically take about 5 seconds to propagate to phones. This procedure may take longer to a particular phone if Broadcast Server had encountered errors with that phone in the last 2 minutes.
Audio notifications sound choppy	Broadcast Server transmits audio in ITU G.711 ULaw format in 30ms frames. Verify that your network devices are optimized for this framing size or contact Support for assistance in changing these parameters.
"Host not found" is displayed on the phone's screen	The phone encountered an error while retrieving content from the Application Gateway.  Verify that the Application Gateway and Broadcast Server are operational and that the phone has a network access pathway to the Application Gateway.
Graphics are distorted on the phone's display	Graphics converted to a format that can be displayed on IP phones may suffer degradation depending on the size, aspect ratio, and color-depth of the picture. For best results use images with a resolution and color model that is appropriate for the IP phone screen.



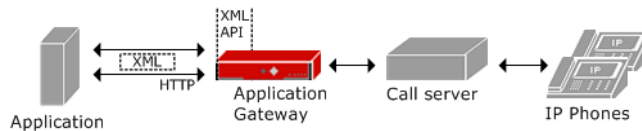


# Appendix A

## Push XML API

Broadcast Server communicates with the Application Gateway through the Push XML API. You can use that same interface to send alerts from other applications to IP phones. For example, you might wish to send call center statistics, sales updates, or automated IT alerts.

To use the Push XML API, your application sends a request as an XML string over HTTP to the Application Gateway.



The Application Gateway uses the request to compose, schedule, and distribute the alert to IP phones. The Application Gateway then sends a response back to your application containing alert status and error information. The response returned to your application is an XML string sent over HTTP.

The XML that your application sends to the Application Gateway defines the parameters of the alert request, including the alert contents and priority, the intended recipients, and a push schedule. An alert can include a title, image, text, soft keys, and audio.

The following topics describe the Push XML API and how to use it to send alerts from third-party applications to IP phones:

- [Preparing the Application Gateway and an Application to Use the Push XML API, page 58](#)
- [Push XML API Operation, page 59](#)
- [Push XML Reference, page 64](#)
- [Sample ASP Pages, page 71](#)

# Preparing the Application Gateway and an Application to Use the Push XML API

To send alerts from a third-party application to IP phones through the Push XML API, you must enable the Push XML API on the Application Gateway and program the application to send XML to the Application Gateway.

## To enable the Push XML API on the Application Gateway:

- 1 Upload a Broadcast Server license to the Application Gateway.  
The Broadcast Server license opens a port on the Application Gateway for communication with a third-party application.
- 2 Enter the URL of the application in the Application Gateway Administration Tool on the Operation > Voice Office > IP Phone page.  
The Application Gateway needs the application URL so that it can send the application the IP address and push port to use when sending XML to the Application Gateway.

## To program an application to use the Push XML API:

- 1 Configure the application to send XML requests and to receive XML responses over the Application Gateway's push port via HTTP.
- 2 Create an interface for composing and sending distribution list and alert requests.  
*"Sample ASP Pages," page 71* contains sample ASP pages for sending the XML code for a distribution list and an alert to the Application Gateway.

## To test the connection between the Application Gateway and the application:

- 1 Compose a simple alert in your application and send it to one test phone.
- 2 Verify that the phone received the alert.
- 3 On the phone, click the OK or Exit soft key to dismiss the alert.
- 4 Verify that your application received confirmation that the alert was delivered and viewed.

## Push XML API Operation

Once the Application Gateway is aware of a third-party application, it performs the following operations:

- Listens for XML data from the application, including distribution lists to track for the application and alerts to be pushed.
- Sends information about the devices that register with the Application Gateway to the application, as they come online or change.
- Maintains distribution lists.
- Pushes alerts from the application over port 9998 to the phones according to the defined schedule.
- Updates the alert list on the phones, automatically removing alerts that are deleted or expired.
- Notifies the application about the status of the pushed alerts.

The following topics provide a general description of the XML elements used in those operations:

- [PushMessage Request, page 59](#)
- [DistributionList Request, page 62](#)
- [ServerRegistration Response, page 63](#)
- [Subscribers Response, page 63](#)
- [PushMessageResponse Response, page 63](#)

## PushMessage Request

The **PushMessage** element defines the alert to be pushed to a distribution list. To send more than one **PushMessage**, you wrap the elements in a **ManagePushMessage** element.

The **PushMessage** element attributes specify the *priority* and *action* of the alert. Alert *priority* determines whether it will be pushed:

- Immediately and take control of the audio. Priority = emergency.
- When the phone is idle. Priority = normal.
- Only to the alert history item in the Voice Office menu. Priority = background.

Alert *action* specifies how the Application Gateway is to handle the alert:

- If the alert is active, schedule and push it to the phone and also save it in the alert history list. Action = schedule.
- If the alert is active, schedule and push it to the phone but do not save it in the alert history list. Action = push.
- Remove the alert from the schedule and from the phone's alert history list. Action = delete.

The following **PushMessage** child elements further define the alert:

[Recipient, page 60](#)

[Subject, Body, Image, Audio, Button, page 60](#)

[Schedule, page 61](#)

---

**Note** See "[ManagePushMessage,](#)" [page 65](#) for a detailed explanation of the XML.

---

## Recipient

One or more **Recipient** elements can be included in a **PushMessage** element. **Recipient** element attributes specify the destination phone(s) and/or distribution list(s) of the alert.

## Subject, Body, Image, Audio, Button

The following elements define the contents of an alert:

- **Subject:** The alert title, displayed at the top of the phone screen and also in the alert history list.
- **Body:** The text of the alert.
- **Image:** An optional image URL to be sent with the alert.
- **Audio:** An optional audio URL to be sent with the alert.
- **Button:** Optional soft keys to be sent with the alert. **Button** attributes specify the button labels, order, and whether a button dials a phone number or displays a Web URL. The contents of the **Button** element defines the number to dial or the URL to display. (OK and Exit soft keys are automatically added to an alert. OK returns to the alert list; Exit returns to the Voice Office menu.)

## Schedule

The **Schedule** element is optional. If the **Schedule** element is not provided, the alert is pushed immediately.

The **Schedule** element requires the following child elements:

- **begin\_date**, **end\_date**, **begin\_time**, and **end\_time**: These elements specify when the Application Gateway is to start and stop sending the alert. The dates and times are based on the Application Gateway server time.

---

**Note** To change the Application Gateway time zone, go to the Administration > Date page of the Application Gateway Administration Tool.

---

- **days**: The **days** element contains an attribute for each day of the week. For each day, you specify whether or not the alert is to be sent on that day.

When the Application Gateway comes online it does the following:

- Sends the **ServerRegistration** file to the broadcasting application.
- Registers with the broadcasting application.
- Receives from the broadcasting application the **ManagePushMessages** file. The broadcasting application can also send a **ManageDistributionLists** file.
- Pushes the alerts that have a **reloaded** attribute of true only to the alert list (if applicable). Pushes the alerts that have a **reloaded** attribute of false to the alert list (if applicable) and also to the phones.

## DistributionList Request

The Push XML API enables you to push an alert to specific devices and/or distribution lists. A distribution list is composed of subscribers, which are IP phones that have registered with the Application Gateway. When an IP phone registers with the Application Gateway, the Application Gateway notifies your application about the new subscriber, as described in [“Subscribers Response,” page 63](#). You can then use your application to create distribution lists from the subscriber information.

The Application Gateway uses the **DistributionListRequest** element to maintain the distribution lists specified with **PushMessage**. To send more than one **DistributionListRequest**, you wrap the elements in a **ManageDistributionLists** element.

The **DistributionListRequest** element attributes specify a name for the distribution list and the action that the Application Gateway is to perform on the list: create a new list, add or remove devices, and remove the list.

The following **DistributionListRequest** child element defines the distribution list:

[Member, page 62](#)

---

**Note** See [“ManageDistributionLists,” page 68](#) for a detailed explanation of the XML.

---

## Member

One or more **Member** elements can be included in a **DistributionListRequest** element. The **Member** element has one attribute that specifies the device ID (that is, the MAC address of the phone).

## ServerRegistration Response

The **ServerRegistration** element is a response sent from the Application Gateway to the application after you submit the application's URL through the Application Gateway Administration Tool. The **ServerRegistration** element content consists of the Application Gateway IP address and the port over which it will listen for XML strings from the application.

---

**Note** See "[ServerRegistration](#)," page 69 for a detailed explanation of the XML.

---

## Subscribers Response

The **Subscribers** element is a response sent from the Application Gateway to the application after an IP phone registers with the Application Gateway. The **Subscribers** element attributes define the following:

- The device, which is either the user name associated (in an LDAP directory) with the device or the phone model.
- The department associated with the phone or user (obtained from the Application Gateway connection to your LDAP server).
- The device ID (MAC address).
- The extension associated with the phone or user (obtained from LDAP).
- The action, either add, update, or remove.

---

**Note** See "[Subscribers](#)," page 69 for a detailed explanation of the XML.

---

## PushMessageResponse Response

The **PushMessageResponse** element is a response sent from the Application Gateway to the application after pushing an alert. The contents of the **PushMessageResponse** element is either "0" (the push was successful) or a negative number (indicating an error condition).

---

**Note** See "[PushMessageResponse](#)," page 70 for a detailed explanation of the XML.

---

## Push XML Reference

The following topics provide a detailed description of the Push XML:

- [Character Set and Character Entities, page 64](#)
- [XML Declaration, page 64](#)
- [ManagePushMessage, page 65](#)
- [ManageDistributionLists, page 68](#)
- [ServerRegistration, page 69](#)
- [Subscribers, page 69](#)
- [PushMessageResponse, page 70](#)

### Character Set and Character Entities

The Push XML API supports the UNICODE character set. Use character entity references to escape the following special characters.

Character	Character Entity
& (ampersand)	&amp;
' (apostrophe)	&apos;
> (greater-than sign)	&gt;
< (less-than sign)	&lt;
" (straight double-quote)	&quot;

For more information on character references and character entities, refer to XML reference documentation.

### XML Declaration

The Push XML string should begin with the following XML declaration:

```
<?xml version="1.0" encoding="utf-8"?>
```

The XML declaration must not be preceded by comments, whitespace, or processing instructions.



## ManagePushMessage

The following sample XML for **ManagePushMessage** and its child elements illustrates scheduling a normal alert to a distribution list named "MainFloor". The alert includes audio and two soft keys.

```
<ManagePushMessage>
<PushMessage priority="1" message_id="3" action="schedule" reloaded="{true | false}"
  <Recipient id="MainFloor" type="distribution"/>
  <Subject>Server Maintenance this Week</Subject>
  <Body>Servers will be taken off-line this week, as follows.
  </Body>
  <Audio>http://mysite.com/alerts/alert.wav</Audio>
  <Button index="1" type="url" caption="Server Usage">
    http://mysite.com/it/info/matrix.html</Button>
  <Button index="2" type="dial" caption="Help Desk">2323</Button2>
  <Schedule>
    <BeginDate>10:03:2005</BeginDate>
    <EndDate>10:07:2005</EndDate>
    <Days sunday="0" monday="0" tuesday="1" wednesday="1" thursday="0" friday="1"
      saturday="0"/>
    <BeginTime>07:00:00 AM</BeginTime>
    <EndTime>09:30:00 AM</EndTime>
  </Schedule>
</PushMessage>
</ManagePushMessage>
```

The following table describes the **ManagePushMessage** element and its child elements.

Element	Parent Element	Attributes	Enumeration	Description
<b>ManagePushMessage</b>	none	none		Parent element of one or more PushMessage elements.

Element	Parent Element	Attributes	Enumeration	Description
<b>PushMessage</b>	ManagePushMessage			Parent of the elements that define the content, recipient, and schedule of an alert. Multiple PushMessage elements can be sent in the same HTML string.
		<b>message_id</b>		A numeric value that uniquely identifies the alert and is used to track status.
		<b>priority</b>	0 1 2	Emergency alert. Normal alert. Background alert.
		<b>action</b>	push schedule delete	Push to the display; do not include in alert list. Push to the display and alert list. Delete the alert from the schedule and alert list.
		<b>reloaded</b>	true false	Alert has been pushed to the phone. Alert has not been pushed to the phone. Push it according to the schedule.
<b>Recipient</b>	PushMessage	<b>id</b>		A numeric value that uniquely identifies the recipient.
		<b>type</b>	distribution	This recipient is a distribution list.
<b>Subject</b>	PushMessage	none		The alert title text, up to 256 characters. The phone display constrains the usable portion of the title to about 12 characters.
<b>Body</b>	PushMessage	none		The main text of the alert, up to 256 characters.
<b>Image</b>	PushMessage	none		Optional image URL to include with the alert.
<b>Audio</b>	PushMessage	none		Optional audio URL to include with the alert.

Element	Parent Element	Attributes	Enumeration	Description
<b>Button</b>	PushMessage	<b>index</b>	1 2	1 Identifies the first soft key. 2 Identifies the second soft key.
		<b>type</b>	dial  url	The content of the Button element is a telephone number.  The content of the Button element is a Web URL.
		<b>caption</b>		The text that appears with the soft key, up to 32 characters. The button size constraints the usable portion of the caption to about 6 characters.
<b>Schedule</b>	PushMessage	none		Parent element of the Schedule elements.
<b>begin_date</b> <b>end_date</b>	Schedule	none		The date to start and stop the push, formatted as mm:dd:yyyy. For example, January 15, 2006 is 01:15:2006. The date is based on the Application Gateway date.
<b>days</b>	Schedule	sunday monday tuesday wednesday thursday friday saturday	0  1	0 Do not push the alert on this day. 1 Push the alert on this day.
<b>begin_time</b> <b>end_time</b>	Schedule	none		The time to start and stop the push, formatted as hh:mm:ss AM   PM. For example, noon is 12:00:00 PM. The time is based on the Application Gateway time.

## ManageDistributionLists

The following sample XML for **ManageDistributionLists** and its child elements illustrates creating the distribution list named “accounting” and adding several devices to that list.

```
<ManageDistributionLists>
<DistributionList id="2" name="accounting" action="create">
</DistributionList>
<DistributionList id="2" name="accounting" action="add">
    <Member device_id="000E8349D6ED"/>
    <Member device_id="0009E7F3FA1D"/>
    <Member device_id="000821381711"/>
</DistributionList>
</ManageDistributionLists>
```

The following table describes the **ManageDistributionLists** element and its child elements.

Element	Parent Element	Attributes	Enumeration	Description
<b>ManageDistributionLists</b>	none	none		Parent element of one or more DistributionList elements.
<b>DistributionList</b>	ManageDistributionLists			Parent element of zero or more Member elements.
		<b>id</b>		A numeric value that uniquely identifies the distribution list.
		<b>name</b>		A text string that identifies the distribution list.
		<b>operation</b>	create add remove delete	Creates a distribution list. Adds the specified members to the distribution list. Removes the specified members from the distribution list. Deletes the distribution list.
<b>Member</b>	DistributionList	<b>device_id</b>		The MAC address of the device.

## ServerRegistration

**ServerRegistration** is sent from the Application Gateway to the application URL specified in the Operation > Voice Office > IP Phone page of the Application Gateway Administration Tool. The **ServerRegistration** element provides your application with the Application Gateway IP address and port to which it should send XML strings.

Sample XML for **ServerRegistration** follows:

```
<ServerRegistration>http://AG_IPAddr:port</ServerRegistration>
```

## Subscribers

**Subscribers**, sent from the Application Gateway to your application, provides the application with the subscribers which you can specify as individual alert recipients and/or members of a distribution list.

Sample XML for **Subscribers** and its child elements follows:

```
<Subscribers>
  <Device name="user" dept="maintenance" action="add"
    device_id="000E8349D6ED" extn="2027" class="model"/>
    device_id="000821381711" extn="2029" class="model"/>
  <Device name="user" dept="marketing" action="update"
    device_id="0009B7F3FA1D" extn="3015" class="model"/>
</Subscribers>
```

Element	Parent Element	Attributes	Enumeration	Description
<b>Subscribers</b>	none			Parent element of one or more Device elements.
<b>Device</b>	Subscribers			The IP phones that have registered with the Application Gateway and can be named as alert recipients or distribution list members.
		<b>name</b>		Either the user name associated (in an LDAP directory) with the device or the phone model.

Element	Parent Element	Attributes	Enumeration	Description
		<b>dept</b>		The department associated with the device, obtained from an LDAP or CSV directory source.
		<b>device_id</b>		The MAC address of the device.
		<b>extn</b>		The extension associated with the device, obtained from an LDAP or CSV directory source.
		<b>class</b>		The device model, such as i2007. Currently not used.
		<b>action</b>	add update remove	The device is a new subscriber. The device is an existing subscriber and might have updated data. The device is no longer licensed.

## PushMessageResponse

**PushMessageResponse**, sent from the Application Gateway to your application, provides the application with error response codes which describe the status of the response and can assist in troubleshooting.

The XML for **PushMessageResponse** follows:

```
<PushMessageResponse id="123">-200</PushMessageResponse>
```

## Sample ASP Pages

You can use the script language of your choice to generate XML code. We have provided sample Microsoft Active Server Pages (ASP) scripts to help you get started. Your application will need to generate two ASP files: One file to create a distribution list and one file to create an alert.

The following topics include sample script for writing, sending, and receiving a response to a distribution list or scheduled alert:

- [distribution\\_list.asp, page 71](#)
- [schedule\\_message.asp, page 73](#)

### distribution\_list.asp

The following sample code shows how to write the XML required to create and add members to a distribution list, send the list to the Application Gateway, and then send report status to the application from the Application Gateway. You must send a distribution list to the Application Gateway before you can begin sending alerts.

The IP addresses and device IDs in `distribution_list.asp` are examples.

---

**Note** Device IDs are listed in the Application Gateway License Monitor. To open the License Monitor, go to the Administration Tool Operation > Advanced page.

---

```
<%@ Language=VBScript %>
<HTML>
<HEAD>
</HEAD>
<%

'Put together some XML to post off
xmlString = "<?xml version=""1.0""?>" & vbcrLf
xmlString = xmlString & "<BCSDistributionList id='123' name='Jon Test'" & vbcrLf
xmlString = xmlString & " <Member device_id='000E8349D6ED' />" & vbcrLf
xmlString = xmlString & " <Member device_id='0009B7F3FA1D' />" & vbcrLf
xmlString = xmlString & " <Member device_id='000821381711' />" & vbcrLf
xmlString = xmlString & "</BCSDistributionList>"
```

## Appendix A Push XML API

### Sample ASP Pages

```
'Load the XML into an XMLDOM object
Set SendDoc = server.createobject("Microsoft.XMLDOM")
SendDoc.ValidateOnParse= True
SendDoc.LoadXML(xmlString)

'Set the URL of the receiver
sURL = "http://192.168.1.201:9998/"

'Call the XML Send function (defined below)
set NewDoc = xmlSend (sURL, SendDoc)'xmlString)
'We receive back another XML DOM object!

'Tell the user what happened
response.Write "<b>XML DOC posted off:</b><br>"
response.write SendDoc.XML & "<br>"
response.write "<b>Target URL:</b> " & sURL & "<br>"
response.write "<b>XML DOC Received back: </b><br>"
response.write (NewDoc.Xml)

private function xmlsend(url, docSubmit)
Set poster = Server.CreateObject("MSXML2.ServerXMLHTTP")
poster.open "POST", url, false
poster.setRequestHeader "CONTENT_TYPE", "text/xml"
poster.send docSubmit
Set NewDoc = server.createobject("Microsoft.XMLDOM")
newDoc.ValidateOnParse= True
newDoc.LoadXML(poster.responseText)

Set XMLSend = NewDoc
Set poster = Nothing
end function

%>
```



## schedule\_message.asp

The following sample code shows how to write the XML required to create and schedule an alert, send the alert to the Application Gateway, and then send report status to the application from the Application Gateway.

The image paths and IP addresses in schedule\_message.asp are examples.

```
<%@ Language=VBScript %>
<HTML>
<HEAD>
</HEAD>
<%

'Put together some XML to post off
xmlString = "<?xml version='1.0'?" & vbcrLf
xmlString = xmlString & "<ManagePushMessage>" & vbcrLf
xmlString = xmlString & "<PushMessage message_id='7' priority='1' action='bcs'" & vbcrLf
xmlString = xmlString & " <Recipient id='1' type='distribution'/" & vbcrLf
xmlString = xmlString & " <Subject>Dinner?</Subject>" & vbcrLf
xmlString = xmlString & " <Body>Im still not hungry</Body>" & vbcrLf
xmlString = xmlString & " <Image>http://192.168.1.16/push_image.png</Image>" & vbcrLf
xmlString = xmlString & " <Audio>http://192.168.1.16/moo.wav</Audio>" & vbcrLf
xmlString = xmlString & " <Schedule>" & vbcrLf
xmlString = xmlString & " <BeginDate>09/2/2005</BeginDate>" & vbcrLf
xmlString = xmlString & " <EndDate>10/25/2005</EndDate>" & vbcrLf
xmlString = xmlString & " <Days sunday='1' monday='1' tuesday='1' wednesday='1'
thursday='1' friday='1' saturday='1'/" & vbcrLf
xmlString = xmlString & " <BeginTime>10:00:00 AM</BeginTime>" & vbcrLf
xmlString = xmlString & " <EndTime>11:59:50 PM</EndTime>" & vbcrLf
xmlString = xmlString & " </Schedule>" & vbcrLf
xmlString = xmlString & "</PushMessage>"
xmlString = xmlString & "</ManagePushMessage>"

'Load the XML into an XMLDOM object
Set SendDoc = server.createObject("Microsoft.XMLDOM")
SendDoc.ValidateOnParse= True
SendDoc.LoadXML(xmlString)

'Set the URL of the receiver
sURL = "http://192.168.1.201:9998/"

'Call the XML Send function (defined below)
set NewDoc = xmlSend (sURL, SendDoc)'xmlString)
'We receive back another XML DOM object!
```

## Appendix A Push XML API

### Sample ASP Pages

```
'Tell the user what happened
response.Write "<body><b>XML DOC posted off:</b><br><code>"
'response.write SendDoc.XML & "</code><br>"
response.write "<b>Target URL:</b> " & sURL & "<br>"
'response.write "<b>XML DOC Received back: </b>"
'response.write (NewDoc.Xml)
response.write "<br><a href='schedule_message.asp'>Send Schedule</a></body>"
response.write "<br><a href='push_message.asp'>Send Push </a></body>"
private function xmlsend(url, docSubmit)
Set poster = Server.CreateObject("MSXML2.ServerXMLHTTP")
poster.open "POST", url, false
poster.setRequestHeader "CONTENT_TYPE", "text/xml"
poster.send docSubmit
Set NewDoc = server.createobject("Microsoft.XMLDOM")
newDoc.ValidateOnParse= True
newDoc.LoadXML(poster.responseText)

Set XMLSend = NewDoc
Set poster = Nothing
end function

%>
```



Nortel Application Gateway 1000/2000

# **Broadcast Server User Guide**

## Configuration and Operation

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