BlackBerry AtHoc

IP Phone Gateway Setup and Operation Guide for Avaya and Cisco IP Phone Blast

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IP Phone Blast overview

BlackBerry AtHoc contains a gateway called Cisco IP Phone Blast which can also serve Avaya phones. Because of this duality, the gateway has been renamed to IP Phone Blast. Depending on whether an Avaya or Cisco IP Phone device is being used by a VPS/organization, administrators can rename the gateway to match the device type. The device then becomes a part of the IP Phone Gateway group in BlackBerry AtHoc.

For information about how to set up NDS for Cisco IP Phone Blast, see the *BlackBerry AtHoc Cisco IP Phone Blast NDS Installation and Configuration Guide*.

For troubleshooting information for Cisco IP Phone Blast, see the *BlackBerry AtHoc Cisco IP Phone Blast Troubleshooting Guide*.

For information about how to set up NDS for Avaya IP Phone Blast, see the *BlackBerry AtHoc Avaya IP Phone Blast NDS Installation and Configuration Guide*.

IP Phone configuration steps

To configure the IP Phone Blast solution, complete the following tasks.

Install and enable the IP Phone Blast package for BlackBerry AtHoc

1. Access the `IPPhoneBlast.xml` file from the following default product installation location:`/AtHocENS/ServerObjects/utils/AddOnModules/Packages/IPPhoneBlast`.
2. Enable the IP Phone Blast gateway by double-clicking the device configuration support tool located at:`/AtHocENS/ServerObjects/tools/AtHoc.Applications.Tools.InstallPackage`.
3. On the **Configure Device Support** screen, click **IP Phone Blast** > **Enable**.

Configure the device gateway

1. Log in to the BlackBerry AtHoc management system as an administrator.
2. Click .
3. In the **Devices** section, click **IP Phone Blast**.
4. On the **IP Phone Blast** screen, enter a Notification Delivery Server address.
5. Enter a username.
6. Enter a password.
7. Set the **Debug Trace** to **No**.
8. Click **Save**.

Enable the IP Phone Blast device

1. Log in to the BlackBerry AtHoc management system as an administrator.
2. Click .
3. In the **Devices** section, click **Devices**.
4. On the **Device Manager** screen, double-click **Cisco IP Phone**.
5. Rename the device.
   - To list the device as a Cisco system, enter **Cisco IP Phone** in the **Name** and **Common Name** fields.
   - For an Avaya system, change the fields to **Avaya IP Phone**.

   The name you give the device will appear on the **Select Personal Devices** tab in the IP Phone Blast section on the **New Alert** and **Edit Alert** screens when operators are creating or editing alerts.

Create users and associate them with IP phones

Every IP phone needs to be associated with a user.

1. Log in to the BlackBerry AtHoc management system as an administrator.
2. In the navigation bar, click **Users** > **Users** .
3. Click the **Users** link.
4. On the **Users** screen, click **New**.
5. On the **New User screen**, enter a **Username**.
6. Optionally, enter a **First Name**, **Last Name**, and **Display Name** for the user.
7. In the **Online numbers** section, enter the DN number for the user's IP Phone display. Regardless of whether you are associating the user with a Cisco IP phone or an Avaya IP phone, the field name is always **Cisco IP Phone Display**.
8. Click **Save** to create the user.

Verify the installation and configuration

Note: Because the following instructions are applicable to both Cisco Blast IP phones and Avaya IP phones, the generic term *IP Phone* is used.

After installing and configuring the IP Phone Display gateway in BlackBerry AtHoc, you should verify that everything is working correctly by completing the following steps:

1. Log in to the BlackBerry AtHoc management system.
2. In the navigation bar, click **Alerts** > **New Alert**.
3. Click **Create a Blank Alert**.
4. On the **New Alert** screen, complete the **Content** section, making sure to include an alert title and some text in the alert body field.
5. In the **Target Users** section, click each tab to select the targeting criteria you want to use for the alert: By Groups, By Users, By Location, or By Advanced Query.
6. Click the **Select Personal Devices** tab.
7. Select the **IP Phone Display** check box.
8. In the **Personal Devices** section, click **Options**.
9. On the **Personal Devices Options** screen, click the **IP Phone Display** tab.
10. In the **Alert Image** field, select the **Image** option and then choose an image from the list. Because this is only a verification test, it does not matter which image you select.
11. In the **Ringtone** field, select the **Use Ringtone** option and then select one of the ringtone options from the list. Because this is only a verification test, it does not matter which ringtone you select.
12. In the **Audio Broadcast** field, select **Alert - Title and Body**.
13. Optionally, if you want to check that the rebroadcast feature is configured correctly, select the **Replay audio broadcast message** and then enter the number of times you want the alert to be replayed.
14. Click **Apply**.
15. When you have finished creating the alert, click **Publish**.
16. When the alert appears on your IP phone, verify that it displays the image you selected in Step 10, plays the ringtone you selected in Step 11, and broadcasts the alert title and body text you entered in Step 4.
17. If you selected the **Replay audio broadcast message** check box in Step 13, verify that the alert plays the number of times that you specified.

Edit device properties

1. Log in to the BlackBerry AtHoc management system.
2. In the navigation bar, click .
3. In the **Devices** section, click **Devices**.
4. On the **Device Manager** screen, click the **Cisco IP Phone Display** row.
5. On the **Cisco IP Phone Display** screen, click **Edit**.
6. Edit the delivery gateway details you want to change.
7. Click **Save**.

Disable or delete the device

1. Log in to the BlackBerry AtHoc management system.
2. In the navigation bar, click .

3. In the **Devices** section, click **Devices**.
4. On the **Device Manager** screen, select the check-box in the **Cisco IP Phone Display** row.
5. Click **Disable** or **Delete**, as appropriate.

Configure call bridge values in a BlackBerry AtHoc alert template

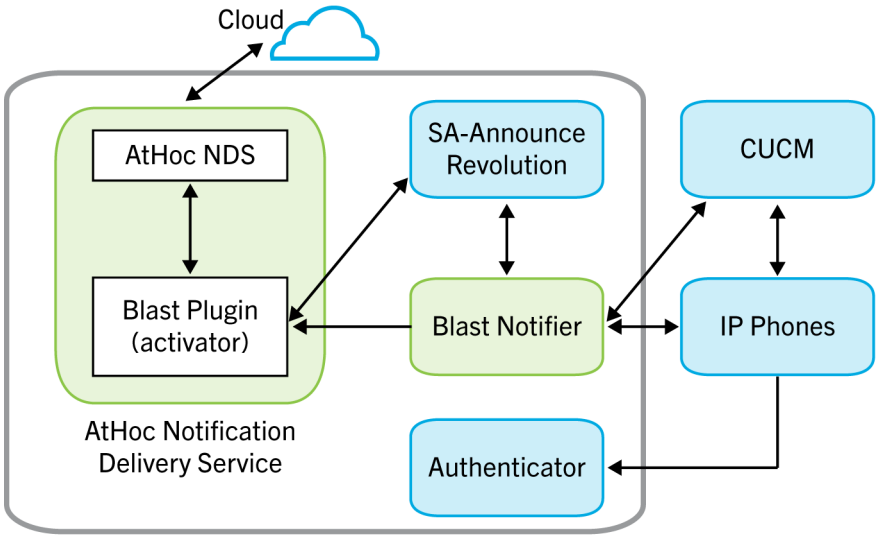
When publishing an alert, you can add a call bridge (conference call) to the list of possible response options.

A call bridge is a type of alert response option for telephony devices consisting of a text response that includes a phone number. If you set up a Call Bridge phone option, end users must type the full phone number plus the passcode (if required) preceded by an 'x' delimiter. For example, (321)987-6543x98127.

1. Log in to the BlackBerry AtHoc management system as an administrator.
2. Click to **Alerts** > **Alert Templates**
3. On the **Alert Templates** screen, click an existing alert template or click **New**.

   Note: To learn how to create alert templates, see the *BlackBerry AtHoc Manage Alert Templates User Guide*.
4. In the **Content** section of the new alert template, select the **Call Bridge** check box.
5. In the **Call Bridge** field, enter the conference call number.
6. In the **Pass Code** field, enter the passcode users will use to dial in to the conference call.
7. Finish creating or modifying the alert template, then click **Save**.

Appendix A: Cisco IP Phone specifics



System requirements

System requirement	Description
AtHoc NDS v2.8.5.2	If necessary, upgrade NDS before proceeding.
Windows 2008, 2008 R2, and 2012	Supported Windows servers. **Note:** A number of Windows roles and features are required. These are automatically configured by the Blast System utility.
.NET Framework 4.5.1	**Windows 2008 and 2008 R2:** If .NET 4.5.1 is not already installed, the Blast System utility attempts to install it. **Windows 2012:** This server comes with .NET 4.5 installed. If you have not upgraded to .NET 4.5.1, the Blast System attempts to install it. **Note:** If an Internet connection is not available, the utility aborts the Blast System installation. You must then manually install .NET 4.5.1. Download Microsoft .NET 4.5.1 full installer.
Server	106.6 MB free space for installation, 8 GB memory, and 2 CPU cores. Single multicast IP address to endpoints for the text-to-speech functionality. This IP address is provided by your IT department.
Microsoft VS++2010SP1x86 Redistributable	Required and automatically installed by the install utility if internet access is available. **Note:** If an internet connection is not available, the utility aborts the Blast System installation. You must then manually install Microsoft VS. Download. <VC++2010SP1x86_Redistributable>

System requirement	Description
CUCM 7 or greater	**Note:** CUCM 8 or later is required for security features.
Default Ports	Cisco phone registration and communication with SA Revolution occurs on port 8008. Cisco phone communication port 80. Ports are configurable.
Default Protocols	RTP and HTTP
Voice Streaming	RTP through via multicast over UDP

IP Phone Blast is used for displaying alert messages on a Cisco IP phone's display panel by using the phone's internal HTTP server. These messages include optional images, response options, streamed audio, and designated ringtones. Refer to the Cisco IP Phone documentation for instructions on how to install custom ringtones on a Cisco IP phone.

IP Phone Blast allows users to send an audio-visual notification to Cisco IP phones by leveraging installed ringtones as well as audio multi-cast streaming. If an alert containing a visual component is sent, the visual component appears first when the alert is received, as shown in the example on the right.

After the recipient presses the **Next** option or if no visual component is included in the alert, the alert title and alert body text appear on the phone.

If the alert requires a response, the recipient can press the Response option on the screen to view a list of response options. After selecting a response option from the list, the screen displays a "Response sent" confirmation message.

How it works

On idle when there is no alert

When there is no active alert, the NDS regularly requests from the CUCM the list of all active phones in the enterprise and their IPs. The NDS will then cache this information so that it can be used in real time when an alert becomes active, without having to rely on the CUCM at that point.

During an alert

The following process is carried out when an alert is generated:

1. BlackBerry AtHoc pushes the list of end users to activate along with their DNs to the NDS.
2. The NDS finds the IP of the phone for every DN and sends the IP phones a command to activate.
3. The IP phone uses the authentication enterprise parameter of the CUCM to authenticate the request.
4. Seeing that the Authenticator is the NDS, the IP phone requests (unless it already has it) the SSL certificate of the NDS from the CUCM server to ensure that it is calling the correct server.
5. After the IP phone gets the SSL Certificate of the NDS, it invokes the authentication function on the NDS.
6. After authentication is complete, the command is executed by the phone. If the command requires the display of text on the screen, the IP phone will go back to NDS to retrieve that text.
7. If audio is requested to be sent, the NDS

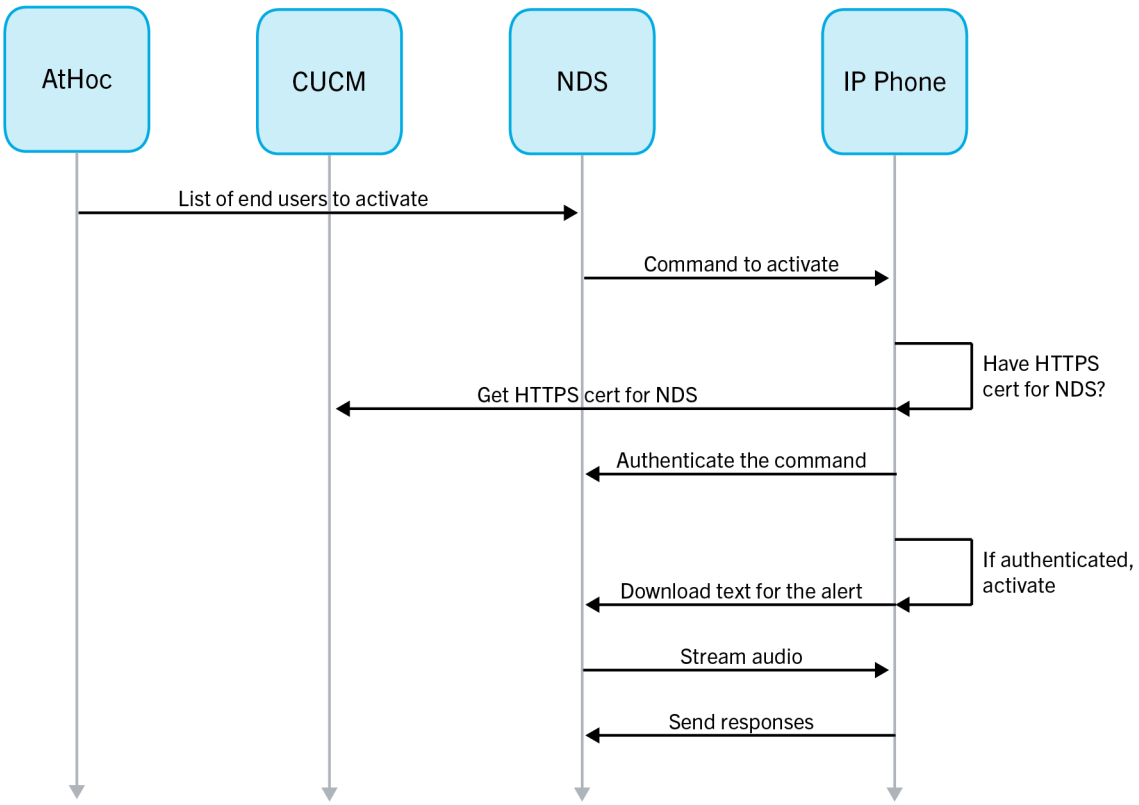


Figure 1: How blast activations work

also immediately starts streaming the audio on multi-cast for the IP phones to play.

Performance considerations

The solution was tested under ideal conditions: in a clean lab environment where NDS was used only to serve Blast and the network topology was simple. The following performance statistics were recorded:

Number of phones	Time until 75% of the phones start playing the message
1000	6 seconds
5000	10 seconds
10000	15 seconds

Based on this data, then, in an environment with 1000 phones, at least 750 phones (75%) will start playing the audio alert and displaying the alert text on screen within at most 6 seconds. In an environment with 5000 phones, at least 3750 (75%) will start playing the audio alert and displaying the alert text within at most 10 seconds. And in an environment with 10,000 phones, 7500 of them will start playing the audio and displaying the text within at most 15 seconds.

Note: Results might vary due to factors such as network usage and CPU usage of NDS for other tasks or plug-ins, so the performance statistics listed above should be viewed as guidelines, not as guarantees.

Cisco supported IP phones

The following phones were tested with the solution. Other phones that are API compliant will also work.

- Cisco 7902
- Cisco 7905
- Cisco 7906
- Cisco 7910
- Cisco 7911
- Cisco 7912
- Cisco 7920
- Cisco 7921
- Cisco 7925
- Cisco 7926
- Cisco 7931
- Cisco 7937 Conference Station
- Cisco 7940
- Cisco 7941
- Cisco 7941G-GE
- Cisco 7942
- Cisco 7945
- Cisco 7960
- Cisco 7961
- Cisco 7961G-GE
- Cisco 7962
- Cisco 7965
- Cisco 7970
- Cisco 7971
- Cisco 7975
- Cisco 8811
- Cisco 8831
- Cisco 8841
- Cisco 8851
- Cisco 8861
- Cisco 8941
- Cisco 8945
- Cisco 8961
- Cisco 9951
- Cisco 9971

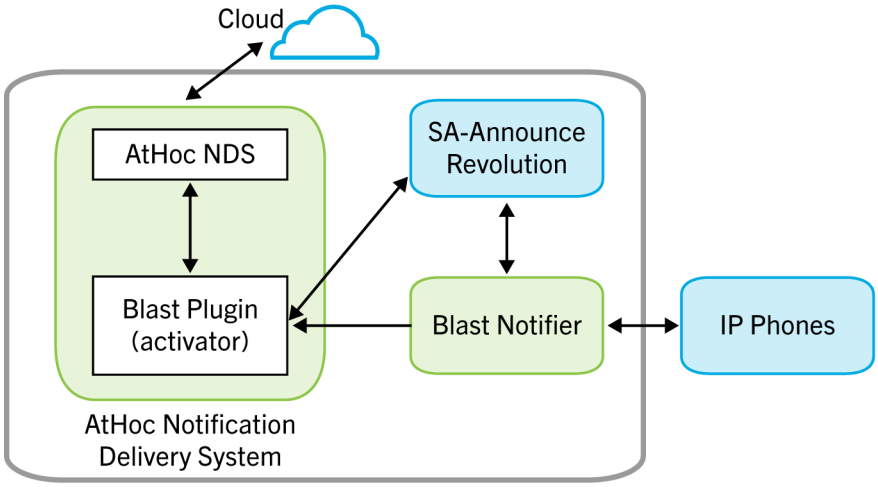
Appendix B: Avaya IP Phone specifics

BlackBerry AtHoc Blast System

The Blast System is an install and configuration utility comprised of a collection of SA-Announce Revolution modules that integrate with BlackBerry AtHoc NDS to provide alert notifications to Avaya IP Phones. The utility installs all of the required Blast System modules and prompts the administrator to input configuration data.

The following modules are included:

- SA-Announce Revolution v1.1.0.58: Notification broker.
- Blast Activator (NDS plug-in) v1.1.0.112: Receives notification activation events from NDS and passes them to Revolution for dispersal.
- Blast Notifier v1.1.0.112: Delivers content to Avaya IP phones. Provides feedback to the Activator, which provides it to NDS.



Avaya IP phones send the following registration information to the Blast Notifier: phone IP address, machine address, model number, and extension number. Blast Notifier stores this information in memory, by extension number, and uses it to send notifications to registered phones. When a phone is rebooted, its information is resent to Blast Notifier. The information is matched based on extension number and the data is updated if there are changes, for example, if a newer phone model is now assigned to the extension number. If a phone is offline, for example, it is unplugged because it is being moved, Blast Notifier still attempts to send notifications and simply logs an error in the phone logs.

IP Office and Aura® Communications Manager are not required for the Blast System. They are, however, required for the Avaya platform.

System requirements

System requirement	Description
AtHoc NDS v2.8.5	If necessary, upgrade NDS before proceeding.

System requirement	Description
Windows 2008 R2, 2012, and 2012 R2	Supported Windows servers. **Note:** A number of Windows roles and features are required. These are automatically configured by the Blast System utility.
.NET Framework 4.5.1	**Windows 2008 R2:** If .NET 4.5.1 is not already installed, the Blast System utility attempts to install it. **Windows 2012:** This server comes with .NET 4.5 installed. If you have not upgraded to .NET 4.5.1, the Blast System attempts to install it. **Note:** If an Internet connection is not available, the utility aborts the Blast System installation. You must then manually install .NET 4.5.1. Download Microsoft .NET 4.5.1 full installer. **Windows 2012 R2:** This server comes with .NET 4.5.1 already installed.
Server	• 106.6 MB free space for installation • 8 GB memory • 2 CPU cores Single multicast IP address to endpoints for the text-to-speech functionality. This IP address is provided by your IT department.
Default Ports	Avaya phone registration and communication with SA Revolution occurs on port 8008. Avaya phone communication port 80. Ports are configurable.
Default Protocols	RTP and HTTP
Voice Streaming	RTP through via multicast over UDP

Performance

The following table describes the load per sync of registered IP phones.

Registrations	Seconds
1000	2
2000	4
4000	7.7
8000	16.3
50,000	102

IP phones begin displaying text and playing notification audio after 75% of phones have responded to the activation command. The following table outlines some possible scenarios.

Number of phones to register	75% registered	Seconds until notification begins
1000	750	6
5000	3750	10
10,000	7500	15

Caveats

Note: Results may vary depending on network usage and CPU usage of other NDS tasks and plug-ins. Therefore, the above performance statistics should be viewed as guidelines.

Avaya supported IP phones

Blast supports the following notification functionality:

- Send text notifications and response options
- Send audio beep
- Send image in JPG format to models that support images
- Convert text-to-speech, which uses multicast audio streaming

The following Avaya IP phones were tested with the solution:

- 9670G
- 9650C
- 9641G
- 9640G
- 9630G
- 9621G
- 9620L/C
- 9611G
- 9610
- 9608

Caveats

- Per the Avaya Developer documents, supported phones must be running H.323 Software Release 3.0 or later in order to support multicast audio streaming. 9601 SIP only does not support H.323 v 3.0, and therefore does not support text-to-speech.
- Avaya IP phones do not support multiple DNs.
- Avaya IP phones only support JPG image files.
- The AtHoc Blast Activator sends a stop command to IP phones in accordance with the defined alert duration. However, this command is only capable of stopping an audio stream, which is only used with text-to-speech functionality. The Avaya API does not have a command to tell the phones to exit the browser or set the screen to a different mode. The end user must manually clear the screen.
- IP phones register to the System when they boot up; registration does not go through Avaya's Call Manager.

BlackBerry AtHoc Customer Support Portal

BlackBerry AtHoc customers can obtain more information about BlackBerry AtHoc products or get answers to questions about their BlackBerry AtHoc systems through the Customer Support Portal:

https://support.athoc.com/customer-support-portal.html

The BlackBerry AtHoc Customer Support Portal also provides support via computer-based training, operator checklists, best practice resources, reference manuals, and user guides.

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