DialStreamer™ 1.0.2

Installation and User Guide for an InformaCast Virtual Appliance Environment
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DialStreamer Overview

DialStreamer™ is a Singlewire solution that allows an IP phone to join a multicast stream that was not originated by InformaCast. For example, IP phone users are sitting in a loud room with multiple TVs. The loudness of the room makes it impossible to clearly hear a TV’s audio. Using DialStreamer, each user can pick up their phones, dial a number connected to a TV, and listen to that TV’s audio.

Solution Components

DialStreamer uses the following components:

- InformaCast Virtual Appliance 11.0.2 or later
- Barix Instreamer 100

Prerequisites

Before configuring DialStreamer, you should already have:

- InformaCast installed and working (refer to the “InformaCast Virtual Appliance Installation and User Guide” v11.0.2 or later for further instructions)
- The CallAware plugin configured and working

In addition, you will need:

- A Barix Instreamer 100

Note
There are several similarly named Barix products: the Instreamer and the Exstreamer. The Instreamer takes audio input from an A/V source, like a TV, while the Exstreamer sends audio output to an A/V source or speaker. This application requires an Instreamer and will not work with an Exstreamer.

- An RCA two-channel (right/left) male-to-male cable
- The software distribution package for DialStreamer (available as a ZIP file), which includes the following scripts and packages:
  - DialStreamer.js, a script meant for use with the InformaCast Script plugin
  - libxml2_2.8.0+dfsg1-7+wheezy4_i386.deb, a package that provides an XML interface for the DialStreamer.js script
  - libxml2-utils_2.8.0+dfsg1-7+wheezy4_i386.deb, a package that provides an XML interface for the DialStreamer.js script.

Intended Audience

This user guide is written with two audiences in mind, the installers and users of DialStreamer.
A Note on Usage

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

- **Bold fonts** indicate the name of a button, text field, or other element with which you interact and any text that you must enter.
- **Italic fonts** indicate the name of an area or section on one of InformaCast’s pages.
- Angled brackets enclose text that varies with your specific environment, i.e. http://<Your IP Address> means that you would enter your specific IP address instead of the brackets and what they enclose.
- **Blue, underlined** text indicates a hyperlink.

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

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

Getting Help

You can find additional help from the Singlewire Support Community (available to you with a current maintenance contract). If you still have questions, initiate a request for support.
Install the Barix Instreamer

Before you can begin using DialStreamer, you must install the Barix Instreamer with which it will work.

**Step 1** Connect the Instreamer to your IP network and the **LAN** port with an Ethernet cable.

**Step 2** Connect the RCA-style audio output jacks on your TV (or the device you’re using to source audio) to the Instreamer.

**Step 3** Connect the power cable to a power source and the **Pwr** jack of the Instreamer.

**Step 4** Plug headphones into the headphone jack of the Instreamer and listen for the IP address that the Instreamer receives.

**Step 5** Open a web browser and enter the IP address that the Instreamer read to you. By default, there is no username or password set. The Barix Instreamer page appears.
**Step 6**  Click the **Configuration** button. The Settings page appears and should open to the **Network** tab. If not, click the **Network** tab.

**Step 7**  Enter the Instreamer's **IP address** in the **IP Address** fields (it read this to you in Step 4) or leave the fields at zero and the Instreamer will receive an address via DHCP.

If you entered an IP address, continue with Step 8 on page 5. If you're using DHCP, continue with Step 10 on page 7.
Step 8  Click the **Apply** button. The Settings page refreshes with a countdown.

The IP address is set to 172.30.226.52

3

Wait for the countdown and then click here to continue
### Step 9

Wait for the countdown to finish and then click the **Wait for the countdown and then click here to continue** link. The Settings page appears open to the **Network** tab and your IP address is now set.

<table>
<thead>
<tr>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Here you can configure the device's Static IP address. With this you can set a permanent IP address so that the device does not have to get a new one upon power-up. We recommend that you set a Static IP address.</td>
</tr>
</tbody>
</table>

#### IP Address

Enter the 4 values of the desired device IP address e.g.: 
- "0.0.0.0" for automatic discovery (DHCP/DHCP6, Prone, AutoIP)
- "192.168.0.12" for an internal LAN

Default: "0.0.0.0"

#### Netmask

Enter the 4 values of the desired Static IP e.g.: 
- "0.0.0.0" for a default Netmask depending on the used IP Address: 
  - "255.255.255.0" for a C class network

Default: "255.255.255.0"

#### Gateway IP Address

Enter the 4 values of the desired Gateway IP address e.g.: 
- "0.0.0.0" for no Gateway
- "192.168.0.1" for a Gateway in a LAN

Note: The Gateway has to be set only when connecting to other devices over the WAN (through a router).

Default: "0.0.0.0"

#### Use StaticIP

If set to "yes," the device will announce its IP address over the audio output. Default: "yes"

To store these settings, click on “Apply.” The device will restart with the new settings.
Step 10 Click the **Audio** tab. The Settings page refreshes.
**Step 11** Select **G.711 µLaw/8 kHz mono** from the **Encoding+Frequency** dropdown menu and click the **Apply** button to save your changes. The Settings page refreshes with a countdown.

When the countdown finishes, your browser should automatically forward you to the **Audio** tab on the Settings page. If it doesn’t, click the **here** link to return.
Step 12 Click the **Streaming** tab. The Settings page refreshes.

Step 13 Scroll down to the **Stream to** area and select RTP from the **Conn. type** dropdown menu in the first row.

Step 14 Enter your multicast IP address and port number in the **IP #**, **#**, and **Port #** fields in the first row. The multicast IP address should be chosen after consultation with your networking group and the port number must be an even numbered port that is greater than 20480.
**Step 15** Click the **Apply** button to save your changes. The Settings page refreshes with a countdown.

When the countdown finishes, your browser should automatically forward you to the **Streaming** tab on the Settings page. If it doesn’t, click the **here** link to return.

**Step 16** Close this window. Your Instreamer configuration is complete.
Install the LibXML Utilities

DialStreamer uses the LibXML utilities to properly recognize, decipher, and acquire the significant data (and commands) between InformaCast, the Instreamer, and your multicast audio, and act on that particular data.

**Step 1** Open a web browser and go to https://<InformaCast Virtual Appliance IP Address>:10000, where <InformaCast Virtual Appliance IP Address> is InformaCast’s statically configured IP address. The Login to Webmin page appears.

**Step 2** Enter your OS credentials. The Webmin homepage appears.
**Step 3** Go to **System | Software Packages**. The Software Packages page appears.

**Step 4** Select the **From uploaded file** radio button in the **Install a New Package** area and click its **Browse** button. The Choose File to Upload dialog box appears.

**Step 5** Navigate to where you saved your software distribution package for DialStreamer, select the `libxml2_2.8.0+dfsg1-7+wheezy4_i386.deb` file and click the **Open** button.
**Step 6**  Click the **Install** button in the *Install a New Package* area. The Install Package page appears.

**Step 7**  Leave the default selections as they are and click the **Install** button. Your software package is installed.
**Step 8** Click the **Return to module index** link. The Software Packages page appears.
**Step 9**  Follow Steps 4 through 7, selecting the libxml2-utils_2.8.0+dfsg1-7+wheezy4_i386.deb file. Your software packages are installed.
Configure InformaCast

Configuring InformaCast for use with DialStreamer involves:

- Adding the DialStreamer.js script as a script recipient in the Script plugin
- Creating a recipient group that contains your script recipient
- Creating an InformaCast message that will be broadcast with DialStreamer
- Creating a call redirect in the CallAware plugin

Add DialStreamer.js to Script Plugin

The DialStreamer.js script must be added to the Script plugin as a script recipient.

**Step 1**

Open a web browser and go to https://<InformaCast IP Address>:8444/InformaCast, where <InformaCast IP Address> is the statically configured IP address of your InformaCast server. InformaCast’s Login page appears.
Step 2  Enter your username and password in the **Login** and **Password** fields and click the **Log In** button. InformaCast’s homepage appears.

**InformaCast**

Welcome to InformaCast by Singlewire Software

InformaCast®
from Singlewire Software

Welcome to the InformaCast Administration Page.

Step 3  Go to **Plugins** | **Script**. The Script Plugin page appears.
**Step 4**  Click the **Configuration** link. The Script Recipient Configuration page appears.

**Step 5**  Click the **Add** button. The Add Script page appears.

**Step 6**  Enter a name for your script in the **Script Name** field, e.g. Multicast Listen Script.

**Note**  You will need just one script, regardless of the number of audio streams you wish to make available using the script.
**Step 7**  Click the **Browse** button next to the **Script File** field. The Choose File to Upload dialog box appears.

![Choose File to Upload dialog box](image)

**Step 8**  Navigate to where you saved your DialStreamer.js file, select it, and click the **Open** button.

**Step 9**  Click the **Save** button. The Script Recipient Configuration page appears, confirming your script’s addition.
Create a Recipient Group for Your Script Recipient

Once you’ve added DialStreamer.js to the Script plugin, you’ll need to create a recipient group that contains that script recipient.

**Step 1** Go to **Recipients | Edit Recipient Groups**. The Edit Recipient Groups page appears. This page shows the number of phones, plugin recipients, and currently registered IP speakers for each group.

**Note** Only licensed options will appear on this page. For example, if your system is not licensed for IP speakers, the **Speakers** column will not appear.
**Step 2**  Click the **Add** button. The Add Recipient Group page appears.

**Step 3**  Enter a name for your recipient group in the **Name** field.

**Step 4**  Enter a dial code for your recipient group (if applicable) in the **Dial Code** field.

**Step 5**  Add/Select an existing recipient group tag from the **Tags** field/Add a Tag dropdown menu (optional).
Step 6  Select the **Individually** checkbox on the Add Recipient Group page and click its **Edit** button. The Select Individual Recipients pop-up window appears.

Step 7  Scroll through the list until you find the script name you created in Step 6 on page 18.

Step 8  Double click your script’s name or select it and click the **Add** link to move it from the **Available Recipients** area to the **Selected Recipients** area.
**Step 9**  Click the **Submit** button. The script recipient is added to the recipient group.

**Step 10**  Click the **Update** button. Your recipient group is created.
Create an InformaCast Message for DialStreamer

After you’ve created your DialStreamer recipient group, you’ll need to add the InformaCast message that DialStreamer will use.

**Step 1** Go to Messages | Send or Edit Messages. The Send or Edit Messages page appears.
**Step 2**  Click the **Add** button. The Add Message page appears.

**Step 3**  Enter a name for your message in the **Description** field.

**Step 4**  Select **Text** from the **Message Type** dropdown menu.

**Step 5**  Select the **Allow Customization** checkbox.

**Step 6**  Enter **Replaced by the CallAware Plugin** in the **Short** and **Long Text** fields.

**Step 7**  Set any other message parameters that pertain to your environment.

**Step 8**  Click the **Add** button. Your message is saved.
Create a CallAware Plugin Call Redirect

Your call redirect will use the InformaCast message and recipient group you created in “Create a Recipient Group for Your Script Recipient” on page 20 and “Create an InformaCast Message for DialStreamer” on page 24.

Note
If you have not yet set up the CallAware plugin, you will need the Cisco Unified Communications Manager application username and password you created for InformaCast before you can create your call redirect. Contact your administrator if you don’t know your application username or password, and see CallAware Plugin Overview for more information on configuring the plugin.

Step 1  Go to Plugins | CallAware. The CallAware Plugin page appears.
**Step 2**  Click the **Call Redirects** link. The Call Redirects page appears.

**Step 3**  Click the **Add** button. The Add Call Redirect page appears.

**Step 4**  Enter **DialStreamer** in the **Name** field.
Step 5  Use an existing route point in your environment that has no calling search space assigned to it as the value for the **Route Point Name,DN** field.

Step 6  Enter the Unity Connection voicemail pilot number in the **Redirect Call to DN** field. This will cause calls to go to Unity Connection where a custom routing rule and call handler will accept the call and hang it up (see “Configure Cisco Unity Connection” on page 29 for more information).

Step 7  Select the **Route Point’s CSS** radio button for **Redirect Call using**.

Step 8  Select the InformaCast message you created in Step 3 on page 25 from the **InformaCast Message** dropdown menu.

Step 9  Select the recipient group you created in Step 3 on page 21 from the **Recipient Groups** field.

Step 10 Enter **${callingPhone}** in the **Short Message Text** field.

Step 11 Enter `{ "phone_user": "InformaCast_JS", "phone_password": "changeMe", "multicast_ip": "239.1.1.7", "multicast_port": "20480" }` in the **Long Message Text** field, substituting your Unified Communications Manager application username and password for **phone_user** and **phone_password**, respectively.

Step 12 Click the **Save** button. Your call redirect is saved and your DialStreamer configuration is complete.
Configure Cisco Unity Connection

Cisco’s CTIManager service is failing to recognize when calls should be dropped during DialStreamer’s use. When calls aren’t dropped properly, they get “stuck” on the phone and eventually cause all calls to the phone to fail. To prevent these failures from occurring, you will create a system call handler in Cisco Unity Connection with a rule to direct all calls from CallAware’s CTI route point to be dropped with no greeting played. This same system call handler can also be used to drop calls from InformaCast that accidentally end up in voicemail.

**Step 1**  
Open a web browser and log into the administration interface of the Unity Connection (the address will be similar to https://<Unity Connection IP Address>/cuadmin). The Cisco Unity Connection Administration page appears.
Step 2  Go to Call Management | System Call Handlers in the left navigation menu. The Search Call Handlers page appears.
**Step 3**  Click the **Add New** button. The New Call Handler page appears.
Step 4  Enter a name for your call handler in the **Display Name** field, e.g. Drop Calls from DialStreamer, and click the **Save** button. The Edit Call Handler Basics page appears.
Step 5  Go to **Edit | Greetings** in the Edit Call Handler Basic page’s menu structure. The Greetings page appears.
**Step 6** Click the **Standard** link. The Edit Greeting (Standard) page appears.

- Select the **Nothing** radio button in the **Callers Hear** area.
- Scroll down the page to the **After Greeting** area, select **Hang Up** from the **Call Action** dropdown menu, and click the **Save** button.
Step 9  Go to Call Management | Call Routing | Forwarded Routing Rules in the left navigation menu. The Forwarded Routing Rules page appears.
Step 10  Click the Add New button. The New “Forwarded Routing Rule” page appears.
**Step 11** Enter a name for your forwarded routing rule in the **Display Name** field, e.g. Drop Calls from DialStreamer, and click the **Save** button. The Edit “Forwarded Routing Rule” (Drop Calls from DialStreamer) page appears.
**Step 12**  Click the **Add New** button in the Routing Rule Conditions table. The Edit Forwarded Routing Rule Condition page appears.

**Step 13**  Select the **Forwarding Station** radio button.

**Step 14**  Ensure **In** is selected from the dropdown menu and enter the DN users will dial to start streaming audio via DialStreamer in the field (this is the same DN you entered in Step 5 on page 28).

**Step 15**  Click the **Save** button.
Step 16 Click the **Edit “Forwarded Routing Rule” (Drop Calls from DialStreamer)** link at the top of the page to return to the Edit “Forwarded Routing Rule” (Drop Calls from DialStreamer) page. You can see the Forwarding Station parameter that now appears in the Routing Rule Conditions table.

Step 17 Select the **Call Handler** radio button in the **Send Call to** area.

Step 18 Ensure **Drop Call** appears in the Call Handler dropdown menu.

Step 19 Select the **Go Directly to Greetings** radio button and click the **Save** button.
Step 20  Click the **Forwarded Routing Rules** link at the top of the page to return to the Forwarded Routing Rules page. You can see your new forwarded routing rule that now appears in the Forwarded Routing Rules in Descending Order of Precedence table.

**Note**  Your newly created forwarded routing rule should appear as a higher preference than other, generic rules. If it appears lower in the Forwarded Routing Rules in Descending Order of Precedence table, click the **Change Order** button and move the rule higher in the list of rules.
Use DialStreamer

Now that you’ve completed your configuration of DialStreamer, you can pick up the receiver of an IP phone on your network, dial the redirect number you created in the CallAware plugin, and listen to the audio on a TV (or the device of your choice that’s sourcing audio). Its connection through RCA cables to the Instreamer converts your TV’s audio into a multicast RTP stream available to your IP phone.
Acknowledgments

Without the xmllib2 package, DialStreamer wouldn’t be able to make InformaCast the revolutionary broadcast system that it is.

For the software license information for InformaCast, see Acknowledgments.

xmllib2

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