Multicast Paging

Author: Zultys Technical Support Department

This document covers using the multicast paging between ZIP5 and ZIP3 phones. 3rd party devices that support Multicast paging may also be incorporated, but are not fully supported by Zultys technical support. Zultys technical support recommends Algo Paging Equipment as a way to incorporate traditional paging equipment into a multicast paging environment. This can be used to overcome the paging limitations when using the built in MXv (50), MX-SE(30), MX250(32), MX30(16) paging service.

Limitations:
- Technical Support for ZIP5 and ZIP3 phones only
- Will not integrate with the built in Page Server of the MX without a device to convert SIP page to Multicast Page such as Algo 8180, or CyberData Paging Equipment
- Will not cross routers/networks/subnets
- Must be configured on the Advanced Tab of the ZIP5 and ZIP3 profile
- Maximum of 5 groups defined per ZIP5 phone and 10 groups for a ZIP3
- Limited to the maximum number of registered devices on the MX
- 57iCT cordless handset cannot initiate a page.
2 Introduction
This document is intended to provide the basics of Multicast paging and SIP paging, as well as the basics of setting up Multicast paging on Zultys branded devices that support multicast paging. For full details on the setup and troubleshooting of each of the devices.
An Administrator can configure a specific key on the device that will allow you to send or receive a page to or from pre-configured multicast address(es). You can specify up to 5 listening multicast addresses on a single ZIP5 device, and 10 for a ZIP3 device.

Both multicast and SIP based paging may be integrated and combined in a single deployment, but may require additional equipment to integrate/convert from SIP to Multicast paging.

## 3 Multicast Paging

### 3.1 How Multicast Paging Works

After a user presses a configured “Paging” key on the phone, the phone sends a page (which is an RTP stream, for this document we will refer to it as a “page”) to a preconfigured multicast address(es). Any phone in the local network then listens for the page on the preconfigured multicast address(es). The Phone will display the multicast page sent/received address(es) to the user.

The phone uses G711 uLaw CODEC for multicast paging.

The recipient can drop the incoming page if required. The recipient can also press Do Not Disturb (DND) to ignore/reject any incoming pages.

### 3.2 Caveats of Multicast Paging

Multicast paging is for ZIP5 and ZIP3 phones only; there is no interaction with any other certified phones including ZIP2xN phones or MXIE Softphone. The 57iCT cordless handset cannot initiate a page.

This service is non-routable, and cannot be used to page across MXgroup or remote phones.

⚠️ **Note:** The Group Paging Settings are dependent on the setting for the “Allow Barge In” parameter.

⚠️ **Note:** Multicast page is one way only - from sender to the receiver.

⚠️ **Note:** For outgoing page, all other existing calls on the phone are put on hold.
For incoming pages, the ringing display is dependent on the “Allow Barge-In” parameter. If this parameter is disabled, and there is no other call on the phone, then the paging is automatically played via the preferred audio device. If there is an existing call on the phone, the call initially displays in the ringing state. The user has the option to accept/ignore the call. If the “Allow Barge-In” parameter is enabled, the page call barges in, and any existing calls are put on hold.

If a page session already exists on the phone, and the phone receives another incoming page, the priority is given to the first multicast session and the second multicast session is ignored. The behavior for the incoming calls in this case is also based on the setting for the “Allow Barge-in” parameter. The incoming call is handled as if there were an existing call already on the phone.

### 3.3 Advantages of Multicast Paging

A multicast page is essentially a predefined broadcast address that the phones or SIP user agents are programmed to listen to. Each phone can be configured to listen to multiple multicast IP addresses or page zones.

The advantage of a multicast page is that only one SIP session is established between the originator and the rest of the members of the multicast page group. Subsequently, the phone sends only one RTP stream to the multicast group on which the devices are listening. If there are 100 phones listening on a multicast page, it is equivalent to a single phone call instead of a 100-party conference call. This makes multicast paging suitable for groups that number in the thousands.

Multicast paging allows for virtually unlimited paging capability in a local network, does not require a session license to operate, and is almost instantaneous, as it does not require the phones to acknowledge the page request.

### 4 SIP Paging

#### 4.1 How SIP Paging Works

SIP paging works as follows: the MX places a call to the device with an auto answer flag if the device is a ZIP5, ZIP3 or a Polycom device (other device types must be specifically configured to answer pages automatically), once all devices have answered the call, the page is made to these devices. The MX Page Server waits for each device to acknowledge the call is setup up and answered. If not all devices responding within 6 seconds the MX will assume the device is non-responsive and continue the page without including the non-responsive devices.

#### 4.2 Caveats of SIP Paging

- SIP paging is limited to
  - 50 devices on and MXv
  - 32 devices on a MX250
  - 30 devices on an MX-SE
Multicast Paging (0000000393) / Revision 18
August 7, 2015
© 2015 Zultys, Inc. No reproduction of distribution without permission
Page 6 of 9

5  Configuration for ZIP5 devices
An Administrator can use the following parameters in the Advanced Tab of the device profile to create Paging Groups or Zones.

For incoming RTP multicasts, the ringing display is dependent on the “Allow Barge-In” parameter. If this parameter is disabled, and there is no other call on the phone, then the paging is automatically played via the preferred audio device (see the model-specific IP Phone User Guide for setting Audio Mode on the phone).

If there is an existing call on the phone, the call initially displays in the ringing state. The user has the option to accept/ignore the call. If the “Allow Barge-In” parameter is enabled, the RTP multicast call barges in, and any existing calls are put on hold.

If an RTP multicast session already exists on the phone, and the phone receives another incoming RTP multicast session, the priority is given to the first multicast session and the second multicast session is ignored. The behavior for the incoming calls in this case is also based on the setting for the “Allow Barge-in” parameter. The incoming call is handled as if there were an existing call already on the phone.

Multicast RTP is one way only - from sender to the receiver (i.e. from sender to the multicast address (receiver)).

5.1  Phone Configuration from the Advance Tab of the ZIP5 profile
The Key can be any programmable key on a ZIP5 including

- softkeyN type
- toptsoftkeyN type
- prgkeyN type
- expmodX keyN type

- **KeyN value:** is the multicast IP and port you will be paging
- **KeyN Label:** is the LCD label assigned to this key (if available)
- **KeyN Type:** is always paging
- **KeyN Locked:** optional, for locking changes to the key from web interface
• **paging group listening:** Allows you to specify up to 5 listening multicast addresses to send/receive a Real Time Transport Protocol (RTP) stream to/from these pre-configured multicast address(es). Each multicast IP and port combination is separated by a comma.

5.1.1 Example 1 (57i)
In the below example we are creating a single page zone which this phone can send pages to, and receive pages from. The phone in this example is a 57i phone and the upper left key is the paging key.

```plaintext
topsoftkey1 value : 224.0.0.2:10000
topsoftkey1 label : Page
topsoftkey1 type : paging
topsoftkey1 locked : 0
paging group listening : 224.0.0.2:10000
```

5.1.2 Example 2 (53e)
In the below example we are creating a single page zone which this phone can send pages to, and receive pages from. The phone in this example is a 53e phone and the upper left key is the paging key. This device will listen to 2 different paging groups as defined in the paging group listening entry.

```plaintext
prgkey5 value : 224.0.0.3:10001
prgkey5 type : paging
prgkey5 locked : 0
paging group listening : 224.0.0.2:10000,224.0.0.3:10001
```

5.2 Multiple Zones or Groups
If using multiple page groups or zones, for proper integration with ZIP3 devices you must assign a unique IP address and unique port for each zone.

To configure the device to listen to multiple paging groups, add each additional unique IP and port pair to the “paging group listening :” entry separated by a comma.

6 Configuration for ZIP3 Devices
You can configure a specific key on the phone from MX Administrator that will allow you to send or receive a page to or from pre-configured multicast address(es). The ZIP3 may listen to up to 10 different page groups.

6.1 To Listen for Multicast paging
In MX Administrator Navigate to the ZIP3 profile and select the Advanced tab of the device profile to enable the ZIP3xi to listen to a Multicast page. Add the following lines to the advanced tab:
6.1.1 ZIP33i, ZIP35i, ZIP37G

```
[ cfg:/phone/config/vpPhone/MulticastPage.cfg,reboot=0 ]
ListenAddress1.Label = Page_MC
ListenAddress1.IPAddress = 224.0.0.3:10000
ReceivePriority.Active = 1
ReceivePriority.Priority = 0
```

6.1.2 ZIP36G

```
ListenAddress1.Label = Cyber_MC
multicast.listen_address.1.label = Cyber_MC
multicast.listen_address.1.ip_address = 234.2.1.1:10002
multicast.receive_priority.enable =1
multicast.receive_priority.priority = 0
```

6.2 Configuring Page Button

In MX Administrator Navigate to the ZIP3 profile and select the advanced tab of the device profile to enable the ZIP3xi to make a Multicast page. Add the following lines to the advanced tab. In the below example, the “Page” key is the 6th key (or the last/bottom key).

6.2.1 ZIP33i, ZIP35i, ZIP37G

```
[ cfg:/phone/config/vpPhone/vpPhone.ini,reboot=1 ]
memory6.DKtype = 24
memory6.Line = 0
memory6.Value = 224.0.0.3:10000
memory6.PickupValue =
```

6.2.2 ZIP36G

```
linekey.6.type = 24
linekey.6.line = 0
linekey.6.value = 234.2.1.1:10002
linekey.6.pickup_value =
```

6.3 Multiple Zones or Groups

Each new zone or group requires a unique IP address and Port. If you use the same port for all zones but a unique IP paging will not work.

6.3.1 Z tp33i, ZIP35i, ZIP37G

To add multiple listening groups, change the N value to a value between 1 and 10, and assign a unique IP and port for each page group.
6.3.2 ZIP36G
To add multiple listening groups, change the N value to a value between 1 and 10, and assign a unique IP and port for each page group.

ListenAddressN.Label = Page_MC
ListenAddressN.IPAddress = [Unique IP]:[Unique Port]

6.4 Disable multicast page interrupting active calls
By default, Multicast Pages will interrupt active calls, to disable this function please add the following to the advanced tab to disable this feature.

ReceivePriority.Active = 1
ReceivePriority.Priority = 0

7 Integrating Multicast Paging to Traditional Paging Equipment

7.1 Using a ZIP3
To integrate multicast paging with traditional paging equipment that does not require a relay, Zultys technical support recommends using a single ZIP3 device that is configured to receive the multicast page to connect to the traditional page equipment. This connection is accomplished by using the headset jack of the ZIP3 device as an “audio out” port to be connected to the traditional page equipment. Additional amplifiers and or conversion may be required depending on the page input port of the traditional paging equipment.

7.2 Using 3rd Party Devices
Zultys recommends the Algo 8180 or CyberData Paging equipment to integrate with traditional paging equipment when using Multicast Paging. For more information please review the integration documentation for these devices available from Zultys Technical Support.