



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Global IP Solutions Click-to-Talk with Avaya Communication Manager - Issue 1.0

Abstract

These Application Notes describe the steps for configuring Global IP Solutions Click-to-Talk to communicate with Avaya Communication Manager. Global IP Solutions Click-to-Talk consists of the Click-to-Talk web plug-in and the Global IP Solutions Integrated System Services/Internet Voice Transcoder (ISS/IVX) Server. The Global IP Solutions Click-to-Talk web plug-in component is accessed through a web browser.

Emphasis of the testing was placed on verifying good voice quality from Click-to-Talk and its ability to interoperate with Avaya Communication Manager.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

With the ease of use and general availability of the web browser and multimedia capable PC, Global IP Solutions offers a unique solution to access telephone support and the telephone system in general. Global IP Solutions Click-to-Talk consists of two parts: a client PC with web browser plug-in and multimedia capability, and a Global IP Solutions Integrated System Services/Internet Voice Transcoder ISS/IVX Server. The Click-to-Talk web-plug-in is used to initiate calls to the Global IP Solutions ISS/IVX Server, which is located in the core network. The Global IP Solutions ISS/IVX Server communicates with Avaya Communication Manager to setup a call via an H.323 trunk.

To place a call, a user clicks on a link on a web page. The first time a user clicks on a Click-to-Talk link, the Click-to-Talk web plug-in is installed on the user's PC automatically. On subsequent Click-to-Talk calls, the web page uses the Click-to-Talk web plug-in that is installed on the user's PC. Calls are established from the Click-to-Talk web plug-in through the Global IP Solutions ISS/IVX Server to Avaya Communication Manager.

Figure 1 illustrates the configuration used in these Application Notes. The Click-to-Talk web plug-in communicates with the ISS/IVX Server via a common Internet IP address. The telephone numbers that the Click-to-Talk web plug-in can "dial" are administered in web pages that reside on the Web Server.

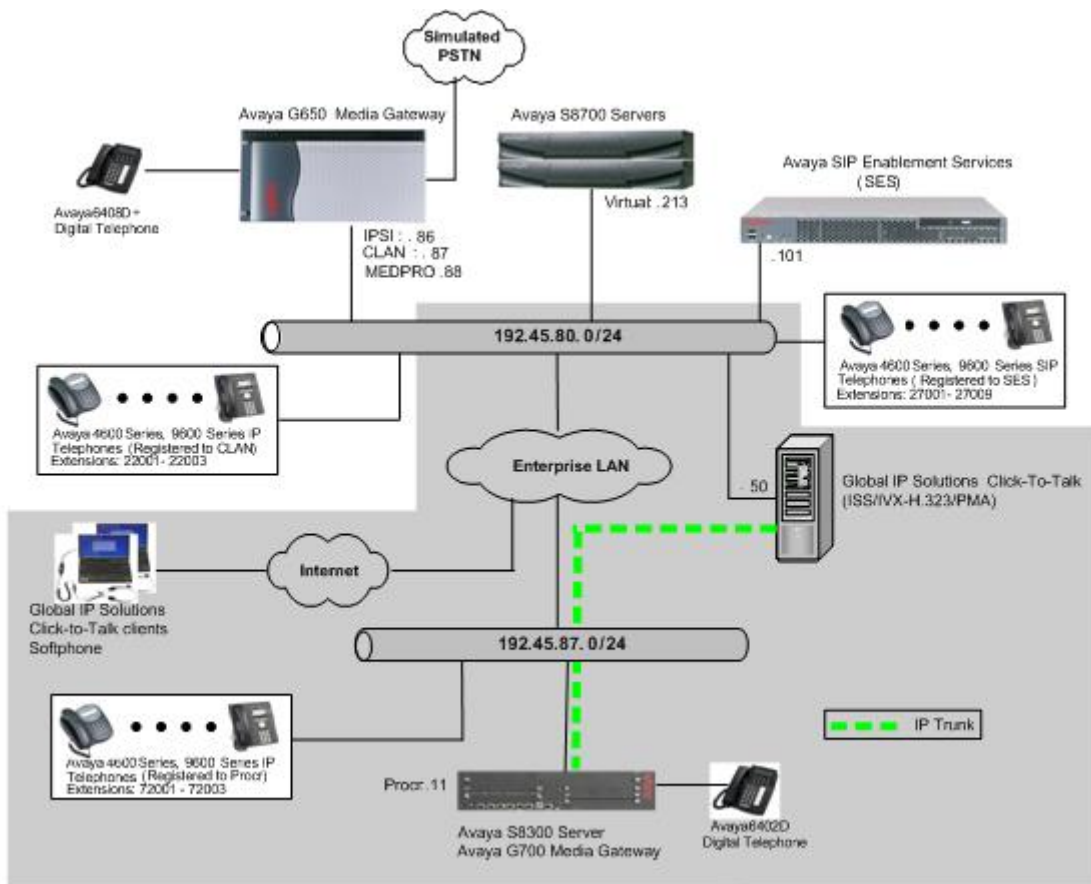


Figure 1: Sample Network Configuration

2. Equipment and Software Validated

The following equipment and software/firmware were used for the sample configurations provided:

Equipment		Software/Firmware
Avaya S8700 Server		Avaya Communication Manager 4.0.1 (R014x.00.1.731.2-14300)
Avaya G650 Media Gateway		
	TN2312BP IP Server Interface	HW11 FW030
	TN799DP CLAN Interface	HW01 FW017
	TN2302AP IP Media Processor	HW20 FW108
Avaya S8300 Media Server with Avaya G700 Media Gateway		Avaya Communication Manager 4.0.1 (R014x.00.1.731.2-14300)
Avaya 4600 Series IP Telephones		
	4620 (H.323)	2.8
	4625 (H.323)	2.8
Avaya 9600 Series IP Telephones		
	9630 (H.323)	1.5
	9650 (H.323)	1.5
Avaya SIP Telephones		
	4610 (SIP)	2.2.2
	9630 (SIP)	1.0.13
Extreme Networks Summit 48		4.1.21
Global IP Solutions Integrated System Services (ISS)		5.0.1
Global IP Solutions Internet Voice Transcoder for H.323 (IVX)		5.0.1
Global IP Solutions Remote Extension Client on Microsoft Windows XP Professional version 2002 with Service Pack 2.		5.0.1

3. Configure Avaya Communication Manager

This section describes the procedure for setting up an IP trunk between Avaya Communication Manager and the Global IP Solutions ISS/IVX Server. The steps include setting up an IP codec set, an IP network region, an IP node name, a signaling group, and a trunk group. The highlights in the following screens indicate the values used during the compliance test. Default values may be used for all other fields.

These steps are performed from the Avaya Communication Manager System Access Terminal (SAT) interface.

3.1. Configure IP Codec Set

This section describes the steps for administering an audio codec set in Avaya Communication Manager. This codec set is used in the IP network region for communications between Avaya

Communication Manager and the Global IP Solutions ISS/IVX Server. Enter the **change ip-codec-set <c>** command, where **c** is a number between **1** and **7**, inclusive. For the compliance testing, G.711MU and G.729AB were used.

```
change ip-codec-set 1                                     Page 1 of 2

                                IP Codec Set

Codec Set: 1

Audio      Silence      Frames      Packet
Codec      Suppression  Per Pkt    Size(ms)
1: G.711MU      n           2          20
2:
3:
4:
5:
6:
7:

Media Encryption
1: none
2:
3:
```

3.2. Configure IP Network Region

This section describes the steps for administering an IP network region in Avaya Communication Manager for communication between Avaya Communication Manager and the Global IP Solutions ISS/IVX Server. Enter the **change ip-network-region <n>** command, where **n** is a number between **1** and **250** inclusive, and set the Codec Set field to **1**. The audio codec set was configured in **Section 3.1**.

```
change ip-network-region 1                               Page 1 of 19

                                IP NETWORK REGION

Region: 1
Location:      Authoritative Domain:
Name:
MEDIA PARAMETERS                                     Intra-region IP-IP Direct Audio: yes
Codec Set: 1                                         Inter-region IP-IP Direct Audio: yes
UDP Port Min: 2048                                   IP Audio Hairpinning? n
UDP Port Max: 3329
DIFFSERV/TOS PARAMETERS                               RTCP Reporting Enabled? y
Call Control PHB Value: 46                           RTCP MONITOR SERVER PARAMETERS
Audio PHB Value: 46                                  Use Default Server Parameters? y
Video PHB Value: 26
802.1P/Q PARAMETERS
Call Control 802.1p Priority: 6
Audio 802.1p Priority: 6
Video 802.1p Priority: 5                             AUDIO RESOURCE RESERVATION PARAMETERS
H.323 IP ENDPOINTS                                   RSVP Enabled? n
H.323 Link Bounce Recovery? y
Idle Traffic Interval (sec): 20
Keep-Alive Interval (sec): 5
Keep-Alive Count: 5
```

3.3. Configure IP Node Name

This section describes the steps for setting the IP node name for the Global IP Solutions ISS/IVX Server in Avaya Communication Manager. Enter the **change node-names ip** command, and add a node name for the Global IP Solutions ISS/IVX Server, GIPS, along with its IP address.

```
change node-names ip                                     Page 1 of 2
```

IP NODE NAMES	
Name	IP Address
CLAN	192.45.80.87
IA770	192.45.87.12
S8300CDR	192.45.88.11
S8300G250	192.45.82.11
S8300G350	192.45.81.11
GIPS	192.45.85.50
default	0.0.0.0
procr	192.45.87.11

3.4. Configure Signaling Group

This section describes the steps for administering a signaling group in Avaya Communication Manager for communication between Avaya Communication Manager and the Global IP Solutions ISS/IVX Server. Enter the **add signaling-group <s>** command, where **s** is an available signaling group, and configure the following:

- Group Type – Set to **H.323**.
- Near-end Node Name – Set to **procr**.
- Far-end Node Name – Set to **GIPS**, which configured in **Section 3.3**.
- Far-end Network Region – Set to **1**, which is created in **Section 3.2**.
- Trunk Group for Channel Selection – **91**. This value has to match the trunk group number configured in **Section 3.5**.

The following screen displays a sample signaling group utilized during the test.

```
display signaling-group 91                               Page 1 of 5
```

SIGNALING GROUP	
Group Number: 91	Group Type: h.323
Remote Office? n	Max number of NCA TSC: 0
SBS? n	Max number of CA TSC: 0
IP Video? n	Trunk Group for NCA TSC:
Trunk Group for Channel Selection: 91	
TSC Supplementary Service Protocol: a	
T303 Timer(sec): 10	
Near-end Node Name: procr	Far-end Node Name: GIPS
Near-end Listen Port: 1720	Far-end Listen Port: 1720
	Far-end Network Region: 1
LRQ Required? n	Calls Share IP Signaling Connection? n
RRQ Required? n	
Media Encryption? n	Bypass If IP Threshold Exceeded? n
	H.235 Annex H Required? n
DTMF over IP: out-of-band	Direct IP-IP Audio Connections? n
Link Loss Delay Timer(sec): 90	IP Audio Hairpinning? n
Enable Layer 3 Test? n	Interworking Message: PROGRESS
	DCP/Analog Bearer Capability: 3.1kHz

3.5. Configure Trunk Group

This section describes the steps for administering a trunk group in Avaya Communication Manager for communication between Avaya Communication Manager and the Global IP Solutions ISS/IVX Server. Enter the **add trunk-group <t>** command, where **t** is an available trunk group, and configure the following:

- Group Type – Set to the Group Type field value to **isdn**.
- Group Name – Enter a descriptive name.
- TAC – Set to any available trunk access code.
- Carrier Medium – Set to **H.323**.
- Service Type – Set to **tie**.

The following screens display a sample trunk group utilized during the test.

```
display trunk-group 91                                     Page 1 of 21
                                     TRUNK GROUP
Group Number: 91                                         Group Type: isdn          CDR Reports: y
Group Name: OUTSIDE CALL                                COR: 1                   TN: 1             TAC: 117
Direction: two-way                                     Outgoing Display? n     Carrier Medium: H.323
Dial Access? n                                         Busy Threshold: 255    Night Service:
Queue Length: 0                                         Service Type: tie        Auth Code? n
Member Assignment Method: manual
```

On **Page 5**, create trunk members and associate them to the signaling group.

```
display trunk-group 91                                     Page 5 of 21
                                     TRUNK GROUP
Administered Members (min/max): 1/4
GROUP MEMBER ASSIGNMENTS                               Total Administered Members: 4
Port           Name           Night           Sig Grp
1: T00052     T00052           n              91
2: T00053     T00053           n              91
3: T00054     T00054           n              91
4: T00055     T00055           n              91
5:
```

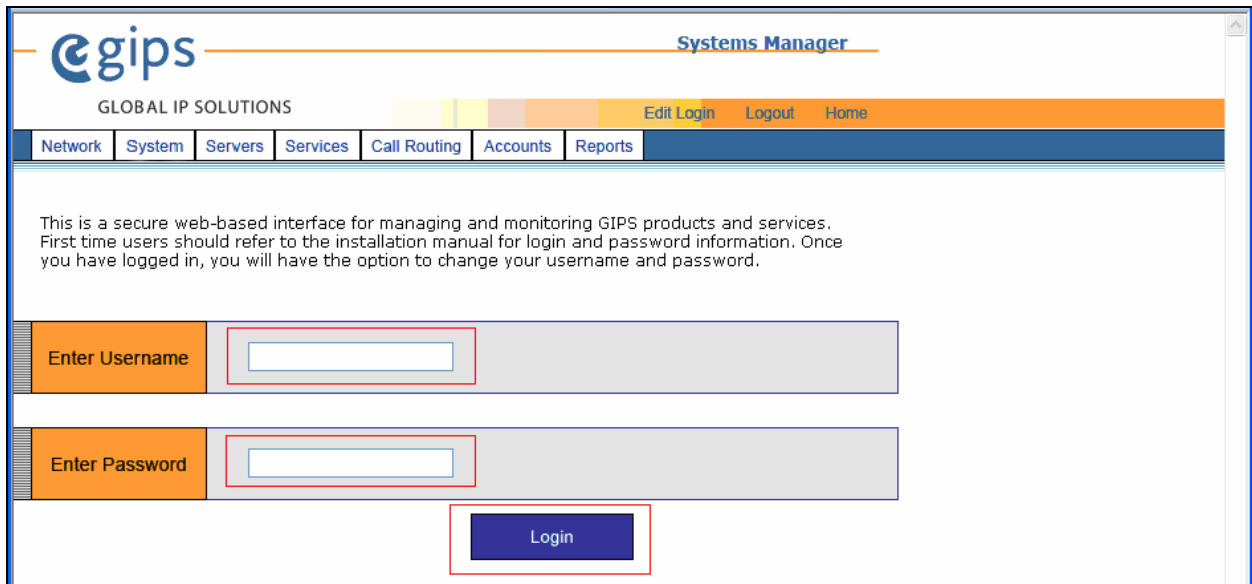
4. Global IP Solutions Click-to-Talk

There are two parts to the Global IP Solutions Click-to-Talk product: the Click-to-Talk web plug-in and the Global IP Solutions ISS/IVX Server. The Global IP Solutions ISS/IVX Server transcodes voice traffic between the Click-to-Talk web plug-in and Avaya Communication Manager. The Microsoft Internet Explorer web browser was used in the sample network to access the Global IP Solutions ISS/IVX Server configuration. For additional information, please refer to [2] in **Section 9**.

4.1. Configure the ISS/IVX Server

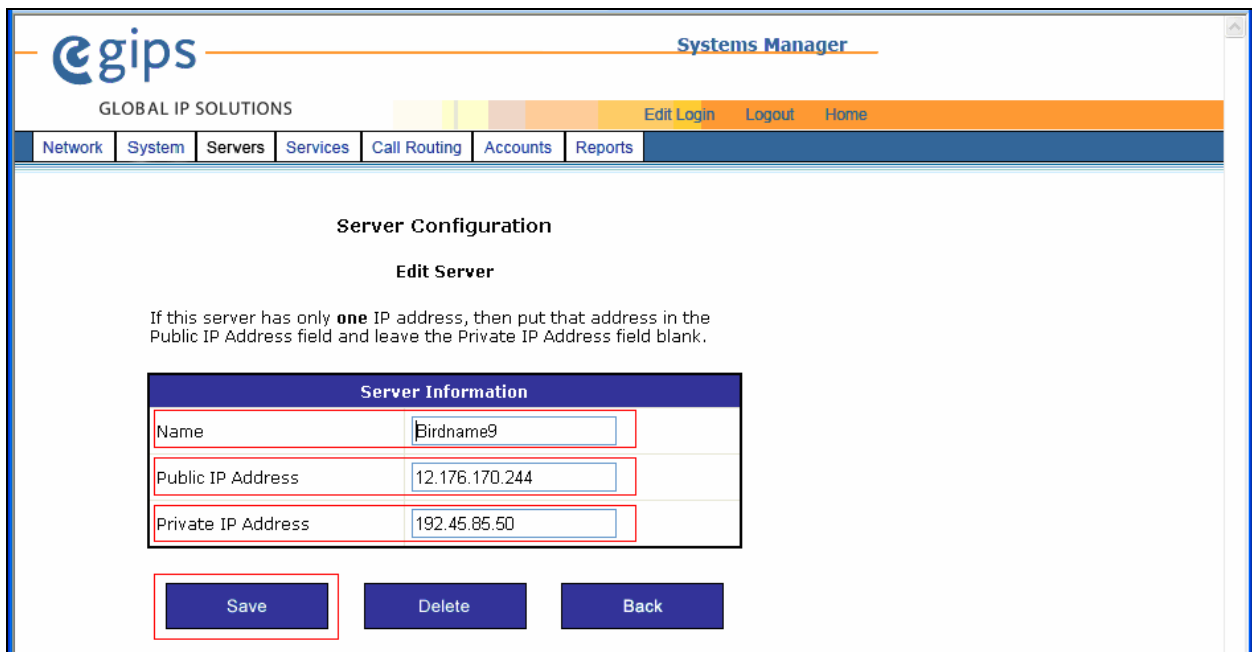
The following steps describe the configuration for the Global IP Solutions ISS/IVX Server to communicate with Avaya Communication Manager. A Web Server was installed on the same machine where the Global IP Solutions ISS/IVX is running as described in [2] of **Section 9**.

Launch a web browser and enter <http://<IP address of Server >:8080/systemsmanager/home.asp> in the URL. Log in with the appropriate credentials and click **Login**.



The screenshot shows the GIPS Systems Manager login interface. At the top left is the GIPS logo and the text "GLOBAL IP SOLUTIONS". To the right is the "Systems Manager" title. Below this is a navigation bar with tabs for "Network", "System", "Servers", "Services", "Call Routing", "Accounts", and "Reports". A secondary bar contains "Edit Login", "Logout", and "Home" links. A message states: "This is a secure web-based interface for managing and monitoring GIPS products and services. First time users should refer to the installation manual for login and password information. Once you have logged in, you will have the option to change your username and password." Below the message are two input fields: "Enter Username" and "Enter Password", each with a red rectangular highlight around the input area. A "Login" button is positioned below the password field, also highlighted with a red rectangle.

Select **Servers** on the main menu bar and click the **Add** button (not shown). The following screen shows values utilized during the compliance test. After completion, click the **Save** button to save the change.



The screenshot shows the "Server Configuration" page in the GIPS Systems Manager. The "Servers" tab is selected in the navigation bar. The page title is "Server Configuration" and the sub-title is "Edit Server". A message reads: "If this server has only **one** IP address, then put that address in the Public IP Address field and leave the Private IP Address field blank." Below this is a "Server Information" table with three rows: "Name" with the value "Birdname9", "Public IP Address" with the value "12.176.170.244", and "Private IP Address" with the value "192.45.85.50". Each of these three input fields is highlighted with a red rectangle. Below the table are three buttons: "Save", "Delete", and "Back". The "Save" button is highlighted with a red rectangle.

Select the **Services** tab and add ISS and Presence Manager Aggregator (PMA) services (not shown). For additional information on configuring ISS and PMA services, please reference [3] in **Section 9**.

4.2. Configure Call Routing

Navigate to **Call Routing** → **Routing** from the main menu bar, and click the **Add** button (not shown) to bring up the Routing Table Configuration form. This form sets the allowable numbers for outgoing calls. The Routing Table Name field during the test was set to **ToAvaya**. Click **Save** to complete.

In this sample configuration, if a user clicks on a link that dials any 5-digit number, such as the number 22001, the Global IP Solutions ISS/IVX Server will send the number to Avaya Communication Manager, without any modification to the extension.

The screenshot shows the eGIPS Systems Manager interface. The top navigation bar includes the eGIPS logo, 'GLOBAL IP SOLUTIONS', and links for 'Edit Login', 'Logout', and 'Home'. Below this is a menu bar with tabs for 'Network', 'System', 'Servers', 'Services', 'Call Routing', 'Accounts', and 'Reports'. The 'Call Routing' tab is selected.

The main content area is titled 'Routing Table Configuration' and contains a sub-section 'Add Routing Table'. It includes two bullet points: 'To add a new route, enter a table name and the route information, then click the **Save** button.' and 'After the routing table has been saved you will be able to add additional routes.'

Below the instructions is a form with the following fields:

- Routing Table Name:** A text input field containing 'ToAvaya'.
- New Route:** A table with four columns: 'Routing Priority', 'Called Number', 'Integration Digits', and 'Billing Mode'.

Routing Priority	Called Number	Integration Digits	Billing Mode
1	xxxxxx	xxxxxx	Billing Off

At the bottom of the form are two buttons: 'Save' and 'Back'.

Navigate to **Servers** → **IVX** from the main menu. Click the **Add** button (not shown) to add a new **IVX service**. This will bring up the **IVX Information** form to create a H.323 trunk between the Global IP Solutions ISS/IVX Server and Avaya Communication Manager. Configure the following fields:

Note: Due to the size of the screen capture, it was necessary to split the captured screen across two pages. The actual Web browser screen is one continuous page.

In the first part of the screen, the following fields were configured:

- Route: **ToAvaya** [This indicates call routing for this trunk.]
- Maximum Channel Capacity: **8** [This indicates the number of concurrent calls.]

IVX Configuration

Edit IVX

IVX Information	
Installed On:	Birdname9
Start Up Type:	Automatic
IVX Type:	IVX-H323
Route:	ToAwaya
IP Port Number:	4050
Maximum Channel Capacity:	8
Digit Duration:	120
Reservation Required:	<input type="checkbox"/>
Network Type:	WAN
Output Gain:	1.00
Service Address Distribution Heartbeat Interval:	3000
Presence Manager Heartbeat Interval:	10000
Logging and Directory Services Heartbeat Interval:	60000

H323 Configuration Information

In the second part of the screen, the following fields were configured:

- Routing Type: **Fixed Routing** with IP Address **192.45.87.11** [This is the IP address of Avaya Communication Manager terminating this trunk.]
- Allow H.323 Incoming Calls: Check the box to enable this feature.
- Audio Source Type: **64K Mulaw (G.711)** [This needs to match the ip-codec-set setting in Avaya Communication Manager used for this trunk. If the G.729 codec is desired, the ip-codec-set used for this trunk in Avaya Communication Manager must be set to G.729AB.]
- Fast Start: Check the box to enable this feature.

Click **Save** to complete

Routing (Outgoing)

Routing Type:

Gatekeeper

IP Address:

Gatekeeper Zone:

Fixed Routing

IP Address:

Out Signal IP Port:

Incoming (H323)

Allow H323 Incoming Calls:

In Signal IP Port:

RTP

RTP Port Range Begin:

RTP Port Range End:

General

Audio Source Type:

Maximum Jitter (ms):

Maximum Bandwidth (100 bps):

Fast Start:

Tunneling:

Ignore Available Bandwidth:

To verify the Global IP Solutions ISS/IVX is operational, click on **Network** from the main menu. This displays a list of all the services and their current status. Make sure the **ISS** and **IVX-H323** services are running.

The screenshot shows the eGIPS Systems Manager interface. At the top left is the eGIPS logo and 'GLOBAL IP SOLUTIONS'. At the top right is 'Systems Manager'. Below this is a navigation bar with 'Edit Login', 'Logout', and 'Home'. A menu bar contains 'Network', 'System', 'Servers', 'Services', 'Call Routing', 'Accounts', and 'Reports'. The 'Network' menu is selected.

The main content area is titled 'Network Status'. It includes a blue box with the text 'Last Updated 11/13/2007 12:57:56 PM', a checked checkbox for 'Refresh every 5 seconds.', and a link for 'Change Refresh Rate'.

Below this is a 'Server' section with a table of server details:

Server	
Server Name:	Birdname9
IP Address:	12.176.170.244 / 192.45.85.50
Status:	Connected

Links for the server section include: View Application Event Log, View System Event Log, Reboot Server, Reload Configuration, and Reload Security Keys.

Below the server details is a table of services:

Service Type	Version	Status	Start Up	Operations
IVX-H323	5.0.1.6	Running	Manual	Stop Pause Restart Monitor Edit
PMA	5.0.1.6	Running	Auto	Stop Pause Restart Monitor Edit
ISS Connection Tester Directory Service Logging Service Presence Manager Address Distribution SIP Service Voice Proxy	5.0.1.6	Running	Auto	Stop Pause Restart Monitor Edit

At the bottom left of the screenshot, it says 'Viewing 1 to 1 of 1 Records' and 'Page: 1'.

4.3. Configure the Web Server

Global IP Solutions Click-to-Talk uses the Microsoft IIS Web Server that was installed in Windows XP Professional, version 2002. Click-to-Talk may also utilize Microsoft IIS Web server on Windows XP and Microsoft Windows 2000 & 2003 Servers. The index.htm file (a sample index file provided by GIPS), shown below, is an initial web page used by the IIS Web Server and needs to be configured to dial the desired extension. Refer to [2] in **Section 9** for further required GIPS Click-to-Talk web page configurations.

```
<HTML>
<BODY BGCOLOR="#FFFFFF">
<center>
<IMG SRC="images/Click-to-TalkButton.gif" BORDER=0>
</center>

<SCRIPT LANGUAGE='JavaScript'>
<!--
function dialHardPhone( number )
{
    document.location = 'ClickToTalk.htm?dialednumber=' + number
}
function dialsoftPhone( phoneId )
{
    document.location = 'ClickToTalk.htm?destphoneid=' + phoneid
}
//-->
</SCRIPT>
<HR>

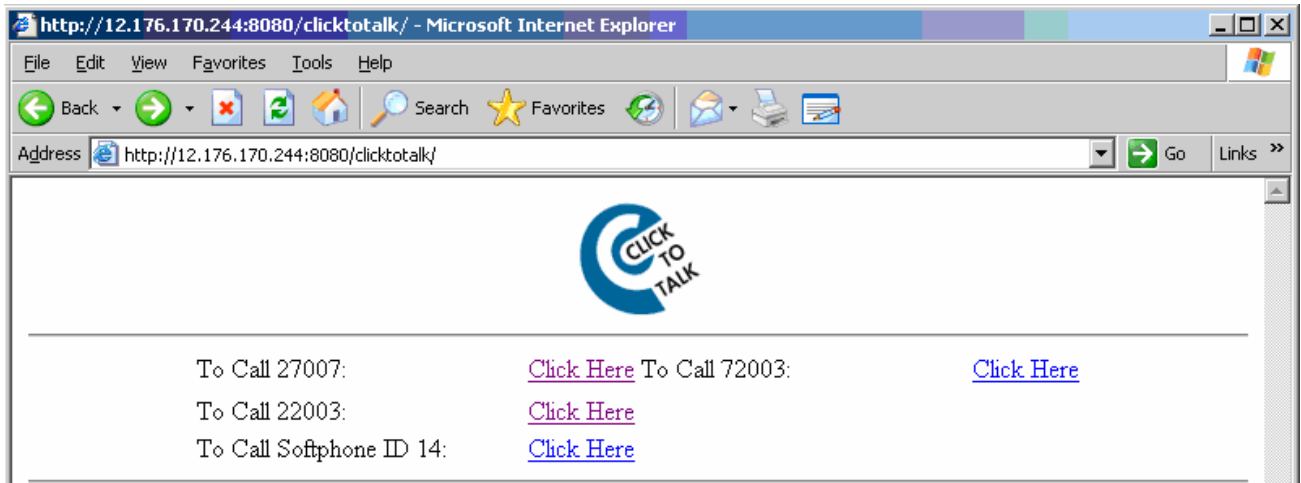
<center>

<TABLE>
<TR>
<TD WIDTH=200>
To Call 27007:
</TD>
<TD>
<A HREF="javascript:dialHardPhone('27007');">
Click Here</A>
</TD>
<TD WIDTH=200>
To Call 72003:
</TD>
<TD>
<A HREF="javascript:dialHardPhone('72003');">
Click Here</A>
</TD>
<TR>
</TR>
<TD WIDTH=200>
To Call 22003:
</TD>
<TD>
<A HREF="javascript:dialHardPhone('22003');">
Click Here</A>
</TD>
<TR>
<TD>
To Call softphone ID 14:
</TD>
<TD>
<A HREF="javascript:dialsoftPhone('14');">
Click Here</A>
</TD>
</TR>
</TABLE>

</center>

<HR>
</BODY>
```

To access the Click-to-Talk program, launch a web browser. Enter <http://<IP address of server:8080/ClickToTalk>> in the URL, and log in with the appropriate credentials. The following screen shows how the highlighted fields in the index.htm file are displayed on the user's web browser. The Softphone described in the following screen, refers to Global IP Solutions Softphone. When the user clicks on the **Click Here** hyperlink, the Click-to-Talk plug-in will launch and dial the telephone number.



Once the user clicks on the “Click Here” hyperlink, the following sample GUI will display in the browser on the user's desktop:



5. General Test Approach

The general approach was to attempt to access various types of Avaya telephones from the Click-to-Talk web plug-in. These include the Avaya 4610 and 9630 SIP telephones, Avaya 4600 and 9600 Series H.323 IP telephones, and voicemail. Both G.711MU and G.729AB codecs were exercised during the test.

5.1. Test Results

Global IP Solutions successfully completed all test cases. Global IP Solutions Click-to-Talk successfully accessed the Avaya 4610 and 9630 SIP telephones, Avaya 4600 and 9600 Series H.323 IP telephones, and voicemail.

6. Verification Steps

The following steps may be used to verify the configuration:

- Log into the Global IP Solutions Systems Manager via the web browser and select Network from the main menu. The following three (3) services should be in a running state as shown in **Section 4.2**.
 - i) ISS
 - ii) PMA
 - iii) IVX-H323
- Place calls using Web Browser

7. Support

For technical support on the Global IP Solutions product line, contact Global IP Solutions at SolutionsSupport@GIPScorp.com and 1-805-899-4260

8. Conclusion

These Application Notes describe the provisioning steps required to support Global IP Solutions Click-to-Talk with Avaya Communication Manager. With a Web browser, and a microphone and speaker, users can communicate via Global IP Solutions Click-to-Talk from anywhere.

9. Additional References

This section references the Avaya and Global IP Solutions product documentation that is relevant to these Application Notes.

- [1] *Administrator Guide for Avaya Communication Manager*, 03-300509, Issue 3.1, February 2007
- [2] GIPS Click-to-Talk 5.0.1 InstallNotes-CTT-Web_5900-1004.pdf
- [3] GIPS Click-to-Talk 5.0.1 InstallNotes-CTT-H323_5900-1026.pdf

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