



Dialogic® PowerMedia™ Host Media Processing Software Release 5.0

User's Guide

September 2011

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Revision History

This revision history summarizes the changes made in each published version of this document.

Document No.	Publication Date	Description of Revisions
05-2698-001	September 2011	Updated for General Availability release.
05-2698-001-01	April 2011	Initial release for Beta.

Revision History

About This Publication

The following topics provide information about this publication.

- [Purpose](#)
- [Scope](#)
- [Intended Audience](#)
- [How to Use This Publication](#)
- [Related Information](#)

Purpose

This publication is developed for the Dialogic® PowerMedia™ Host Media Processing Software Release 5.0, also referred to herein as the PowerMedia HMP 5.0 Software. This software introduces a distributed client-server architecture, where customer applications reside in the HMP Remote Client, also referred to herein as HRC. The HRC also provides SIP signaling. Media and non-SIP signaling are provided by the HMP Resource Server, also referred to herein as HRS. The HRS uses the Dialogic® Host Media Processing Software Release 4.1LIN software.

Customers of the Dialogic® Host Media Processing Software Release 3.0WIN software can use this Guide to learn how to take advantage of high definition (HD) Voice and advanced video features previously only available in the HMP 4.1LIN Software.

Terminology

The following table provides a quick reference to the terminology used throughout this document:

Term	Description
CentOS	Community ENTERprise Operating System.
Client Process	A process that originates remote service.
Dialogic Command Center (DCC)	An administration management and debug tool developed for PowerMedia™ HMP Software Release 5.0.
HMP Resource Server or HRS	A computer or a virtual machine where Dialogic® HMP (media and signaling) resources execute.
HMP Remote Client or HRC	A computer or a virtual machine where the remote Dialogic® R4/Global Call application and SIP signaling execute.
Port	Unique ID (across computer) for server.

About This Publication

Term	Description
Service Update	Preferred vehicle for delivering post-release developments, such as new features and software fixes for reported software issues.
User Application	Module that is using TCP/INET classes. In this case, this may be the server or client libraries.
TCP	Transmission Control Protocol. TCP is one of the core protocols of the Internet Protocol Suite.

The following abbreviations are used throughout this document:

- Dialogic® PowerMedia™ Host Media Processing Software Release 5.0 to PowerMedia HMP 5.0 Software to HMP 5.0 Software
- Dialogic® Host Media Processing Software Release 4.1LIN to HMP 4.1LIN Software
- Dialogic® Host Media Processing Software Release 3.0WIN to HMP 3.0WIN Software

Scope

The PowerMedia HMP 5.0 Software functionality is introduced in a phased approach. This User's Guide documents the functionality provided by the current implementation phase, which includes support for the following:

- HMP Remote Client (HRC)
- HMP Resource Server (HRS)
- Web Management Console
- Dialogic Command Center (DCC)
- High Definition (HD) Voice and advanced video features previously available only in Linux

Note: For a list of features/functionality to be implemented in future Service Updates, refer to [Chapter 3, "Feature Support"](#).

Intended Audience

This publication is for:

- System Integrators
- Value Added Resellers (VARs)
- Original Equipment Manufacturers (OEMs)

This publication assumes that the reader is familiar with the Dialogic® Host Media Processing Software and Dialogic® R4/Global Call API libraries.

How to Use This Publication

This manual is divided into the following sections:

- [Chapter 1, “Overview”](#) provides an overview of the product.
- [Chapter 2, “System Requirements”](#) contains system requirement information.
- [Chapter 3, “Feature Support”](#) provides information about the features supported with the product.
- [Chapter 4, “Installing the Software”](#) provides instructions for installing the component of the HMP 5.0 Software release.
- [Chapter 5, “Configuration”](#) contains details about product configuration and file mapping.
- [Chapter 7, “Using the Web Management Console”](#) introduces the Dialogic® Web Management Console used for configuration and for license management.
- [Chapter 8, “Developer Resources”](#) contains a brief overview of the APIs used for development.
- [Chapter 10, “Usability-Related Information”](#) provides information about troubleshooting and the new Dialogic Command Center (DCC).
- [Chapter 11, “Release Information”](#) addresses issues associated with the product release and provides compatibility notes.

Related Information

See the following for additional information:

- <http://www.dialogic.com/en/Manuals/hmp/> (for Dialogic® product documentation)
- <http://www.dialogic.com/support/> (for Dialogic technical support)
- <http://www.dialogic.com/> (for Dialogic® product information)

This chapter provides an overview of the Dialogic® PowerMedia™ Host Media Processing Software Release 5.0. Topics include:

- [Introduction](#) 12
- [Distributed Architecture Approach](#) 13

1.1 Introduction

The PowerMedia HMP 5.0 Software provides advanced video and HD voice features in an operating-system agnostic way using remote and local Dialogic® R4 APIs in a distributed architecture to a separate application controller (Remote Client) and a Resource Server. The customer applications reside in a remote Client system while the media and signaling is provided by a Resource system that uses HMP 4.1LIN Software.

Note: SIP signaling is provided by the remote Client system.

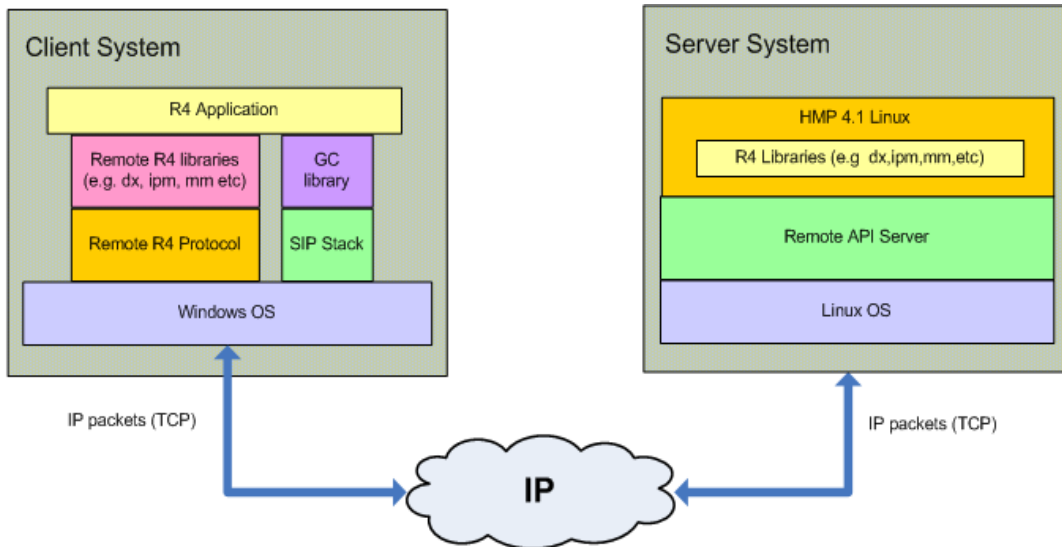


Figure 1. Dialogic® PowerMedia™ Host Media Processing Software Release 5.0

The Resource Server provides all media and signaling services to the Remote Client; however, SIP signaling is run off of a local SIP stack in the Remote Client environment.

Note: Currently, PSTN Call Control is not supported. Please refer to [Chapter 3, “Feature Support”](#) for information about features.

1.2 Distributed Architecture Approach

The PowerMedia HMP 5.0 Software introduces a distributed architecture that uses the Client-Server concept to separate the application controller, in this case the API from the media, and possibly the signaling resource server. HMP 5.0 Software is the first Dialogic® HMP release to introduce this configuration, utilizing a common Linux-based media and signaling resource server and offering a variety of application clients providing a remote Dialogic® R4/Global Call API across the Windows operating system. This distributed architecture allows for higher densities.

The application that runs on the client system is linked with new remote R4 libraries. These libraries consist of “wrapper” functions that simply pack and unpack messages sent to and from the server. The messages between the Client and the Server are exchanged using TCP as the transport protocol. An internal TCP utility library is used for making connections and sending messages over TCP.

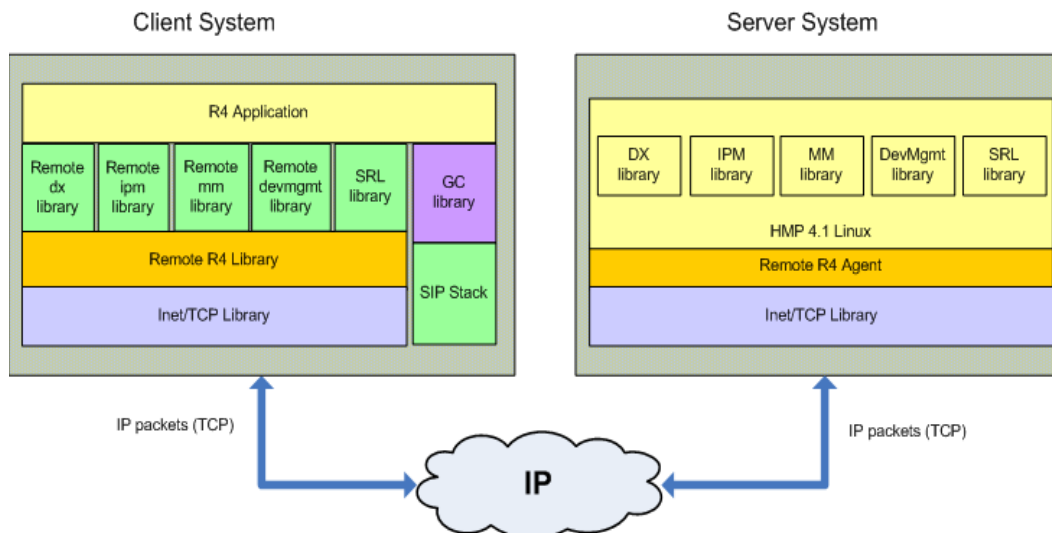


Figure 2. Client/Server Components

1.2.1 Distributed Architecture Components

The Resource Server consists of Dialogic® HMP 4.1LIN Software’s media and PSTN call control capability. It is distributed as a single ISO CD image containing CentOS 5.x and the PowerMedia HMP Software Release 5.0 Software, and Resource Server software. It is also distributed as a non-ISO image.

The Remote Client provides the Dialogic® R4/Global Call API to local applications. It supports an underlying remote interface protocol and can connect to a single Resource Server. The Remote Client also provides a local SIP stack with the Dialogic® Global Call API interface for SIP call control. The client system allows for coexistence and interoperability with existing Dialogic® HMP Software Release for 3.0WIN Service Update environments.

Note: Support for PSTN call control is planned and will be available through a future Service Update.

Overview

The basic requirements to install and run Dialogic® PowerMedia™ Host Media Processing Software Release 5.0 are described in the following sections:

- [Basic Hardware Requirements](#) 15
- [Basic Software Requirements](#) 15
- [Configurations Tested](#) 17
- [Ordering the Product](#) 17

2.1 Basic Hardware Requirements

The basic hardware requirements for this release are:

- Windows (Remote Client)
 - Memory: A minimum of 2 GB of RAM is required.
 - CPU: Minimum Single Socket Dual-Core Intel Xeon 5080 processor with Hyperthreading (3.73 GHz); Dual Socket Quad-Core Intel Xeon X5355 processor (2.67 GHz) or better recommended.
- Linux (Resource Server)
 - Memory: At least 4 GB of RAM is recommended.
 - CPU: Minimum Single Socket Dual-Core Intel Xeon 5080 processor with Hyperthreading (3.73 GHz); Dual Socket Quad-Core Intel Xeon X5355 processor (2.67 GHz) or better recommended.

2.2 Basic Software Requirements

- Notes:**
- 1.** To install the software, you must have local administrative privileges. Contact your system administrator to set up administrative privileges as required.
 - 2.** PowerMedia HMP 5.0 Software supports both 32- and 64-bit Windows operating systems for the HMP Remote Client.
 - 3.** This software release is designed for U.S. English versions of the Windows® operating system. System directory path names are often spelled using the native language. Therefore if you are using a language other than U.S. English, various manual file copy operations may be necessary to place files in directories with the expected path names. For assistance, please contact the support organization that services your country.

The basic software requirements for this release are:

- Windows (Remote Client)

System Requirements

- Supported Operating Systems

- Windows® 7
- Windows Server® 2008

- Supported Compilers:

- Development Environment Microsoft® Visual Studio 2005 with Visual Studio 2005 Service Pack 1 and Visual Studio 2005 Service Pack1 Update for Windows® Vista. This compiler is required for application development under Windows® 7 or Windows Server® 2008.

Note: Microsoft® Visual Studio 2005 (all editions) includes C++ compiler version 8.0. Customer applications with Windows® 7 or Windows Server® 2008 should use version 8. Applications must be compiled as 32-bit binaries.

Note: By default with Windows® 7 or Windows Server® 2008, executables will run without administration privileges due to User Account Control (UAC) restrictions, even if the user is logged in with administrator privileges.

- Microsoft® Visual Studio® 6.0 with Service Pack 5

- Linux (Resource Server)

- Supported Operating Systems

- CentOS 5 Update 4 or later, 32-bit version or 64-bit running in 32-bit compatibility mode
- Red Hat Enterprise Linux Release 5.0 Update 4 or later, 32-bit version or 64-bit running in 32-bit compatibility mode

- Supported Compilers

- GNU Compiler Collection (GCC) versions 4.1, 4.1.x

Note: Development tools such as GCC must be installed on your system, even in a runtime installation. Dialogic® HMP Software uses the GCC to compile certain Dialogic drivers.

2.2.1 Configurations Tested

The reference configurations listed in Table 1 have been successfully tested with CPU utilization of 50% or less.

Table 1. Resource Configurations Tested

Configuration‡	Client	Server	V	E	G	I	M	NB	N-A	N-RTP	H.263	MPEG 4	AMR-WB	G.722
IVR (G.711)	Dual Intel Xeon, 3.6 GHz (w/HT), Windows 2008	Dual Intel X5680, CentOS 5.4	1500		1500	1500								
Video Services	Dual Intel 5160, Windows 2008 on VMware® ESXi 4.1	Dual Intel X5680, Redhat 5.4 64-bit	240	240	240	240	240	240	240	240	240	240	120	240
IVR (Low Bit Rate)	Dual Intel Xeon, 3.6 GHz (w/HT), Windows 7 Ultimate	Dual Intel X6080, Redhat 5.4 on VMware® ESXi 4.1	500	500	500	500	250	500	500	500				

Legend: V = Voice E = Enhanced RTP G=G.711 I = IP Call Control M = Multimedia NB = AMR-NB N-A = Native Audio N-RTP = Native RTP, ‡ = Not all resources are used simultaneously.

2.3 Ordering the Product

The table below lists supported PowerMedia HMP 5.0 resources that are available through flexible licensing. A license is only required on the HMP Resource Server (Linux machine). No license is required on the Windows machine.

Note: Resources define a license file that can be uploaded and activated using the Dialogic Web Management Console. Refer to [Chapter 7, “Using the Web Management Console”](#).

Table 2. Media and Other Resources

Resource	Resource Code	Number of Resources Available	Resource Description
IP Call Control	i	5000	Supports first party and third party IP call control. First party call control manages a media session that is initiated and terminated by Dialogic® HMP Software. Third party call control enables one entity to create, modify, or terminate a media session between two or more endpoints where the call control signaling and media exchange are independently managed.
Basic RTP Streaming		1500	Provides the capability of streaming digitized voice over RTP using the G.711 coder with 10, 20, 30 ms frames. The number of RTP resources for any given configuration should be greater than or equal to the number of voice, enhanced voice, conferencing, continuous speech processing, or fax resources (whichever requires the highest number of resources).

System Requirements

Table 2. Media and Other Resources (Continued)

Resource	Resource Code	Number of Resources Available	Resource Description
G.711, G.726 Coder	g	1500	Adds the capability of streaming voice over RTP using the G.711 and G.726 coders.
G.729, G.723 Coder		750	Adds the capability of streaming voice over RTP using the G.729 and G.723 coders.
G.722 Coder		500	Adds the capability of streaming voice over RTP using the G.722 coder.
AMR-NB Coder	nb	750	Adds the capability of streaming voice over RTP using the AMR narrow band coder.
AMR-WB (G.722.2 Coder)	wb	150	Adds the capability of streaming voice over RTP using the G.722.2 (AMR wide band) coder.
Voice	v	1500	Basic voice ports that allow you to control volume, record with Automatic Gain Control (AGC), and DTMF and user-defined tone detection, including RFC 2833 and H.245 UII. Each voice port requires an RTP G.711 port.
Audio Only Multimedia (Native Play/Record)	n-a	1000	Supports audio only for native play and record.
Multimedia	m	600	Supports play, record, and synchronization of voice and H.263 format video in a multimedia stream. Includes video I-frame detection to trigger start of record as well as transmit-of-tone notification when recording begins. Multimedia requires RTP G.711.
H.263 Transcoding	e	248	
MPEG4/H264 Transcoding	i	248	

This chapter introduces the features supported in the Dialogic® PowerMedia™ Host Media Processing Software Release 5.0. Topics include:

- [Distributed Architecture Evolution](#) 19
- [Advanced Video and HD Voice Messaging](#) 19
- [Virtual Environment](#) 19
- [Web-based Management](#) 20

3.1 Distributed Architecture Evolution

The PowerMedia HMP 5.0 Software introduces a distributed architecture that uses the Client-Server concept. This allows for a multi-server configurations and single-server solutions. Refer to [Chapter 1, “Distributed Architecture Approach”](#) for more information.

3.2 Advanced Video and HD Voice Messaging

Enables messaging applications for emerging High Definition (HD) Voice and video networks. HD Voice uses wide-band audio connections to more accurately reproduce the human voice.

3.3 Virtual Environment

Virtualization support is available using VMware® ESXi 4.1 Installable. Refer to [Chapter 6, “Virtualization Support”](#) for more information.

3.4 Future Features

The following features are not supported in this release of the PowerMedia HMP 5.0 Software but are planned in future Service Updates:

- Dialogic® Voice – User-defined Input/Output (UIO)
- Dialogic® Multimedia – Media Streaming functions
- Conferencing
- Continuous Speech Processing (CSP)
- Fax
- 3G-324M
- Dialogic® Digital Network Interface (DNI) boards

Feature Support

- Internet Protocol version 6 (IPv6)
- PSTN Call Control

3.5 Web-based Management

The Native Configuration Manager (NCM) API and the Dialogic Configuration Manager (DCM) graphical tool are not supported in HMP 5.0 Software. Configuration and Server management are accomplished using the new Dialogic® Web Management Console. The console provides the following controls:

- Resource Server license management, for example, display, activation, and selection
- System Summary, for example, license resources and IP address

Refer to [Chapter 7, “Using the Web Management Console”](#) for more information.

This chapter provides procedures for installing the Dialogic® PowerMedia™ Host Media Processing Software Release 5.0. This information is contained in the following sections:

- Installation Overview 21
- Major Installation Steps..... 22
- HMP Resource Server Installation Using CentOS .ISO Image..... 22
- HMP Resource Server Installation on Linux Using RPM..... 23
- HMP Remote Client Installation on Windows 26
- Obtain Resource Licenses 28
- Demo Program..... 29

4.1 Installation Overview

Three installs are provided with the PowerMedia HMP 5.0 Software. The first installation, offering two options, is for the HMP Resource Server and the second is for HMP Remote Client for Windows. The installs must be completed before the distributed architecture system can be utilized.

- HMP Resource Server Installation (Resource Server) has two install options. Select one of the following:
 - Option 1:
Community ENTERprise Operating System, herein referred to as CentOS, Image .ISO download based on 32-bit CentOS 5.4 or later Linux Distribution. This option automates the installation of the Linux operating system as well as the HMP Linux Resource Software.
Note: This option will erase all data on the system and re-format your hard drive.
 - Option 2:
Red Hat's Package Manager (RPM)-based install (non-ISO download) for a supported Linux operating system. This option installs the HMP Linux Resource Software only. Previous installation of the operating system is assumed.
- Remote Client For Windows
This is installed on a Windows machine. It contains all of the API libraries and the remote Web-based management to communicate with the Resource Server.

4.2 Major Installation Steps

This section lists the major installation steps:

1. Go to <http://www.dialogic.com/Products/media-server-software/download/hmp5.aspx> to download the PowerMedia HMP 5.0 Software.
2. Decide which install option to use for the Resource Server installation. Refer to [Installation Overview](#) again if necessary.
Note: Regardless of your choice, **make note of the IP address because it is needed for the HMP Windows client machine.** The IP address of the Linux Resource Server must be added to the web browser's trusted sites. Refer to [Section 7.1.1, "Establishing Communication with the Web Management Console"](#), on page 44.
3. If you choose Option1, CentOS .ISO image, proceed to [Section 4.3, "HMP Resource Server Installation Using CentOS .ISO Image"](#), on page 22 for installation instructions.
4. If you choose Option 2, RPM-based install, proceed to [Section 4.4, "HMP Resource Server Installation on Linux Using RPM"](#), on page 23 for installation instructions.
5. Install the Remote Client by following the steps in [Section 4.5, "HMP Remote Client Installation on Windows"](#), on page 26.
6. On the Windows system, edit the C:\ProgramData\Dialogic\RemoteClient\cfg\hrc_config.xml file and enter the IP address obtained in Step 2 above. Refer to [Section 10.4, "The Dialogic Command Center"](#), on page 57.

Once the installation steps are complete, you can configure the Linux Resource Server with the appropriate resource license using the Dialogic® Web Management Console. Refer to [Chapter 7, "Using the Web Management Console"](#) for more information. Refer to [Section 4.6, "Obtain Resource Licenses"](#), on page 28 for information about licenses.

4.3 HMP Resource Server Installation Using CentOS .ISO Image

CentOS is an Enterprise-class Linux Distribution source that provides a simple method for quickly and easily setting up a Resource Server. Using this procedure requires completion of the following tasks:

1. Go to <http://www.dialogic.com/Products/media-server-software/download/hmp5.aspx> to download a single .ISO file which contains CentOS and HMP 5.0 Server packages.
2. Burn the .ISO image onto a disk.

3. Put the bootable disk in the disk drive of the system on which the installation is being performed and boot the system from the disk.

Caution: This installation will erase all data on the system and re-format your hard drive.

4. Click **Enter** at the boot prompt.

Note: Do not use any other possible boot options or the automatic Server installation will not take place.

The installation requires little interaction. The main task is setting up the IP characteristics for the system.

5. Under network devices, make sure eth0 is enabled and then click **Edit** to configure its IP address.

Note: Enter valid information obtained from the local network administrator. There is currently no tool available to update this information at a later time.

6. On the pop-up screen, make sure IPv4 support is enabled and select **Manual Configuration** and type in the static IP address and netmask for the Linux server.

Note: For this release, the option for IPv6 should be Disable.

7. Click **OK**.

8. Under HostName, select **Manually Set the HostName** to provide the name of the Linux Server. Example: HMP 5.0

9. Under Miscellaneous settings, provide the Gateway IP address, Primary DNS IP address, and Secondary DNS (if applicable) IP address.

10. Click **Next**.

11. Once the CentOS install reaches the final screen, click **Reboot** to complete the installation process.

For post-operating system installation configuration tasks, access the system either by the terminal used during installation or by secure shell (ssh) access. All post-installation work should be done as user "root". The root password is "dialogic".

Refer to [Chapter 7, "Using the Web Management Console"](#) for instructions on configuring the system.

4.4 HMP Resource Server Installation on Linux Using RPM

The Dialogic® PowerMedia™ HMP Software Release 5.0 software can be downloaded from the <http://www.dialogic.com/Products/media-server-software/download/hmp50.aspx> web site. When you select this link, you will be asked to provide a user name and password.

Installing the Software

After downloading the software, use the following procedure to install Dialogic® PowerMedia™ HMP Software Release 5.0 software.

1. Log in to the Linux system as root.
2. Copy the .tgz file downloaded from the web site to its own directory and use the tar command to uncompress it.

```
tar -xvzf <filename>.tgz
```

3. Enter the following command to start the install script:

```
./install.sh
```

4. Follow the instructions in the install script below for selecting packages to install:

```
Installing Dialogic(R) PowerMedia HMP Software Release 5.0LIN
Redistributable Runtime
Please wait, installation is in progress...
Initializing install, please wait .....

Initializing install, please wait .....

                                                                 Redistributable Runtime
                                                                 INSTALLATION

You will now have the opportunity to install software packages.
After the menu is displayed, enter the package number(s) of the desired packages, separated by a
space. Enter Q to quit.

Package dependencies will be automatically resolved during installation. For example, selecting
a single package will automatically install all packages required for that selection.

Press ENTER to display the menu of packages:

Item      Package Description
-----
  1        Dialogic(r) Host Media Processing Software (204 MB)

  Q        Quit Installation

Enter the packages you want to install, separated by a space, or [Q,q]: 1

Package installation order (including dependencies):
  lsb-dialogic-hmp41-com
  lsb-dialogic-hmp41-dmdev
  lsb-dialogic-hmp41-hmp
  lsb-dialogic-hmp41-lic
  lsb-dialogic-hmp41-docs

Checking for previously installed packages:
  None found.

Checking for sufficient disk space (need 204 MB): OK
After installation, the file system containing the
Dialogic(R) Software will be 10% full.

Installing or upgrading 5 needed packages:

Preparing...
##### [100%]

  1:lsb-dialogic-hmp41-docs##### [ 20%]
  2:lsb-dialogic-hmp41-com ##### [ 40%]
Building the drivers...
```

Installing the Software

```
3:lsb-dialogic-hmp41-dmde##### [ 60%]
4:lsb-dialogic-hmp41-hmp ##### [ 80%]
5:lsb-dialogic-hmp41-lic ##### [100%]
Installation successful.
```

Press ENTER to continue:

```
Item      Package Description
-----
1         Dialogic(r) Host Media Processing Software (204 MB)

Q         Quit Installation
```

Enter the packages you want to install, separated by a space, or [Q,q]: q

Installation of Dialogic(R) PowerMedia HMP Software Release 5.0LIN Redistributable Runtime was successful.

Installing Dialogic(R) PowerMedia HMP Software Release 5.0LIN resource server

```
Installing lsb-dialogic-hmp50-rsrv-5.0.0.0-14_gcc4.1.i386.rpm
Preparing... ##### [100%]
1:lsb-dialogic-hmp50-rsrv##### [100%]
Installation of Dialogic(R) PowerMedia HMP Software Release 5.0LIN resource server was
successful.
```

Do you wish to install the Software Development Kit [y/n] ? y

Installing Dialogic(R) PowerMedia HMP Software Release 5.0LIN Software Development Kit

```
Preparing... ##### [100%]
1:lsb-dialogic-hmp41-sdk ##### [100%]
Installation successful.
```

Installation of Dialogic(R) PowerMedia HMP Software Release 5.0LIN Software Development Kit was successful.

Do you wish to configure the SNMP Agent Listening Port (default is 161) [y/n] ? n

Do you wish to configure the CLI Agent Telnet Port (default is 23) [y/n] ? n

Do you wish to configure the Web Agent Telnet Port (default is 1900) [y/n] ? n

Installation of Dialogic(R) PowerMedia HMP Software Release 5.0LIN successfully completed.

```
-----
--
-- NOTE:
--
-- (1) The default Verification License has been automatically installed.
-- (2) Remote Client/Server Default TCP port value is 3300. To change the
--     default, you must edit the /usr/dialogic/cfg/hrc_config.xml file
--     on the server and the hrc_config.xml file on the client machine.
-- (3) The Dialogic(R) system services will automatically start every
--     time the system is rebooted. To start and stop system services
--     manually, use the dlstop and dlstart scripts found in
--     /usr/dialogic/bin.
-- (4) For administration via SNMP, use any SNMP browser, library or tools
-- (5) For administration via CLI, use the telnet command
-- (6) For administration via Windows Client WEB GUI, use any web browser
-- (7) For details, refer to documentation
--
-- NEXT STEPS:
-- (1) Before using the software, you MUST do one of the following:
--     a) Reboot the system.      -- OR --
--     b) Do the following:
--         (i) Ensure that the environment variables are set by performing
--             the following action:
--
```

Installing the Software

```
--          - Logout and login          --
--          (ii) Start the Dialogic(R) system services manually using the --
--              dlstart script found in /usr/dialogic/bin.             --
-- (2) Configure an appropriate license (higher density) via SNMP, CLI --
--          or Windows client WEB configuration tool
```

5. As noted in the above install script, either reboot the system or logout and then login to the system to complete the install for the HMP Resource Server software.

4.5 HMP Remote Client Installation on Windows

This section contains instruction for installing the HMP Remote Client on a Windows system. After downloading the software, proceed as follows to install the software.

1. Exit all other programs you may have running.
2. When you are ready to proceed with the installation, click on **Setup**.
3. The Welcome window appears. It shows the version of the software you are installing. Click **Next**.

Note: The build number of the software is provided in the *buildinfo.ini* file located in the C:\Program Files\Dialogic\RemoteClient\ini directory.

4. The Choose Destination Location window appears. To install to the folder already named on the window, click **Next**. To install to a different folder, click **Browse** and select another folder. Then click **Next**.

Note: The \Dialogic\RemoteClient path sequence will be appended to the destination folder you select.

Note: For Windows® 7 or Windows Server® 2008, you are prompted to enter two directory locations (rather than one) for storing Dialogic® HMP Software files:

- Choose Program File Destination Location - This is the directory where non-user-modifiable files in the Dialogic® HMP Software will be installed.
- Choose User-Modifiable File Destination Location - This is the directory where user-modifiable files in the Dialogic® HMP Software will be installed.

For further information about the use of these directory locations in Windows® 7 and Windows Server® 2008, see [Environment Variables for Windows® 7 and Windows Server® 2008](#).

5. The Select Features window appears.

When you click on an item in the list, a brief description of it appears on the right side of the window. The features include:

- **Development Package (SDK)** – This option installs the programmatic APIs, libraries, and header files for HMP 5.0 Software, including call control and media. If you plan to write and compile applications without executing them using the runtime components, you can select this option alone. The Development Package option does not install the drivers, firmware, parameters, and other files needed for HMP at

runtime. If you plan to develop applications and execute them you must also select this and the Core Runtime Package option.

- **Core Runtime Package** – This option installs the device drivers, firmware, parameters, and other files needed to execute an application that uses HMP 5.0 Software. Select this option if you plan to run pre-developed and pre-compiled applications on the system. You can select this option without selecting the Development Package (SDK) option. If you plan to write and compile and execute applications you must also select the Development Package (SDK) option.

Select the features you want by clicking boxes to put check marks in them. Then click **Next**.

6. If you select the Core Runtime Package, you'll see a question popup that tells you which third party software the setup will install:

- **Microsoft® MFC/Other Redistributables Version 8.0**
- **Version 8** is required for Windows® 7 and Windows Server® 2008.

To continue with the install, click **Yes**. To exit the install, click **No**.

7. The Select Program Folder window shows the Program Folder where the installation will add program icons. You can accept the default folder name, type a new folder name, or select a folder from the existing folders list. Click **Next** to continue.

To install to the folder already named on the window, click **Next**. To install to a different folder, click **Browse** and select another folder. Then click **Next**. Continue with Step 9.

8. The Start Copying Files window shows you a summary of the packages you've selected. If you're satisfied with them, click **Next** to start copying files. If you want to make changes, click **Back** to go to a previous window.

9. A Setup Status window will show the progress of the installation. This window also shows you what is being installed and where it is being installed.

Note: The Setup Status window will indicate that all files are being installed. This is not actually the case. Files that have changed will be updated based on version/timestamp. The InstallShield engine processes each file that was previously installed and compares the version/timestamp on the system to that in the build. If the file in the build has a higher version number or later timestamp, then the file will be installed. Otherwise, the InstallShield engine skips to the next file.

10. The Configure Resource Server IP Address window appears. This is where the Linux Resource Server IP address, noted previously during the Linux Resource Installation process, should be entered. Enter the IP address and then click **Next**.
11. The Setup Window Complete window appears and a check box option is available to open the *hrc_config.xml* configuration file. This is provided to allow further modifications to the current Remote Client configuration. Click **Finish** to complete the installation process (if box is unchecked) or open the file (if box was checked).

Refer to [Chapter 7, "Using the Web Management Console"](#) for instructions on configuring the system.

4.5.1 Environment Variables for Windows® 7 and Windows Server® 2008

Environment variables are used to locate certain directories in the PowerMedia HMP 5.0 Software hierarchy. In order to meet User Account Control and File Virtualization security features of Windows® 7 and Windows Server® 2008, those files that may require user modification of some sort have been moved to a non-restricted target folder. It is strongly advised to keep them in this or other equivalent target location; otherwise, user modification of these files may be disallowed by the operating system.

When installing HMP 5.0 Software on Windows® 7 or Windows Server® 2008, you will be prompted to enter the directory location for storing HMP 5.0 Software files:

Choose Program File Destination Location

This is the directory where non-user-modifiable files in the HMP 5.0 Software will be installed. The default location is:

- *C:\Program Files\Dialogic* for 32-bit versions of Windows® 7 or Windows Server® 2008

Choose User-Modifiable File Destination Location

This is the directory where user-modifiable files in the HMP 5.0 Software will be installed. User-modifiable files include configuration files such as .prm and .cdp files, and demo programs, among others. The default location is *C:\ProgramData\Dialogic*.

Note: *C:\ProgramData* is a hidden directory.

Table 3. Default Environment Variable Values

Environment Variable	Default Value
DIALOGIC_HRC_BASE	C:\Program Files
DIALOGIC_HRC_BIN	C:\Program Files\Dialogic\RemoteClient\bin
DIALOGIC_HRC_CFG	C:\ProgramData\Dialogic\RemoteClient\cfg
DIALOGIC_HRC_DATA_DIR	C:\ProgramData\Dialogic\RemoteClient
DIALOGIC_HRC_DIR	C:\Program Files\Dialogic\RemoteClient
DIALOGIC_HRC_DRV	C:
DIALOGIC_HRC_INC	C:\Program Files\Dialogic\RemoteClient\inc
DIALOGIC_HRC_LIB	C:\Program Files\Dialogic\RemoteClient\lib
DIALOGIC_HRC_NAME	Dialogic\RemoteClient
DIALOGIC_HRC_DIALOGIC_USERDATA_DIR	C:\ProgramData\Dialogic\RemoteClient

4.6 Obtain Resource Licenses

Before you use the PowerMedia HMP 5.0 Software, you must obtain a license file¹ containing resource license data. A resource license is a file containing authorizations for a combination of call control and media processing features to be used with the HMP 5.0 Software. The MAC

address of the Resource Server is required when obtaining a license. The MAC address can be found using the Web Management Console.

Note: If you change the license on the Resource Server, you must reboot the Resource Server after activating the new license. To reboot the Server, enter the “reboot” command from a telnet or ssh session.

You can try out the Dialogic® PowerMedia™ HMP Software Release 5.0 with a verification or trial license before you purchase a permanent, production license from Dialogic.

Table 4. License Types

License Type	Features	Expires?	Where to get license?	MAC Address (Host ID) Required?
Verification (free)	1 channel for RTP and Voice	no	included with Dialogic® HMP Software	no
Trial (free)	any supported channel component combination	expires in 45 days	Dialogic authorized distributor or account manager	yes - supply when ordering
Purchased	any supported channel component combination	no	Dialogic authorized distributor or account manager	yes - supply when ordering

- Notes:**
1. A verification license is installed with the PowerMedia HMP 5.0 Software, activated and ready to use, but this license is only intended to be used for verifying that the installation was successful.
 2. For a list of authorized distributors, go to: www.dialogic.com.

4.7 Demo Program

The following demonstration programs are provided with the PowerMedia HMP 5.0 Remote Client installation:

- Global Call Basic Call Model – This is the Global Call-based SIP/H323 call control demo application. For more information about this demo, refer to the Dialogic® Global Call API Demo Guide at http://www.dialogic.com/~media/manuals/docs/globalcall_demo_hmp_v3.pdf.

Note: The name of the executable has changed to *hrc_gc_basic_call_model_demo.exe*.

-
1. A verification license is installed with the Dialogic® HMP Software Release 5.0, activated and ready to use, but this license is only intended to be used for verifying that the Dialogic® HMP Software Release 5.0 installation was successful.

Installing the Software

- Multimedia – This is the audio and video multimedia demo application. For more information about this demo, refer to the Dialogic® Multimedia Demo Guide at http://www.dialogic.com/~media/manuals/docs/multimedia_demo_hmp_v4.pdf.

Note: The name of the executable has changed to *hrc_MultiMediaDemo.exe*.

This demo requires the following mapping to be present in the *hrc_config.xml* file (present by default):

```
<Map local="../../../avfiles"remote="/usr/dialogic/demos/MultiMedia/MultiMediaDemo/avfiles"/>
```

The following diagram shows the interaction between a SIP Client and the multimedia demo running on the HMP 5.0 Client and the HMP 5.0 Server.

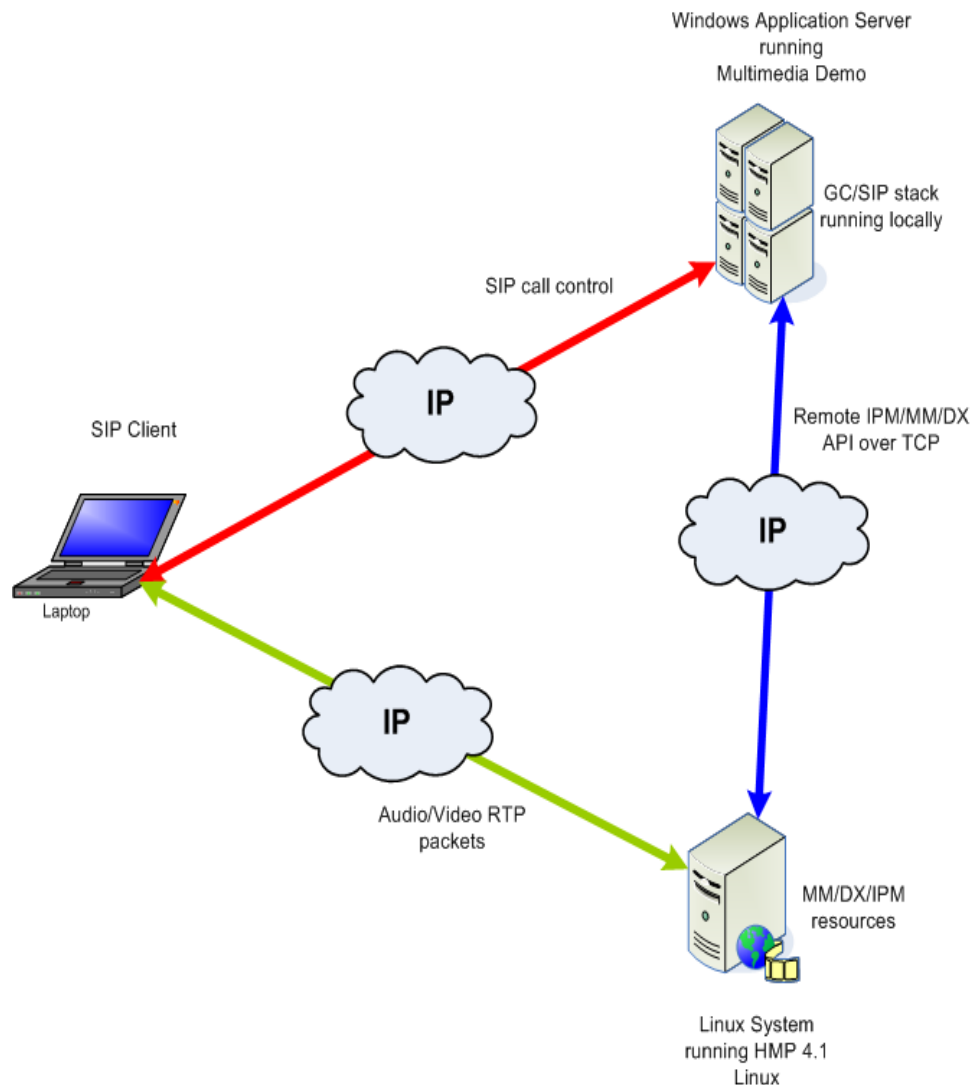


Figure 3. Multimedia Demo Interaction

This chapter provides configuration information and procedures for the Dialogic® PowerMedia™ Host Media Processing Software Release 5.0. Topics include:

- Configuration Information 32
- hrc_config.xml Description 33
- hrs_config.xml Description 34
- Porting Applications 35
- Tuning System Performance 38

5.1 Configuration Information

There are two separate configuration files. One is for the Resource Server and the other is for the Remote Client:

- Resource Server side – *hrs_config.xml*
- Remote Client side – *hrc_config.xml*

The configuration files use an Extensible Markup Language (XML) file format. The files are comprised of sections. This section is named:

- ServerParameters> for hrs_config
- ServerInfo> for hrc_config

Each section contains other sections and/or parameter values. The section format is <Name> ... </name> or <Name ... />, while the parameter format is name="value". The value is always specified as a string in quotes, even if it represents a numeric parameter.

Note: The XML parser is case sensitive for string values, but not case sensitive for section names and parameter names.

Each parameter may be enclosed in a section. The sections that enclose parameters are named "MLabel" and "Map".

The user application (Client side) and the Server search for the configuration file in the following order:

1. Current folder where application is running.
2. Client application folder, specified in environment variable DIALOGIC_HRC_CFG, or the Server folder, specified in environment variable DIALOGIC_HMP_CFG.

The Client folder is usually found in the C:\ProgramData\Dialogic\RemoteClient\cfg directory and the Server folder is usually in /usr/dialogic/cfg.

5.2 hrc_config.xml Description

The Client reads the configuration file prior to the first request to the Server (usually prompted by a call to **dx_Open()**, **ipm_Open()** or **mm_Open()**). The top section on Client side is named ServerInfo. ServerInfo has two sections; System_globals and Server. The Server may have multiple instances, and each instance represents one resource server (one client-multiple servers configuration).

The System_globals section contains the following parameters:

- **timeout** – maximum time out to receive answer from the Server in milliseconds. The default value is 10000. Customer should not change this value.
- **inet_buffer** – maximum size of packets. The default value is 48000. This value should be identical to the Server side, and may be changed only when instructed by Dialogic.
- **remote_control_port** – port to listen for remote commands. These commands include status, diagnostics, and configuration. The application’s RStatus utility and Dialogic Web Management Console use services provided from the Server using this port. If this parameter is not specified or if the value is “0”, then remote control is disabled.

Note: The above parameters are optional. The default values are used if they are not specified in the configuration file.

An example of the System_globals section is shown below:

```
<System_globals>
  <!-- ms: wait server response -->
  <MLabel timeout      = "10000"/
>
  <!-- max buffer size (payload only) must match server max buffer size -->
  <MLabel inet_buffer = "48000"/>

  <!-- remote control port, use port 0 to disable -->
  <MLabel remote_control_port = "3305"/>
</System_globals>
```

Below is an example of the Server section. Each Server section describes a connection. Connections have a unique index and optional name. For example:

```
<Server index = "S1" name = "Media Server">
  </Server>
```

The “name” parameter is used for logging purposes and to select the Server. In this example, “S1” is the name the application should use to refer to the Server. To specify a specific Server, the application should prefix the requested name with the Server index followed by “:”. Any string can serve as a Server index. For example, dxxxB1C1 on Server S1 is referred as “S1::dxxxB1C1”, and file “/usr/dialogic/temp/file.vox” on the Server is referred as “S1:: /usr/dialogic/temp/file.vox”.

The first Server index received from the configuration file is considered the default and will be used if a Server is not specified in the request, such as when the user application opens “dxxxB1C1”.

The Server section contains following parameters:

Configuration

- IP – Indicates the Server IP IPv4 address. If this parameter is missing, all requests to the Server will fail. This parameter may be modified using the HRS IP Address Configuration Utility. See [Section 10.4, “The Dialogic Command Center”](#), on page 57.
- port – Should match parameter port on Server side. If port is missing, the default value of 3300 is used.
- remote_control_port – Should match Server remote port. If this parameter is missing, the RStatus utility will not be able to get the Server status.

Example:

```
<Server index = "S1" name = "Media Server">
  <!-- Power media HMP5 server server IP addr -->
  <MLabel IP = "192.168.1.1"/>
  <!-- port to listen - must match server side parameter MLabel port -->
  <MLabel port = "3300" />

  <MLabel remote_control_port = "3305"/>
  ...
</Server>
```

5.3 hrs_config.xml Description

The Server reads the configuration file data once it is started. This is the list of the Server parameters belonging to the System_globals section:

- inet_buffer – maximum size of packets. The default value is 48000. This value may be changed only when instructed by Dialogic.
- port – socket port for listening to Remote API commands from the Client. The default value is 3300. Customer may change this value, but it must match the Client side.
- event_port – socket port that the Server uses for sending R4/Global Call events to the Client side. The default value is 3301.
- io_port – socket port used for user I/O and streaming to board functionality. The default value is 3302.
- Remote_control_port – port to listen for remote commands. These commands include status, diagnostics, and configuration. The RStatus utility and Dialogic Web Management Console use services provided from the Server using this port. If this parameter is not specified or if the value is “0”, then remote control is disabled.
- keep_alive_timeout – specifies the time in seconds used for exchanging keep alive messages between the Client and Server. If a keep alive response is not received during the allotted time, the connection will be terminated. The default timeout is 30 seconds.

Note: RStatus, a utility used to capture the status of a running Server or Client application, is provided with the software. For more information, refer to [Section 10.3, “The RStatus Utility”](#), on page 56.

All parameters are optional. If the configuration file is missing or one or more parameters are not specified, the Server uses default parameters. If the remote_control port is disabled, then the RStatus utility and the remote Web Management Console cannot provide status of running server.

Hrs_config contains one element named ServerParameters. ServerParameters contain one element named System_globals. System_globals contains one or more elements named MLabel. Each MLabel defines a parameter(s).

Below is an example of the *hrs_config.xml* file:

```
<ServerParameters>
  <System_globals>
    <!-- max buffer size (payload only) must match client max size -->
    <MLabel inet_buffer = "48000"/>

    <!-- Ports to listen on -->
    <!-- API port - must match client side parameter MLabel port -->
    <MLabel port = "3300"/>

    <!-- event handling port -->
    <MLabel event_port = "3301"/>

    <!-- uio handling port -->
    <MLabel io_port = "3302"/>

    <!-- local remote control port, use port 0 to disable -->
    <MLabel remote_control_port = "3305"/>

    <!-- Timeout in seconds for Client-Server Keep-alive messaging -->
    <MLabel keep_alive_timeout = "30"/>

  </System_globals>
</ServerParameters>
```

Note: If you change the configuration file after the Server has started, you must restart the Server for changes to take place. When restarting the Server, all current connections will be lost and all subsequent requests from any client will fail until client closes and re-opens all devices.

5.4 Porting Applications

When porting applications from HMP 3.0WIN to HMP 5.0, the HMP 5.0 Software provides mechanisms to map file systems which allows an application to store files on the Client side, Server side or a network storage location. By default, if the customer application is using relative file names, the Resource Server will open these names as relatives from the location where the RemoteAPIServer is running (usually /usr/dialogic/bin). This may create problems when multiple clients use the same folder to read and store voice and video files. To resolve this problem, the customer should specify the number of Map parameters using the following format:

```
<Map local="local_name" remote="remote_name"/>
```

The local name (from the client application) is mapped to remote name (from the Server). Relative and absolute file names can be mapped. The client application checks all Maps in the order specified, and substitutes the matched local portion with the remote portion. The Client also substitutes forward and backward slashes in a file name according to the convention used on Server side. See the following examples:

```
<Map local="../avfiles" remote="/usr/dialogic/demos/MultiMedia/MultiMediaDemo/avfiles"/>
```

Configuration

```
<Map local="C:\remote_r4\datafiles" remote="/usr/root/remote_r4/datafiles"/>
```

Note: If a file name begins with a drive, as in “C:\folder\name, and there is no Map to convert, then the drive portion is not be substituted and a call to `xx_Open()` will fail on the Linux Server side.

5.4.1 File Mapping

The Dialogic Command Center includes an HMP File Manager convenience tool. Refer to [Section 10.4, “The Dialogic Command Center”](#), on page 57.

This section provides file mapping use cases based on the assumption that the Server is running on a Linux operating system and the Client is running on Windows operating system. The Server is the RemoteAPIServer application included with the PowerMedia HMP 5.0 Software. The Client refers to the customer- developed application, linked with the HMP Software Release 5.0 libraries.

The following functions/structures take file names as a parameter:

dx_fileopen(), **dx_playf()**, **dx_playwav()**, **dx_playvox()**, **dx_recf()**, **dx_recwav()**, **dx_recvox()**, and the **MM_MEDIA_VIDEO**, **MM_MEDIA_AUDIO**, **MM_MEDIA_IMAGE** structures used in the **mm_Play()** and **mm_Record()** functions.

When you develop a Windows application for HMP Software Release 5.0, files are actually opened on Server side and names should follow Linux conventions. If you port an existing application or if file names are already stored in the database, you may need a global file name conversion instead of changing individually every file name.

When you specify relative file name such as “..\record_folder\my_file.vox” this usually means relative to the current folder **where the application** is running. With HMP Software Release 5.0, it means relative to the folder **where the Server** is running, usually `/usr/dialogic/bin`. Therefore, if the Client application uses `..\record_folder\my_file.vox`, the actual file name on Linux will be `/usr/dialogic/record_folder/my_file.vox`.

File Conversion

HMP Software Release 5.0 performs file conversion for all strings that represent file names in the following specified order:

1. File mapping. The purpose of file mapping is to substitute specific client folders with Server folders. This is just string manipulation. Enter the following:

```
<Map local="C:\temp\record" remote="/testing/apps/remote_vob/record" />  
<Map local="..\avfiles" remote="/usr/dialogic/demos/MultiMedia/MultiMediaDemo/avfiles"/>
```

HMP Software Release 5.0 considers each file name as follows:

- If the file name starts with “C:\temp\record”, it is replaced with `/usr/dialogic/demos/record`
- If the file name starts with “..\avfiles”, it is replaced with `/usr/dialogic/demos/MultiMedia/MultiMediaDemo/avfiles`

Maps are processed in the order specified in `hrc_config.xml`.

Note: This file mapping is strictly a string operation, and is oblivious to folder structure. For example, if you were to specify “.\bin\.\avfiles”, the file name would not be converted even if folder name actually pointed to “.\avfiles”.

2. Map the current working directory (CWD). This step is performed only under one of the following conditions:
 - a) client provides relative file name. The relative file name refers to one that does not start with “\” or “/” or “X:” where X is any letter, or
 - b) map cwd record exists in the client configuration file, for example

```
<Map cwd="\testing\root_1" />
```

This Map instructs the client to replace every file name in such a way that it becomes an absolute filename that matches the relative filename, providing that the Server runs in the folder “\testing\root_1”. The current folder on the Server side remains the same and only the file name is changed. For example:

```
dx_fileopen("../record_folder\my_file.vox") becomes  
dx_fileopen("\\testing\record_folder\my_file.vox")
```

Use Case: If the application runs in folder “c:\program files\my_app” and all application files are organized in this folder, as in:

```
c:\program files\my_app\voice_prompts"  
c:\program files\my_app\video_prompts"  
c:\program files\my_app\record_files"  
c:\program files\my_app\ivr"
```

then transfer the entire file structure under the Server machine in /usr/myname/my_app as follows:

```
/usr/myname/my_app/voice_prompts"  
/usr/myname/my_app/video_prompts"  
/usr/myname/my_app/record_files"  
/usr/myname/my_app/ivr"
```

Now, if the application uses all file names relatively, such as dx_fileopen(“ivr/file1”), then enter the following to map the files:

```
Map <Map cwd="/usr/myname/my_app" />
```

3. Finally, a file name is converted according to Server conventions by replacing any “\” with “/” or vice versa. HMP Software Release 5.0 detects the operating system of the Server and the Client and then proceeds with conversions if required.

Current Server Folder

Follow the steps below to determine the current folder from where the Server is running:

1. Connect to the Server via telnet by entering:

```
telnet <server ip> <server remote_control_port>
```

By default, the remote_control_port is 3301. The setting is in file hrs_config.xml on server side <MLabel remote_control_port = "3301"/>.

Configuration

2. Issue the `exec pwd` command followed by the `bye` command as shown below:

```
[root@sut-864 release]# telnet 146.152.126.47 3301
Trying 146.152.126.47...
Connected to 146.152.126.47 (146.152.126.47).
Escape character is '^]'.
hrs server sut-864>exec pwd
/testing/apps/remote_vob/binaries/external/unix/ia32/gcc4.1.2/release
hrs server sut-864>bye
Connection closed by foreign host.
[root@sut-864 release]#
```

5.5 Tuning System Performance

That section provides recommendations for those who choose to enhance system performance. This chapter includes the following topics.

- [High Channel Density Recommendations](#)
- [Optimizing NIC Driver Settings](#)
- [Configuring the Number of Message Queues](#)

5.5.1 High Channel Density Recommendations

The following recommendations are applicable in high channel density environments.

Increasing System Shared Memory Size

Systems using Dialogic[®] software licenses that have more than 120 instances of a single resource type require an increase in the Linux operating system shared memory size to 64 MB or more.

To display the current shared memory size setting, use the following command:

```
more /proc/sys/kernel/shmmax
```

To increase the size to 64 MB, use the following command:

```
sysctl -w kernel.shmmax=65536000
```

To make the setting persistent across reboots, add the `kernel.shmmax=65536000` variable to the `/etc/sysctl.conf` file.

Memory Recommendations

When running systems with more than 120 channels of multimedia play and record, it is recommended that 4 GB of memory be available.

5.5.2 Optimizing NIC Driver Settings

It is recommended to update network interface card (NIC) driver settings for improved system performance.

By default NIC driver settings are optimized for 100 Base-T NIC. For 1000 Base-T networks, make the following changes manually:

```
sysctl -w net.core.netdev_max_backlog=3000
sysctl -w net.core.rmem_default=16777216
sysctl -w net.core.rmem_max=16777216
sysctl -w net.core.wmem_max=16777216
sysctl -w net.core.wmem_default=16777216
ethtool -G eth0 tx 4096 rx 4096
```

To make the net.core settings persistent across reboots, add the following parameters in the /etc/sysctl.conf file:

```
net.core.netdev_max_backlog=3000
net.core.rmem_default=16777216
net.core.rmem_max=16777216
net.core.wmem_max=16777216
net.core.wmem_default=16777216
```

To make the ethtool setting persistent across reboots, also add the following command to the /etc/profile file:

```
ethtool -G eth0 tx 4096 rx 4096 2> /dev/null
```

5.5.3 Configuring the Number of Message Queues

The number of message queues used by Dialogic® HMP software is dependent on the number of application processes. You may need to increase the number of message queues available in your system. Errors may result if the number of available message queues is less than required.

To display the number of message queues currently in use, specify the following command:

```
ipcs -q
```

To display the maximum number of message queues currently set, specify the following command:

```
sysctl kernel.msgmni
```

It is recommended to set the number of available message queues to 128 or higher. This number will usually accommodate the requirements by the Dialogic® software and any additional customer applications. Use the following command to set the available message queue limit:

```
sysctl -w kernel.msgmni=128
```

Configuration

While the `kernel.msgmni` can be calculated, it is required that the following two parameters be set to the following minimum values, or if the default if it is greater:

```
-max size in bytes of any single message in a queue
sysctl -w kernel.msgmax=65536
-number of total bytes allowed to be queued across all messages..
sysctl -w kernel.msgmnb=65536
```

To make the setting persistent across reboots, add the following parameters to the `/etc/sysctl.conf` file:

```
kernel.msgmni=128
kernel.msgmax=65536
kernel.msgmnb=65536
```

1. To calculate the number of message queues used by the Dialogic® software, follow these guidelines:
2. The Dialogic® software uses 4 message queues by default in one application process.
3. Each additional application process which uses Dialogic® software requires an additional message queue. For example, if you are running 8 application processes, you will need 8 message queues for the application processes and 4 message queues for Dialogic® software, or a total of 12 message queues..

Virtualization using VMware® ESXi 4.1 Installable is available. This section specifically focuses on the VMware® ESXi 4.1 installable product which provides a native (or full) virtualization layer running on physical servers for abstracting processor, memory, storage, and resources into multiple virtual machines. For more information about ESXi, refer to the VMware web site at www.vmware.com.

Note: It is assumed that the reader is familiar with common terms used to describe basic virtualization concepts, such as guest operating system, host, hypervisor, etc.

6.6 VMware® ESXi 4.1 Virtualization Support

Dialogic® HMP virtualization is implemented using VMware® ESXi 4.1 Installable. VMware® ESXi partitions a physical server into multiple secure and portable virtual machines that can run side by side. Each virtual machine represents a complete system—with processors, memory, networking, storage and BIOS—so that an operating system and software applications can be installed and run in the virtual machine without any modification.

Both the PowerMedia HMP 5.0 Windows client system and the HMP 5.0 remote Linux system can be run in an ESXi virtualized environment; however each one has to be configured independently.

The density achieved when operating in a virtual environment is directly dependent on the configuration settings of the virtual machine(s) (i.e., CPU, memory, etc.) and the host platform hardware. Users should view the configuration settings provided as guidelines and not absolute, based on the target platform hardware characteristics in which feature validation was performed. Customizing the settings for optimal performance based on needs of the controlling application and host platform should be done by knowledgeable and experience personnel familiar with VMware® ESXi products.

6.6.1 Configuring Virtualization in the Remote Linux Server

To configure PowerMedia HMP 5.0 software to run as close as it would in a physical server configuration, the hypervisor should be configured to distribute the host hardware CPU processor, memory, storage, and networking resources to enable the real-time processing of RTP, media, and call control on all instances of the PowerMedia HMP 5.0 software. The following subsections examine the critical parameters to achieve this goal. Please refer to the vSphere Resource Management Guide found at http://www.vmware.com/pdf/vsphere4/r40_u1/vsp_40_u1_resource_mgmt.pdf for a thorough explanation of the terms and concepts utilized herein.

CPU Affinity Settings

To run real-time software on VMware® ESXi, use CPU affinity. This is the recommended method for real-time voice since each virtual processor can get CPU resources directly from one or more of the available host CPUs, reducing the likelihood that virtual processors are rescheduled to give CPU time to another virtual machine.

Each virtual machine is more isolated, which helps real-time software run as though it were in a physical server environment. Due to PowerMedia HMP 5.0 software's intensive use of the operating system kernel resources, it is also highly recommended to set aside one physical (host) CPU to the VMware® ESXi 4.1 hypervisor. This host CPU should not be part of the affinity setting of any of the virtual machines.

For example, on a dual-processor, four-core host system without hyper-threading system, there will be eight physical CPUs available to VMware® ESXi. In this scenario, two virtual machines are configured with two virtual processors each. The system administrator could set the first virtual machine CPU affinity to physical CPUs 0 through 3 (total 4), and the second virtual machine CPU with affinity to physical CPUs 4 through 6 (total 3); this leaves physical CPU 7 unassigned and available to the VMware® ESXi hypervisor.

Virtual machine configuration is accomplished using the vSphere vCenter or via the VMware CLI. Refer to the vSphere Basic System Administration or equivalent guide at http://www.vmware.com/pdf/vsphere4/r40_u1/vsp_40_u1_admin_guide.pdf for vSphere vCenter information. For VMware CLI instructions, refer to http://www.vmware.com/pdf/vsphere4/r40_u1/vsp_40_u1_vcli.pdf.

- Notes:**
1. Be careful not to cross physical processor boundaries when assigning CPU affinity to virtual machines, so that all host CPUs assigned to a virtual machine belong to the same host physical processor.
 2. On NUMA host servers, it is recommended to keep all physical CPUs affine to a virtual machine residing in the same NUMA node in order to avoid a performance penalty when accessing non-local memory.

Timing Configuration

For optimal virtual machine timing and PowerMedia HMP 5.0 software operation in a virtualized environment, it is recommended that VMware Tools are installed in each virtual machine.

- Install VMware Tools in each virtual machine. Refer to the VMware ESXi Setup Guide for the installation procedure.
- Use the vSphere vCenter utility (or VMware CLI) to access the host system Time Configuration. Provide the address of an appropriate NTP Server in the Date and Time Options, and restart the NTP service to apply the changes.

- Notes:**
1. VMware Tools includes an optional clock synchronization feature "Time Synchronization between the virtual machine and the ESX Server" that can be enabled in the virtual machines, and could conflict with the native synchronization software. Be aware that having both enabled could affect the virtual machine's operating system's

ability to correct long-term wall-clock drift, hence affect HMP audio quality.

2. For PowerMedia HMP 5.0 software media quality, it is recommended that the guest operating system operates with the ntpd process disabled to prevent NTP timing synchronization conflicts between the guest operating system and the ESX server. Use the setup command from the console to disable the ntpd feature prior to starting PowerMedia HMP 5.0 software.

Resource Budgeting

The same PowerMedia HMP 5.0 software requirements for system resources are required when operating in a VMware® ESXi environment. The user is responsible for distributing the host system so enough resources are available to the virtual machines at all times. In addition to the CPU affinity and timing settings discussed, VMware® ESXi and vSphere provide a vast number of virtual machine configuration parameters that affect the configuration and behavior of virtual resources, such as reservation, shares, and resource pools that are outside of the scope of this document but are very important in providing a virtual environment to HMP as close as possible to a physical server environment.

Network Configuration

By default, VMware® ESXi provides one virtual switch that handles all virtual machine network traffic according to each virtual machine's IP and MAC addresses and VMware® ESXi management network traffic. Virtual machines can be assigned to virtual networks, and these to virtual switches in various network topologies, utilizing all available host physical network interfaces. The system integrator should carefully consider the virtual network layout based on the aggregated network traffic of all virtual machines and the capabilities and number of the physical network interfaces.

Density Limits

Aggregate density limits were tested at the currently supported limits as physical platforms. It is important to note that density projections are platform specific and are susceptible to the performance capabilities of the underlying hardware platform (host), and to the number of virtual machines. Initial density results show that the aggregate density of virtual machines running on the same host may be slightly less than the total capacity of the physical server. This is the result of additional overhead associated with each virtual machine.

6.6.2 Configuring Virtualization in the Windows Client

The default settings are sufficient to configure virtualization in the Windows Remote Client. No additional changes are required.

Using the Web Management Console

7

7.1 Dialogic® Web Management Console

The Dialogic® PowerMedia™ Host Media Processing Software Release 5.0 Server management is accomplished using a Web GUI. The Dialogic® Web Management Console is used for configuration and to start/stop media services. It is also used for license management.

Note: Unlike the HMP 3.0WIN Software, the Native Configuration Manager (NCM) API for Windows and the Dialogic Configuration Manager (DCM) graphical tool are not supported in HMP 5.0.

The Dialogic® Web Management Console may be accessed at a workstation using one of the following Web browsers:

Windows operating systems

- Internet Explorer 8.0
- Chrome 14
- Firefox 7
- Opera 11.01
- Safari 5.0.3

Linux operating systems (Red Hat Enterprise Linux Release 6)

- Firefox

7.1.1 Establishing Communication with the Web Management Console

Communication is established by entering the IP address of the Server with the port number 1900 (default), as in //IP Address:<Port Number>. For example:

```
http://146.152.130.47:1900
```

The Dialogic® Web Management Console interface is password protected. The user name is `root` and the password is `dialogic`. The user name and password cannot be changed.

Note: For Windows Server® 2008, the IP address of the Media Server must be added to the Trusted Sites zone or the Web GUI will not show any information after logging into the server. This is because of the Internet Explorer Enhanced Security Configuration which places your server and Internet Explorer in a configuration that decreases the exposure of your server to potential attacks that can occur through Web content and application scripts. As a result, some Web sites may not display or

perform as expected. Refer to [http://technet.microsoft.com/en-us/library/dd883248\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd883248(WS.10).aspx), and click on the topic “How to browse when Internet Explorer Enhanced Security Configuration is enabled.”

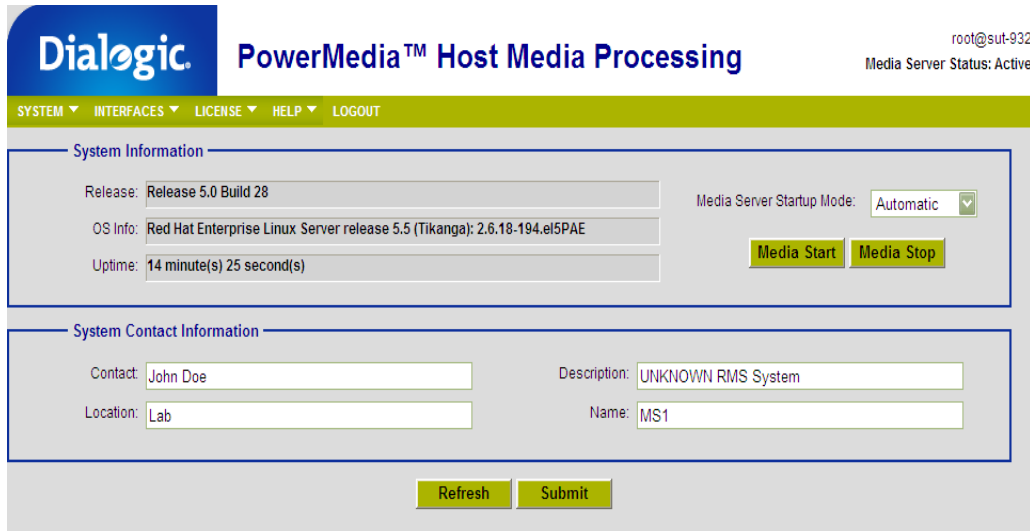


Figure 4. Welcome Page for Dialogic® Web Management Console

The **SYSTEM** tab provides some administrative actions for the Media Server. It consists of the following:

- **SYSTEM PROPERTIES** - Displays System Information (same contents as the Welcome page).
- **START MEDIA SERVER** - Navigates to the Start Media Server page. Starting Media Services is required when certain parameter values are changed.
- **STOP MEDIA SERVER** - Navigates to the Stop Media Server page.
- **CHANGE PASSWORD** – Navigates to the page for changing the current Web interface login password.

Note: Changing the password only applies for Web interface access and **not** for system root access.

- **REBOOT** – Allows reboot of the system.
- **SHUTDOWN** – Allows shutdown of the system.

The **INTERFACES** tab provides RTP and network setup information. It provides the following selections:

- **RTP SETUP** – Displays a table containing all available IP addresses that can be used for streaming media by the Media Server. Choose your preference using the radio button and click **Submit**.
- **NETWORK** - Displays all available network interfaces and associated parameters, such as IP address and status. Select Details to get more information about the selected interface including network traffic statistics.

Using the Web Management Console

The **LICENSE** tab is used to manage and view license file information, and to upload licenses. It provides the following selections:

- **MANAGE** - This page displays the active license file information, such as type, expiration date, and features. This page is also used to submit a license file after upload, and to delete license files from the Server.
- **UPLOAD** - On this page, one can browse the Server for license files and upload license files. Once a license file is selected, the file's feature and count information will appear in the right side of the window of the Manage page.

Note: Changing a license file on the Resource Server requires a restart of the Media Server. Do this by selecting **STOP MEDIA SERVER**, and then clicking **START MEDIA SERVER** from the **SYSTEM** tab.

The **HELP** tab provides information about the Web Management Console and a link to the Dialogic Documentation Bookshelf.

The **LOGOUT** tab logs out of the Web Management Console.

Developer Resources

This chapter provides a brief overview of the APIs used for development. Topics include:

- [API Support](#) 47
- [Runtime Binary Names on HMP 5.0 Windows](#) 50
- [Runtime Tracing Facility \(RTF\)](#) 50
- [Messaging Call Flow](#) 52

8.1 API Support

Dialogic® PowerMedia™ Host Media Processing Software Release 5.0 supports the following Dialogic APIs:

- [Device Management API](#)
- [Global Call API](#)
- [IP Media API](#)
- [Multimedia API](#)
- [Standard Runtime Library \(SRL\) API](#)
- [Voice API](#)
- [HMP Remote Client \(HRC\) API](#)

Note: Conferencing, Fax, and Continuous Speech Processing (CSP) APIs are not supported in this release. See [Section 8.1.7, “HMP Remote Client \(HRC\) API”](#), on page 49.

8.1.1 Device Management API

The remote Device Management library is used on the Windows client system and provides the same development interface as the native Device Management library. The API library functions are implemented as wrapper functions, while the main code to convert the API calls to a message is implemented in the remote library.

8.1.2 Global Call API

The Global Call API library is supported locally, rather than remotely. That is, the SIP signaling stacks run on the client system with media and RTP resources on the Linux server. All Global Call API features for SIP that are currently supported on the Dialogic® HMP Software Release for 3.0WIN are supported in the PowerMedia HMP 5.0 Software.

8.1.3 IP Media API

The remote IP Media library is used on the Windows client system and provides the same development interface as the native IP Media library. The API library functions are implemented as wrapper functions, while the main code to convert the API calls to a message is implemented in the remote library.

8.1.4 Multimedia API

The remote Multimedia library is used on the Windows client system and adds development interfaces that were previously not available in the HMP 3.0WIN Multimedia library. The APIs include:

Input/Output Function

mm_Capture() - Capture a still image from video stream

DVR Control Functions

mm_GetDuration() - Get duration of current presentation

mm_GetElapsedTime() - Get current presentation time

mm_Pause() - Pause current presentation

mm_Resume() - Resume current presentation

mm_Seek() - Place current presentation at specified position

API library functions are implemented as wrapper functions, and the main code to convert the API calls to a message is implemented in the remote library.

Note: Media Streaming APIs are not supported.

8.1.5 Standard Runtime Library (SRL) API

The Standard Runtime library is used on the Windows client system and provides the same development interface as the native SRL library. The SRL device mapper API library functions are implemented as wrapper functions, and the main code to convert the API calls to a message is implemented in the remote library, while the remaining SRL APIs are local to the Windows system.

8.1.6 Voice API

The remote Voice library is used on the Windows client system and provides the same development interface as the native Voice library. The Voice library functions are implemented as wrapper functions, and the main code to convert the API calls to a message is implemented in the remote library.

- Notes:*
1. The **dx_resetch()** function is not currently supported.
 2. User defined Input/Output (UIO) is not currently supported.
 3. Streaming to Board APIs are not supported.

8.1.7 HMP Remote Client (HRC) API

The HMP Remote Client API library currently provides the following events for use by the application:

HRCEV_LINK_UP

This event is generated when the connection to the Media Server is established. This connection is typically established when the first Dialogic® R4/Global Call API is called.

HRCEV_LINK_DOWN

This event is generated when the connection to the Media Server is terminated. This occurs when either the network connection is lost or the Media Server stops responding. When this event is generated, the application should exit and re-start the Media Server by clicking **MEDIA SERVER STOP>MEDIA SERVER START** from the Web GUI. It is not necessary to close any R4/Global Call devices because when this event occurs all of the APIs will fail.

Note: The HRC API will be enhanced in a future release to provide Resource Server management and fault tolerance capabilities. For this release, refer to the Fault Tolerance topic in [Section 10.2, “Troubleshooting”](#), on page 55 for information about handling fault tolerance scenarios.

8.1.8 APIs Not Currently Supported

The following APIs are not supported with this release:

- Dialogic® Native Configuration Manager
- Dialogic® Conferencing (CNF)
- Dialogic® Audio Conferencing (DCB)
- Dialogic® Continuous Speech Processing
- Dialogic® Fax
- Dialogic® Voice – User-defined Input/Output (UIO)
- Dialogic® Multimedia – Streaming functions

Stub libraries are provided to enable current applications to compile and link their existing applications. Each HRC library contains the same set of functions as its pair HMP library. All functions in the stub libraries return -1 to indicate that the function is not supported. The table below shows the HRC stub library name and the HMP library it replaces.

Table 5. Stub Library Names

HRC Stub Library	HMP Library
libhrccc.dll	cc_ portion of libdtimt.dll (Remote CC library contains the stub function for Call Control (cc_) API)
libhrccnf.dll	libcnf.dll (Remote CNF library contains the stub function for CNF (cnf_) API)
libhrccfaxmt.dll	libfaxmt.dll (Remote Fax library contains the stub function for Fax (fx_) API)

Table 5. Stub Library Names

HRC Stub Library	HMP Library
libhrcecmnt.dll	libecmt.dll (Remote EC library contains the stub function for Continuous Speech Processing (ec_) API)
libhrcncm.dll	ncmapi.dll (Remote NCM library contains the stub function for NCM (ncm_) API)
libhrdcb.dll	dcb_ portion of libdtimt.dll (Remote DCB library contains the stub function for Conferencing (dcb_) API)
libhrcdtimt.dll	dti_ portion of libdtimt.dll (Remote DTI library contains the stub function for Network Front End (dti_) API)

8.2 Runtime Binary Names on HMP 5.0 Windows

The binaries delivered in PowerMedia HMP 5.0 Software contain “hrc” in the binary names to distinguish them from binaries delivered by existing Dialogic® HMP software. The following table provides the remote library names and functionality.

Table 6. Runtime Library Names

Remote Library Name	Functionality
libhrcdxxmt.lib	Remote DX library contains the Voice (dx_) API
libhrcipm.lib	Remote IPM library contains the IP Media (ipm_) API
libhrcmml.lib	Remote MM library contains the Multimedia (mm_) API
libhrcdevmgmt.lib	Remote Device Management library contains the Device Management (dev_) API
libhrcgc.lib	Remote GC library contains the Global Call (gc_) API
libhrcsrl.lib	Remote SRL library contains the Standard Runtime Library (sr_) API

8.3 Runtime Tracing Facility (RTF)

RTF provides a mechanism for tracing the execution path of the runtime libraries for Dialogic® Software. All libraries that use RTF write their trace messages to a log file. The resulting log file helps troubleshoot runtime issues for applications that are built with Dialogic® Software. For more detailed information about RTF, refer to the *Dialogic® HMP Software Diagnostics Guide*.

For PowerMedia HMP 5.0 Software, the configuration file names are different from those in previous HMP Software releases. For Windows, the file is *hrcRtfConfigWin.xml*. For Linux, RTF configuration file is *hrcRtfConfigLinux.xml*.

Refer to [Section 10.4, “The Dialogic Command Center”](#), on page 57 for information about the Trace Collection RTF tool.

RTF on Windows

All of the HMP 5.0 Software runtime libraries are enabled with RTF logging capabilities. RTF uses a configuration file for enablement and adjustment of logging. In Windows, the configuration file name is *hrcRtfConfigwin.xml*. It is located in ProgramData\dialogic\RemoteClient\cfg. The default configuration file has only global errors enabled.

After changing the XML file name from *rtfConfigwin.xml* to *hrcRtfConfigwin.xml* use the `hrcrtftool reload` command to generate the RTF logs. The RTF log file names appear as *hrcrtflog-*.txt*.

Use the `hrcits_sysinfo` command to capture all the required log files. This command also creates a zip file that contains *hrcRtfConfigwin.xml*, RTF logs, *hrc_config.xml*, *getverInfo.txt*, *operation.log* and *its_sysinfo.htm*.

Table 7. RTF Modules on Windows

Module	Description
remoteDX	Voice API
remoteIPM	IPM API
remoteDM	Device Management API
remoteSRL	SRL Device Mapper APIs only
remoteLIB	Remote Windows Engine
remoteUTIL	Remote Windows Utility functions
remoteMM	Multimedia API
Gc	Global call
Gc_h3r	SIP/H323 Call control
sip_stack/h323_stack	SIP/H323 Stack Level
srl	All other SRL APIs

RTF on Linux

HMP 5.0 Software RTF logging works the same as that on HMP 4.1LIN Software, with the exception of additional RTF modules shown in [Table 8, “RTF Modules on Linux”](#), on page 51. All the required log files are captured using the `its_sysinfo` command.

Table 8. RTF Modules on Linux

Module	Description
remoteDX	Voice API
remoteMM	Multimedia API
remoteIPM	IPM API
remoteDM	Device Management API
remoteSRL	SRL Device Mapper APIs only

Table 8. RTF Modules on Linux

Module	Description
remoteSRV	Remote Linux Engine
remoteUTIL	Remote Windows Utility functions

8.4 Messaging Call Flow

For every R4 API call, a message is created specific to that API call and sent to the resource server. In the following diagram, a call to the `dx_play()` function generates a `TDX_PLAY` termination event on the Windows Remote Client side.

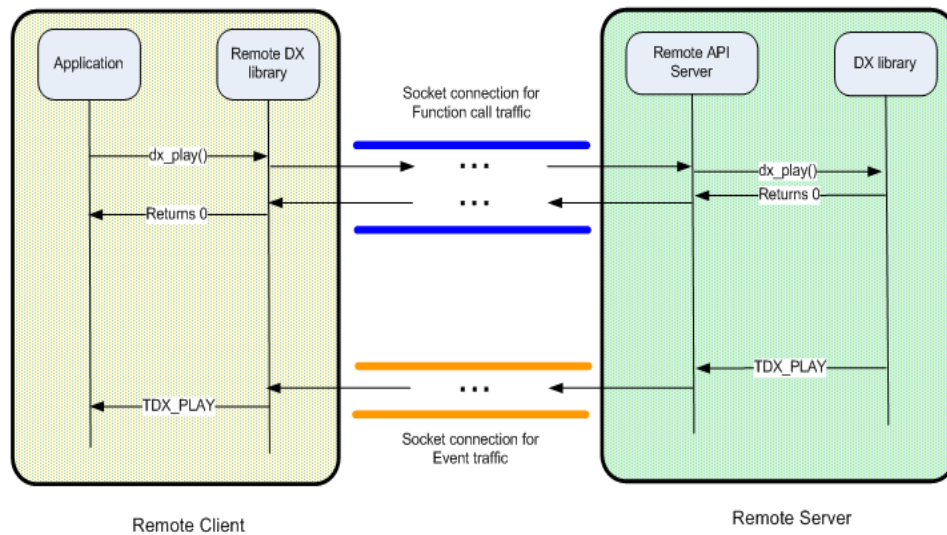


Figure 5. Call Flow Example

Note: Remote Client files will not be backed up regardless of the method used to back up files prior to uninstall.

Uninstall on a Windows System

You should consider backing up the drive on which the PowerMedia HMP 5.0 Software is installed before you proceed. Be sure to back up all configuration files, diagnostic data, and log files you wish to save from the *Dialogic\HMP* directory because this whole directory structure will be removed by the uninstall. A log file captures what happens during the uninstall. For more information, refer to [Section 10.1, “Installation Log Files”](#), on page 55.

3. Close all telephony applications that are currently running and stop Dialogic® Services.
4. Invoke the **Control Panel** and select **Programs and Features**. In the list of currently installed programs, select the release. A Confirm Uninstall popup will appear, explaining what will be removed and suggesting you back up anything you might want to preserve.
5. Click **OK** to proceed with the uninstall or click **Cancel** to cancel the uninstall. If you click **OK**, you will see a progress bar which shows that the software is being uninstalled.

(If you choose to reboot later, then you must manually reboot the system before the uninstall will be completed.)

Uninstall on a Linux System

It is good practice to create a backup directory to save your configuration data before uninstalling the software. From the root, create a backup directory by entering the command `mkdir /backup`. Go to the */usr/dialogic/data* directory (the default directory for license files) or whatever directory contains your license files. Using the copy command, `cp`, copy all instances of the active license file (with all extensions: *.lic*, *.cfg*) to the backup directory.

1. Close all telephony applications that are currently running in the system and stop the Dialogic® Services.
2. To stop Dialogic® Services, enter following command at the prompt:

```
dlstop
```

You will see several screen messages scrolling. The services have successfully stopped when the prompt returns.

3. Enter the following command at the prompt:

Uninstalling the Software

```
dlguninstall.sh
```

The message below is displayed:

```
=====
Dialogic(R) PowerMedia HMP Release 5.0LIN
```

```
UNINSTALL
```

```
Before you uninstall the software, you may wish to save certain configuration
files that you have modified based upon the configuration of your system.
If you wish to save these configuration files, answer Y at the prompt below to
quit the uninstall. You may then manually back up any files located under
/usr/dialogic.
Once this has been done, re-run this script to uninstall the software.
Quit the uninstall and back up your configuration files now [y/n] ? n
```

4. Enter **y**, to stop the uninstall process and to back up data, or enter **n** to continue. If you enter **n**, the following messages are displayed:

```
The Dialogic(R) Software will now be uninstalled.
```

```
Stopping Dialogic(r) software...Successful
lsb-dialogic-hmp50-rsrv... successfully removed
lsb-dialogic-hmp41-com... successfully removed lsb-dialogic-hmp41-com
lsb-dialogic-hmp41-dmdev... successfully removed lsb-dialogic-hmp41-dmdev
lsb-dialogic-hmp41-docs... successfully removed lsb-dialogic-hmp41-docs
lsb-dialogic-hmp41-hmp... successfully removed lsb-dialogic-hmp41-hmp
lsb-dialogic-hmp41-lic... successfully removed lsb-dialogic-hmp41-lic
lsb-dialogic-hmp41-sdk... successfully removed lsb-dialogic-hmp41-sdk
```

```
To complete the removal of the Dialogic(r) software, the following action is required:
- Logout and login
```

```
NOTE: A reboot is not required to complete the uninstall process.
```

5. Log out and then log in to restore the environment settings.

This chapter provides information about installation log files, and about the tools available to enhance the user experience. It contains the following sections:

- Installation Log Files 55
- Troubleshooting 55
- The RStatus Utility 56
- The Dialogic Command Center 57
- The PuTTY Tools 67

10.1 Installation Log Files

A log file named *DlgcInstall.log* captures information about what happened during an install, maintenance, or uninstall of the Dialogic® HMP Software (such as user input and each item the install program attempts to install or uninstall). It also captures information about the target system (such as CPU, CPU speed, disk space, OS) and information about the software you tried to install (such as edition, build, mode). This file can help you when you are troubleshooting a problem with the installation, or subsequent detection or download problems.

The *DlgcInstall.log* file is not removed during an uninstall because you may want to use this file for troubleshooting the uninstall (it also captures what happened during an uninstall of the software).

The installation log (*DlgcInstall.log*) is created in the directory pointed to by the value of the environment variable `%TEMP%`. (To find out what the `%TEMP%` directory is, type `echo %TEMP%` on a command prompt and note down the path displayed.) The default value of this variable is *C:\Documents and Settings\<userid>\Local Settings\Temp*, where *<userid>* is your Windows® Login ID.

- Notes:**
1. The location of `%TEMP%` can change for multiple remote logins (for example, Terminal Services Client). For the first session, the directory “1” will be appended to the path. For the second session, the directory “2” will be appended to the path, and so on.
 2. Because the value of `%TEMP%` contains a login ID, if one user installs the software and a different user uninstalls the software, the uninstall information will not be appended to the install log since it is in a different directory. The result is two log files, one for install, one for uninstall.

10.2 Troubleshooting

This section provides information about issues that may impact product usability.

Fault Tolerance

Loss of connection – When the TCP connection between Remote Client and Resource Server goes down, the Server starts a clean up action. The Remote Client also detects the lost connection and begins to fail API calls. This lost connection cannot be restored. Refer to [Section 8.1.7, “HMP Remote Client \(HRC\) API”](#), on page 49 for more information.

To re-establish a connection with the Server, the application must be restarted. Although the application does not have to close devices since the connection has been terminated, the devices must be re-opened when the application is restarted.

Scenarios

A– Remote Client Operation

- For a network outage, restart Windows Remote Client application. No action is required on the Linux Resource Server side.
- For a system crash or power outage, restart Windows Remote Client system and application. No action is required in the Linux Resource Server side.

– Resource Server Operation

- For a network outage, restart Windows Remote Client application. No action is required on the Linux Resource Server side.
- For a system crash or power outage, restart Windows Remote Client application and restart the Linux Resource Server.

Network Load Balance

When both the Remote Client and the Resource Server are in a virtual box, traffic between the two is routed internally and does not require network load balance for traffic going out of the virtual box.

10.3 The RStatus Utility

RStatus is a debugging utility provided on the HMP 5.0 Client side only and can be used for retrieving Client remote API library information or remote Media Server information. Information from the local Windows client, such as thread data, server connections, device data, memory pools, and Routing Table, is retrieved using this utility. RStatus is also used to retrieve information from the Media Server, such as thread data, client connections, socket data, device data, memory pools, Routing Table, processing status and limits, and memory information.

The command line options are as follows:

```
RStatus ip_addr:port
```

Where ip_addr is the address of the Client (local system) or the Media Server and port is the remote control port specified in the hrc_config.xml or hrs_config.xml file.

Example:

```
RStatus 192.168.2.1:3305
RStatus 192.168.2.1:3305 > server_info.txt
```

Note: The Client side remote API library can only be retrieved when an application is running, as in when the remote API libraries are loaded.

10.4 The Dialogic Command Center

The Dialogic Command Center (DCC) is a new administration and debug tool that is included with the PowerMedia™ HMP Software Release 5.0. This tool is intended to ease the administration and debugging of HMP 5.0 installations. It includes the following:

- HRS Web Admin
- HRCServerIPAddress
- HMP File Manager
- Trace Collection

The tool, DCC.exe, is located in the Dialogic Bin directory but can be accessed by selecting **Start->All Programs -> Dialogic Remote Client -> Dialogic Command Center**. DCC can also be run at any time from a command line or the Run Program dialog box by typing DCC. When the DCC starts, the following window provides access to launch one of four different tools.

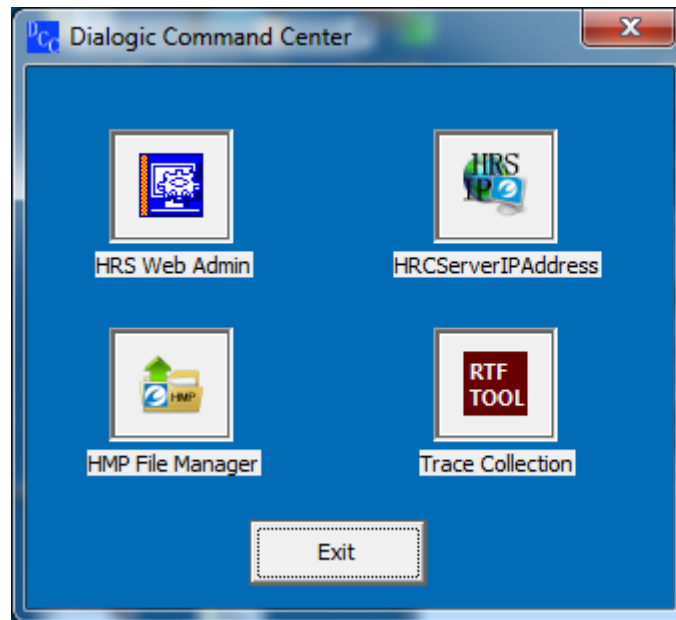


Figure 6. Dialogic Command Center Welcome Window

10.4.1 HRS Web Admin

This tool allows the user to select and open the Web Admin on the HMP Resource Server, also referred to herein as HRS. If there is only a single HRS configured inside the hrc_config.xml file,

Usability-Related Information

HRS Web Admin will open a Web browser and attempt to connect to that Server. For example, if 192.168.1.10 is the HRS address, clicking this tool will open your default Web browser and attempt to connect to `http://192.168.1.10:1900`.

Note: 1900 is the default port for the HRS Web Admin. Changing this default will cause this tool not to function as intended.

Once the tool Web browser is launched, log into the Dialogic Web Management Console. The default username is “root” and the default password is “dialogic”. Refer to [Chapter 7, “Dialogic® Web Management Console”](#).

If there are multiple HRS’s configured in the hrc_config.xml file, one must be selected to connect to from the list. Once the selection is made, click **OK**.

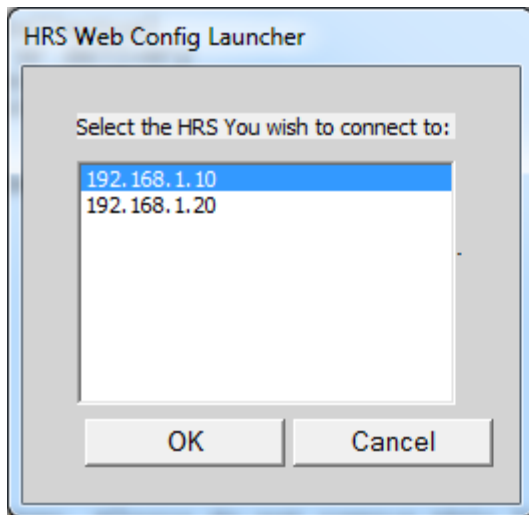


Figure 7. HRS Web Config Launcher

10.4.2 HRCServerIPAddress

This tool is used to change the IP address in the hrc_config.xml file.

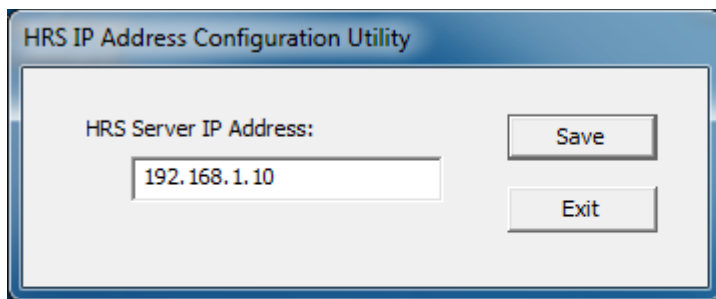


Figure 8. HRS IP Address Configuration Utility

To change the IP address, specify the desired address in the space provided and click **Save**. The IP address is successfully updated in the hrc_config.xml file when the following window displays:

Usability-Related Information

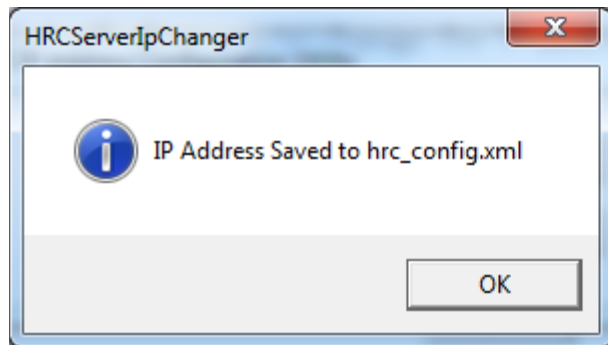


Figure 9. HRC Server IP Changer Window

10.4.3 HMP File Manager

This tool is used to modify the file mappings in the hrc_config.xml file. It may also be used to map or view the Samba share located on the HRS in order to help facilitate audio file administration. This tool will use the PUTTY family of SSH tools to copy the files and remote execute commands on the HRS.

Note: The backup and restore functionality of this tool should not be used in areas where use of encryption is prohibited by local laws. The Open Samba share, Mapping of Drive letter, and File Mapping functionality do not use remote connections and are therefore exempt from the prohibition

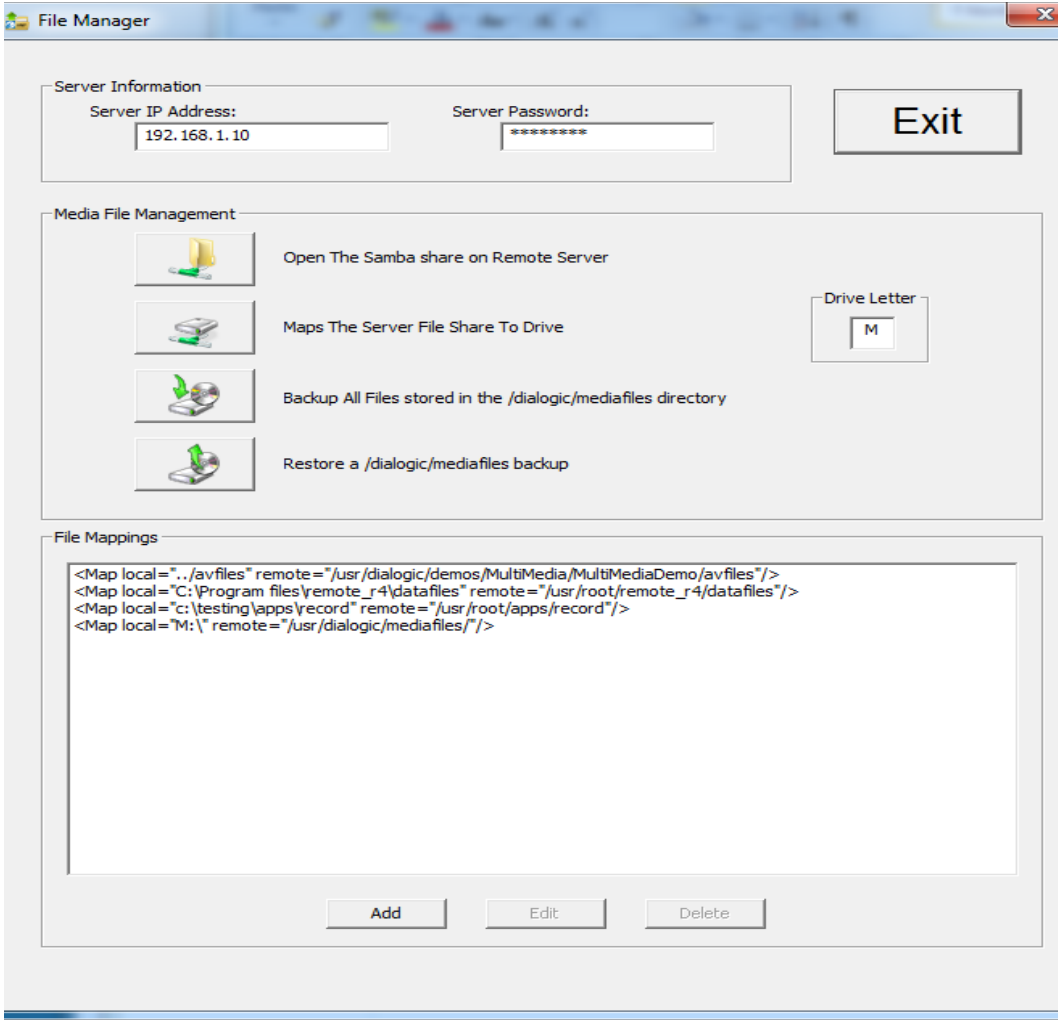
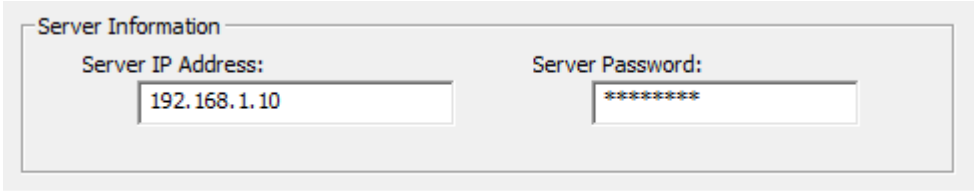


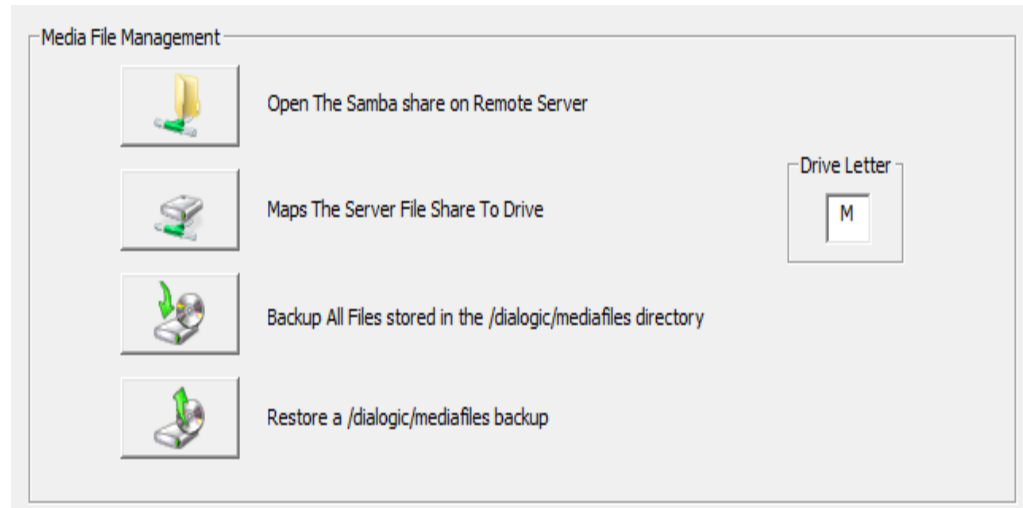
Figure 10. File Manager Window

Server IP Address

In this section, one needs to specify the IP address for the HRS and the password to login. Note that this needs to be the system password. (The default password on the HRS ISO install is “dialogic”). This connection information is used to remote connect to the server via Secure Shell (SSH) and to Secure Copy the files as needed.



Media File Management



Open The Samba Share on Remote Server

This button will simply attempt to connect to the Samba file share on the HRS and open it in Windows Explorer. In essence, this is the same as opening a file explorer and typing \\<HRS_IPADDRESS>\mediafiles.

Maps The Server File Share To Drive

This button will create a windows drive map to the \\<HRS_IPADDRESS>\mediafiles location. The drive letter selected is specified by the Drive Letter box shown on the right. This drive can then be used to transfer the files to and from the HRS via Windows Explorer.

Backup All Files Stored in the /dialogic/mediafiles directory

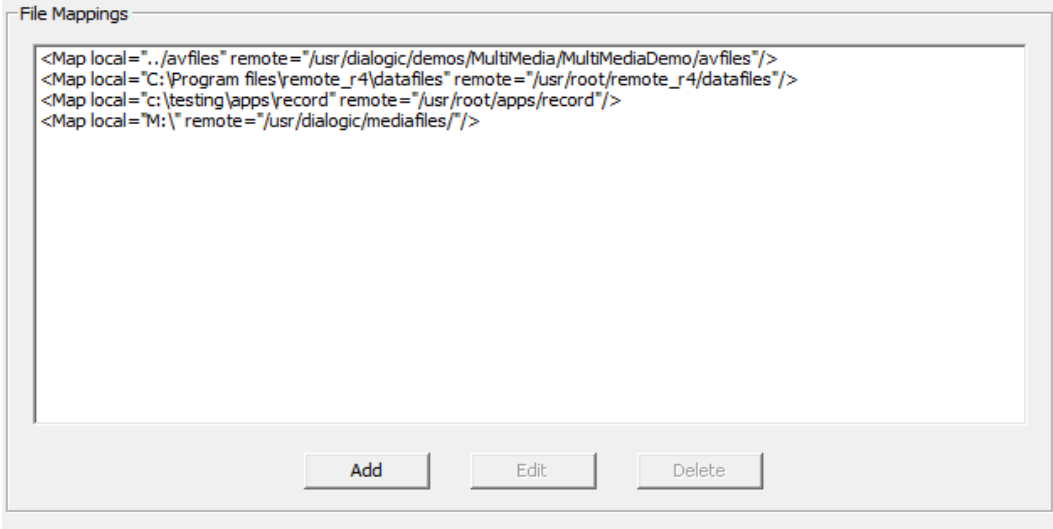
This option will compress all the files currently located in the SAMBA share and will SCP transfer this file to the local system. This is useful for backing up prompt sets when doing an HRS upgrade. This tool uses an encrypted protocol to remote execute commands on the HRS and to transfer the compressed files.

Note: Please refer to the [Using the PuTTY Tools](#) for popup dialogs that may be observed during runtime.

Restore a /dialogic/mediafiles backup

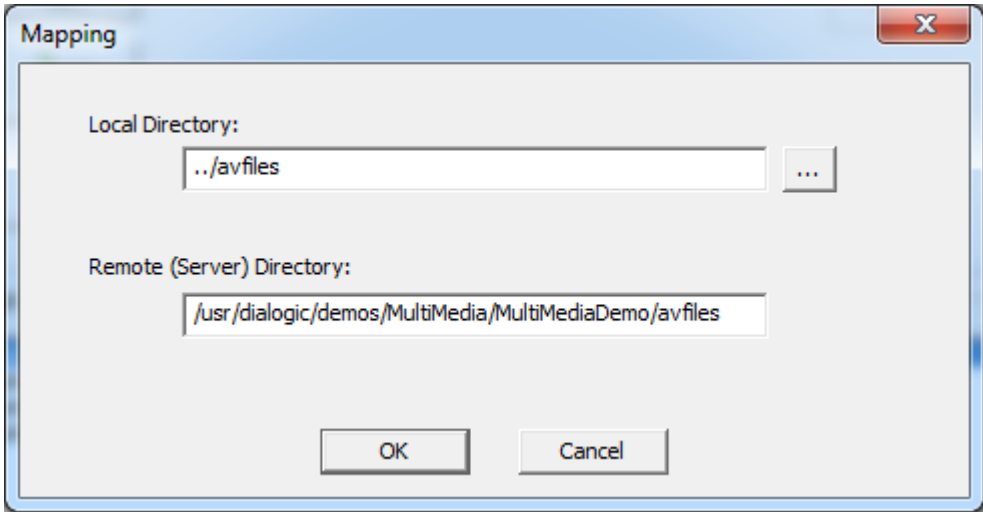
This option will copy over a .tgz file of prompts (such as those created using option 3 above) and uncompress them into the share location. This is useful for restoring a prompt sets when doing an HRS upgrade. This tool also uses an encrypted protocol to remote execute commands on the HRS and to transfer the compressed files.

File Mappings



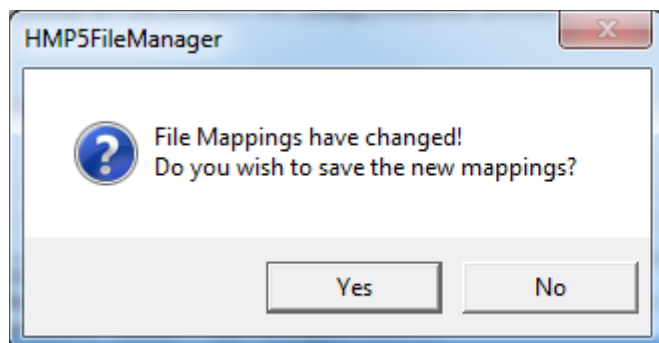
This section is used to modify the file mapping section of the hrc_config.xml file. The list box shows all the current listings on the system. To add a new mapping click **Add**. A current mapping can be edited by double clicking on the mapping item or selecting the mapping item and clicking **Edit**. To delete a mapping, select the mapping item and click **Delete**.

Both Add and Edit result in the Mapping window:



Usability-Related Information

Specify the local directory and the HRS directory, and then click **OK**. The default share location is /usr/dialogic/mediafiles. The following window displays:



Selecting **Yes** changes the file mappings in the hrc_config.xml file.

10.4.4 Trace Collection

This tool is used to configure and collect RTF and Its_Sysinfo data from both the HMP Remote Client, also referred to herein as HRC, and the HRS. It uses the PuTTY family of SSH tools to copy the files and remote execute commands on the HRS.

Note: The “Server Logging” functionality of this tool should not be used in areas where use of encryption is prohibited by local laws. The “Client Logging” section does not use remote connections and is therefore exempt from the prohibition.

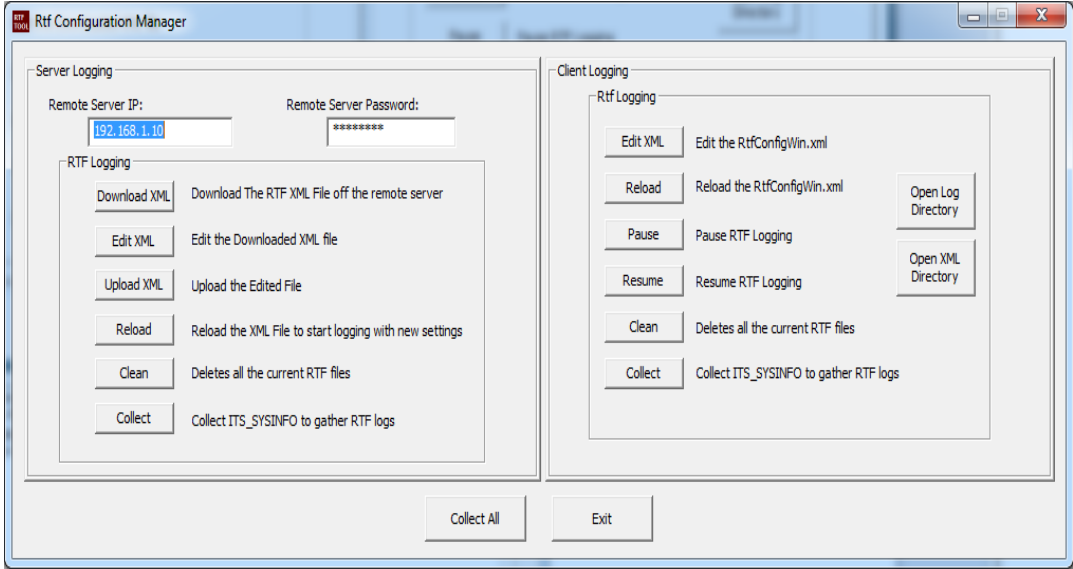
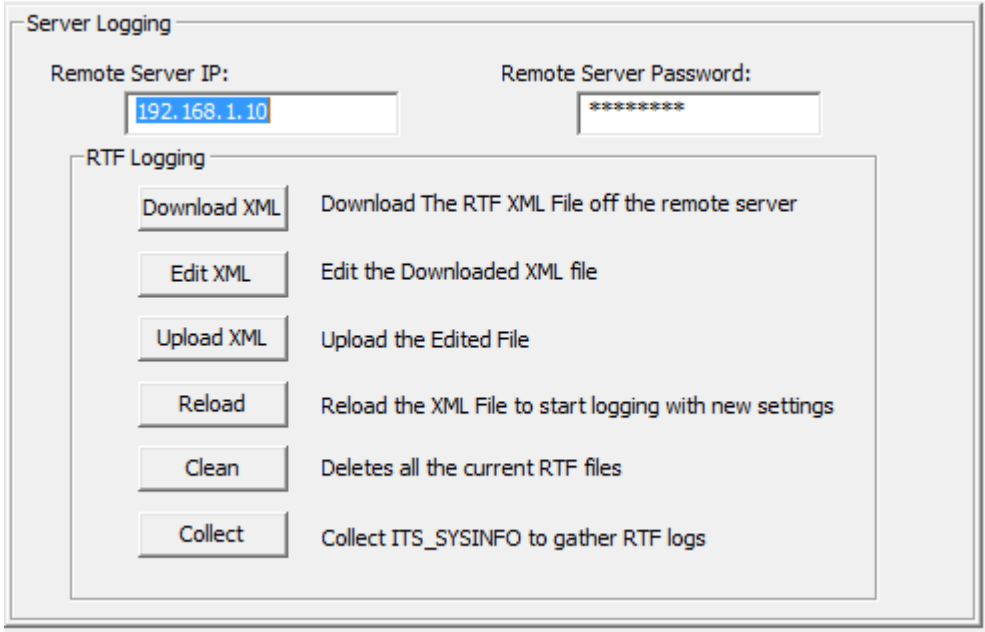


Figure 11. RTF Configuration Manager Window

Server Logging



Remote Server IP

The IP address of the HRS on which to perform the trace. The default is the address inside the hrc_config.xml file.

Usability-Related Information

Remote Server Password

The password for the HRS. Note that this is the system level password not the Web Admin password (default password is “dialogic”).

Download XML

Downloads the RtfConfigLinux.xml off the HRS via Secure FTP.

Edit XML

Navigates to the RtfConfigLinux.xml file and opens it in Notepad.

Upload XML

Copies the specified RtfConfigLinux.xml file over to the HRS via Secure FTP.

Reload

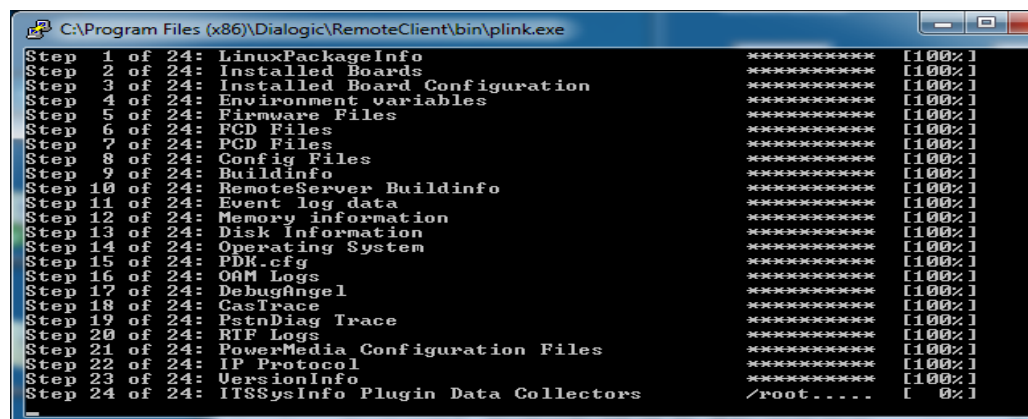
Causes the RTF service on the HRS to reread and restart the RTF logging.

Clean

Deletes the currently stored RTF log files.

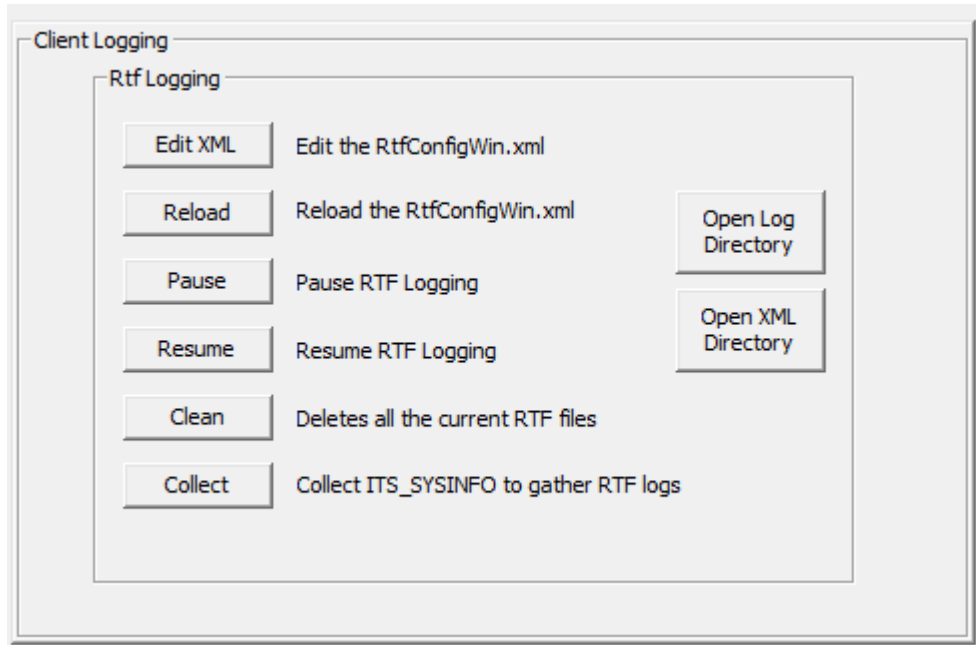
Collect

Runs ItsSysinfo on the HRS and copies the data to the specified location via Secure FTP.



```
C:\Program Files (x86)\Dialogic\RemoteClient\bin\plink.exe
Step 1 of 24: LinuxPackageInfo ***** [100%]
Step 2 of 24: Installed Boards ***** [100%]
Step 3 of 24: Installed Board Configuration ***** [100%]
Step 4 of 24: Environment variables ***** [100%]
Step 5 of 24: Firmware Files ***** [100%]
Step 6 of 24: FCD Files ***** [100%]
Step 7 of 24: PCD Files ***** [100%]
Step 8 of 24: Config Files ***** [100%]
Step 9 of 24: Buildinfo ***** [100%]
Step 10 of 24: RemoteServer Buildinfo ***** [100%]
Step 11 of 24: Event log data ***** [100%]
Step 12 of 24: Memory information ***** [100%]
Step 13 of 24: Disk Information ***** [100%]
Step 14 of 24: Operating System ***** [100%]
Step 15 of 24: PDK.cfg ***** [100%]
Step 16 of 24: OAM Logs ***** [100%]
Step 17 of 24: DebugAngel ***** [100%]
Step 18 of 24: CasTrace ***** [100%]
Step 19 of 24: PstnDiag Trace ***** [100%]
Step 20 of 24: RTF Logs ***** [100%]
Step 21 of 24: PowerMedia Configuration Files ***** [100%]
Step 22 of 24: IP Protocol ***** [100%]
Step 23 of 24: UersionInfo ***** [100%]
Step 24 of 24: ITSSysInfo Plugin Data Collectors /root..... [ 0%]
```

Client Logging



Edit XML

Navigates to the RtfConfigWin.xml file from the HRC and opens it in Notepad.

Open Log Directory

Opens the location of the logs in Windows Explorer.

Open XML Directory

Opens the location of the RTF xml in Windows Explorer.

Reload

Causes the RTF service on the HRC to reread and restart the RTF logging.

Pause

Pauses RTF logging on the HRC.

Resume

Resumes RTF logging on the HRC.

Clean

Delete the currently stored RTF log files.

Collect

Runs ItsSysinfo on the HRC and copies the data to the specified location.

10.5 The PuTTY Tools

PuTTY, an SSH and telnet client, is open source software is available with source code. The PuTTY tools are shipped with the PowerMedia™ HMP Software Release 5.0 software and used to communicate between these HRC and the HRS. These tools are located in the dialogic/bin

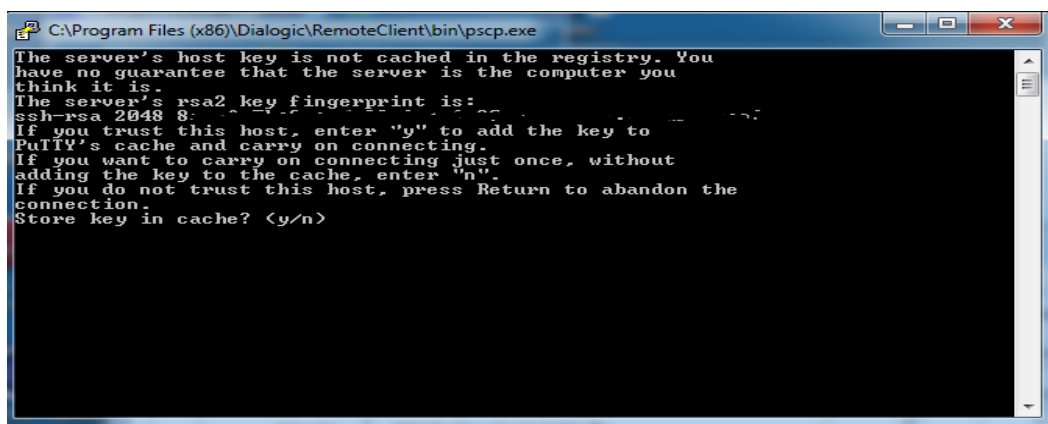
Usability-Related Information

directory and are used by some of the DCC tools. If you are deploying PowerMedia HMP 5.0 software in a country where encryption is outlawed, it is recommended that these tools be removed. The tools included are pagent.exe, plink.exe, pscp.exe and putty.exe.

For more information about the PuTTY tools, and its license information, refer to the authors page at <http://www.chiark.greenend.org.uk/~sgtatham/putty/faq.html>.

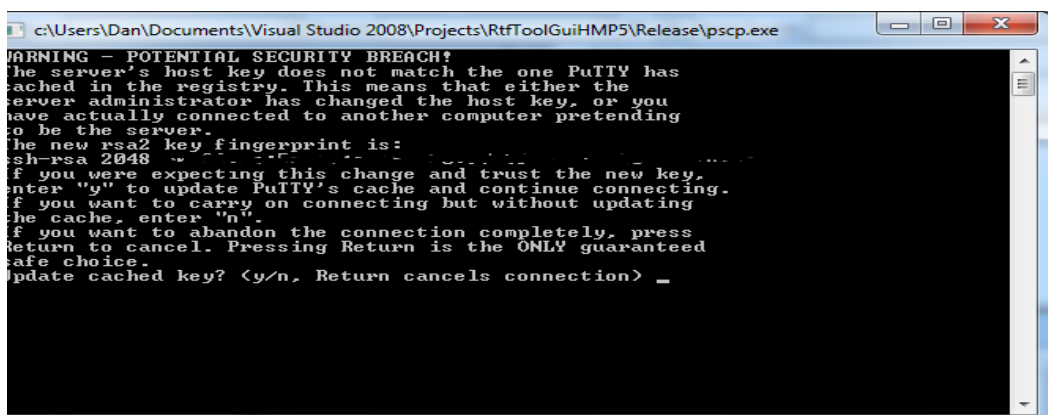
Using the PuTTY Tools

Although the functionality of the PuTTY tools is embedded in the admin and diagnostic tools, confirmation of the SSH key is required. For example, the first attempt to connect to a new HRS forces one to accept the host key file. The following window displays to show that “The server’s host key is not cached in the registry”.



```
C:\Program Files (x86)\Dialogic\RemoteClient\bin\pscp.exe
The server's host key is not cached in the registry. You
have no guarantee that the server is the computer you
think it is.
The server's rsa2 key fingerprint is:
ssh-rsa 2048 8:
If you trust this host, enter 'y' to add the key to
PuTTY's cache and carry on connecting.
If you want to carry on connecting just once, without
adding the key to the cache, enter 'n'.
If you do not trust this host, press Return to abandon the
connection.
Store key in cache? <y/n>
```

Additionally, if one reinstalls the HRS, then a different host key file may appear. In this case, an attempt to connect will result in the message “WARNING – POTENTIAL SECURITY BREACH! The server’s host key does not match the one PuTTY has cached in the registry”.



```
c:\Users\Dan\Documents\Visual Studio 2008\Projects\RtfToolGuiHMP5\Release\pscp.exe
WARNING - POTENTIAL SECURITY BREACH!
The server's host key does not match the one PuTTY has
cached in the registry. This means that either the
server administrator has changed the host key, or you
have actually connected to another computer pretending
to be the server.
The new rsa2 key fingerprint is:
ssh-rsa 2048
If you were expecting this change and trust the new key,
enter 'y' to update PuTTY's cache and continue connecting.
If you want to carry on connecting but without updating
the cache, enter 'n'.
If you want to abandon the connection completely, press
Return to cancel. Pressing Return is the ONLY guaranteed
safe choice.
Update cached key? <y/n, Return cancels connection> _
```

In either case, be sure to review the displayed information for accuracy and then press ‘y’ and **Enter** to proceed.

This chapter addresses release and compatibility issues associated with the Dialogic® PowerMedia™ Host Media Processing Software Release 5.0. This chapter includes the following:

- [Release Issues](#) 69
- [Compatibility Issues](#) 71

11.1 Release Issues

The table in this section lists issues that can affect the software supported in Dialogic® PowerMedia™ Host Media Processing Software Release 5.0. The following information is provided for each issue:

Issue Type

This classifies the type of release issue based on its effect on users and its disposition:

- Resolved – An issue that was resolved (usually either fixed or documented) in this release.
- Known (permanent) – A known issue or limitation that will not be fixed in the future.
- Known – A minor issue that affects the Dialogic® PowerMedia™ Host Media Processing Software Release 5.0. This category includes interoperability issues and compatibility issues. Known issues are still open but may or may not be fixed in the future.

Defect No.

A unique identification number that is used to track each issue reported via a formal Change Control System. Additional information on defects may be available via the Defect Query tool at <http://membersresource.dialogic.com/defects/>. (Note that when you select this link, you will be asked to either LOGIN or JOIN.)

Product or Component

The product or component to which the problem relates, typically one of the following:

- a system-level component; for example, Dialogic® PowerMedia™ Host Media Processing Software Release 5.0
- a software product; for example, the Dialogic® Global Call API Library
- a software component; for example, Dialogic® Continuous Speech Processing

Description

A summary description of the issue. For non-resolved issues, a workaround is included when available.

Release Information

Table 9. Issues Sorted by SU No., Dialogic® HMP 5.0 Software Release

Issue Type	Defect No.	SU No.	Dialogic® Product(s) or Component(s)	Description
Resolved	IPY00093439	29	Configuration (Server)	The host server's firewall blocks client access to the server. Problem resolved by adding the following to the /etc/sysconfig/iptables: <pre>-A RH-Firewall-1-INPUT -m state --state NEW -m tcp -p tcp --dport 3300 -j ACCEPT</pre>
Resolved	IPY00093478	29	Diagnostics	There are concerns about file management between the client and the server. Concerns were resolved through the creation of the Dialogic Command Center, which introduces a set of GUI Tools for Windows users to navigate in Linux to add voice prompts, collect remote logs, etc.
Resolved	IPY00094241	29	Global Call IP	Restarting the remote client application after a disruption in network service causes the gc_Start() function to fail.
Resolved	IPY00094261	29	Multimedia	The mm_GetMetaEvent() function returns an empty evtUserInfo parameter when MMEV_RECORD is received.
Known	IPY00093813	29	Multimedia	Under certain circumstances, the mm_Play() function fails to return an MMEV_PLAY event. As a result, the application gets stuck unless it implements a timer around this function.
Resolved	IPY00094331	29	SRL	ATDV_SUBDEVS() returns -1 for IP media and multimedia subdevices.
Resolved	IPY00093438	29	SRL	The sr_getboardcnt() function fails to return the actual number of IP media boards in the system.
Resolved	IPY00094123	29	Voice	The dx_playiott() function fails if more than 10 IOTTs are specified.
Resolved	IPY00094092	29	Voice	The dx_playiottdata() function fails when using the default value inside the io_type parameter.
Known	IPY00093541		Licensing	The License Manager API lc_checkout() returns an error. The license file indicates THIS_HOST, but the server is running on a different host.

Table 9. Issues Sorted by SU No., Dialogic® HMP 5.0 Software Release

Issue Type	Defect No.	SU No.	Dialogic® Product(s) or Component(s)	Description
Known	IPY00093812		Multimedia	The media server results in segmentation faults when running a WAVE audio test (WAVE3).
Known (permanent)	IPY00081246		Voice	Call progress positive voice detection may fail half the time when running on AMR coders. Positive voice detection/ PAMD does not work reliably on the following AMR bit rates: 5.9k, 6.7k, 7.4k, 7.95k

11.2 Compatibility Issues

This section contains compatibility issues when using the Dialogic® PowerMedia™ Host Media Processing Software Release 5.0.

11.2.1 Sharing Files between Windows and Linux Operating Systems

In order to share a folder from Windows (from the same system where the Dialogic® PowerMedia™ Host Media Processing Software Release 5.0 is installed), the following commands should be called on the Linux side (from the system where the Linux Resource Server is running). For instance, the Linux Resource Server may access a folder called “share” under the root of the HMP 5.0 Remote Client machine and map it under /mnt/hmp5.0client:

```
mount -t cifs //<WindowsHMP5.0Machine>/share /mnt/ntfs -o
username=myntaccount,password=mypassword
```

Note: CIFS is used to mount Remote NTFS file system.

As an example, the following procedure was used to create this mapping on the Server side:

1. Create an /mnt/media directory.

2. Mount the client share using the following command:

```
mount -t cifs //media.dialogic.com/testing/apps/ /mnt/media -o
username=admin,password=admin,domain=dialogicc
```

By entering these commands, the Windows Client users can still perform native Windows file operations.

Verify Mapping

Release Information

To verify the mapping in `hrc_config.xml` before running the application, update the “`cwd`” mapping in the configuration file with the previously mounted directory in the Linux Resource Server:

```
<Map cwd="/mnt/ hmp5.0client "/>
```

Unmount File Share

To unmount the file share, use the following command:

```
umount /mnt/ntfs <mount point that was previously used>
```

Note: All files on the shared path must be closed before unmounting or the command will fail.

Mapping on the Windows Client

Local file access to the Windows application environment, instead of network share, is also provided. This allows the Server to use the client file system locally. As such, plays now read the media file from the client system and media recordings also happen on the client system.

Use the following procedure to create this mapping on the Windows Client:

1. Right click the target folder and click on **Share**.
2. Select **Everyone** (literal) to the list of people with whom you want to share this folder.
3. Select **Contributor** to change the permission level.
4. Click **Share** (this shares the folder and also shows us the share name).

