



Clear-Com Concert™

Server Installation Guide

v2.7



Document Reference

Clear-Com Concert Server Installation Guide

Part Number: 810554Z Revision: A

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1 Introduction

Clear-Com Concert™ is a multi-user conferencing and intercom system. This guide describes how to install and configure the Concert Server [v2.7] applications. It is intended for system administrators, technical managers and other technical personnel with responsibility for implementing, administering and maintaining the Concert system.

Note:

For more information about managing and administering Concert (including users, licenses, conferences, channels, Concert system servers and IV-R [Instant Voice Router] applications), see the **Concert Administrator Guide**.

For more information about the Concert Client, the Concert user application, see the **Concert Client User Guide** (Windows or Mac version).

For all Concert documentation, including release notes and guides, see the Concert DVD.

1.1 System requirements

1.1.1 Concert Server applications

Operating System (OS)		CentOS 6.2 Linux, Red Hat Linux*
Processor		Intel® Pentium® G6950 2.80GHz Processor or better
Memory	RAM	1 GB
	Hard Drive	10 G free hard disk space
Network Card		100 MB Ethernet interface or better
USB		USB 2.0

Table 1: System requirements: Concert Server applications

Table note:

* The procedures in this guide refer specifically to CentOS 6.2.

1.1.2 Concert Client application

Operating System (OS)		Windows XP (32-bit), Windows Vista (32-bit), Windows 7 (32-bit), Leopard v10.5, Snow Leopard v10.6
Processor	Windows	Intel® Pentium® 4 Processor (2.8 GHz) or comparable
	Mac	Intel® Core® 2 Processor (2.4 GHz or 2.66 GHz) or comparable
Memory	RAM	2GB
	Hard Drive	60 MB free hard disk space
Network Card		100 MB Ethernet interface or better
Audio Device		Built-in (on board) audio device USB headsets (recommended) USB conference phones

Table 2: System requirements: Concert Client application

Table note:

The setup and use of the Concert Client application are not directly addressed by this guide. For more detailed information about the Client, see the **Concert Client User Guide**.

1.1.3 Network

Network	TCP/IP based LAN/WAN/Internet
Connections	Ethernet/Fiber/Wireless
Packet type	UDP voice packets
QoS	60-100 ms*
Security	128 bit AES encryption
Ports	TCP port 6001 UDP port 6001
System management	Web-Based
Network Load	60 – 150 kbps per connection passing audio, depending on Codec setting

Table 3: System requirements: Network

Table note:

* Network latency, above that which is specified, could result in partial or total loss of CMI usability.

1.2 Concert DVD

Your Concert DVD comprises all the operating system, application software and documentation that you require to set up a complete Concert system.

You can also download the latest Concert DVD ISO file from:

http://www.clearcom.com/software_download/concert/iso/

Note:

An ISO file format facilitates a simple file to DVD transfer using built in ISO burning utilities on both Windows and OSX platforms.

1.2.1 CentOS 6

CentOS 6 is a free Enterprise-class Linux distribution. To run the Concert Server applications in their supported capacity, you **must** complete a full, customized installation of CentOS 6 using the Concert DVD provided with every distribution of Concert.

For more information about CentOS 6, see <http://www.centos.org/>.

1.2.2 Concert Server applications

The Concert Server [v2.7] software consists of three server applications. If multiple Interface Gateway instances are required, use the Concert DVD to install Concert on these remote servers. Follow the instructions provided within the **Concert Administration Guide** to incorporate the remote servers into the Concert system through use of the Concert Management Interface (CMI). The three Concert applications are described within the following table.

Server Application	Description
EMS	Element Management System. EMS performs as a login server, presence server and database manager. Note: <i>The web-based Concert Management Interface (CMI) interfaces directly with the EMS and IV-R applications. The CMI is used by the system administrator to manage, configure and monitor the Concert system resources as a whole.</i>
I-VR	IV-Router. The IV-R is the media router which: <ul style="list-style-type: none">• Maintains a dynamic connection with all Concert clients.• Maintains audio and data routing tables.• Forwards incoming audio or text messages for participants in direct calls, chats, conferences and channels.
Interface Gateway	Interface Gateway. The Interface Gateway is the processing interface to the supported audio device installed on the server.

Table 4: Concert Server applications

1.2.3 Concert Client

The Concert Client is the Concert user application. You **must** install the Concert Server applications before utilizing the Clients. The Clients cannot operate until the Concert Server applications have been installed.

For more information on installing and using the Concert Client, see the ***Concert Client User Guide***.

1.2.4 Concert documentation

The DVD includes all the Concert documentation, including release notes and user guides.

Tip: You can also find more information about Concert, including user guides and technical specifications, on the Clear-Com website:

<http://www.clearcom.com/product/ip-communications/clear-com-concert>

2 Installing or Upgrading the Concert Server

This chapter describes how to install or upgrade to Concert v2.7, which includes a mandatory installation of the CentOS 6 operating system.

Important note:

Installing the CentOS 6 operating system on the Concert Server **erases all information** from that server. If you have an existing Concert v2.x installation, ensure that you follow the **upgrade instructions** *first* to avoid any loss of data.

2.1 Upgrading an existing Concert v2.x Installation

Upgrading an existing Concert v2.x installation to v2.7 requires a complete reinstallation of the CentOS operating system.

Before you perform the CentOS installation, back up and transfer the existing Concert database and Concert license to a workstation PC. This will enable you to restore the database to the new v2.7 installation.

2.1.1 Upgrade: Backing up and transferring an existing database

Use the following procedure to **backup** and **copy** your **existing** Concert database to a PC that can be accessed through the web-based CMI (Concert Management Interface) after Concert 2.7 has been installed.

To back up and copy your **v2.5** or **v2.6** Concert database:

1. Power on the Concert Server and log in as `root` (default password: `concert`).
2. Backup the database by typing the following command:

```
service ems backup
```

Output similar to the following is displayed:

```
Dumping database contents to file  
'/var/www/html/database/[yyyy-mm-dd]_[00h00m00s].sql.gz'
```

Note:

[**yyyy-mm-dd**] represents the date and [00**h00m00s**] represents the time that the archive was saved.

3. Create a directory within the web server area:

```
mkdir /var/www/html/database
```

4. Copy the newly created database archive to this path:

```
cp /var/lib/pgsqli/backups/[filename].sql.gz /var/www/html/database
```

Note:

Replace [filename] with the actual filename generated at step #2.

5. Also copy your Concert license (if a purchased license exists) to this directory:

```
cp /usr/lib/*.lic /var/www/html/database
```





6. On your PC, navigate your browser to the following address on the Concert Server:

[http://\[concert-server-address\]/database](http://[concert-server-address]/database)

Where [concert-server-address] is the IP address of your Concert Server.

A page similar to the one shown below is displayed:

Index of /database

<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
 Parent Directory		-	
 2012-09-18_15h37m00s.sql.gz	18-Sep-2012 15:37	7.9K	
 baseline.sql.gz	24-Aug-2012 18:40	7.2K	
 concert.lic	18-Sep-2012 15:35	314	

Apache/2.2.15 (CentOS) Server at Port 80

Figure 1: Index of / database page

7. Download the database archive and license to your PC by right-clicking on the filenames and selecting **Save link as...** Specify a destination and click **Save** (the procedure may differ depending on your browser).
8. Check to be sure the file(s) were successfully downloaded to your PC and their size is greater than zero.

You have successfully copied the database archive to your PC. You will use this PC to restore the Concert database to your Concert system when you have completed the Concert v2.7 installation.

2.1.2 Upgrade: Installing CentOS 6 and Concert v2.7

You are now ready to perform the installation procedure. To install CentOS 6 and Concert v2.7, complete the procedure described in **2.2 Installing CentOS 6 and Concert v2.7**.

2.1.3 Upgrade: Restore database and Concert license

Only after you've fully completed the Concert 2.7 installation detailed in **2.2 Installing CentOS 6 and Concert v2.7**, proceed with the following instructions.

To restore the Concert database and upload/apply the purchased license (if applicable):

1. Open the web-based CMI and navigate to the new **Database** page:
 - a. Select and upload the database archive from your PC to the Concert Server as described in the **Administration Guide**.
 - b. Click the `[restore]` link adjacent to the uploaded database archive file.

2. Go to the **License** page in the CMI. Upload the Concert license from your PC to the Concert Server as described in the **Administration Guide**.

You have now successfully upgraded your Concert Server to Concert v2.7.

Note:

For more information about the Database and License pages in the CMI, see the **Concert Administration Guide**.

2.2 Installing CentOS 6 and Concert v2.7

Use the following installation procedure for **all** Concert installations.

The Concert installer on the Concert DVD has optimized the CentOS 6 installation specifically for Concert. Clear-Com only supports this tailored installation of CentOS 6. Clear-Com does **not** support installing CentOS 6 by any means other than using the Concert DVD.

During the installation process, the Concert Server applications are installed and started *silently* (there are no installation screens to navigate) as part of the CentOS 6 installation.

If you are upgrading from an existing Concert v2.x installation to Concert v2.7, see **2.1 Upgrading an existing Concert v2.x Installation** before proceeding.

Warning:

The CentOS 6 installation will **erase** all information from your server's drive.

Note:

For a description of the contents of the Concert DVD, see **1 Introduction**.

To install CentOS 6 and Concert v2.7 from the Concert DVD:

1. Insert the Concert DVD into the target machine. Reboot the machine.

Note:

The DVD drive **must** precede the hard-drive in the boot sequence within the BIOS setup for the machine.

During boot up, you may be asked to press <Enter> when **Boot from CD** is displayed. If you ignore this prompt, the boot sequence may use the next boot device (usually the HDD).

2. The Concert optimized CentOS 6 installation screen is displayed.

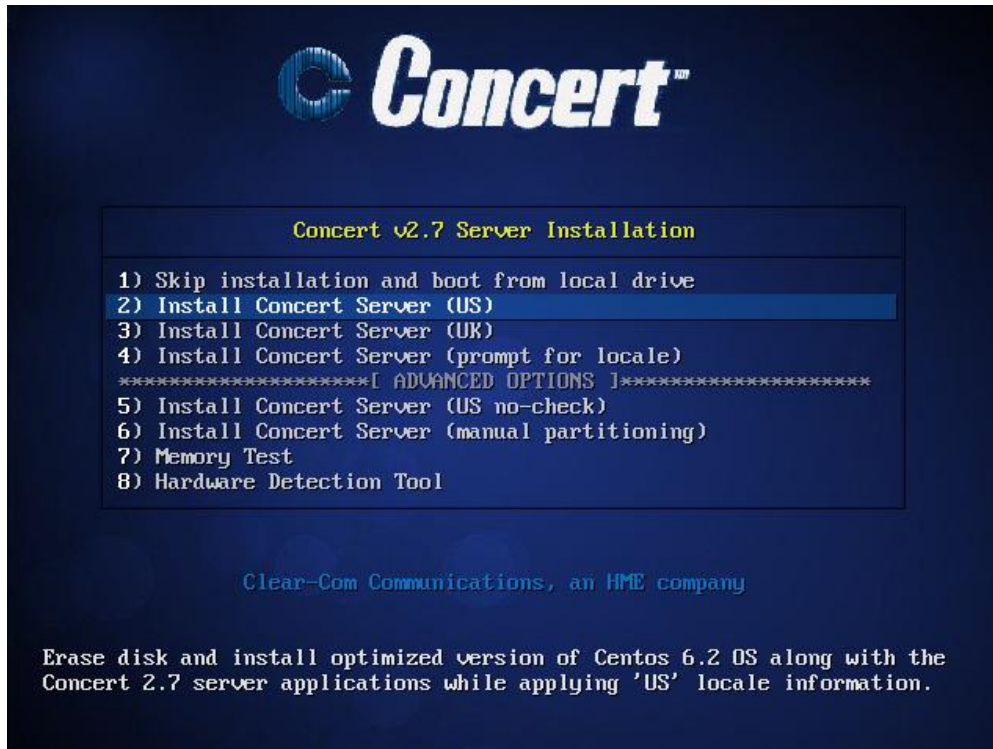


Figure 2: Concert optimized CentOS 6 installation screen

Use the up and down arrow keys on your keyboard to navigate through the menu. A **description** is displayed at the bottom of the page for the currently selected option. Pressing **Enter** will execute whichever option is currently highlighted.

The following installation options are provided:

1) Skip installation and boot from local drive

Selection will skip the installation and allow the system to boot normally from the local drive.

2) Install Concert Server (US)

- Automatically selects a **US** style keyboard.
- Automatically sets time zone to **New York**.
- Installs both CentOS 6.2 and Concert v2.7.

3) Install Concert Server (UK)

- Automatically selects a **UK** style keyboard.
- Automatically sets time zone to **London**.
- Installs both CentOS 6.2 and Concert v2.7.

4) Install Concert Server (prompt for locale)

- Prompts user for keyboard region setting.
- Prompts user for time zone setting.
- Installs both CentOS 6.2 and Concert v2.7.

*****[Advanced Options]*****

5) Install Concert Server (US no-check)

- User is not prompted for media check (expedited installation).
- Installs both CentOS 6.2 and Concert v2.7.

6) Install Concert Server (manual partitioning)

- Prompts user for keyboard region setting.
- Prompts user for time zone setting.
- Prompts user for partitioning settings.
- Installs both CentOS 6.2 and Concert v2.7.

7) Memory Test

- Utility to validate the server's installed system memory.

8) Hardware Detection Tool

- Utility providing various system diagnostic tools.

3.

Optional Step

A dialog is displayed for options 1-4 which allows you to test the media before the installation begins.



Figure 3: Optional media test screen

Tip: Use the arrow keys on your keyboard to navigate the screen.

If you believe the DVD is in good condition, select **Skip**. Otherwise the media check will take approximately 5 minutes. After the check has completed the DVD will be ejected. If the test was successful, reinsert the DVD and select **Continue**.

4. Installation begins. No action is required at this point. The installation procedure may take up to 30 minutes to complete, depending on the size of your drive.

Note:

*If the server hardware is limited in RAM or graphics memory, the installer will switch to a text-based installation. This has **no effect** on the integrity of the final installation but will result in a different installation interface experience.*

5. When the installation is complete, the following screen is displayed:

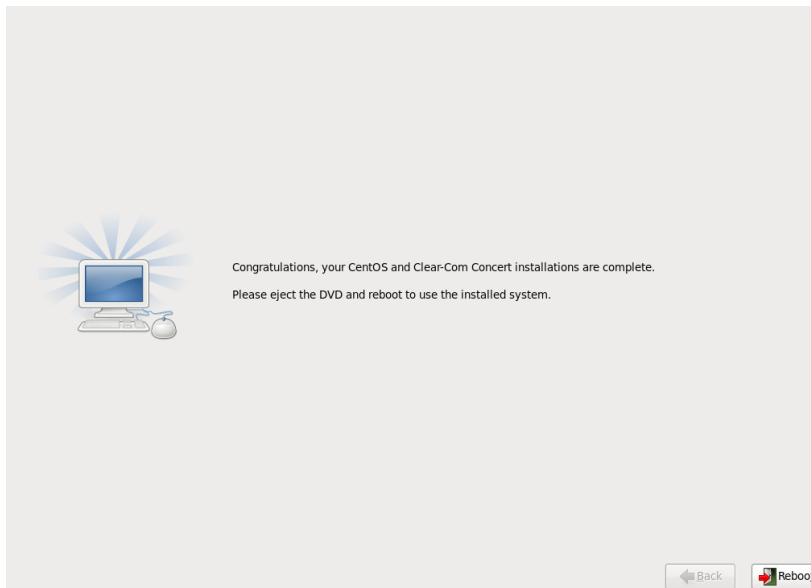


Figure 4: Congratulations screen

6. **Remove** the DVD from the drive and reboot the server by clicking **Reboot**.
7. When reboot is complete, the **system login** screen is displayed:

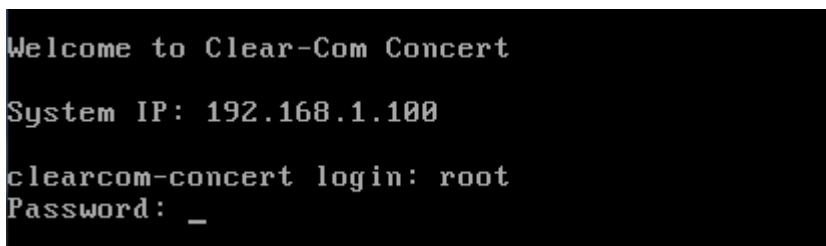


Figure 5: Concert system login screen

An IP address will be displayed next to **System IP** if a DHCP server exists within your network and the server has acquired an IP address from it.

If an IP address is present, then congratulations, your installation of **CentOS** and **Concert** is now **complete**.

You may enter this IP address within a web browser to access the **Concert Management Interface (CMI)** and start configuring your system.

Note:

*The Concert Management Interface (CMI) is the principal administrative tool for the Concert system, including the Concert Server applications. For more information about configuring and administering the Concert system, see the **Concert Administrator Guide**.*

If you require a statically configured IP address, see **3.1.1**.

To login to the system, see **3.1.1**

Note:

The Concert Server applications start automatically each time the server is powered on or restarted.

3 Administering CentOS

This chapter describes how to:

- Statically configure the server IP address.
- Retrieve server IP Address information.
- Configure the server date and time zone.
- Open a terminal window.

Note:

*The Concert Management Interface (CMI) is the principal administrative tool for the Concert system, including the Concert Server applications. For more information about configuring and administering the Concert system, see the **Concert Administrator Guide**.*

3.1 Administering Linux (CentOS 6)

3.1.1 Logging into CentOS

The default credentials for logging into the system are username=**concert**, password=**concert**.

Note:

The username and password are case sensitive.

Note:

*Although possible, it is not recommended to log into the system directly as root. The suggested method is to log in as user **concert** and if root privileges are required, execute the command **su** which will prompt you for the root password which is **concert**.*

3.1.2 Statically configuring the server IP address

By default, the Concert DVD server installation places the server in DHCP client mode. A DHCP server must be running on your network to enable the server to receive an IP address.

If you do **not** have a DHCP server or prefer to statically configure the server's IP address, complete the following procedure.

To statically configure the server IP address:

1. Contact your IT department and request the following:
 - Static IP Address.
 - Netmask.
 - Gateway Address.
 - Primary DNS Address.
 - Secondary DNS Address.
2. Power on the Concert Server and log in as user=**concert** (default password=**concert**).
3. Type **system-config-network-tui** at the prompt and press <ENTER>
4. Using the arrow keys, select **Device configuration** from the menu and press <ENTER>

5. Select the **eth0** device and press <ENTER>
6. Using the spacebar, uncheck the **Use DHCP** option and enter the **Static IP** address information retrieved during Step #1

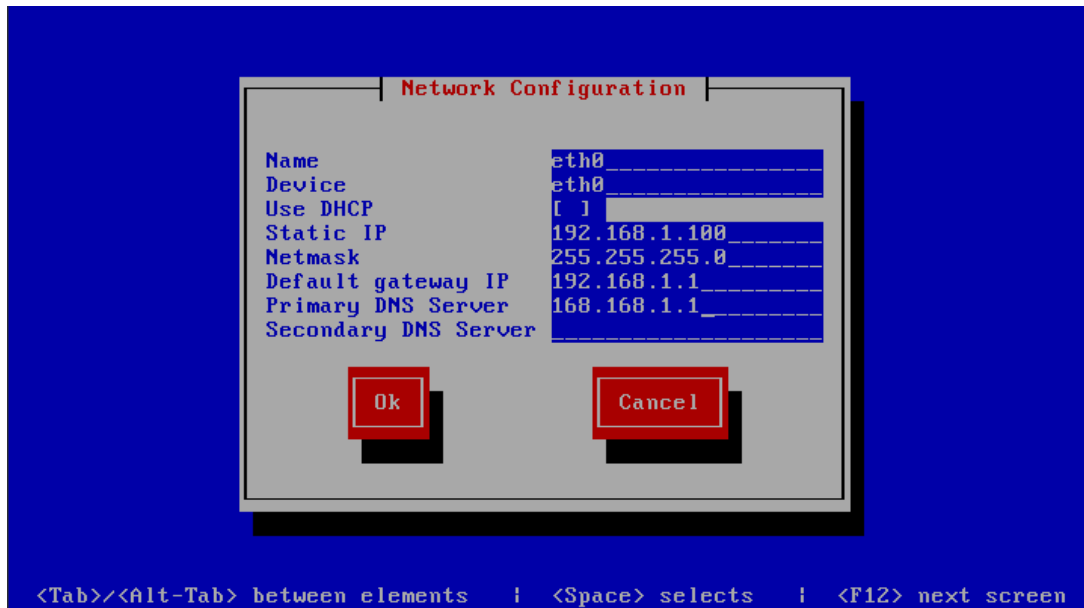


Figure 6: Statically configuring the server IP address

7. Using the arrow keys, select **Ok** and press <ENTER>
8. Using the arrow keys, select **Save** and press <ENTER>
9. Using the arrow keys, select **Save&Quit** and press <ENTER>
10. Reboot the server to apply your changes.
11. Once restarted, you should see the IP address displayed above the login prompt.

3.1.3 Configuring the server date/time settings

You may wish to configure the server's date/time for your specific geographical location.

To configure the server date/time settings:

1. Power on the Concert Server and login as **root** (default password=**concert**).
2. At the prompt, type **date [mmddhhmmyyyy]**. Press **Enter**.

mm = two digit month
dd = two digit day
hh = two digit hour
mm = two digit minute
yyyy = four digit year

3.1.4 Retrieving the IP address of the Concert Server

The IP address of the Concert Server is required for:

- Concert Client applications.
- The web-based CMI.

Note:

*To prevent configuration complications, only connect the **eth0** Ethernet port to your network switch. This is usually the left-most Ethernet port when viewing the server from the rear.*

The IP address of the server should be displayed just above the login prompt. If not, this usually means that either an address was not retrieved from your DHCP server or the server is not connected to your network.

See **3.1.1** for more information.

Another way to check the IP address is as follows:

1. At the prompt, type the following command:

```
service concert showip
```

The resulting output provides the following information for each active Ethernet interface detected:

- The configured IP address
- The detection of a physical connection to a switch.

4 Controlling Concert Applications

This chapter describes:

- Control of the Concert Server applications (startup, shutdown, etc.).
- Creation of an archive of all logs, configuration files and other relevant information to assist a Clear-Com representative with any issues that you may be experiencing.
- Backing up and restoring the Concert database

A total of three Concert applications are installed on each Concert Server:

Concert Application	Description
Element Management System (EMS)	Performs as a login server, presence server and database manager.
Instant Voice-Router (IV-R)	The Concert media router.
Interface Gateway (IG)	The processing interface to the four-wire cards on the server.

Table 5: Concert applications

Note:

The following procedures assume that a terminal window has been opened for entering and executing commands.

4.1.1 List of available Concert commands

For a list of available commands for Concert, type:

```
# sudo service concert
```

The following list is returned:

```
Usage: sudo service concert {start|stop|restart|status|showip|collect}
```

4.1.2 Starting all three Concert services

To start all three Concert services, type:

```
# sudo service concert start
```

The resulting output is returned:

```
Starting EMS service:           [ OK ]
Starting IVR service:          [ OK ]
Starting Interface Gateway instance #1: [ OK ]
Starting Interface Gateway instance #2: [ OK ]
```

4.1.3 Stopping all three Concert services

To stop all three Concert services, type:

```
# sudo service concert stop
```

The resulting output is returned:

```
Stopping EMS service:          [ OK ]
Stopping IVR service:         [ OK ]
Stopping Interface Gateway instance #1: [ OK ]
Stopping Interface Gateway instance #2: [ OK ]
```

4.1.4 Restarting all three Concert services

To restart all three Concert services, type:

```
# sudo service concert restart
```

The resulting output will be identical to the starting and stopping commands in 4.1.2 and 4.1.3 above.

4.1.5 Displaying Concert Server IP information

To display Concert Server IP information, type:

```
# service concert showip
```

The resulting output is returned (IP information is displayed about each Ethernet device detected):

Device	IP Address	Cable Connected?
eth0	192.168.1.100	CONNECTED
eth1	[not set]	DISCONNECTED

In the preceding **example**:

- The primary Ethernet interface port (eth0) has been assigned an IP address of 192.168.1.100 (the address will probably be different on your system).
- A physical connection to a switch within the network has been detected. The other Ethernet port (eth1), is currently not active and not physically connected to a switch (as recommended).

Note:

An IP address for **eth0** starting with 169.x.x.x, indicates that the server was unable to get a DHCP address from a DHCP server. To resolve this issue, consider assigning a static IP address to the server. For more information, see **3.1.2**.

4.1.6 Creating a Concert log archive

You can use the **collect** command to create an archive containing a snapshot of all relevant Concert information on the Concert Server (such as logs, package versions and configuration files).

This archive can then be emailed to a Clear-Com support representative, for use in diagnosing system issues.

Tip: It is easier to create an archive in the CMI. For more information, see the **Event Log** sections in the **Concert Administrator Guide**.

To create a Concert log archive, type:

```
# sudo service concert collect
```

The following output is returned:

```
Collect script will remove all previously created archives -- continue? (y/n): y
Collecting Concert logs...
* collecting trace logs...
* collecting config files...
* collecting database logs...
* collecting system logs...
* collecting Package versions...
* archiving files...
* successfully generated archive
  '/var/www/html/snapshots/concert_snapshot_2012-01-01_08h53m43s.tar.gz'

Collect operation completed successfully.
```

Note:

The [file_name] will be uniquely created each time this command is executed. Upon execution, any previously created archives will be removed from the system.

4.2 Controlling the EMS application

The *Element Management System* (EMS) performs as a login server, presence server and database manager.

Note:

The following procedures assume a terminal window has been opened for entering and executing commands.

4.2.1 List of available EMS commands

For a list of available commands for EMS, type:

```
# sudo service ems
```

The following list is returned:

```
Usage: sudo service ems {start|stop|restart|status|backup|restore|showip|collect}
```

4.2.2 Starting the EMS service

To start EMS, type:

```
# sudo service ems start
```

The following output is returned:

```
Starting EMS service: [ OK ]
```

4.2.3 Stopping the EMS service

To stop EMS, type:

```
# sudo service ems stop
```

The following output is returned:

```
Stopping EMS service: [ OK ]
```

Note:

If the EMS service is already stopped, the Stopping notification displays [FAILED].

4.2.4 Restarting the EMS service

To restart (stop and then start) the EMS service, type:

```
# sudo service ems restart
```

The following output is returned:

```
Stopping EMS service:           [ OK ]
Starting EMS service:          [ OK ]
```

4.2.5 Discovering the status of the EMS service

To discover the status of the EMS, type

```
# service ems status
```

Output similar to the following is returned (the output indicates if EMS is **running** or **stopped**):

```
Concert EMS (pid 31533) is running...
Concert EMS is stopped.
```

Note:

The **pid** is the Linux process identification number.

4.2.6 Backing up the database

When you back up the EMS, you are backing up the entire Concert database, including user accounts, conference and channel configurations.

The default location for database backups is **/var/www/html/database/** and can be accessed directly from a browser by entering the URL [http://\[concert_server_ip_address\]/database](http://[concert_server_ip_address]/database).

```
Username=admin
Password=admin
```

Note:

The backup and restore operation is also executable through the web-based CMI (Concert Management Interface). For more information, see the **Database** section in the **Concert Administrator Guide**.

To back up EMS (the Concert system), type:

```
# sudo service ems backup
```

The following output is returned:

```
Dumping database contents to file
  \var/www/html/database/[yyyy-mm-dd]_[00h00m00s].sql.gz'
```

Note:

The name of the backup file contains the date ([yyyy-mm-dd]) and time ([00h00m00s]) of the backup.

4.2.7 Restoring EMS

To restore EMS (and the Concert database) to the last backup, type:

```
# sudo service ems restore
```

The following output is returned (including user input which is highlighted in **red**).

```
Existing backups include...
-----
[Size] [Date/Time] /var/www/html/database/baseline.sql.gz
[Size] [Date/Time] /var/www/html/database/CL-100.sql.gz
[Size] [Date/Time] /var/www/html/database/CL-10.sql.gz
[Size] [Date/Time] /var/www/html/database/CL-15.sql.gz
[Size] [Date/Time] /var/www/html/database/CL-25.sql.gz
[Size] [Date/Time] /var/www/html/database/CL-50.sql.gz
-----

Enter the full path of the backup file to restore from: (<CTRL-C> to cancel)
/var/www/html/database/baseline.sql.gz

Stopping Concert EMS service...
Stopping postgresql service:           [ OK ]
Starting postgresql service: :         [ OK ]
  * Restoring archive...
  * Restore complete
Starting EMS service:                   [ OK ]
  * Archive '/var/www/html/database/baseline.sql.gz' has been restored
-----
  * Click on the 'System' element within the web-based
  Concert Management Interface (CMI) to refresh the
  navigation tree
```

4.2.8 EMS configuration file

The EMS configuration file (**ems.conf**) should only be edited when modifying TCP and UDP ports utilized by Concert. For more information, see **5 Advanced configuration**.

4.2.9 CMI

The web-based CMI (*Concert Management Interface*) interfaces directly with the EMS application. The CMI is used by the system administrator to manage, configure and monitor Concert system resources.

The majority of Concert configuration and administration tasks (including user management, control of channel connections and license updates), are carried out in the CMI. The IV-R and Interface Gateway are also managed through the web-based CMI.

To access the CMI:

1. Open a web browser on the network. In the address field, enter the Concert Server IP address.

Tip: To find out how to retrieve the server's IP address, see **3.1.4 Retrieving the IP address of the Concert Server**.

2. The login dialog is displayed. Enter the default credentials:

```
Username=admin
Password=admin.
```

For more information about configuring the Concert system using the CMI, see the **Concert Administrator Guide**.

4.2.10 Manually changing your CMI credentials

The CMI credentials are normally modified through the CMI (see the **Concert Administrator Guide**). Alternatively, the username and password may be set by executing the following command within a terminal:

```
htpasswd -bc /etc/httpd/conf/.htpasswd [username] [password]
```

Replace [username] and [password] with the new username and password desired.

For example: **htpasswd -bc /etc/httpd/conf/.htpasswd admin admin**

4.3 Controlling the IV-R application

The IV-R (*Instant Voice-Router*) application is the Concert media router. The IV-R:

- Maintains a dynamic connection with all the Concert Clients in the system.
- Maintains conference routing tables for the Concert Clients.
- Forwards incoming audio or text messages for participants in direct calls, chats, conferences and channels.

4.3.1 List of available IV-R commands

For a list of available commands for the IV-R, type:

```
# sudo service ivr
```

The following list is returned:

```
Usage: sudo service ivr {start|stop|restart|status|showip|collect}
```

4.3.2 Starting the IV-R service

To start the IV-R, type:

```
# sudo service ivr start
```

The following output is returned:

```
Starting IVR service: [ OK ]
```

4.3.3 Stopping the IV-R service

To stop the IV-R, type:

```
# sudo service ivr stop
```

The following output is returned:

```
Stopping IVR service: [ OK ]
```

Note:

If the IV-R service is already stopped, the stop command displays [FAILED]

4.3.4 Restarting the IV-R service

To restart the IV-R service, type:

```
# sudo service ivr restart
```

The following output is returned:

```
Stopping IVR service: [ OK ]
Starting IVR service: [ OK ]
```

4.3.5 Discovering the status of the IV-R service

To discover the status of the IV-R, type:

```
# service ivr status
```

The resulting output indicates if IV-R is **running** or **stopped**:

```
Concert IV-Router (pid 31596) is running...
Concert IV-Router is stopped.
```

Note:

The **pid** is the process identification number.

4.3.6 Managing the IV-R in the CMI.

You can use the web-based CMI (*Concert Management Interface*) to perform a range of IV-R management and configuration tasks, including:

- Adding and removing an IV-R node.
- Viewing Server information and configuration parameters.
- Monitoring IV-R statistics for Clients and channels connected to the IV-R.

For more information, see:

- **4.2.9 CMI** or
- The **Concert Administrator Guide**

4.3.7 IV-R Configuration file

The IV-R configuration file (**ivr.conf**) should only be edited when modifying TCP and UDP ports utilized by Concert. For more information, see **5 Advanced configuration**.

4.4 Controlling the Interface Gateway application

The Interface Gateway application is the processing interface to the four-wire cards on the server. The Interface Gateway uses up to two PCI audio devices to bring four-wire audio into the Concert system.

Clear-Com currently supports the *AudioScience ASI5640* PCIe audio card. The settings for these devices are provided in **6 Interface Gateway**.

4.4.1 List of available Interface Gateway commands

For a list of available commands for the Interface Gateway, type:

```
# sudo service ifgateway
```

The following list is returned:

```
Usage: sudo service ifgateway {start|stop|restart|status|showip|collect}
```

4.4.2 Starting the Interface Gateway service

To start the Interface Gateway, type:

```
# sudo service ifgateway start
```

The following output is returned:

```
Starting Interface Gateway instance #1          [ OK ]  
Starting Interface Gateway instance #2          [ OK ]
```

4.4.3 Stopping the Interface Gateway service

To stop the Interface Gateway, type:

```
# sudo service ifgateway stop
```

The following output is returned:

```
Stopping Interface Gateway instance #1          [ OK ]  
Stopping Interface Gateway instance #2          [ OK ]
```

Note:

If the Interface Gateway service has already stopped, the stop command displays [FAILED].

4.4.4 Restarting the Interface Gateway service

To restart (**stop** and then **start**) the Interface Gateway service, type:

```
# sudo service ifgateway restart
```

The following output is returned:

```
Stopping Interface Gateway instance #1           [ OK ]
Stopping Interface Gateway instance #2           [ OK ]
Starting Interface Gateway instance #1           [ OK ]
Starting Interface Gateway instance #2           [ OK ]
```

4.4.5 Discovering the status of the Interface Gateway service

To discover the status of the Interface Gateway, type:

```
# service ifgateway status
```

The following output is returned (telling you if the Interface Gateway is either **running** or **stopped**).

```
Concert Interface Gateway #1 (pid 31545) is running...
Concert Interface Gateway #2 (pid 31704) is running...
Concert Interface Gateway #1 is stopped.
Concert Interface Gateway #2 is stopped
```

Note:

The **pid** is the process identification number.

4.4.6 Managing the Interface Gateway in the CMI.

The web-based CMI (*Concert Management Interface*) is used to configure and manage the Interface Gateway.

Configuration and management tasks include:

- Adding and removing Interface Gateway nodes
- Updating the Interface Gateway settings
- Configuration and control of Port-Channel connections.

For more information, see:

- **4.2.9 CMI**
- The **Concert Administrator Guide**

4.4.7 Interface Gateway configuration file

The Interface Gateway configuration file (**ifgateway.conf**) should only be edited when modifying TCP and UDP ports utilized by Concert.

For more information, see **5 Advanced configuration**.

5 Advanced configuration

To enable secure, resilient data and audio communication across your Concert system, you may be required to make modifications to

- To the ports used by Concert.
- Your firewall settings

5.1 Modifying the ports used by Concert

5.1.1 EMS default ports

The EMS application listens to the following ports by default:

Port	Description
TCP port 6001	The central login server port within EMS. The port must be accessible to all Concert Clients (both local and remote) for authentication purposes (see below).
UDP port 6002	Opened within EMS to listen to IV-R requests. The only time this port must be available to the network is when IV-R application is installed on a different server than the EMS application.
TCP port 80 (HTTP)	Standard port for accepting HTTP requests from the web management interface.


Table 6: EMS default ports

Modifying TCP port 6001

Warning:

Modification of TCP port 6001 is **not** recommended owing to the number of changes required throughout the Concert system.

To modify TCP port 6001:

1. On the Concert Server, within the directory `/usr/local/clearcom/concert/bin`, edit the file `ems.conf`. Update the port value associated with the `gccpl_port` attribute.
2. In each Concert **Client** application, go to the server configuration dialog (**Config** [] > **Server**).

Modify the value of the **Login Server Port** so it matches the value you specified in the `ems.conf` file in Step 1. Click **Save**.

3. Restart the EMS application:

```
# sudo service ems restart
```

5.1.2 IV-R ports

The IV-R application listens to the following ports by default:

Port	Description
UDP port 6001	Port must be available between the Concert Server and all Concert Clients and Channels.
TCP port 8006	Port used by the EMS application to retrieve statistical information about Clients connected to the IV-R application (see below). Note: <i>If the IV-R application is not running on the same server as the EMS, this port will need to be accessible on the network between the EMS and IV-R.</i>

Table 7: IV-R default ports

Modifying UDP port 6001


Warning:

Modification of UDP port 6001 is **not** recommended owing to the number of changes required throughout the Concert system.


To modify UDP port 6001:


1. On the server running the IV-R, go to `/usr/local/clearcom/concert/bin/ivr.conf`.

In the `ivr.conf` file, update the value associated with the `voip_port` attribute.

2. In each Concert Client application, go to the server configuration dialog (**Config** [] > **Server**). Click **Advanced**.

Modify the value of the Media Server Port so it matches the value you specified in the `ivr.conf` file in Step 1. Click **Save**.

3. In the web-based CMI, go to **Node** > `[node_name]` > **Interface Gateway** [].

Click the information pages for the Interface Gateway [] (located under the main Interface Gateway page). Click **Details**.

Update the IV-Router port value so it matches the value you specified in the `ivr.conf` file in Step 1.

4. Restart the IV-R application:

```
# sudo service ivr restart
```

Modifying TCP port 8006

To modify TCP port 8006:

1. On the server running the IV-R, go to `/usr/local/clearcom/concert/bin/ivr.conf`. In the `ivr.conf` file, update the value associated with the `gccpr_port` attribute.
2. On the same server, go to `/var/www/html/conf.php`. In `conf.php`, update the value associated with the `$ivr_soap_port` attribute.
3. Restart the IV-R application:

```
# sudo service ivr restart
```


5.1.3 Interface Gateway ports

The Interface Gateway application listens to the following ports by default:

Port	Description
TCP port 8009 and 8010	Ports used by the EMS to manage the Interface Gateway. If the Interface Gateway has not been installed locally to EMS, the ports must be accessible to the network between EMS and the Interface Gateway application (see below).

Table 8: Interface Gateway default ports

Modifying the base management port TCP 8009

To modify TCP port 8009:

1. On the server running the EMS, go to `/usr/local/clearcom/concert/bin/ems.conf` and update the value associated with the `icapi_port` attribute.
2. On the server running the Interface Gateway, go to `/usr/local/clearcom/concert/bin/ifgateway.conf`. In the `ifgateway.conf` file, update the value associated with the `icapiListenPort` attribute.
3. On the same server, go to `/usr/local/clearcom/concert/ifgateway/1/ifgateway.conf` and update the value associated with the `icapiListenPort` attribute.

Note:

The value should equate to the base management port + 1 (that is, if the base management port is 8009, this attribute should equal 8010).

4. Restart the EMS and Interface Gateway applications:

```
# sudo service ems restart
# sudo service ifgateway restart
```

5.2 Firewall Configuration

During an install of CentOS using the Concert DVD, the built-in Linux firewall is configured specifically for Concert. It is activated upon completion of the installation.

Special circumstances may dictate a modification of this configuration (e.g. modifying TCP/UDP ports utilized by Concert). If modifications to the local CentOS firewall are necessary, please refer to the CentOS documentation for more information regarding the firewall configuration tool (`system-config-firewall`).

5.2.1 Enabling Client login from outside your firewall

To enable Client login from outside your firewall, you must configure your firewall to redirect the TCP and UDP public address port 6001 to the EMS internal address TCP and UDP port 6001.

5.2.2 Enabling remote IV-R connection to the EMS application from outside your firewall

To enable **remote** IV-R connection to the EMS from outside your firewall, you must configure your firewall to redirect the UDP public address port 6002 to the EMS internal address UDP port 6002.

6 Interface Gateway

The Concert Interface Gateway application facilitates hardware interfacing of up to 8 duplex channels through a 4-Wire interface card (available on Concert Server 4W models only). This interface is then used to bring four-wire audio into the Concert system.

6.1 Supported Audio Hardware

Currently, the only audio hardware supported by the Interface Gateway is the **AudioScience ASI5640** PCIe card and the discontinued **M-Audio Delta-1010** PCI card. All 4-Wire Concert Servers distributed by Clear-Com, come with the **ASI5640** installed and pre-configured.

6.2 Audio cable assemblies

The Concert Server 4W model comes with a pre-installed 4W interface card. This card facilitates up to 8 balanced input and output analog connections. There are two cable assemblies available to the customer:

- An XLR terminated breakout cable providing 8 input and 8 output mono connections
- AN RJ-45 terminated breakout cable providing 8 duplex connections

6.2.1 Mini50 (SCSI) to XLR cable assembly (included)

The mini50 (SCSI Type II) to XLR cable assembly consists of two dissimilar cables. The first cable (CBL-1004) attaches to the SCSI port on the rear of the Concert Server and attaches to the second cable (CBL-1044) which has 16 XLR terminations. The cable pair facilitates the following:

- 8 XLR inputs (male) and 8 XLR outputs (female).
- A total of 16 analog mono connections.
- Balanced audio.

Note:

Signal level setting depends on the type of analog equipment connected.

6.2.2 Mini50 (SCSI-II type) to Centronics 50 Cable Assembly

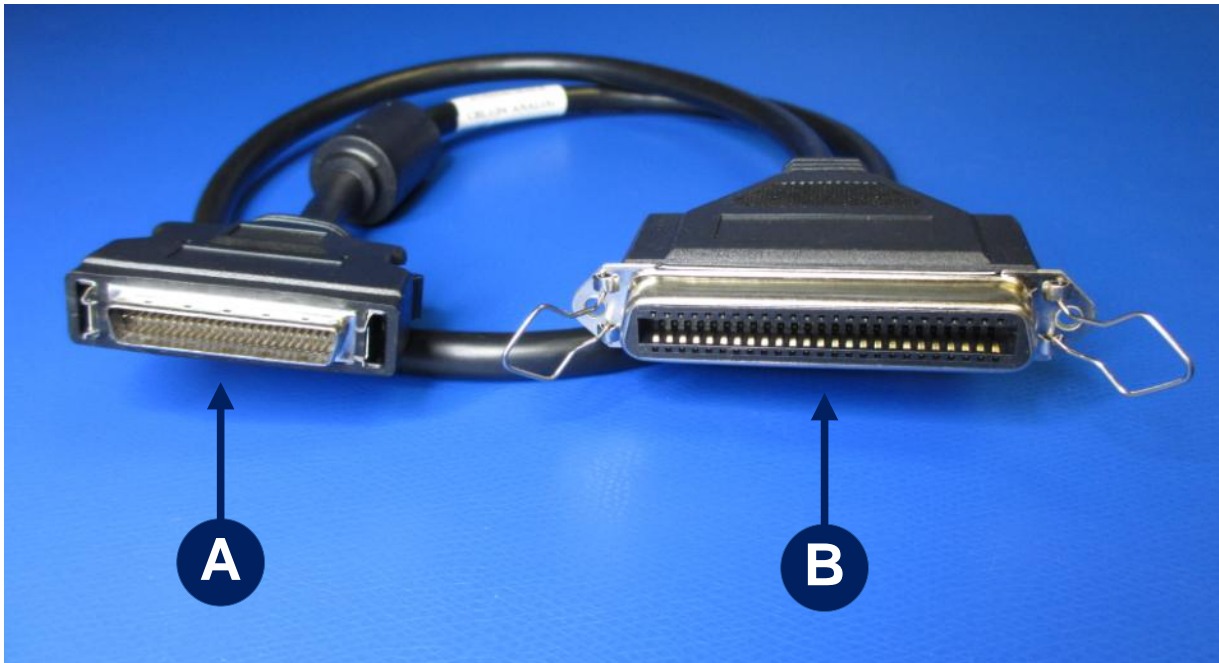


Figure 7: Mini50 to Centronics 50 Cable Assembly

Key	
Feature	Description
A	Male Mini50 (SCSI-II type) connector. Connects to Mini50 female connector at rear of server.
B	Female Centronics 50 connector. Connects to Centronics 50 Male connector on Centronics 50 to XLR cable.

Table 9: Mini50 to Centronics 50 Cable Assembly

The Mini50 SCSI connector has a locking mechanism that is used to prevent accidental disconnection of the cable from the SCSI connector on the rear of the Concert Server. This locking mechanism is described in more detail below.

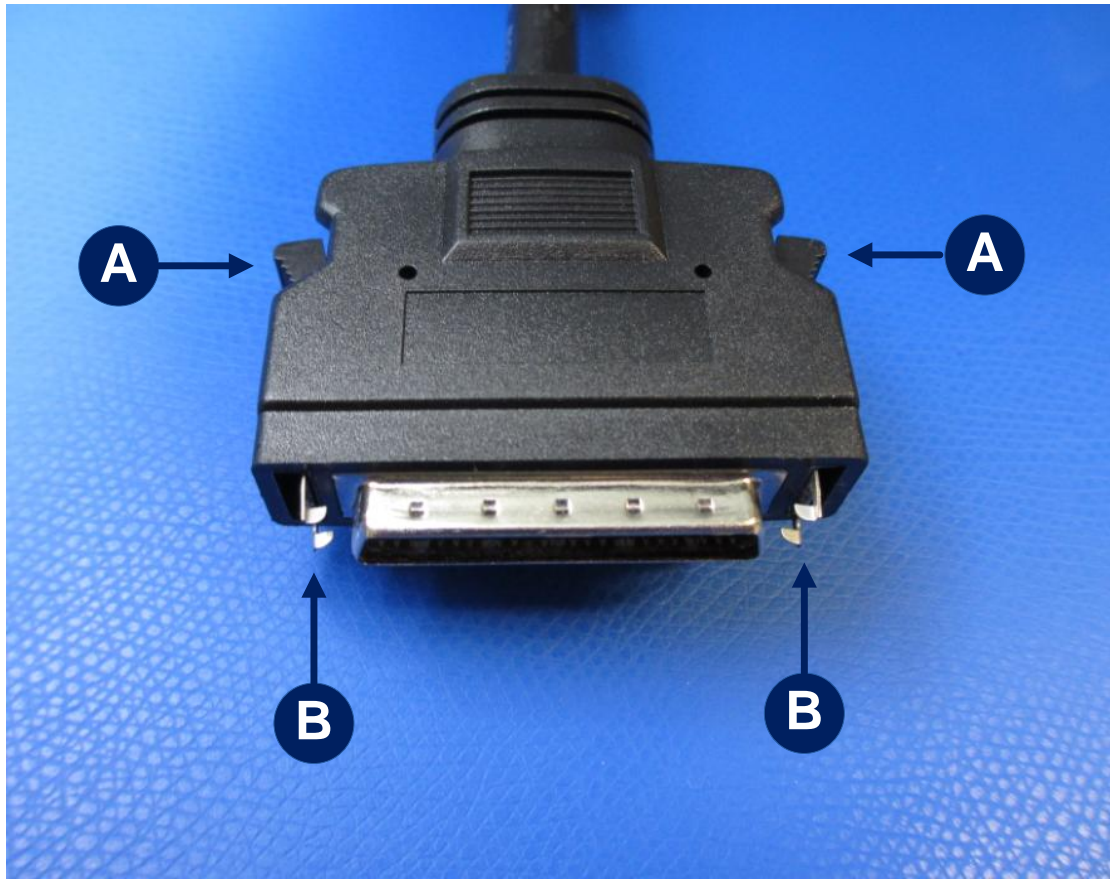


Figure 8: Mini50 SC SI connector locking mechanism

Key	
Feature	Description
A	Push buttons used when connecting / disconnecting mini50 SCSI connector.
B	Locking assembly. Manipulated by push buttons (A). Check that both locks are fully engaged (clicked in), when connected to the rear SCSI connection on the Concert Server.

Table 10: Mini50 SCSI connector locking mechanism

6.2.3 Centronics 50 to 8 in and 8 out XLR

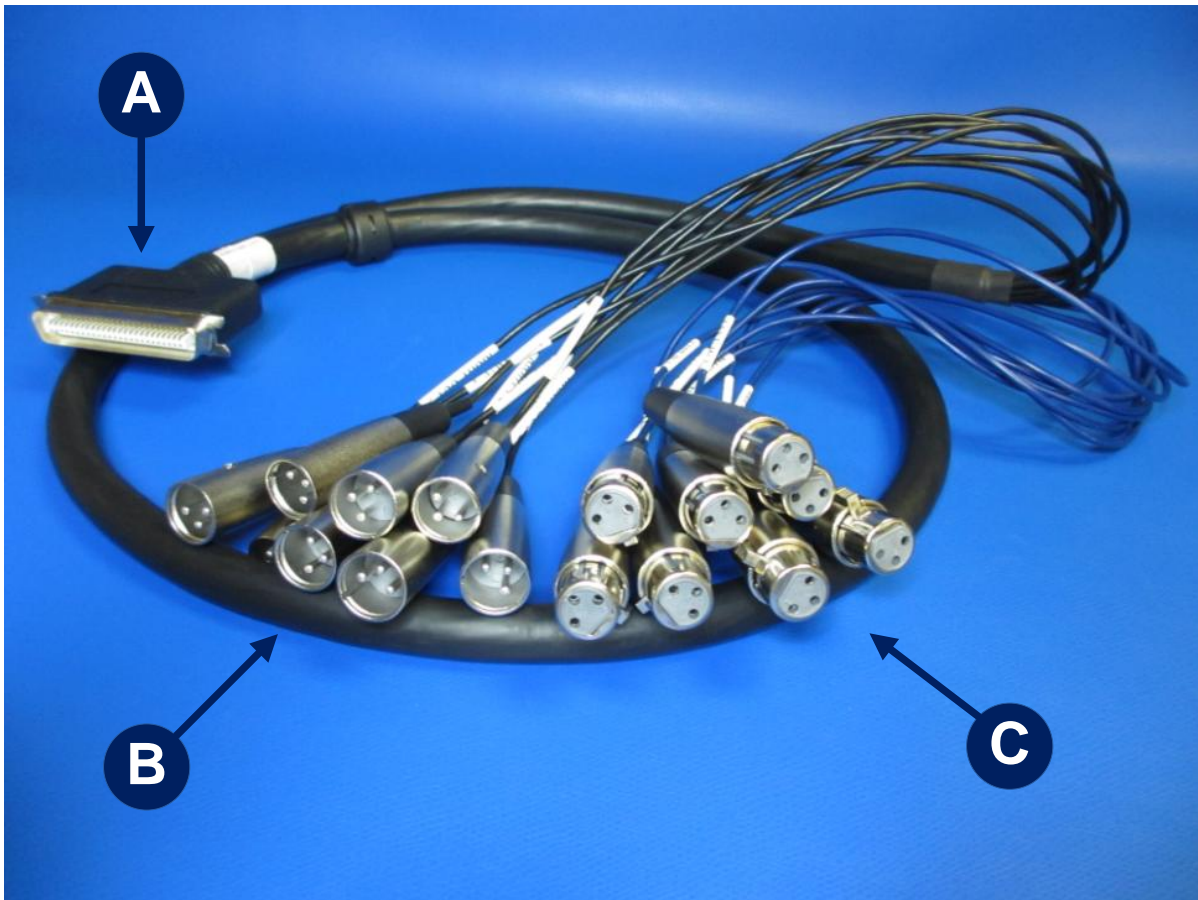


Figure 9: Centronics 50 to 8 in and 8 out XLR

Key	
Feature	Description
A	Male Centronics 50 pin connector. Connects to female Centronics 50 connector on first cable (See section 6.2.2)
B	8 in and 8 out XLR connectors facilitate the connection of 8 mono inputs and outputs of balanced analog audio.

Table 11: Centronics 50 to 8 in and 8 out XLR

6.2.4 Centronics 50 to 8 duplex RJ-45



Figure 10: Centronics 50 to 8 duplex RJ-45

Key	
Feature	Description
A	Male Centronics 50 pin connector. Connects to female Centronics 50 connector on first cable (See section 6.2.2)
B	8 duplex RJ-45 connectors , facilitating connection with MVX-A16 analog port cards and Eclipse PiCo matrices. Note: <i>For connections to the HelixNet Partyline system, there must be a cross over for each pair (pins 3 and 4 and pins 5 and 6).</i>

Table 12: Centronics 50 to 8 duplex RJ-45

Pinout for Centronics 50 to RJ-45

Pin	Description
Pin 1	Unassigned
Pin 2	Unassigned
Pin 3	Audio Output +
Pin 4	Audio Input +
Pin 5	Audio Input -
Pin 6	Audio Output -
Pin 7	Unassigned
Pin 8	Unassigned

Table 13: Centronics 50 to RJ-45

7 Uninstalling Concert

7.1 Uninstalling all Concert Server applications

To uninstall the Concert Server applications from the server:

1. If you want to restore the current configuration of the Concert system at a later date, back up the Concert database by typing the following:

```
# sudo service ems backup
```

2. Uninstall the Concert Server applications:

```
sudo rpm -e concert-ems  
sudo rpm -e concert-ivr  
sudo rpm -e concert-ifgateway
```

7.1.1 Uninstalling the Concert database

If you do not want to restore the current configuration of the Concert system at a later date, you can also uninstall the Concert database.

To uninstall the database, type:

```
# sudo rpm -e concert-pgsql
```

7.2 Uninstalling the Client application.

The Concert Client application is installed on the user's PC.

For more information about the Concert Client, see the *Concert Client User Guide*.

8 Troubleshooting

8.1 Connection issues

Issue	Cause(s)	Solution(s)
<p>The Concert Server is not reachable from my PC (the browser does not display the CMI)</p>	<p>Your firewall may be preventing access</p> <p>An incorrect hostname was entered for the Concert Server</p> <p>The Apache Server may be down for some reason</p>	<p>To reach the CMI from outside the local network where the EMS server application is located, you must set up port forwarding within your firewall on port 80 to the EMS server application.</p> <p>Note: <i>To restrict access to the CMI in future, ensure that you change the default CMI password. See 26.</i></p> <p>Check that the Concert Server address being entered into your browser is correct.</p> <p>The Concert Server runs an Apache HTTP server to host the CMI. If for some reason this service is down, the server cannot respond to requests from browsers.</p> <p>To check the status of the Apache server, type the following command in the Concert Server's terminal:</p> <pre>service httpd status</pre> <p>If the httpd service reports itself as being stopped, even after rebooting the system, check the Apache logs within the following directory, in an attempt to find a possible reason:</p> <pre>/etc/httpd/logs/</pre>

Instead of the web-based CMI, the Apache 2 Test Page is shown.

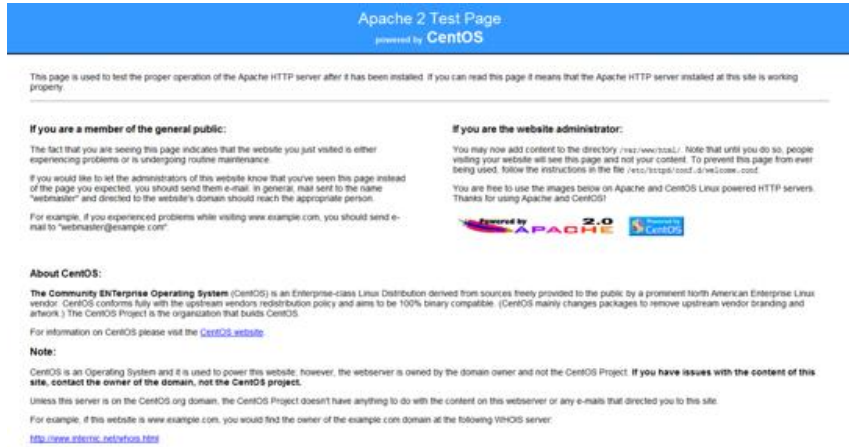


Figure 11: Apache 2 Test Page

Apache has been installed, but the EMS server application has been manually uninstalled.

The CMI is either completely or partially unreachable.

Verify your ability to contact the EMS web server. After entering the hostname of the EMS, an authentication dialog should be displayed requesting administrator credentials to access the UI.

If this authentication dialog does **not** appear, then one of the following conditions may exist:

- Hostname or IP address entered for the EMS server is incorrect.
- Concert Server address is not reachable from your current network.
- Apache web server running on the Concert Server has not started.

Enter the correct hostname or IP address.

To determine if the server is reachable, use the **ping** or **telnet** command.

To verify that HTTP services are running on the Concert Server execute the command:

```
sudo service httpd restart
```

<p>I would like to switch the system to graphical mode (or text mode)</p>	<p>Due to issues observed within CentOS when running in graphical mode while acting as an Interface Gateway, it was decided to disable graphical mode to prevent these issues from occurring. The most common issue experienced is a total system freeze requiring a manual reboot of the server.</p> <p>Understanding there is a possibility that your system will become unstable, but still would like to switch CentOS operation into graphical mode, do what is specified to the right.</p>	<p>Switching to graphical mode:</p> <p>At the command prompt, type the following command to switch from text mode to graphical mode:</p> <pre># setgraphicmode</pre> <p>Switching back to text mode:</p> <p>To switch back to text mode, open a terminal and execute the following command:</p> <pre># settextmode</pre>
--	--	--

8.2 Logging into the CMI

See the **Administrators Guide** for troubleshooting involving the CMI (Concert Management Interface)