

TANDBERG

Content Server

User Manual



Software version S1

D1389801

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TANDBERG

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Production of products

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Digital User Manuals

TANDBERG is pleased to announce that it has replaced the printed versions of its User Manuals with a digital CD version. The environmental benefits of this are significant. The CDs are recyclable and the savings on paper are huge. A simple web-based search feature helps users directly access the information they need. If desired, the user manuals on the CD can still be printed locally.

Operator Safety Summary

For your protection, please read these safety instructions completely before operating the equipment and keep this manual for future reference. The information in this summary is intended for operators. Carefully observe all warnings, precautions and instructions both on the apparatus and in the operating instructions.

Equipment Markings

The lightning flash symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltages” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electrical shock.

The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions accompanying the equipment.



Warnings

- Water and moisture - Do not operate the equipment under or near water - for example near a bathtub, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool or in areas with high humidity.
- Cleaning - Unplug the apparatus from the wall outlet before cleaning or polishing. Do not use liquid cleaners or aerosol cleaners. Use a lint-free cloth lightly moistened with water for cleaning the exterior of the apparatus.
- Ventilation - Do not block any of the ventilation openings of the apparatus. Install in accordance with the installation instructions. Never cover the slots and openings with a cloth or other material. Never install the apparatus near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Grounding or Polarization - Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician.
- Power-Cord Protection - Route the power cord so as to avoid it being walked on or pinched by items placed upon or against it, paying particular attention to the plugs, receptacles, and the point where the cord exits from the apparatus.
- Attachments - Only use attachments as recommended by the manufacturer.
- Accessories - Most systems should only be used with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- Lightning - Unplug this apparatus during lightning storms or when unused for long periods of time.

- Servicing - Do not attempt to service the apparatus yourself as opening or removing covers may expose you to dangerous voltages or other hazards, and will void the warranty. Refer all servicing to qualified service personnel.
- Damaged Equipment - Unplug the apparatus from the outlet and refer servicing to qualified personnel under the following conditions:
 - When the power cord or plug is damaged or frayed
 - If liquid has been spilled or objects have fallen into the apparatus
 - If the apparatus has been exposed to rain or moisture
 - If the apparatus has been subjected to excessive shock by being dropped, or the cabinet has been damaged
 - If the apparatus fails to operate in accordance with the operating instructions

Contact us

If you have any questions, comments or suggestions, please see the [Online Support](https://www.tandberg.net) service at www.tandberg.net

It is also possible to send a fax or mail to the attention of:

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1 Introduction

The TANDBERG Content Server is the latest addition to the TANDBERG product range which provides users with a quick and easy way to record video meetings and view them live or on-demand from their computers.

Features at a glance:

- Large scale content creation from multiple concurrent video meetings
- Live streaming of video meetings in multiple formats and data rates
- Multicast and unicast streaming
- In-built Windows Media™ streaming server
- Integration with external streaming servers for publishing Windows Media™, RealNetworks® Real Media (RealAudio® and RealVideo®) and QuickTime® content
- Searchable content library for quick retrieval and streaming on-demand
- No client installation required for the web-based content viewer
- Interactive tools for users to view and explore recorded video meetings
- Integration with Active Directory for authenticating administrative users and owners
- User-friendly web-based interface for administrative system configuration
- Integration with TANDBERG Management Suite (TMS)

2 Installation

Precautions:

- Never install communication wiring during a lightning storm.
- Never install jacks for communication cables in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninstalled communication wires or terminals unless the communication line has been disconnected at the network interface.
- Use caution when installing or modifying communication lines.
- Avoid using communication equipment (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
- Do not use the communication equipment to report a gas leak in the vicinity of the leak.
- Always connect the product to an earthed socket outlet.
- The socket outlet shall be installed near to the equipment and shall be easily accessible.
- Never install cables without first switching the power OFF.
- This product complies with the following directives:
 - LVD 73/23/EC, EMC 89/366/EEC, R&TTE 99/5/EEC,
 - Directive 73/23/EEC (Low Voltage Directive)
 - Standard EN 60950-1
 - Directive 89/336/EEC (EMC Directive)
 - Standard EN 55022, Class A
 - Standard EN 55024
 - Standard EN 61000-3-2/-3-3
 - Approved according to UL 60950-1 and CAN/CSA C22.2 No. 60950-1-03
 - Complies with FCC15B Class A

2.1 Unpacking

To avoid damage to the unit during transportation, the Content Server is delivered in a special shipping box, which should contain the following components:

- User Manual and other documentation on CD.
- Rack-ears, screws and screwdriver.
- Cables:
 - Power cable
 - Ethernet cable
- TANDBERG Content Server

Installation site preparations

- Make sure that the Content Server is accessible and that all cables can be easily connected.
- For ventilation: Leave a space of at least 10cm (4 inches) behind the Content Server's rear panel and 10cm (4 inches) in front of the front panel.
- The room in which you install the Content Server should have an ambient temperature between 0°C and 35°C (32°F and 95°F) and between 10% and 90% non-condensing relative humidity.
- Do not place heavy objects directly on top of the Content Server.
- Do not place hot objects directly on top, or directly beneath the Content Server.
- Use a grounded AC power outlet for the Content Server.

Rack Mounting (optional)

The Content Server comes with rubber feet for standalone installation and brackets for mounting in standard 19" racks.



Before starting the rack mounting please make sure the TANDBERG Content Server is placed securely on a hard flat surface.

1. Disconnect the AC power cable.
2. Make sure that the mounting space is prepared according to the 'Installation site preparations' above.
3. Attach the brackets to the Content Server on both sides of the unit.

4. Insert the Content Server into a 19" rack, and secure with screws in the front (four screws).

2.2 Connecting cables

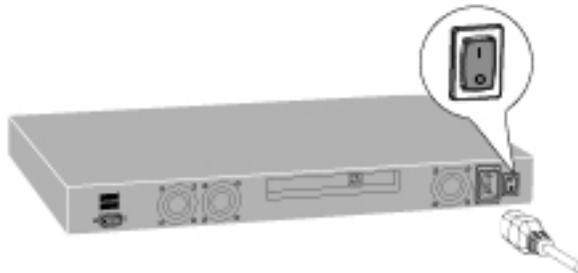
LAN cable

Connect a LAN cable from the 'LAN 1' connector on the Content Server to your network. The LAN 2, 3 and 4' connectors are not used and should be left open.



Power cable

Connect the system power cable to an electrical distribution socket. Press the power switch button at the back side to '1' to turn on the Content Server. On the front panel of the system the power indicator LED, marked 'Pwr', will light up.

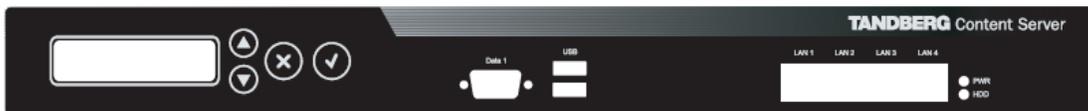


2.3 IP Address Setting Configuration

The Content Server requires the IP Address Settings to be configured before it can be used. IP Address Configuration can be made using the LCD Panel.

The default IP Address configuration is DHCP. It is recommended that administrators change the configuration to a Static IP address once the server is in production.

Front view of the Content Server with the LCD panel:



LCD Panel buttons and their functions:

| | | |
|---|---------------------------|---|
|  | Up and Down arrows | Used to select items in the menu, move between values in a numerical address and modify numerical values. |
|  | Enter | Used to enter the edit mode and confirm selection or entry. |
|  | Return | Used to return to the previous menu screen or exit the edit mode without saving the latest entry. |

2.3.1 IP setting configuration:

The LCD panel allows you choose either a Dynamic or a Static IP address configuration.

1. Press Enter to display the **Main Menu** screen.
2. From the **Main Menu** screen, use the Up or Down arrow to select **IP Settings**.
3. Press Enter to confirm your selection.
4. From the **IP Settings** menu, use the Up or Down arrow to select **IP Assignment** and press Enter.

5. Press Enter again at the **Address Type** screen and select the required configuration (**DHCP** or **Static**) by using the Up or Down arrows.
6. Press Enter to confirm.
7. If you have selected **Static** configuration, go to Section 2.3.2 *Static IP configuration*. If you have selected **DHCP** configuration, go to Section 2.3.3 *Content Server configuration*.

2.3.2 Static IP configuration:

The LCD panel allows you enter the IP address of the server, Subnet Mask and Default Gateway addresses.

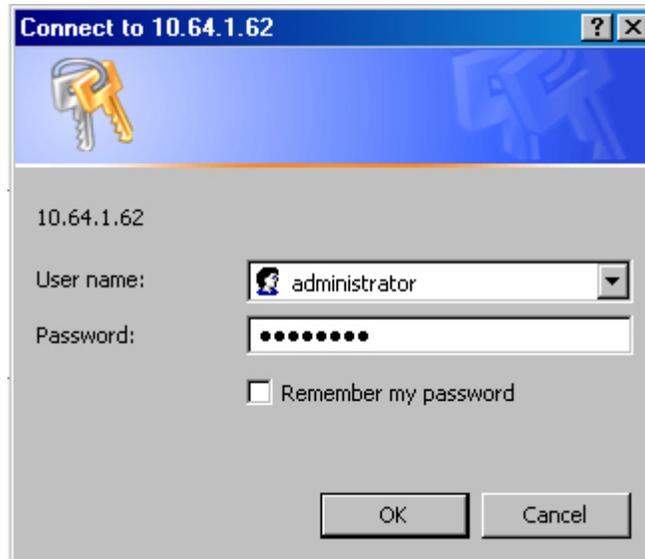
1. If you have selected **Static** configuration, press Return to go back to the **IP Settings** menu.
2. Use the Up or Down arrow to select **IP Address** and press Enter twice to start the edit mode.
3. Move between characters by using the Up and Down arrows. Edit values by pressing Enter and using the Up or Down arrow to modify. Press Enter again to confirm the value, or press Return to restore the value to its previous state.
4. When finished editing the address, press Return. You will be asked to confirm your address entry on the following screen. At the **Save Changes?** Prompt, use the Up or Down arrow to select **Yes** and press Enter to confirm.
5. Press Return to go back to the **IP Settings** menu.
6. Use the Up or Down arrow to select **Subnet Mask** and press Enter twice.
7. Repeat steps 3-4 to enter the **Subnet Mask** address.
8. Press Return to go back to the **IP Settings** menu.
9. Use the Up or Down arrow to select **Default Gateway** and press Enter twice.
10. Repeat steps 3-4 to enter the **Default Gateway** address.

The LCD panel menu structure is available in Appendix 1.

2.3.3 Content Server configuration

You can access the Content Server to register to a gatekeeper and enter H.323 services.

1. Start a Web browser and enter the IP-address of the Content Server.
2. When prompted for login, enter the username **administrator** and password **TANDBERG**.



3. To configure the Content Server, go to the Administrator Settings to set the H.323 system alias and E.164 aliases for each line. For details, see the *Administrator Settings* chapter of this manual.
4. Once the initial setup has been completed, log in to <https://<ContentServerIPAddress>:8098/> and use the **Set Administrative Password** tool to change your administrative password.

2.3.4 User configuration

The TANDBERG Content Server can be added to an existing domain to take advantage of Active Directory integration.

If you add the Content Server to an existing domain, you need to define a separate security policy for the server, otherwise the existing security policies may prevent the server from functioning correctly.

Please contact your authorised TANDBERG reseller or partner for details of the recommended security policy settings.

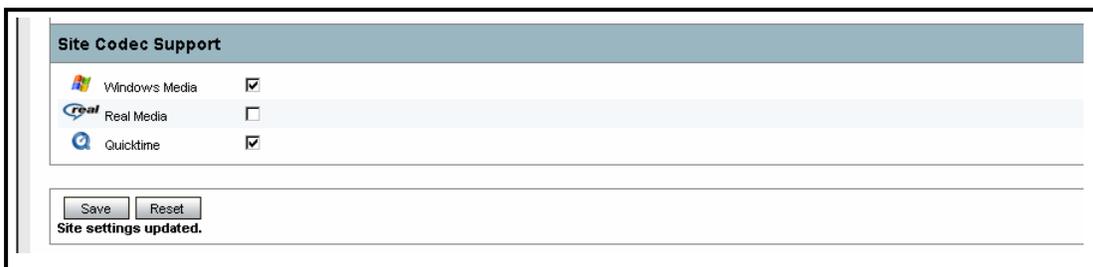
2.3.5 QuickTime installation

NOTE: Read this section only if you require calls to be recorded and streamed in the QuickTime® format.
If you will be recording calls in two formats only - Windows Media and Real Media, you do NOT need to install QuickTime on the server.
QuickTime can be installed and enabled on the Content Server at any time, so you can defer this installation until (and if) it is required.

NOTE: The Content Server ships with QuickTime support turned off by default. Do not enable the QuickTime codec in the Codec Support settings unless QuickTime has been manually installed on the Content Server.

Installing QuickTime:

1. Remote desktop to the IP address of the CONTENT SERVER
2. Log in as an administrator
3. Use a Web Browser to navigate to the Apple QuickTime download site
4. Click on the link **QuickTime standalone installer**. Do not install the iTunes version of QuickTime. At the time of writing this manual, the link to download the standalone version of QuickTime was :
<http://www.apple.com/quicktime/download/standalone.html>
5. Run the QuickTimeInstaller.exe file
6. Follow the installation prompts
7. Click on **Finish** when the installation has been completed
8. Log off to terminate the remote desktop connection
9. Log in to the Content Server as an administrator
10. In **Administrator Tools: Site Settings**, enable QuickTime in the **Site Codec Support**.
11. Click **Save**.



12. Enable QuickTime in **Line Settings** for all lines where QuickTime recording is required. You can do this from **Transcoding Codec Support** section for Transcoding

Line 1 or **Codec Support** section for Archiving Lines 2-5). Remember to click the **Save** button to confirm the changes.

13. Attach Recording and Streaming Templates with QuickTime outputs to Lines 1-5 to take advantage of the QuickTime output functionality and record your content for on demand QuickTime playback.

Example:

- select **QuickTime 6 Default Template - QT6-Default.xml*** from the drop-down menu in the **Template Options** section of **Line Settings** for Transcoding Line 1. Click **Save**.
- select **QuickTime MOV H323 Default Output - H323-MOV-Default.xml*** from the drop-down menu in **Template Options** section of **Line settings** for Archiving Lines 2- 5. Click **Save**.

3 General Use

TANDBERG Content Server

The Content Server will always be turned on and be available to record conference calls.

The unit itself should not be available to users at anytime.

If the system does not respond:

- Check the LCD panel to determine if the unit is switched on and 'live'.
- Make sure that the Content Server is switched on by using the On/Off switch located at the rear of the unit.
- Restart the Content Server using the LCD panel. For details, see section 3.1, *Restart and shutdown*.

or,

- Restart the H.323 service on the Content Server (this will only affect the calls which are live at the time of the restart, but will not affect any users accessing recorded content on the server). For details on how to restart the H.323 service without restarting the Content Server, see the *Administrator Settings* chapter.

3.1 Restart and shutdown

The server can be restarted and shutdown via the LCD panel.

NOTE: It is not recommended to shutdown or restart the Content Server while calls are in progress. If THE CONTENT SERVER is in a call and the server is restarted or shutdown, calls in progress will fail and will not be recorded.

The LCD panel display indicates the current status of the Content Server.

| | |
|---|--|
| <p><IP Address> IN CALL</p> | LCD panel display when a call is currently in progress. |
| <p><IP Address> NOT IN CALL</p> | LCD panel display when no calls are currently in progress. |

3.1.1 How to restart the Content Server

1. Press Enter to display the **Main Menu** screen.
2. From the **Main Menu** screen, use the Up or Down arrow to select **Commands**.
3. Press Enter to confirm your selection.
4. From the **Commands** menu, use the Up or Down arrow to select **Restart** and press Enter.
5. You will be asked to confirm this action on the following screen. At the **Restart?** prompt, use the Up or Down arrow to select **Yes** and press Enter to confirm.

3.1.2 How to shutdown the Content Server

1. Press Enter to display the **Main Menu** screen.
2. From the **Main Menu** screen, use the Up or Down arrow to select **Commands**.
3. Press Enter to confirm your selection.
4. From the **Commands** menu, use the Up or Down arrow to select **Shutdown** and press Enter.
5. You will be asked to confirm this action on the following screen. At the **Shutdown?** prompt, use the Up or Down arrow to select **Yes** and press Enter to confirm.

NOTE: Please note that there is currently no indication on the LCD panel to tell the administrator that the machine has shut down and that it is safe to turn off the server.
Typically server is in a state that it is safe to shutdown within a few minutes.

3.2 Restoring the Content Server to factory settings

The administrator can restore the Content Server to factory settings partially or fully via the LCD panel. A partial restore to factory settings – **Config Restore** - restores the factory configuration files and templates, but does not affect the content stored on the server. A full restore to factory settings – **Full Restore** – removes content and deletes all media files in addition to restoring the factory configuration files and templates.

3.2.1 How to restore the Content Server to factory settings

1. Press Enter to display the **Main Menu** screen.
2. From the **Main Menu** screen, use the Up or Down arrow to select **Commands**.
3. Press Enter to confirm your selection.
4. From the **Commands** menu, use the Up or Down arrow to select **Restore Factory** and press Enter.
5. From the **Restore Factory** menu, use the Up or Down arrow to select **Full Restore** or **Config Restore** and press Enter.
 - a. If you are performing a full restore, you will be asked to confirm this action on the following screen. At the **Full Restore?** prompt, use the Up or Down arrow to select **Yes** and press Enter to confirm.
 - b. If you are performing a partial restore, you will be asked to confirm this action on the following screen. At the **Config Restore?** prompt, use the Up or Down arrow to select **Yes** and press Enter to confirm.

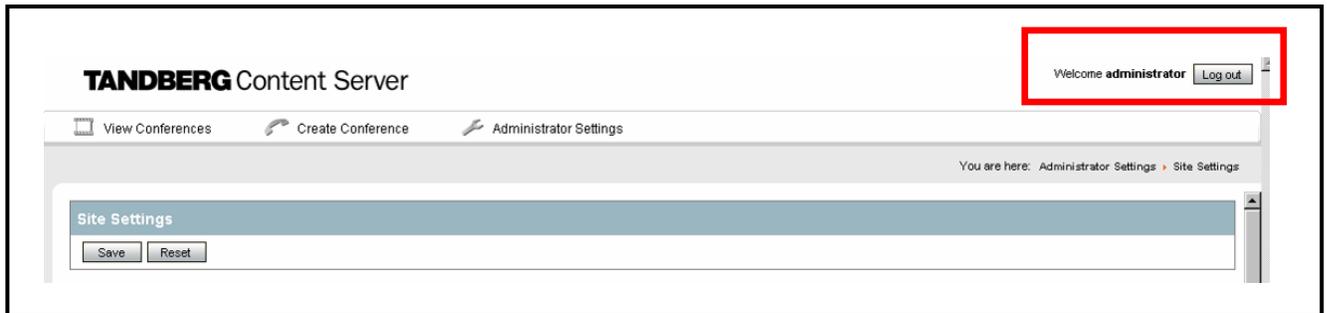
NOTE: Use the Restore to factory settings function with caution and remember that the Full Restore function will result in the loss of all your recorded content.

4 Administrator Settings

To view the Administrator Settings, click the **Log in** button then enter your administration username and password.



When you are successfully logged in, the screen will display the **Welcome <username>** message as displayed below, with menu items now available according to your login privileges.



The administrator needs to review the Administrator Settings and configure the settings based on the requirements of the installation site.

Configuration settings can be made via the Administrator Settings menu.

The Administrator Settings dropdown Menu contains:

- Site Settings
- Line Settings
- User Management
- Template Editor
- Software Upgrade

4.1 Site Settings

Administrators need to review configuration information in the Site Settings menu to ensure that the system is configured properly for their installation site.

All changes made in the Site Settings page need to be confirmed by clicking the Save button at the top or bottom of the page. Clicking the Reset button restores the values on the screen to the last saved values. Use Reset if the field values on the screen have been changed but not yet saved.

Site Settings contain:

- Content Server Properties
- Gatekeeper
- H.323 ports
- Site Codec Support

4.1.1 Content Server Properties

This menu item contains the following settings:

- System Name
- H.323 Address
- H.323 Listen Port
- Content Library Host Name
- Database Source
- Restart Service

| Content Server Properties | |
|---------------------------|--|
| System Name | <input type="text" value="TCS"/> |
| H.323 Address | <input type="text" value="(local)"/> |
| H.323 Listen Port | <input type="text" value="1720"/> |
| Content Library Host Name | <input type="text" value="(local)"/> |
| Database Source | <input type="text" value="APPLIANCE"/> |
| Restart Service | <input type="button" value="Restart Service"/> |

| | |
|----------------------------------|--|
| System Name | Other systems can call in using this name instead of IP-number/IP-address. System Name is also used for registering with a gatekeeper. |
| H.323 Address | The default for the Content Server installation is <i>(local)</i> . It is recommended to leave the H.323 address in the Site Settings as <i>(local)</i> , unless instructed otherwise by TANDBERG support. |
| H.323 Listen Port | Standard videoconferencing port. Users only need to change this setting if the local videoconferencing port at customer site is set to a different port. |
| Content Library Host Name | The default for the Content Server installation is <i>(local)</i> . It is recommended to leave the Content Library Host Name in the Site Settings as <i>(local)</i> , unless instructed otherwise by TANDBERG support. |
| Database Source | By default, the Database Source is set to <i>(local)</i> . To optimize the performance of the Content Server, it is strongly recommended that the administrator changes the Database Source to the <Machine name> (which can be set up from the Windows SAK at the time of installation). |
| Restart Service | If the TANDBERG Content Server is not responding, restart the Service here. This will only affect calls that are currently live (that is, the calls will be ended and conferences will not be available). |

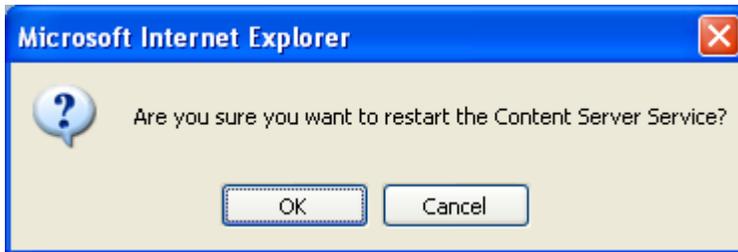
for on demand playback).

Before restarting the Endpoint, check if there are live conferences in progress in the Live Conferences page or check the call status on the LCD panel of the unit. The Site Settings page will also display a warning if lines are in a call. If you click on the Restart Service button and lines are in a call, you will be asked to confirm if you want to go ahead with the Restart.

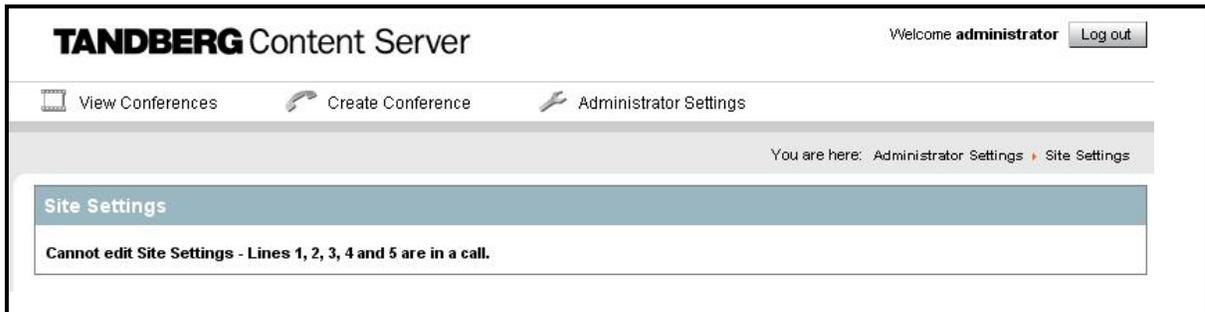
NOTE: Remember to restart the service after making changes to the **Content Server Properties**. Changes in **the Content Server Properties** menu will not take effect until the service is restarted.

4.1.1.1 Restart Service

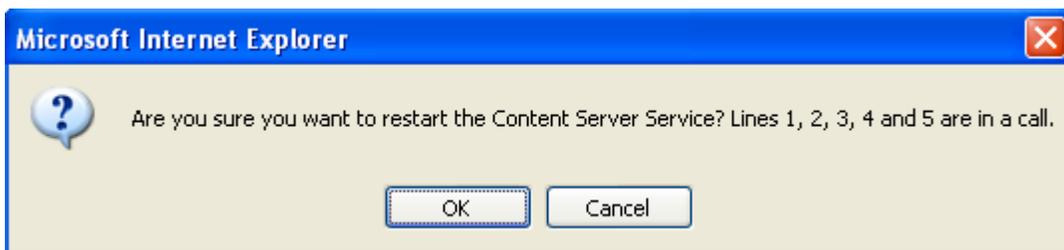
If there are no live calls on the TANDBERG Content Server, clicking the **Restart Service** button will result in the following message being displayed.



If the TANDBERG Content Service is recording calls at the time, the Site Setting interface will indicate this and all Site Settings will be disabled except for the **Restart Service** button.



If you click on the **Restart Service** button while lines are in calls, the following message will be displayed.



By clicking **OK**, the calls will be ended and the Content Server service will restart.

4.1.2 Gatekeeper

The Gatekeeper configuration menu contains the following settings:

- Gatekeeper Discovery
- IP Address
- Port

The screenshot shows a configuration window titled "Gatekeeper (Registered)". It contains three rows of settings:

- Gatekeeper Discovery:** Three radio buttons are present: "Off" (unselected), "Manual" (selected), and "Auto" (unselected).
- IP Address:** A text input field containing the value "10.64.2.99".
- Port:** A text input field containing the value "1719".

Gatekeeper Discovery

Gatekeeper Discovery configuration can be set to OFF, MANUAL or AUTO.

OFF - The system will not use a gatekeeper for calls.

MANUAL - The system will use a specific gatekeeper identified by Gatekeeper IP-address.

AUTO - The system will automatically try to register on any available gatekeeper. If a gatekeeper responds to the request sent from the codec within 30 seconds this specific gatekeeper will be used. This requires auto discovery on the gatekeeper as well. If no gatekeeper responds, the system will not use a gatekeeper for making H.323 calls and hence an IP-address must be specified manually.

IP Address

This gatekeeper IP-address will be used if you specify Gatekeeper Discovery: Manual.

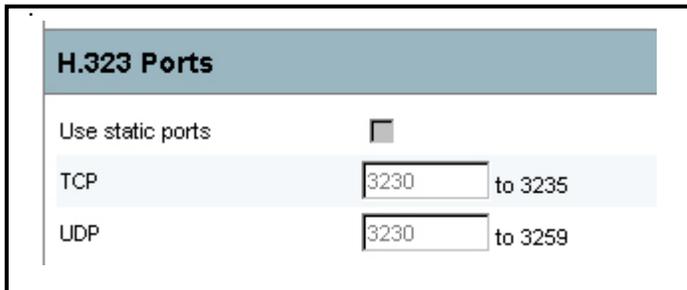
Port

This port setting should not be changed unless the local network configuration specifies a different port.

4.1.3 H.323 ports

The H.323 ports configuration menu contains the following settings:

- Use static ports
- TCP
- UDP



| H.323 Ports | |
|------------------|---|
| Use static ports | <input type="checkbox"/> |
| TCP | <input type="text" value="3230"/> to 3235 |
| UDP | <input type="text" value="3230"/> to 3259 |

| | |
|-------------------------|---|
| Use static ports | 'Use static ports' is disabled by default. This means that the system will dynamically allocate which ports to use when opening a TCP/UDP connection. The reason for doing this is to avoid using the same ports for subsequent calls as some firewalls consider this as a sign of attack. Static ports can be enabled by selecting the checkbox and specifying the required range of ports. |
| TCP | Standard firewall port range. |
| UDP | Standard firewall port range. |

4.1.4 Site Codec Support

The Site Codec Support configuration menu contains the following settings:

- Windows Media
- Real Media
- QuickTime



Windows Media and Real Media codecs are enabled by default. Administrators can disable individual codecs to suit their installation requirements. Disabling site codecs in this menu will affect all line settings.

Please note that QuickTime is disabled by default. You should only enable QuickTime after manually installing the latest version of QuickTime on the Content Server.

4.2 Line settings

The Line Settings menu allows the administrator to select default settings which apply to each available line on the TANDBERG Content Server.

The number of lines is equal to the number of concurrent video meetings which can be recorded by the TANDBERG Content Server and may differ between systems. Please refer to your purchase agreement for information on the number of lines that your system supports.

In a system with five concurrent videoconference inputs, line 1 is always designated as Transcoding Line, while lines 2-5 are always designated as Archiving lines.

The Transcoding Line records videoconferences in up to three formats and two bit rates each. The formats include native Microsoft Windows Media™ (WMV) format, native Apple QuickTime®¹ (MOV) format and native RealNetworks® Real Media (RM) format. Streaming bit rates range from suitable for 56K modems up to very fast LAN. The selection of formats and bit rates can be made by administrators and saved as templates for the line.

The Archiving Line records videoconferences at their original format and bit-rate. The original videoconference codecs are wrapped into either a Microsoft Windows Media™ (ASF) or Apple QuickTime®¹ (MOV) format and can be played back with those players.

¹ Support for Apple QuickTime enabled if installed on the appliance by site administrator

4.2.1 Transcoding Line

TANDBERG Content Server Welcome **administrator** [Log out](#)

[View Conferences](#) [Create Conference](#) [Administrator Settings](#)

You are here: [Administrator Settings](#) > [Line Settings](#)

Line Settings

Line number: [| 1 |](#) [| 2 |](#) [| 3 |](#) [| 4 |](#) [| 5 |](#)

Transcoding Line Properties

H.323 ID

E.164 Alias

Password protection (for incoming ad-hoc calls)

H.239 Capabilities

Enabled

Minimum Resolution

Maximum Resolution

Call Options

Supported call speeds 128 256 384 512 768 1024 1280 1536 1920 2048

Maximum time in call

Advertised Codecs

| | |
|--|--|
| Advertise video codecs <input checked="" type="checkbox"/> | Advertise audio codecs <input checked="" type="checkbox"/> |
| H.261 <input checked="" type="checkbox"/> | G.711 <input checked="" type="checkbox"/> |
| H.263 <input checked="" type="checkbox"/> | G.722 <input checked="" type="checkbox"/> |
| | G.722.1 <input checked="" type="checkbox"/> |

Transcoding Codec Support

Windows Media

Quicktime

Real Media

Transcoding Templates

Template Options

The following Line Settings are available for the Transcoding Line:

- Transcoding Line Properties
- H.239 Capabilities
- Call Options
- Advertised Codecs
- Transcoding Codec Support
- Transcoding Templates

4.2.2 Transcoding Line Properties:

| Transcoding Line Properties | |
|-----------------------------|---|
| H.323 ID | <input type="text" value="TCSLine01"/> |
| E.164 Alias | <input type="text" value="05001"/> |
| Password protection | <input checked="" type="checkbox"/> (for incoming ad-hoc calls) |

H.323 ID The identity of the line number that can be used from an endpoint to dial the line.

E.164 Alias The gatekeeper alias that can be used from an endpoint to dial the line. If a gatekeeper is present, it is possible to place IP-calls using “telephone-style” numbers, eg. an E.164 alias, according to the numbering plan implemented in the gatekeeper

Password Protection Select this option to password-protect streaming access to any incoming ad-hoc calls. A randomly generated password will be created for the conference at the time of the call.

Changing the password for live conferences: The Administrator can retrieve the existing password by going to the View Status page for the live conference. The administrator can change the password or delete it. Any password change needs to be confirmed by clicking on the Set Password button.

Changing the password for recorded conferences: The Administrator can retrieve the existing password by going to the Edit page for the live conference. The administrator can change the password or delete it. Any password change needs to be confirmed by clicking on the Save button at the bottom of the page.

NOTE: Remember to save your changes and then restart the service from **Site Settings** after making changes to the H.323 ID and E.164 Alias. Changes to the H.323 ID and E.164 Alias in Line Settings will not take effect until the service is restarted.

4.2.3 H.239 Capabilities:

| H.239 Capabilities | |
|--------------------|-------------------------------------|
| Enabled | <input checked="" type="checkbox"/> |
| Minimum Resolution | 640x480 ▼ |
| Maximum Resolution | 1024x768 ▼ |

The Transcoding Line H.239 Capabilities are enabled by default. If H.239 Dual Video output is not required, this capability can be disabled.

Administrators can set the minimum and maximum resolutions for acceptable H.239 video input. For optimal performance, it is recommended that the maximum resolution be set to 800x600 or 640x480.

4.2.4 Call options

Call Options

Supported call speeds (kbps) 128 192 256 384 512 768 1024 1280 1536 1920 2048

Maximum time in call

The supported call speeds and maximum time in call can be set for each line.

Supported call speeds

The administrator can select the supported call speeds for each line from a range of options from 128 to 2048 Kbps. This determines the range of available conference bandwidths when a user dials out from the TANDBERG Content Server.

Maximum time in call

This feature will automatically end both incoming and outgoing calls when the call time exceeds the length of time specified in minutes. The default setting is '0', which means that the call will never be automatically ended.

Note: You need to save your changes and restart the service from **Site Settings** for changes to the Maximum time in call value to take effect.

4.2.5 Advertised Codecs

The TANDBERG Content Server supports advertising of video and audio codecs as part of the capability set negotiation.

| Advertised Codecs | | | |
|------------------------|-------------------------------------|------------------------|-------------------------------------|
| Advertise video codecs | <input checked="" type="checkbox"/> | Advertise audio codecs | <input checked="" type="checkbox"/> |
| H.261 | <input checked="" type="checkbox"/> | G.711 | <input checked="" type="checkbox"/> |
| H.263 | <input checked="" type="checkbox"/> | G.722 | <input checked="" type="checkbox"/> |
| | | G.722.1 | <input checked="" type="checkbox"/> |

The advertised video and audio codecs can be set for each line.

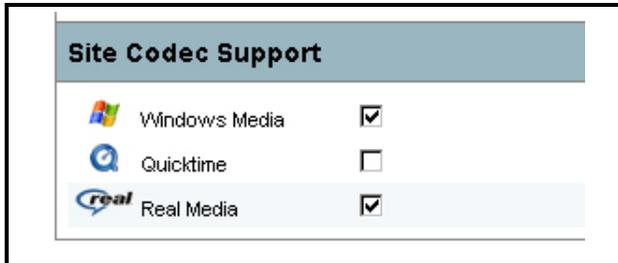
Advertise video codecs

The administrator can enable advertising of video codecs for each line by selecting the checkbox. Supported advertised codecs include H.261 and H.263.

Advertise audio codecs

The administrator can enable advertising of audio codecs for each line by selecting the checkbox. Supported advertised codecs include G.711, G.722 and G.722.1.

4.2.6 Transcoding Codec Support



The Transcoding Codec Support configuration menu contains the following options:

- Windows Media
- QuickTime
- Real Media

Administrators can disable or enable individual codecs for each line to suit their installation requirements.

NOTE: The Content Server will ship with QuickTime support turned off by default. Do not enable QuickTime in the Codec Support settings unless the latest version of QuickTime has been manually installed on the Content Server.

4.2.7 Transcoding Templates

The Template Options drop-down menu allows users to select a recording/streaming template to be used for the transcoding line. Only templates appropriate for the Line are displayed in the drop-down menu for that line. For example:

The screenshot shows a web interface titled "Transcoding Templates". It features a "Template Options" dropdown menu currently displaying "Windows Media 8 Default Template - WMV8-PIPvGA.xml". Below the dropdown are "Save" and "Reset" buttons. The dropdown menu is open, showing a list of templates including QuickTime 6, Real Media 10, TCS three format triple play, and various Windows Media 8 templates. The "Windows Media 8 Default Template - WMV8-PIPvGA.xml" option is highlighted in blue.

NOTE: Live streaming is only enabled for Real Media content if external streaming servers are used (Helix or G2).

NOTE: If QuickTime is not enabled, templates that only have QuickTime will not be available in the drop down list. Templates that include QuickTime and other Codecs will be displayed and can be used but the QuickTime outputs will not work. E.g. Triple-Default.xml

NOTE: QuickTime content recorded with the Transcoding Line cannot be streamed live at all. Live streaming is only enabled for QuickTime content if external streaming servers are used and content has been recorded on one of the Archiving lines (Lines 2-5).

TIP: For best performance, it is recommended that templates with the Windows Media Codec 8 are used in preference to Windows Media Codec 9.

The following factory recording/streaming templates for the Transcoding Line are shipped with the TANDBERG Content Server:

| Template name | Output type |
|--|--|
| QuickTime 6 Default Template – QT6-Default.xml | QuickTime 6: 56K and 384K on demand |
| QuickTime 6 Low Bitrate Template – QT6-Low.xml | QuickTime 6: 56K and 128K on demand |
| Real Media 10 Default Template – RM10-Default.xml | Real Media 10: 56K and 384K on demand |
| Real Media 10 High Bitrate Audio Streams - RM10-AudioHigh.xml | Real Media 10: 28K stream audio with VGA images |
| Real Media 10 Low Bitrate Audio Streams - RM10-AudioLow.xml | Real Media 10: 12K stream audio with VGA images |
| Real Media 10 Low Bitrate Streams - RM10-low.xml | Real Media10: 56K and 128K on demand |
| TCS three format triple play – Triple-Default.xml | Windows Media 8: 56K and 384K(15 frames per second) live and on demand Real Media 10: 56K and 384K on demand QuickTime 6: 56K and 384K on demand |
| TCS three format triple play low bitrate streams – Triple-Low.xml | Windows Media 8: 56K and 128K live and on demand Real Media 10: 56K and 128K on demand QuickTime 6: 56K and 128K on demand |
| Windows Media 8 Default Template – wmV8Default.xml | Windows Media 8: 56K and 384K(15 frames per second) live and on demand |
| Windows Media 8 Dual VGA Template - WMV8-DualVGA.xml | Windows Media 8: DualVideo Streaming and on demand 56K and 384K with VGA images |
| Windows Media 8 Low Bitrate Streams - WMV8-Low.xml | Windows Media 8: 56K and 128K live and on demand |
| Windows Media 8 Multicast Default Base Template - WMV8-MulticastDefault.xml | Windows Media 8: 56K and 384K(15 frames per second) multicast and on demand |
| Windows Media 8 Default Template – WMV8-PIPVGA.xml | Windows Media 8: Extended Video Picture in Picture. |
| Windows Media 9 High Bitrate Audio Only Streams - WMV9-AudioHigh.xml | Windows Media 9: 40K live and on demand audio with VGA images |
| Windows Media 9 Low Bitrate Audio Only Streams - WMV9-AudioLow.xml | Windows Media 9: 14K live and on demand audio with VGA images |

4.2.8 Archiving Line Properties

TANDBERG Content Server
Welcome **administrator** [Log out](#)

View Conferences Create Conference Administrator Settings

You are here: Administrator Settings > Line Settings

Line Settings

Line number: |1| |2| |3| |4| |5|

Archiving Line Properties

H.323 ID

E.164 Alias

Password protection (for incoming ad-hoc calls)

H.239 Capabilities

Enabled

Minimum Resolution

Maximum Resolution

Call Options

Supported call speeds 128 256 384 512 768 1024 1280 1536 1920 2048

Maximum time in call

Advertised Codecs

| | |
|--|--|
| Advertise video codecs <input checked="" type="checkbox"/> | Advertise audio codecs <input checked="" type="checkbox"/> |
| H.261 <input type="checkbox"/> | G.711 <input checked="" type="checkbox"/> |
| H.263 <input checked="" type="checkbox"/> | |

Codec Support

Windows Media

Quicktime

Archiving Templates

Template Options

See **Chapter 4.2.1: Transcoding Line Properties**, for a detailed description of the line settings screen.

4.2.8.1 Codec Support

Codec Support for Archiving Lines is limited to Windows Media and QuickTime formats only.

Administrators can disable or enable individual codecs for each line to suit their installation requirements.

NOTE: The Content Server will ship with QuickTime support turned off by default. Do not enable QuickTime in the Codec Support settings unless the latest version of QuickTime has been manually installed on the Content server.

4.2.8.2 Archiving Templates

The Template Options drop-down menu allows users to select a recording/streaming template to be used for the Archiving Lines. Only templates appropriate for the line are displayed in the drop-down menu for that line.

NOTE: Live streaming is only enabled for QuickTime content if external streaming servers are used and content has been recorded on one of the Archiving lines (Lines 2-5). QuickTime content recorded with the Transcoding Line cannot be streamed live at all.

The following factory recording/streaming templates for the Archiving Lines are shipped with the TANDBERG Content Server:

| Template name | Output type |
|---|--|
| QuickTime MOV H323 Output – H323-MOV-default.xml | QuickTime MOV at incoming conference bitrate |
| QuickTime MOV H323 Dual Output (Still Image) – H323-MOV-Dual.xml | QuickTime MOV at incoming conference bitrate Dual Video with snapshots every 15 seconds |
| Windows Media ASF H323 Output - H323-ASF-default.xml | Windows Media ASF at incoming conference bitrate |
| Windows Media ASF H323 Dual Output (Still Image) – H323-ASF-Dual.xml | Windows Media ASF at incoming conference bitrate Dual Video with snapshots every 15 seconds |
| Windows Media ASF H323 Multicast Base Output - H323-ASF-Multicast.xml | Windows Media multicast and on demand |

4.3 User Management

The User Management menu is used to authorize user privileges. The TANDBERG Content Server does not store user passwords.

Administrators can add new users, change user privileges and delete users. Usernames added by the administrator through this menu must belong to valid existing users in the Active Directory domain that the Server has been added to (for details, see the *User Configuration* chapter of this manual).

A user has either Owner or Administrator privileges.

The screenshot shows the TANDBERG Content Server administrative interface. At the top, it says "TANDBERG Content Server" and "Welcome administrator" with a "Log out" button. Below this is a navigation bar with "View Conferences", "Create Conference", and "Administrator Settings". A breadcrumb trail indicates "You are here: Administrator Settings > User Management".

The main content area is titled "User Management" and contains two sections:

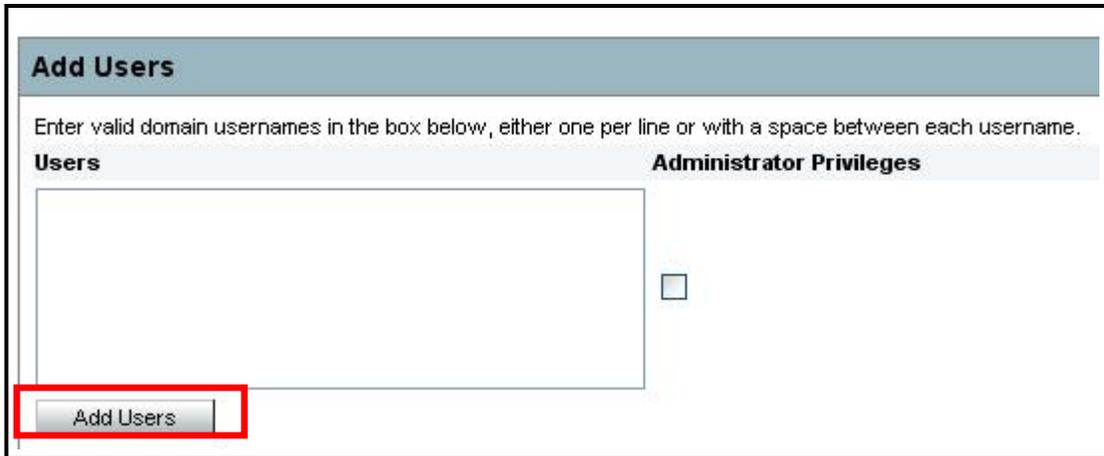
- Add Users:** A text input field for entering domain usernames, with a note: "Enter valid domain usernames in the box below, either one per line or with a space between each username." Below the input field is an "Add Users" button.
- Manage Users:** A table with columns "User" and "Administrator Privileges". The "User" column has a checkbox for "Administrator". The "Administrator Privileges" column has a checked checkbox. Below the table is an "Update Users" button.

| User | Administrator Privileges |
|--|-------------------------------------|
| <input type="checkbox"/> Administrator | <input checked="" type="checkbox"/> |

4.3.1 Adding Users

Enter one user per line or leave a space between each valid username then click the “Add Users” button to add them to the database.

If the users are to have Administrator Privileges, select the checkbox to the right of the field before clicking the Add Users button and they will be added as Administrators.



The screenshot shows a web form titled "Add Users". At the top, there is a header bar with the text "Add Users". Below the header, there is a text instruction: "Enter valid domain usernames in the box below, either one per line or with a space between each username." The form contains two main sections: "Users" and "Administrator Privileges". The "Users" section is a large text input area. The "Administrator Privileges" section contains a single checkbox. At the bottom left of the form, there is a button labeled "Add Users", which is highlighted with a red rectangular border.

4.4.2 Managing Users

An Administrator can add or remove Administrator Privileges or delete users from the database.

The screenshot shows a web interface titled "Manage Users". At the top, there is a "Select:" section with links for "All" and "None", and a "Delete Selected" button. Below this is a table with two columns: "User" and "Administrator Privileges". The table lists five users: ailene, dave, jza, pete, and ross. Each user has a checkbox in the "User" column and a checkbox in the "Administrator Privileges" column. The checkboxes for ailene, dave, jza, and pete are checked, while the checkbox for ross is unchecked. At the bottom of the table is an "Update Users" button.

| User | Administrator Privileges |
|---------------------------------|-------------------------------------|
| <input type="checkbox"/> ailene | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> dave | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> jza | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> pete | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> ross | <input type="checkbox"/> |

4.3.1.1 Deleting users

To delete one or more users or administrators, select the check box to the left of their username and click the "Delete Selected" button. They will be removed from the database. Click the "All" text link to select all users and click "None" to deselect the users that are currently selected.

4.3.1.2 Changing Privileges

Administrators have a tick in the "Administrator Privileges" check box to the right of their username.

To give an owner administrator privileges, click in the check box so a tick appears and click on the "Update Users" button.

To remove administrator privileges, click the check box to the right of the user to remove the tick, then click on the "Update Users" button.

NOTE: Administrative rights in the Content Server are not related to administrative rights in the Windows domain. A Windows administrative account may not have any special privileges in the Content Server environment and a normal Windows user account can be set up as a Content Server administrator.

4.4 Template Editor

The contents of a template determine how output from a videoconference is handled by the TANDBERG Content Server to produce the desired outputs.

Options to think about for creating templates to produce the output required:

- Is a transcoding or archiving line used?
- What codecs or combinations of codecs are needed? Windows Media, Real Media or Quicktime?
- Is the conference needed to be streamed live or on-demand or both?
- What streaming rates are needed for the outputs: 56K, 256K, 384K, etc?
- Are the outputs video, audio or both?
- With or without still images?
- Does the presentation contain Dual Stream Video and slides?
- Is this a Picture in Picture presentation layout?

According to what answers are given to the above options, a recording/streaming template can be created starting from a blank document or using one of the system templates as a guide.

The recording and streaming options for each line can be selected from predefined system templates, which are displayed with an asterisk (*) after the filename. The system templates cannot be deleted.

Existing editable templates can be modified and new templates can be created by editing an existing system template using the Template Editor and saving it with a new name.

Click on the **New Template** button to create one or select from the list of pre-defined templates by clicking on its description and name.

4.4.1 Template List

The screenshot displays the 'Template Editor' interface within the Tandberg Content Server. At the top left, the logo 'TANDBERG Content Server' is visible. On the top right, the user is identified as 'administrator' with a 'Log out' button. Below the header, there are three navigation links: 'View Conferences', 'Create Conference', and 'Administrator Settings'. A breadcrumb trail indicates the current location: 'You are here: Tandberg MEDIA Settings > Template Editor'. The main content area is titled 'Template Editor' and includes a 'Select:' dropdown menu with 'All' and 'None' options, and a 'Delete Selected' button. A 'New Template' button is positioned above a list of templates. Each template entry consists of a checkbox and a text label, such as 'QuickTime 6 Default Template - QT6-Default.xml*'. The list contains 14 items, including various QuickTime, Real Media, TCS, and Windows Media templates.

TANDBERG Content Server Welcome **administrator** [Log out](#)

[View Conferences](#) [Create Conference](#) [Administrator Settings](#)

You are here: [Tandberg MEDIA Settings](#) > [Template Editor](#)

Template Editor

Select: All None [Delete Selected](#)

[New Template](#)

- QuickTime 6 Default Template - QT6-Default.xml*
- QuickTime 6 Low Bitrate Template - QT6-Low.xml*
- QuickTime MOV H323 Default Output - H323-MOV-Default.xml*
- QuickTime MOV H323 Dual Output - H323-MOV-Dual.xml*
- Real Media 10 Default Template - RM10-Default.xml*
- Real Media 10 Low Bitrate Streams - RM10-Low.xml*
- TCS three format triple play - Triple-Default.xml*
- TCS three format triple play low bitrate streams - Triple-Low.xml*
- Windows Media 8 Default Template - WMV8-Default.xml*
- Windows Media 8 Default Template - WMV8-PIPVA.xml*
- Windows Media 8 Dual VGA Template - WMV8-DualVGA.xml*
- Windows Media 8 Low Bitrate Streams - WMV8-Low.xml*
- Windows Media ASF H323 Default Output - H323-ASF-Default.xml*
- Windows Media ASF H323 Dual Output - H323-ASF-Dual.xml*

4.4.2 Existing Template

By clicking an existing template, the screen will look like this:

The screenshot shows the 'Template Editor' interface. At the top, there are 'Edit' and 'Return' buttons. Below this, the 'Filename' is 'vWMV8-Default.xml' and the 'Job description' is 'vWindows Media 8 Default Template'. On the left side, there is a list of templates. The first one, 'WindowsMedia Writer', is highlighted in orange and has a red box around it. Below it are 'Serverpush Output' and 'File Output'. Further down, another 'WindowsMedia Writer' is listed, also with 'Serverpush Output' and 'File Output' options. On the right side, the 'WindowsMedia Writer Information' panel is visible. It contains the following settings: Profile filename (vWM8_56k.prx), Audio only (checkbox), Streaming path (mms://(local)/56k), On demand path (mms://(local)/), On demand output (File Output), Source (Normal video), Picture in picture (checkbox), and Pip location (Top Right).

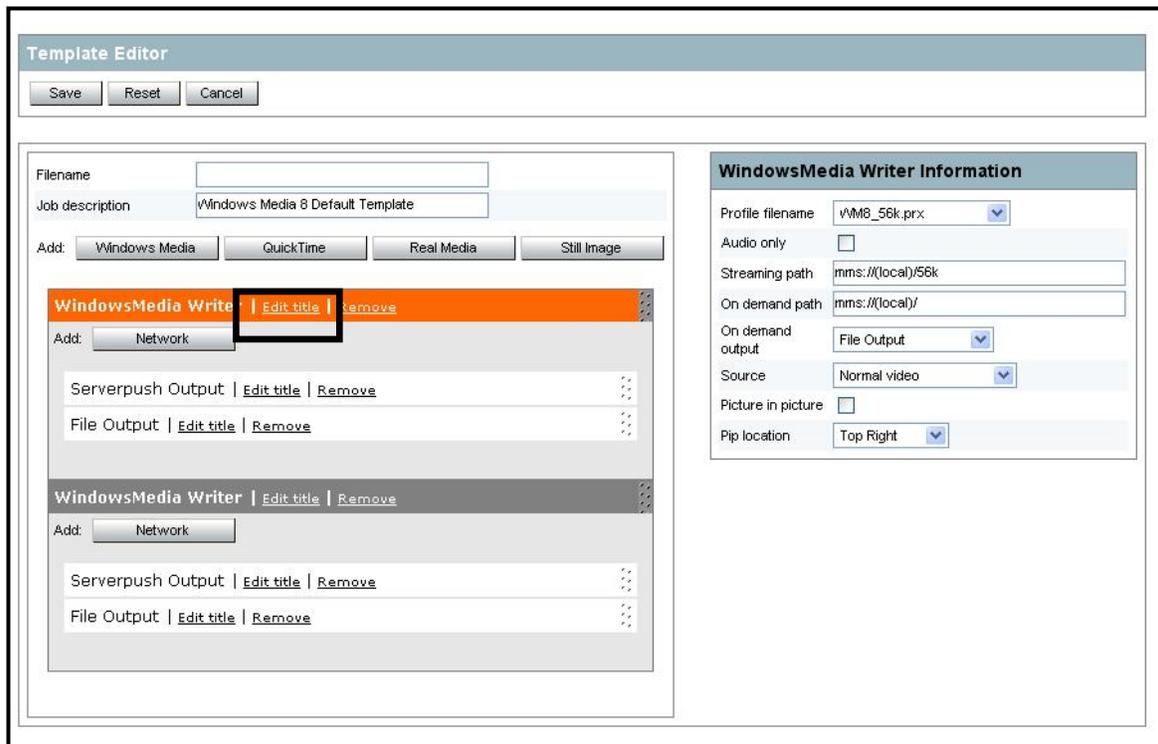
Clicking on any of the Writers or Outputs on the left hand side of the screen will display the related information on the right hand side of the screen.

4.4.3 Editing an Existing Template

Click the Edit button to make changes to the existing template.

This screenshot shows the 'Template Editor' interface with the 'Edit' button highlighted by a red box. The 'Filename' is 'vWMV8-Default.xml' and the 'Job description' is 'vWindows Media 8 Default Template'. The rest of the interface is partially visible but mostly obscured by the red box.

4.4.4 Editing a New Template Screen



When an existing template is edited, the right hand side of the screen will display the Information for the writer highlighted in orange on the left hand side of the screen.

Click the title bar of another writer to display its information on the right hand side of the screen.

To order the writers or the outputs within a writer, click on the grip (handle) at the end of the Writer or Output title and move it to the new position. This way, templates have a consistent look to them with writers and outputs in the same order.

Editing a protected system template enables an administrator to use this as a starting point for creating other templates. Enter a new filename and change Job Description to reflect the newly created template.

The titles of the writers are editable, so administrators can add meaningful descriptions of each output.

To change writer title, click on 'Edit title' next to the title.

4.4.5 Serverpush Output Screen

If you click on the writer (left hand side of screen) you will see the information on the right hand side of screen in Output and Writer Information

The screenshot displays the 'Template Editor' interface. At the top, there are 'Save', 'Reset', and 'Cancel' buttons. Below this, the 'Filename' field is empty, and the 'Job description' is 'Windows Media 8 Default Template'. There are four 'Add' buttons: 'Windows Media', 'QuickTime', 'Real Media', and 'Still Image'. The main area contains two 'WindowsMedia Writer' sections. The first section has an 'Add: Network' button and a list of writers: 'Serverpush Output' (highlighted in orange), 'File Output', and another 'File Output'. The second section is identical but without the orange highlight. On the right side, there are two panels. The top panel, 'WindowsMedia Writer Information', includes fields for 'Profile filename' (vM8_56k.prx), 'Audio only' (checkbox), 'Streaming path' (mms://(local)/56k), 'On demand path' (mms://(local)/), 'On demand output' (File Output), 'Source' (Normal video), 'Picture in picture' (checkbox), and 'Pin location' (Top Right). The bottom panel, 'Serverpush Output Information', is highlighted with a red border and contains fields for 'Server name' (local), 'Port' (8080), 'Password', 'Username', 'Filename base' (56k), and 'Publishing point copy'.

The Server name is set to **(local)** and will be interpreted as IP that the Content Server is using.

The Filename base must be the same as the last part of the Streaming path above.

4.4.6 File Output Information

The screenshot shows the 'Template Editor' window. At the top, there are 'Save', 'Reset', and 'Cancel' buttons. Below this, the 'Filename' field is empty, and the 'Job description' is 'Windows Media 8 Default Template'. There are four 'Add' buttons: 'Windows Media', 'QuickTime', 'Real Media', and 'Still Image'. The main area contains two 'WindowsMedia Writer' sections. The first section has an 'Add: Network' button and a list of outputs: 'Serverpush Output' and 'File Output' (highlighted in orange). The second section also has an 'Add: Network' button and a list of outputs: 'Serverpush Output' and 'File Output'. On the right side, there is a 'WindowsMedia Writer Information' panel with the following settings: Profile filename: 'vWM8_56k.prx', Audio only: , Streaming path: 'mms://(local)/56k', On demand path: 'mms://(local)/', On demand output: 'File Output', Source: 'Normal video', Picture in picture: , Pip location: 'Top Right'. Below this is a 'File Output Information' panel, which is highlighted with a red border, containing: Directory: 'E:/data/media', Filename base: '56k_', and FTP: .

Enter the Directory and Filename base for the live conferences in the Output Information part of the screen.

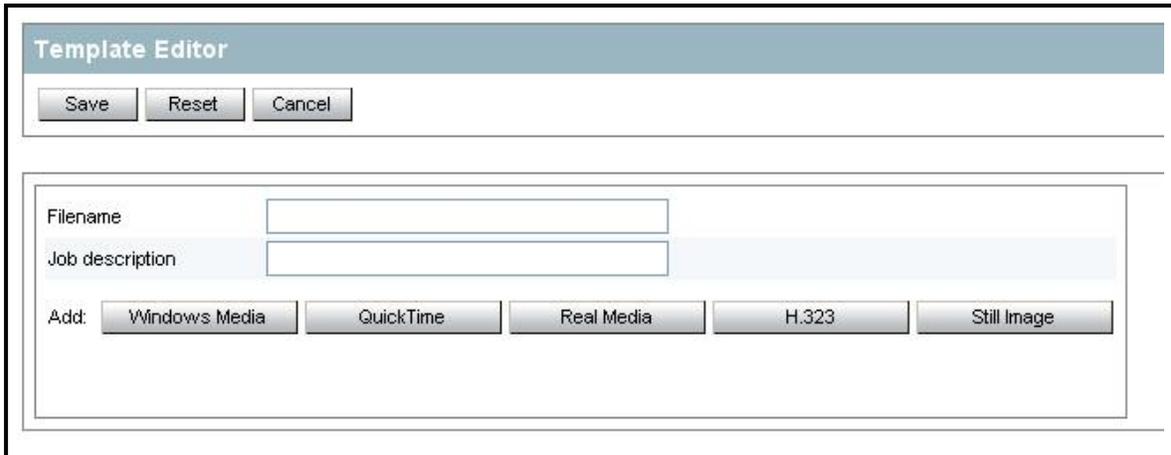
For Windows Media, the Directory for files is **E:/data/media**

For QuickTime and Real Media, the Directory for files is **E:/data/www**

Append other folders to the Directory to store files created using this template in their own subdirectory.

4.4.7 Creating a New Template

When you click on the “New Template” button from the Template Editor screen you will see a screen like this:



The screenshot shows a window titled "Template Editor". At the top, there are three buttons: "Save", "Reset", and "Cancel". Below these are two text input fields: "Filename" and "Job description". At the bottom, there is an "Add:" label followed by five buttons: "Windows Media", "QuickTime", "Real Media", "H.323", and "Still Image".

Filename: Enter the name of this template. (e.g. WMV8-Default.xml)

Job Description: Enter a meaningful description for this job.

Templates are sorted in the interface by **Job description**.

4.4.7.1 Template types



This is a close-up of the "Add:" section from the previous screenshot. It shows five buttons: "Windows Media", "QuickTime", "Real Media", "H.323", and "Still Image".

If you would like to add outputs for the transcoding line, add Windows Media, Real Media or QuickTime.

If you would like to create a template for the archiving line, add H.323. If the H.323 writer is chosen, the other options become unavailable.

Still image can be chosen for both types of lines (see Still Image writer section for details).

4.4.7.2 Windows Media

Up to three writers are permitted for a Windows Media template (this means that three outputs can be generated for this format).

Each writer will have the following Information:

| | |
|-------------------------|--|
| Profile filename | Select the right profile for the required type of output. Profiles determine the type of codec used for recording, the streaming bit rate, video framerate and video resolution. Examples: <ul style="list-style-type: none"> ▪ WM8_384K(15fps).prx – this profile will encode to a Windows Media file using Windows Media codec 8, at 15 frames per second and a bitrate suitable for a 384K Internet connection. ▪ WM8_128K(dual).prx – this profile will encode to a Windows Media file using Windows Media codec 8 and a bitrate suitable for a 128K Internet connection. |
| Audio only | Check this box if you require an audio only output. |
| Streaming path | Enter the path here if you would like the conference to be streamed live. If you leave this field blank, the movie will not be streamed live. The streaming path in writer information should be in the format: mms:// <servername>/<publishing point> |
| On demand path | Enter the path here if you would like the conference to be available on demand. If you leave this field blank, the movie will still be written to the server but will not be displayed in the interface. The on-demand path in writer information should be in the format: mms:// <server name> |
| On demand output | Choose File output if you want to stream content on demand from the Content Server. Choose Server Push Output if you want to stream on demand content from an external server. |
| Source | Choose Source: Normal video for video or video with snapshots/slides. |

| | |
|---------------------------|--|
| | Choose Source: Extended (H.239) video if you want a video with an extended video stream from a H.239 presentation |
| Picture in picture | Check this box if you require a picture in picture layout for your output (otherwise the default layout is Picture out of Picture) |
| PIP location | Select the location of the Picture in Picture from the drop down menu. |

For each Writer you can specify File, Network and/or streaming outputs (Server Push).



4.4.7.3 File Output

File Output information specifies where the file will be saved for on demand viewing.

| Output Information | |
|--------------------|--------------------------|
| Directory | E:/data/media |
| Filename base | m56k_ |
| FTP | <input type="checkbox"/> |

| | |
|----------------------|---|
| Directory | E:/data/media is the default path if streamed off the Content Server Windows Media streaming server. |
| Filename base | Enter characters that will become the base of the filename. Spaces are allowed but no special characters are allowed. Filename format: <base> L <line number><timestamp>.ext The file will include the filename base and will have the additional information added as per example above. |
| FTP | Select the FTP option if you would like to upload files for on-demand streaming from an external server. If this option is selected, you also need to specify a valid Directory path to the external server. |

4.4.7.4 Server Push

The Serverpush method, or pushing the live stream to the Windows Media streaming server is the default streaming option on the Content Server.

For streaming, enter the following information:

- The server name of your external Windows Media streaming server or **(local)** if you are using the Content Server Windows Media streaming server.
- Add the port which will be 8080 if you are using the Content Server
- Add filename base. The filename base should be an alphanumeric entry with no spaces and no special characters. Underscores are allowed. The streaming path under Writer Information should be: `mms:\\<server name>\<filename_base>`

| Serverpush Output Information | |
|-------------------------------|--------------------------------------|
| Server name | <input type="text" value="(local)"/> |
| Port | <input type="text" value="8080"/> |
| Password | <input type="text"/> |
| Username | <input type="text"/> |
| Filename base | <input type="text" value="56k"/> |
| Publishing point copy | <input type="text"/> |

If you have set up a publishing point on the Windows Media streaming server, you can copy the parameters for your new publishing point by specifying the Publishing point copy.

If your publishing point on the Windows Media streaming server is called "my_publishing_point", enter **my_publishing_point** in the **Publishing point copy** field.

4.4.7.5 Network

Network is used to add the network sink or server pull functionality to the Content Server. It can only be used for Windows Media in situations where you want the external server to request the stream.

A network publishing point has to be created on the external Windows Media server to take advantage of this functionality.

Enter the Content Server name and port for Server Pull of the data

| Output Information | |
|--------------------|----------------------|
| Server name | <input type="text"/> |
| Port | <input type="text"/> |

| | |
|--------------------|--|
| Server name | Enter the IP address of the Content Server or (local) will be interpreted as IP that the Content Server is using |
| Port | Select a port that is NOT being used on the Content Server (see Appendix 5 for a list of ports used by the Content Server) |

The streaming path will be **mms:\<<server name>\<publishing point>**, where:

- server name is the external Windows Media server name
- publishing point is the publishing point you have created on the external Windows Media server.

4.4.7.6 QuickTime

Up to three writers are permitted for a QuickTime template (this means that three outputs are allowed to be generated for this format). The QuickTime format does not allow live streaming.

File Output

File Output information specifies where the file will be saved for on demand viewing.

E:\data\www - the default directory for QuickTime content if streamed on-demand off the Content Server Windows Media streaming server.

The on demand path in QuickTime writer information should be in this format:

- **http://<servername>/tcs/data** if the Content Server is used for streaming
- **rtsp://<servername>/filename** if external Darwin streaming server is used

- **Real Media**

Up to three writers are permitted for a Real Media template (this means that three outputs are allowed to be generated for this format). The Real Media format does not allow for live streaming direct from the TANDBERG Content Server.

File Output

File Output information specifies where the file will be saved for on demand viewing.

If Real Media content is streamed on-demand from the Content Server, then the Directory should be E:\data\www

The on demand path should be **http://<servername>/tcs/data**

Real Media content can be streamed off external streaming servers (Helix or G2) both live and on-demand.

On a Helix server, the live streaming path should be `rtsp://<servername>/encoder` and the on-demand path should be `rtsp://<servername>/<archivefoldername>`.

For on demand streaming, check **Archive Enabled** on the external server.

On a G2 server, the live streaming path should be `rtsp://<servername>/broadcast foldername` and the on-demand path should be `rtsp://<servername>/<archivefoldername>`.

For on demand streaming, check **Archive Enabled** on the external server.

In Writer Information on the TANDBERG Content Server you need to select Server Push Output as on-demand output.

4.4.7.7 H.323 Writer

The H.323 Writer allows the creation of templates for Archiving lines, by wrapping H.261 and H.263+ codecs in either QuickTime or Windows Media format

The H.323 Writer does not require a profile, but users have to choose the file type – Windows Media or QuickTime.

Windows Media

Only one file output is supported for this format in a H.323 writer

Serverpush

The publishing point format should be `http://<servername>: port/<publishing point>`

The streaming path point format should be `mms://servername/publishing point`

QuickTime

Only one file output is supported for this format in a H.323 writer

TIP: Unlike the transcoding QuickTime format, archiving format content wrapped in QuickTime format CAN be streamed live off an external streaming server.

Serverpush

Live streaming off external Darwin streaming server

| | |
|---------------------|---|
| Session name | User selected name you choose to identify the session |
| Server name | IP of external streaming server |
| Audio port | Specify a port that is not already being used |
| Video port | Specify a port that is not already being used |
| Sdp location | Identify the movies folder that streaming media are streamed from |

The path for on demand streaming off an external Darwin streaming server should be **`rtsp://<servername>/filename`**

On demand streaming from the TANDBERG Content Server

The directory for on demand streaming off the TANDBERG Content Server should be **`E:\data\www`**

The path for on demand streaming off the TANDBERG Content Server should be: **`http:// <servername>/tcs/data`**

4.4.7.8 Still Image

Use this writer if you want to extract still images from the extended video (H.239) stream for low-bandwidth streaming. This writer can only be used in a template which specifies dual video.

One writer only is supported.

Still images of extended H.239 video are extracted at a specified interval:

Specified interval recommended minimum 10sec

Specified interval recommended maximum 60sec

4.4.8 Template creation tips

4.4.8.1 PIP

For a Picture in Picture layout choose the following in the Writer Information:

- Profile filename – choose profile with (with SVGA, VGA or XGA, with PIP)
- Source = Extended (H.239) video
- Select PIP checkbox
- To specify PIP location, select the required location from the dropdown menu

4.4.8.2 H.239 or Dual Stream

For H.239 (Dual Stream) video output choose the following in the Writer Information:

- Normal video: writer with source normal
- Extended video: writer with source extended
- Profile with SVGA, VGA or XGA in the profile name, but not PIP
- If still images required from extended video (for bandwidth under 384K), add Still image writer

4.4.9 Using the Multicast Templates

If you intend to deliver your live streaming content as a multicast stream you will need to modify one of the system Multicast templates and then use the Windows Media Services Multicast Announcement Wizard to create an announcement. The announcement is a Windows Media metafile that provides the player with the information required to receive the streaming content.

To setup up a multicast stream from the TANDBERG Content Server first edit the relevant Template (WMV8-MulticastDefault.xml for the Transcoding line or H323-ASF-Multicast.xml for the archiving lines) with the Template Editor.

The screenshot shows the Template Editor interface. On the left, there's a 'H323 Writer' section with a list of outputs: 'File Output' and 'Network Output' (highlighted in orange). On the right, there are two main sections: 'H323 Writer Information' and 'Network Output Information'.

H323 Writer Information:

- File type: Windows Media
- Audio only:
- Streaming path: http://(local)/tcs/data/multicast.asx
- On demand path: mms://(local)/
- On demand output: File Output
- Source: Normal video

Network Output Information:

- Server name: http://(local)
- Port: 9990

Make a note of the Port used for the Network Output Information as this will be used later in the creation of the new Publishing Point. If you create multiple Templates for Multicast Publishing Points then you must choose different Ports for each.

This is a close-up of the 'Network Output Information' section. It contains two input fields:

- Server name: http://(local)
- Port: 9990

NOTE: When selecting a port for the Network sink you should choose a number greater than 9000 as this will ensure you do not conflict with other port numbers used by the TANDBERG Content Server.

Also note the name Streaming Path as you will use this in the creation of the Announcement.

This is a close-up of the 'H323 Writer Information' section. It contains several input fields and dropdown menus:

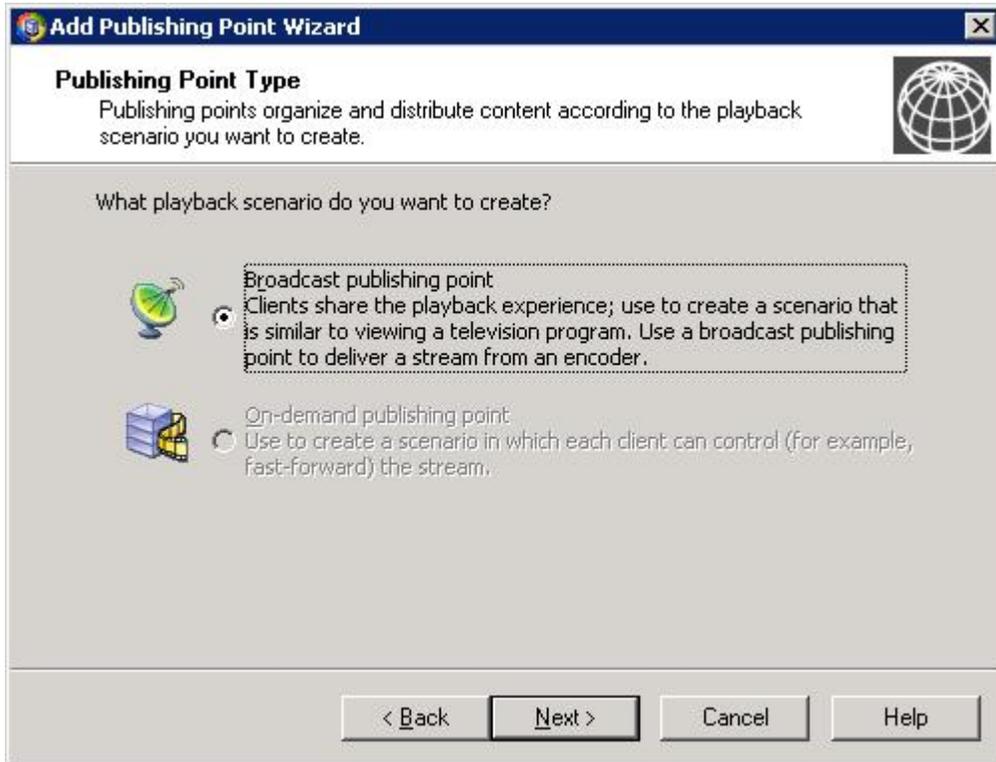
- File type: Windows Media
- Audio only:
- Streaming path: http://(local)/tcs/data/multicast.asx
- On demand path: mms://(local)/
- On demand output: File Output
- Source: Normal video

Once you have completed the new Template give it a new name and save it.

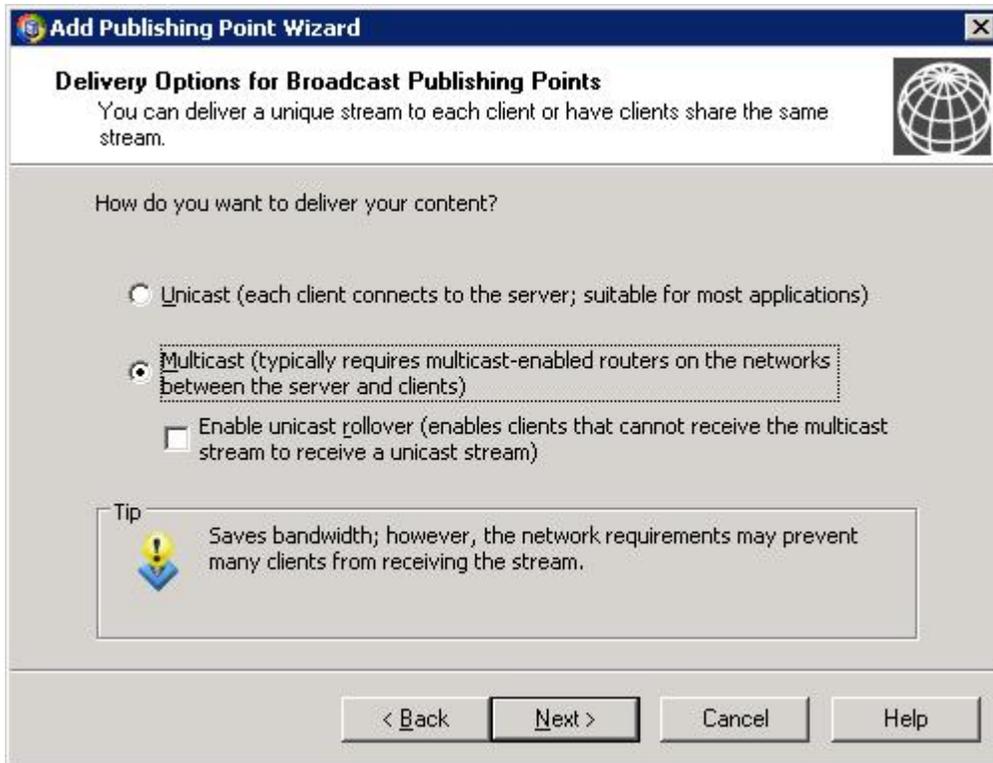
Remember, you must set this template as the active template for a line before you can begin using it.

The next steps are to create the multicast publishing point and the multicast announcement file. At this point the administrator should use the Remote Desktop Connection application to connect to the Content Server and the administrative pages of the Windows Media Services.

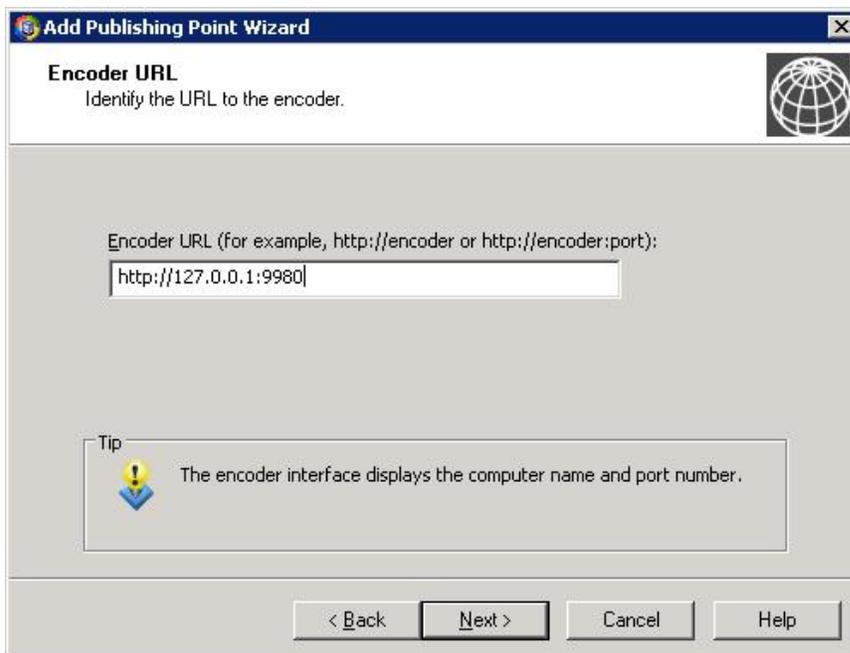
Within the Windows Media Service administrative pages, create a new Publishing Point using the Wizard and choose to create a "Broadcast publishing point".



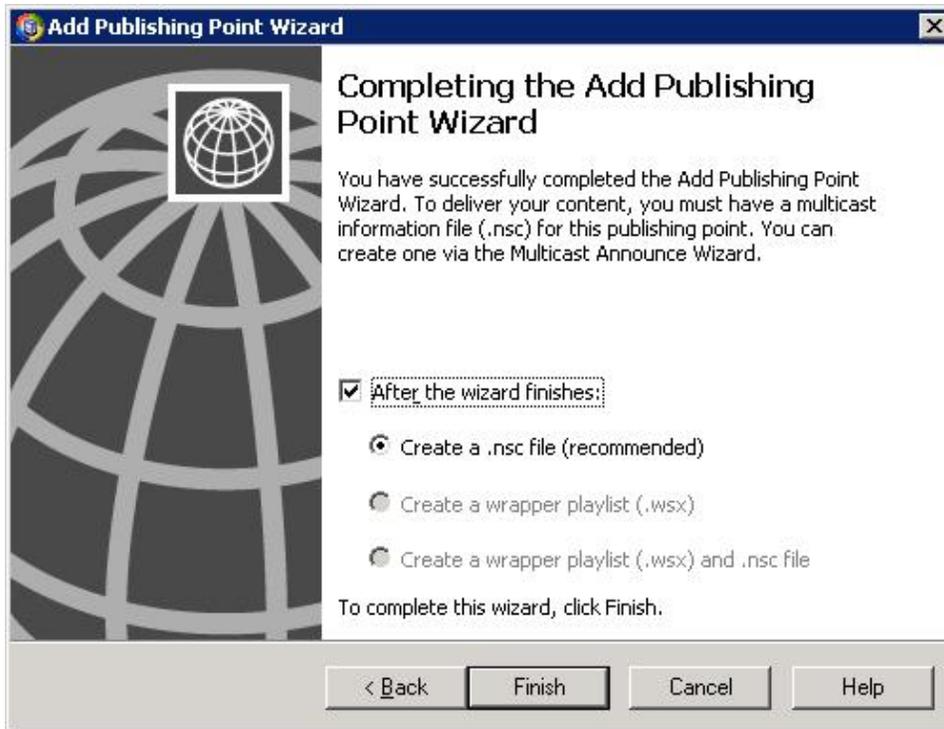
Choose to have the content delivery via "Multicast". You can decide whether to enable Unicast rollover.



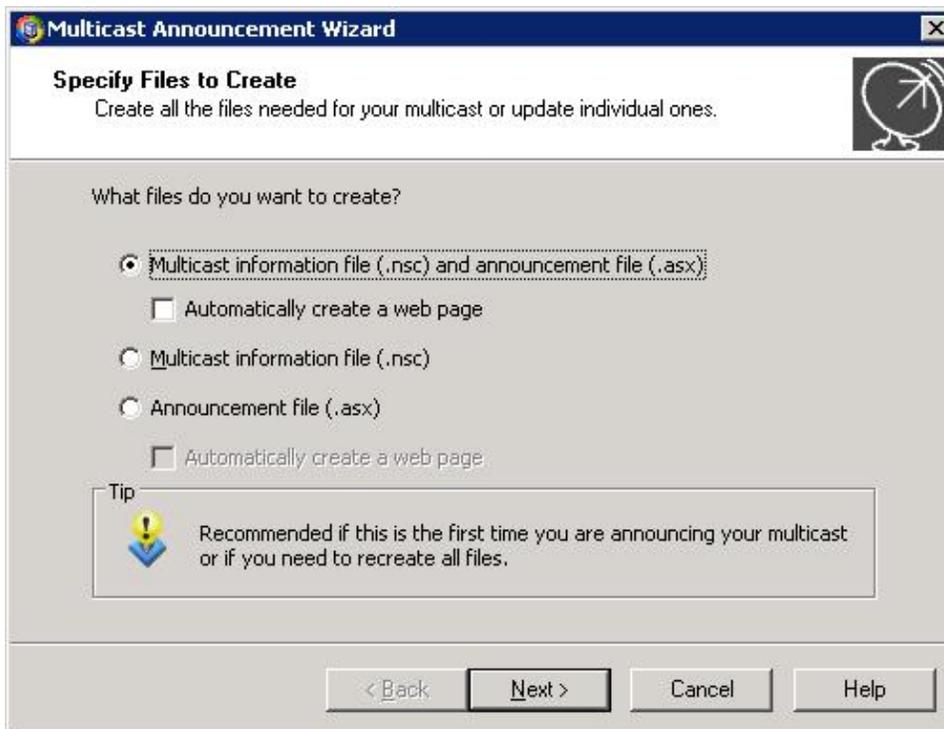
The Encoder URL is the IP address of the Content Server followed by the port you selected in the template. E.g. `http://127.0.0.1:9990`



On completion of the Wizard choose to create a **.nsc** file.

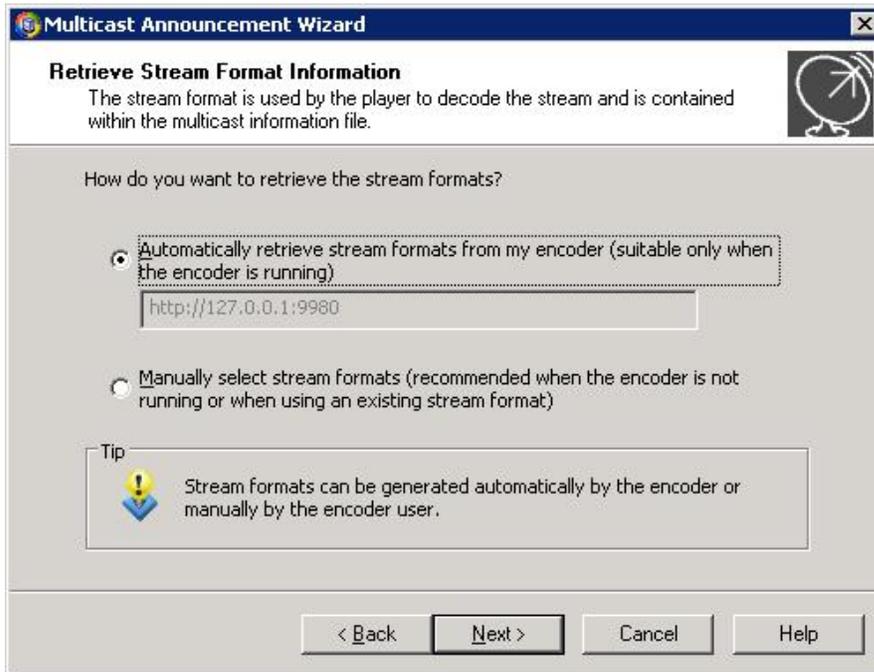


In the Multicast Announcement Wizard choose to create the “Multicast information file (.nsc) and announcement file (.asx)”

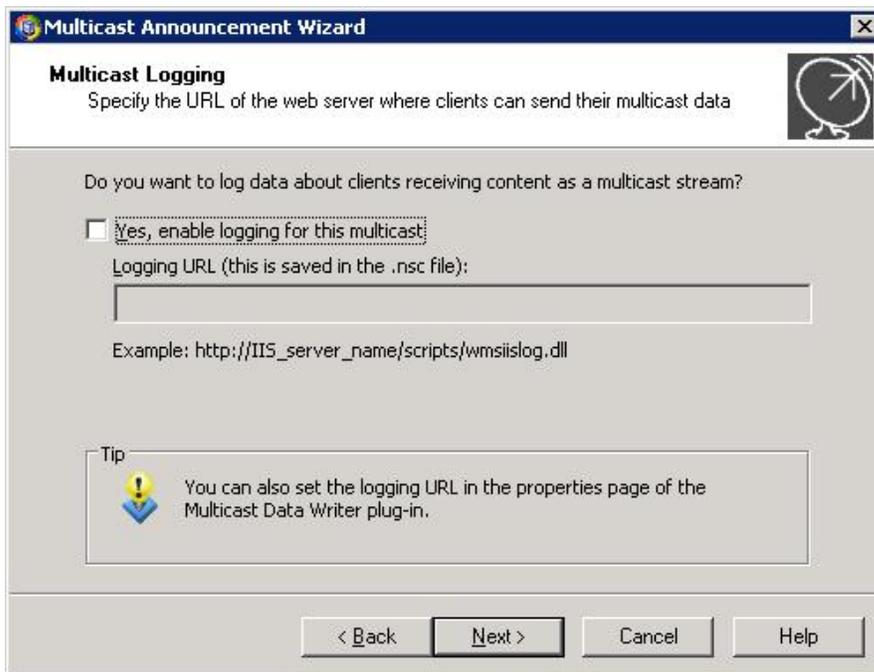


If the call is already in progress when you run the announcement wizard you can choose to automatically retrieve the stream formats. If you are setting this up before the call starts then you will need to select existing stream format files to allow the wizard to correctly identify the formats

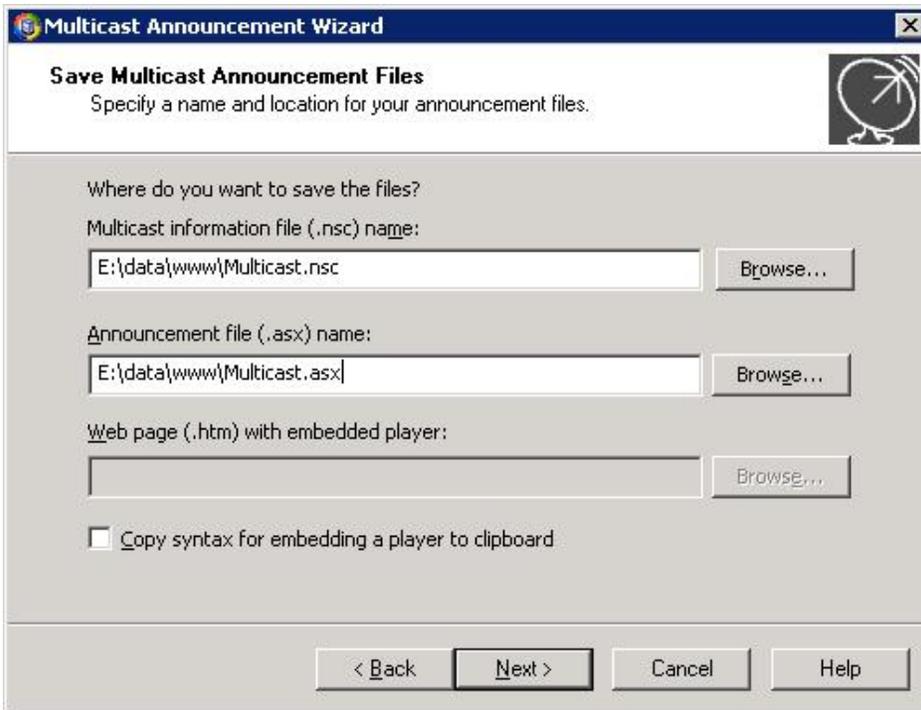
to be used in the multicast (note: you can use previously recorded conference movie files for this).



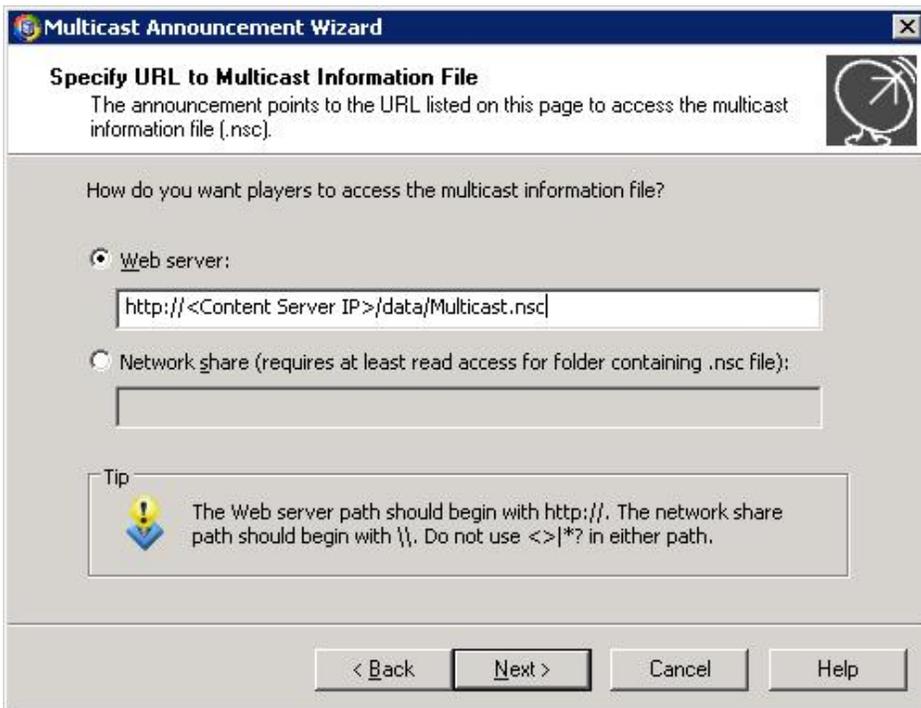
Choose whether you want to enable logging or not for the multicast.



Set the location of where the (.nsc) and (.asx) files will be created. This should be within the **E:\data\www** path.



Specify the URL to the Multicast Information File. This should be of the form `http://<Content Server IP>/data/Multicast.nsc` where <Content Server IP> is the address of your Content Server.



After choosing whether you want to add further meta-data and archive you have completed the announcement wizard. If you are running this wizard while the call is in progress, then you can choose to Start the publishing point when the wizard finishes.



When you have done this setup once you do not need to repeat it for further calls unless you change any of the streaming parameters (such as bitrate or codecs etc). If you have to create further announcement files then retain your previous ones for use in other calls.

NOTE: It is possible to create a .nsc file with multiple stream formats within it. This is very useful for handling the multiple bitrates available on the archiving lines. See the Windows Media Services documentation for further information.

4.5 Software Upgrade

The 'Software Upgrade' page allows administrators to view the software version, device serial number, and option keys installed on the TANDBERG Content Server.

The Content Server software can easily be upgraded by adding option keys and installing release keys provided by authorized TANDBERG resellers or partners. After putting in the option or release key click on the Restart Service button to restart the Content Server for the software upgrade to take effect.

The screenshot shows the 'Software Upgrade' page in the TANDBERG Content Server administration interface. The page title is 'TANDBERG Content Server' and the user is logged in as 'administrator'. The breadcrumb trail is 'You are here: Administrator Settings > Software Upgrade'. The page is divided into three main sections: 'Software Information', 'Upgrade Software', and 'Restart Service'.

Software Information

| | | |
|-----------------------|---------------------------------------|-------------------------------|
| Software Version | TANDBERG Content Server v1 Build 1338 | |
| Device Serial Number | 48A20001 | |
| Installed Option Keys | 11020171-1-03000370 | Unlocks one transcoding line. |
| | 11020174-1-07000000 | Unlocks 4 archiving lines. |

Upgrade Software

Add Option Key

Install Release Key

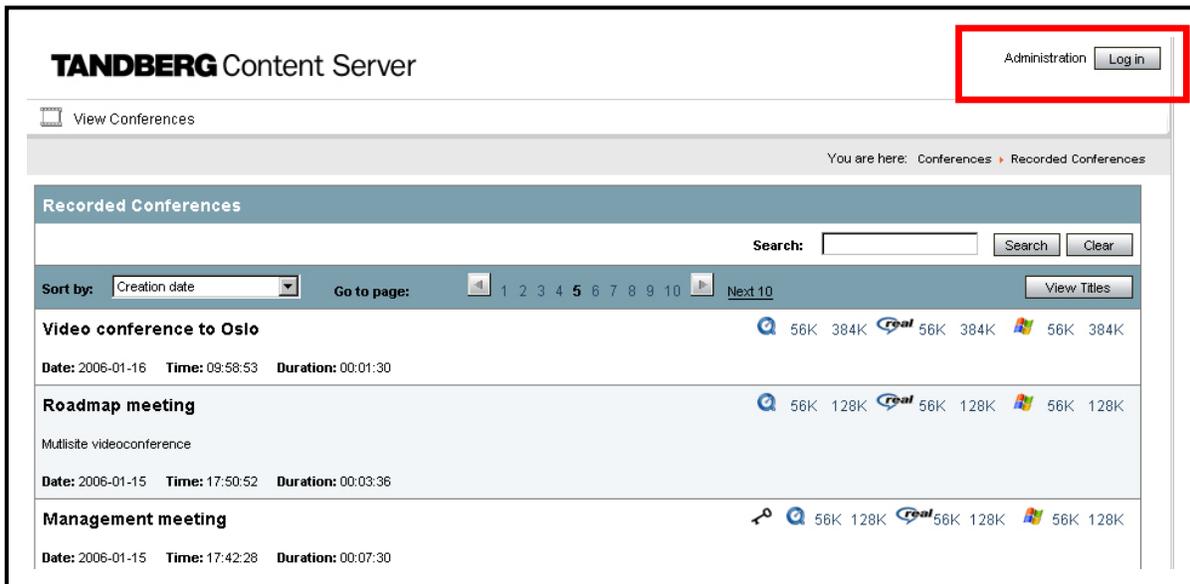
Restart Service

5 Creating and Editing Content

The TANDBERG Content Server enables users with 'Owner' and 'Administrator' privileges to record video calls by dialing out from the web interface and to edit their recorded content.

Owners and Administrators need to log in to the Content Server to create and edit their conferences.

Click the Log In button at the top right of the screen



Enter your username and password that has been given to you by your administrator, or a valid username and password for your domain.



TANDBERG Content Server User Manual

You will see a screen similar to this if you are a Conference Owner and have the ability to record calls and edit your recorded content.

TANDBERG Content Server Welcome ross [Log out](#)

[View Conferences](#) [Create Conference](#)

You are here: [Conferences](#) > [Recorded Conferences](#)

Recorded Conferences

Select: All None [Delete Selected](#) Search: [Search](#) [Clear](#)

Sort by: Go to page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [Next 10](#) [View Titles](#)

| | |
|---|---------------------------------|
| <input type="checkbox"/> Video conference to Oslo Edit | 56K 384K 56K 384K 56K 384K |
| Date: 2006-01-16 Time: 09:58:53 Duration: 00:01:30 | |
| <input type="checkbox"/> Roadmap meeting Edit | 56K 128K 56K 128K 56K 128K |
| Multisite videoconference | |
| Date: 2006-01-15 Time: 17:50:52 Duration: 00:03:36 | |
| <input type="checkbox"/> Management meeting Edit | 56K 128K 56K 128K 56K 128K |
| Date: 2006-01-15 Time: 17:42:28 Duration: 00:07:30 | |
| <input type="checkbox"/> Streaming demo for the Macintosh Edit | 56K 128K |
| Date: 2006-01-15 Time: 17:32:20 Duration: 00:08:21 | |
| <input type="checkbox"/> Competitive info discussion Edit | 56K 384K |
| Date: 2006-01-15 Time: 17:26:06 Duration: 00:05:45 | |

You will see a screen similar to this if you have administrative privileges.

TANDBERG Content Server Welcome administrator [Log out](#)

[View Conferences](#) [Create Conference](#) [Administrator Settings](#)

You are here: [Conferences](#) > [Recorded Conferences](#)

Recorded Conferences

Select: All None [Delete Selected](#) Search: [Search](#) [Clear](#)

Sort by: Go to page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [Next 10](#) [View Titles](#)

| | |
|---|---------------------------------|
| <input type="checkbox"/> Video conference to Oslo Edit | 56K 384K 56K 384K 56K 384K |
| Date: 2006-01-16 Time: 09:58:53 Duration: 00:01:30 | |
| <input type="checkbox"/> Roadmap meeting Edit | 56K 128K 56K 128K 56K 128K |
| Multisite videoconference | |
| Date: 2006-01-15 Time: 17:50:52 Duration: 00:03:36 | |
| <input type="checkbox"/> Management meeting Edit | 56K 128K 56K 128K 56K 128K |
| Date: 2006-01-15 Time: 17:42:28 Duration: 00:07:30 | |
| <input type="checkbox"/> Streaming demo for the Macintosh Edit | 56K 128K |
| Date: 2006-01-15 Time: 17:32:20 Duration: 00:08:21 | |
| <input type="checkbox"/> Competitive info discussion Edit | 56K 384K |
| Date: 2006-01-15 Time: 17:26:06 Duration: 00:05:45 | |

5.1 Creating Conferences

Click on the Create Conference text link in the menu bar.

TANDBERG Content Server

View Conferences **Create Conference** Administrator Settings

Create Conference

Conference Information

Title: New Conference
Description: [Text Area]
Keywords: [Text Field]
Date: [Text Field]
Copyright: [Text Field]
URL: [Text Field]
Password: [Text Field]
Owner: Administrator

Call State Information

Recording Type: Record / Stream Archive
Line 1
Line 2
Address: [Text Field]
Speed: 256

Enter the following details about the Conference:

| | |
|--------------------|---|
| Title | The name of the conference that participants will see |
| Description | Details about the conference to be displayed beneath the Title in the Conference list |
| Keywords | Enter any keywords that can be used when searching for the conference. |
| Copyright | Enter any copyright information about the conference |
| Password | Enter a password to restrict streaming access to this conference. If no password is entered, then there is no restriction on who has access to the conference if they can view the conference list. |
| Owner | Select the Owner of the Conference from the pull down list. Only the owner and administrators can edit the conference. |

Make a call

| | |
|-----------------------|---|
| Recording Type | There are two recording types available - Record / Stream or Archive Record / Stream – If you select the Record/Stream radio button, your conference will be recorded on the Transcoding Line Archive – If you select the Archive radio button, your conference will be recorded on an Archiving Line. You may choose which line you would like to use to record your call. |
| Address | Enter the Address of the endpoint you are calling. The address can be in the format of an IP Address, H.323 alias or E.164 alias. |
| Speed | Choose the call rate from the drop-down menu. You will only be able to see the allowed call rates for the line you have chosen. |

NOTE: The Recording Type determines the output of your recorded call. The Record/Stream Type is associated with the Transcoding line 1. The Archive Type is associated with Archiving Lines 2 to 5.

Please note that all lines are enabled to record and stream calls live by default, but it is templates attached to lines which determine which live and on-demand streaming options are turned on. Depending on the kind of template which is attached by an administrator to the line, choosing the Record/Stream type may result in a call which is available on-demand only, and choosing the Archive line may result in content which is streamed live!

After you have entered the required information press the **“Make Call”** button to start the call.

Call State Information

The display will be updated with the following call information:

Call State Information

| | |
|--------------|--------------------|
| Call State | Initiating call... |
| Connected to | WEKA |
| Line Number | 1 |
| Bandwidth | 384 |
| Record State | RECORDING_STARTING |
| Video Codec | |
| Audio Codec | |

End Call

Click the **“End Call”** button to finish the call. Calls can also be terminated from the remote end.

5.1.1 Live View

Once the call has been made, the following screen will be displayed to the Owner of the conference.

The screenshot displays the TANDBERG Content Server interface. At the top, it says "TANDBERG Content Server" and "Welcome administrator" with a "Log out" button. Below this are navigation links: "View Conferences", "Create Conference", and "Administrator Settings". A breadcrumb trail indicates "You are here: Conferences > Live Conferences".

The main content area is titled "New Conference" and is divided into two sections:

- Conference Information:** This section contains a form with the following fields:
 - Title: New Conference
 - Description: (empty text area)
 - Keywords: (empty text area)
 - Date: 2006-01-12 16:27:37
 - Copyright: (empty text area)
 - URL: http://10.64.1.62/tcs/?id=137CFFDB-FA3D-4A29-890C-5BF1A40660A4. Next to the URL are two blue links: "Watch" and "Email", which are highlighted with a red box.
 - Password: (empty text area)
 - Owner: Administrator (dropdown menu)
- Call State Information:** This section displays the following details:
 - Call State: In call
 - Connected to: Tui
 - Line Number: 1
 - Bandwidth: 384
 - Record State: RECORDING_STARTED
 - Video Codec: H263
 - Audio Codec: G722 64k

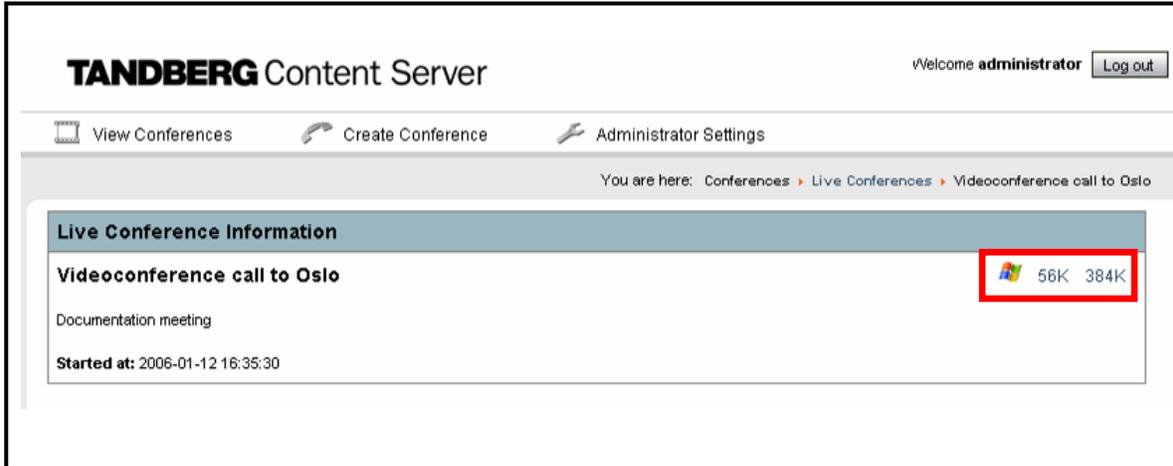
At the bottom of the form, there is a "Media URL List" section with a "Show URL List" button highlighted by a red box. Below this is an "End Call" button.

NOTE: To view the path to your recorded content, you can click on the **Show URL List** button to display the movie and slide URLs. When finished, click on the **Hide URL List** button.

The Conference URL will be displayed with the two links also available, **Watch** and **Email**.

5.1.1.1 Watch

Click to view the live conference.



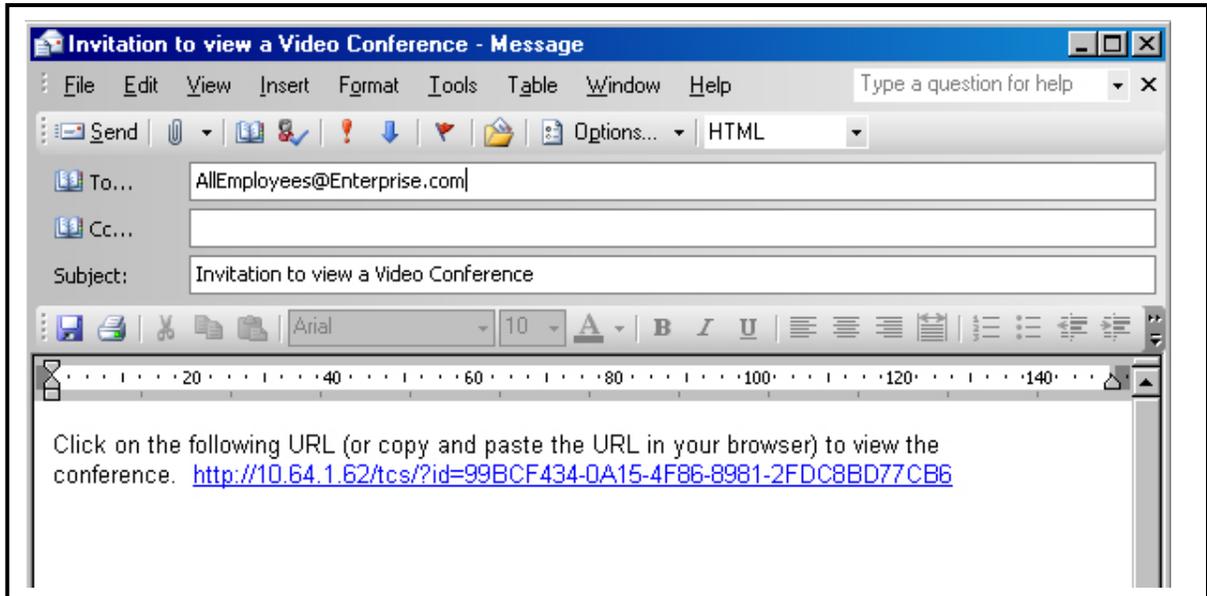
Click on the displayed bit rate to watch the live stream. Depending on the template used for the call, there may be one or multiple bit rates available, or none if the conference is not being streamed.

Note: The start up time of the stream is affected by internal buffering so if the video does not play after clicking on the link, click on the play button to watch the presentation.



5.1.1.2 Email

Click to send an email with the URL for users to view the Conference.



5.1.1.3 Conference Views

While the call is live, the conference details will be displayed in the list of **Live Conferences** and users will be able to click on a link to view the live presentation.

TANDBERG Content Server Welcome **administrator** [Log out](#)

[View Conferences](#) [Create Conference](#) [Administrator Settings](#)

You are here: [Conferences](#) > [Live Conferences](#)

Live Conferences

Search:

Sort by:

| | |
|---|----------|
| rad 04:34pm View Status | 1.5M |
| Line 2 | |
| Started at: 2006-01-12 16:38:24 | |
| Videoconference call to Oslo View Status | 56K 384K |
| Documentation meeting | |
| Started at: 2006-01-12 16:35:30 | |

When the conference has completed, it will be listed with the recorded conferences

TANDBERG Content Server Welcome **administrator** [Log out](#)

[View Conferences](#) [Create Conference](#) [Administrator Settings](#)

You are here: [Conferences](#) > [Recorded Conferences](#)

Recorded Conferences

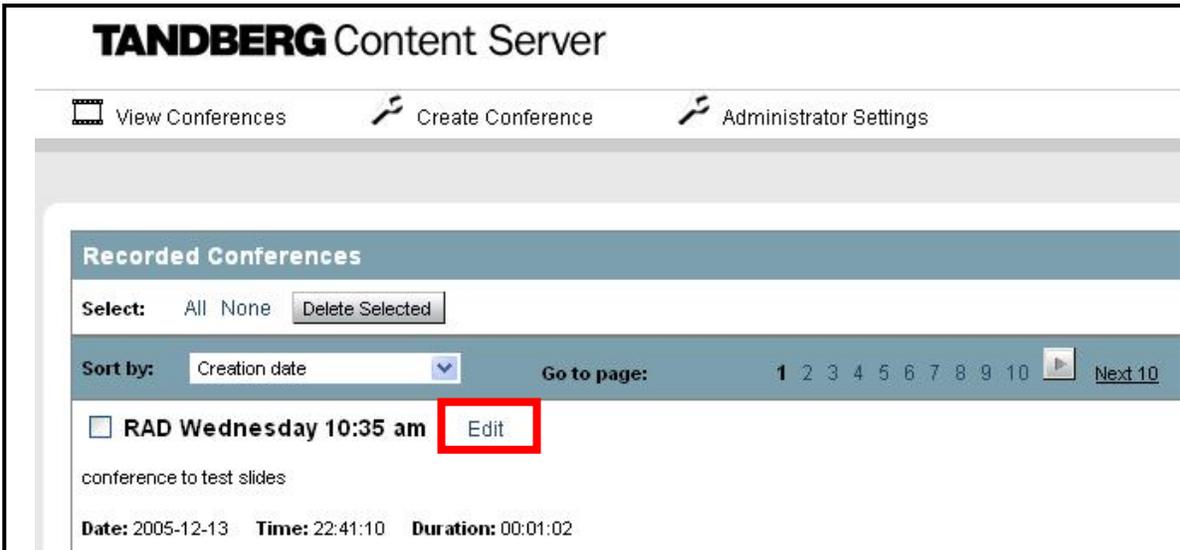
Select: Search:

Sort by: Go to page:

| | |
|---|--------------------|
| <input type="checkbox"/> Dialed In Conference Line 5 Edit | 256K |
| Date: 2006-01-12 Time: 16:40:06 Duration: 00:05:42 | |
| <input type="checkbox"/> Dialed In Conference Line 4 Edit | 256K |
| Date: 2006-01-12 Time: 16:39:57 Duration: 00:05:56 | |
| <input type="checkbox"/> Dialed In Conference Line 3 Edit | 256K |
| Date: 2006-01-12 Time: 16:39:48 Duration: 00:06:11 | |
| <input type="checkbox"/> Videoconference call to Oslo Edit | 56K 384K 56K 384K |
| Documentation meeting | |
| Date: 2006-01-12 Time: 16:35:30 Duration: 00:12:33 | |

5.2 Editing Conferences

Click on the **Edit** link to the right of the Conference name to edit its contents.



Only Owners and Administrators can edit conferences.

Owners can edit their own conferences.

Administrators can edit all conferences.

TANDBERG Content Server Welcome administrator

You are here: [Conferences](#) > [Recorded Conferences](#)

RAD Monday Conference

Conference Information

Title

Description

Keywords

Date 2005-12-19 14:19:25

Copyright

URL [Watch](#) [Email](#)

Password

Owner

Slide List

Media URL List

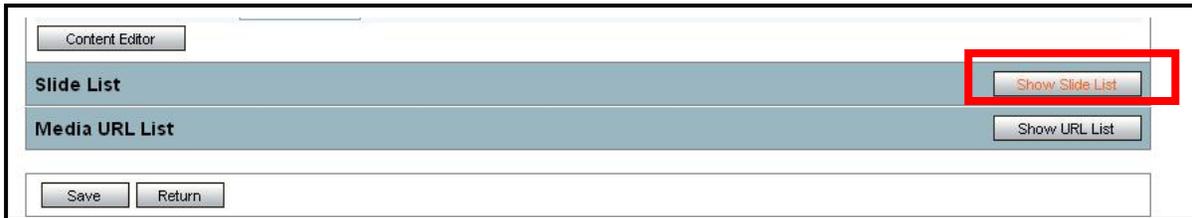
The following conference details can be edited:

| | |
|---------------------|---|
| Title: | The name of the conference that participants will see |
| Description: | Details about the conference to be displayed beneath the Title in the Conference list |
| Keywords: | Enter any keywords that can be used when searching for the conference |
| Copyright: | Enter any copyright information about the conference |
| Password: | Enter a password to restrict access to this conference. If no password is entered, then there is no restriction on who has access to the conference if they can view the conference list. |
| Owner: | Select the Owner of the Conference from the pull down list. Only the owner and administrators can edit the conference. |

Click the **Save** button if you have made changes to any fields on the screen.
 Click **Return** to go back to the Conference List.

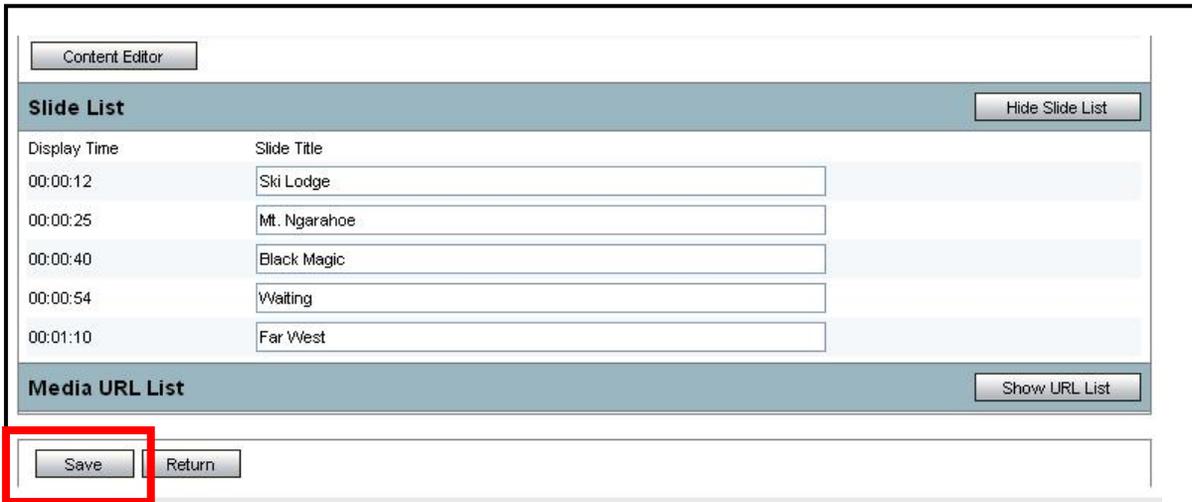
5.2.1 Slide List

Conference owners can click on the **Show Slide List** button to display and edit the titles of the slides.



The screenshot shows the 'Content Editor' interface. At the top, there is a 'Content Editor' button. Below it, there are two main sections: 'Slide List' and 'Media URL List'. The 'Slide List' section has a 'Show Slide List' button highlighted with a red box. The 'Media URL List' section has a 'Show URL List' button. At the bottom, there are 'Save' and 'Return' buttons.

This will display the slides for the conference.



The screenshot shows the 'Content Editor' interface after clicking 'Show Slide List'. The 'Slide List' section is expanded, showing a table with columns for 'Display Time' and 'Slide Title'. The 'Slide Title' column contains text input fields. Below the table is a 'Media URL List' section with a 'Show URL List' button. At the bottom, the 'Save' button is highlighted with a red box.

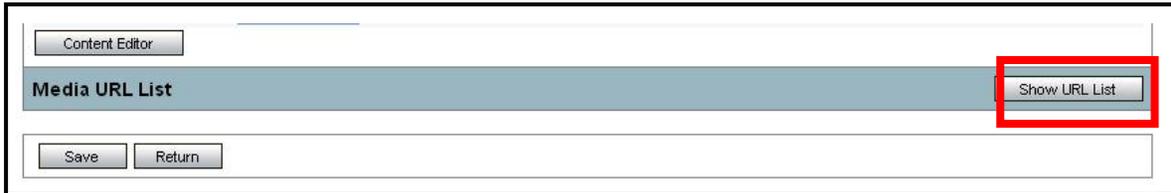
| Display Time | Slide Title |
|--------------|--------------|
| 00:00:12 | Ski Lodge |
| 00:00:25 | Mt. Ngarahoe |
| 00:00:40 | Black Magic |
| 00:00:54 | Waiting |
| 00:01:10 | Far West |

Change the names of the Slide Titles and click Save when they are correct.

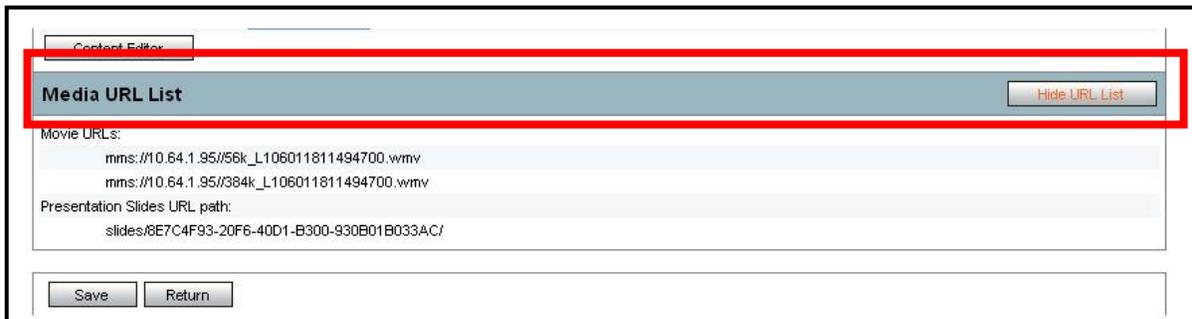
Return takes you back to same page you came from in the Recorded Conferences list.

5.2.2 Media URL List

Administrators can click on the **Show URL List** button to display the URLs of the movies and the URL path to the presentation slides.

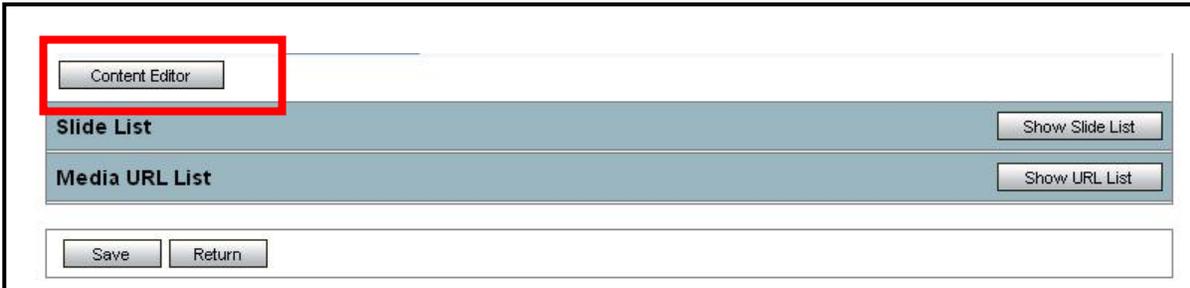


This will display the URLs of any on demand movies and the slide path for graphics associated with this conference.

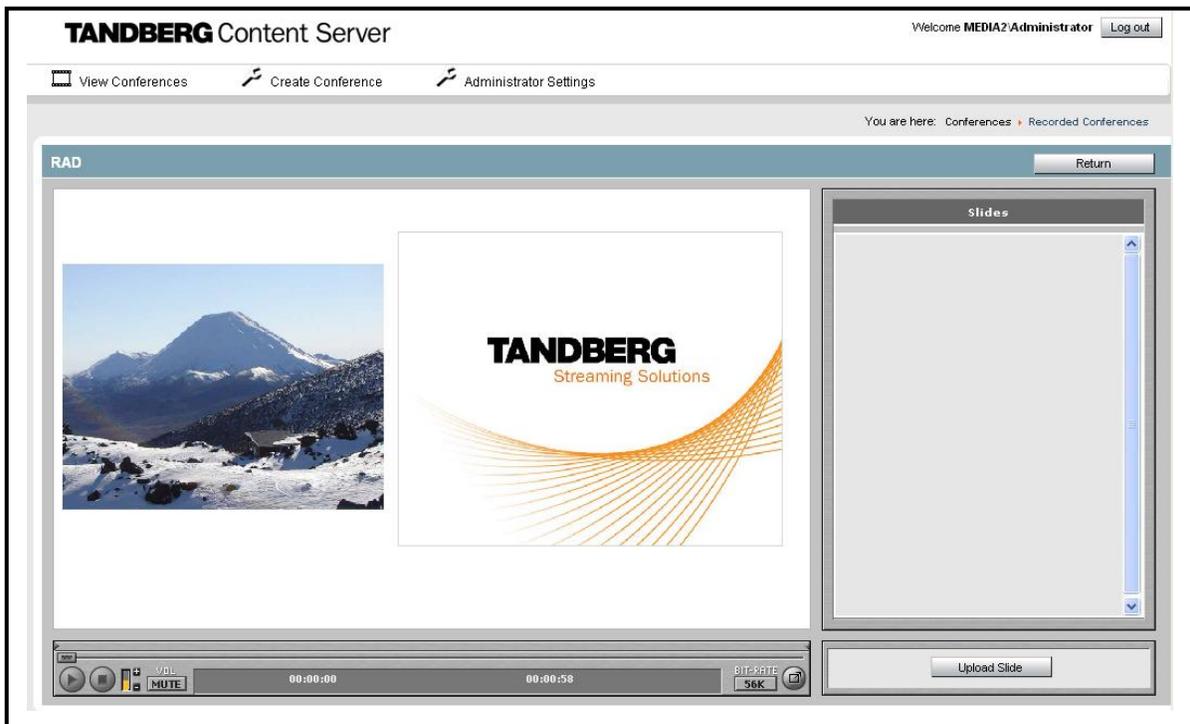


5.2.3 Content Editor

Click the **Content Editor** button to add slides, modify slides and position the slide index points in the presentation.



You will see the following screen if you are editing a conference which does not have any slides.



5.2.4 Uploading Slides

Click the Upload Slide button to add a graphic to your presentation.

| | |
|-------------------|--|
| Formats | You can upload graphics in the following formats: .JPEG, .GIF and .PNG |
| Filesize | The filesize of the graphic must not exceed 150 K. |
| Dimensions | The Content Editor will resize your graphic proportionally for display in the Content Viewer. If you would prefer to resize your graphics manually in a third party application, the maximum width of your graphic should not exceed 630 pixels and the height should not exceed 520 pixels. |

The graphics will appear in the Slides window.



To reorder the slide list, click and drag the slide you wish to change. The number to the left of the slide will change dynamically as you move it.



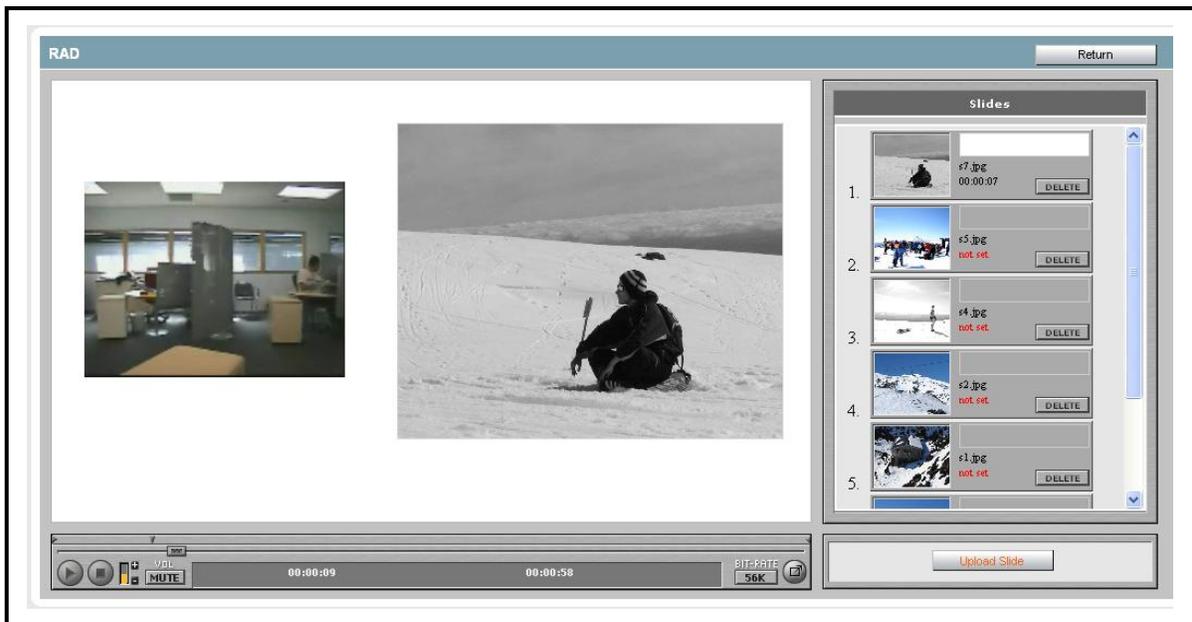
not set means that the slide is yet not associated with a marker in the conference presentation.

5.2.5 Deleting Slides

Click the **DELETE** button on the slide if you wish to remove it from the slide list.

5.2.6 Adding Markers

Adding markers into the timeline is done by clicking above the video slider bar. This will enter a small inverted triangle to indicate a marker has been added.



The first marker entered will correspond with the first slide in the list as above.

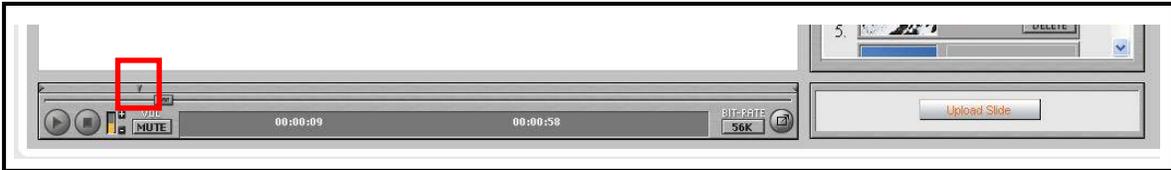
Entering in a name of the slide will create this marker in the movie as a clickable index point for a user watching the movie.

If a slide is associated with a marker but is not named, it will not contain an index point but the slide will be in the slide list and also display when the movie is playing.

5.2.7 Removing Markers

Click, drag and drop the markers into the white space above to remove the marker from the timeline.

This will not change the order of the slides but may drop the last slide off the list if the number of markers is less than the number of slides uploaded.



6 Dialing in to the Content Server

Users can record their calls by dialing in to the Content Server from H.323 devices. Depending on the options of the Content Server, up to 5 lines can be used to record calls. Each of these lines will have its own unique H.323 ID or E.164 alias that users can dial (this feature requires a gatekeeper).

Once connection to the Content Server has been established, a “Recording in progress” logo will be displayed to the endpoint. Calls made from endpoints to the Content Server are recorded from the moment that a connection to the Server has been established.



All incoming ad hoc calls can be password-protected by default. To enable this function, the administrator needs to select **Password protection (for incoming ad-hoc calls)** in the Line Settings menu for each line that password protection is required.

| Transcoding Line Properties | |
|-----------------------------|---|
| H.323 ID | <input type="text" value="TCSLine01"/> |
| E.164 Alias | <input type="text" value="05001"/> |
| Password protection | <input checked="" type="checkbox"/> (for incoming ad-hoc calls) |

If password protection is enabled, users will need to enter a password to view incoming calls live and on-demand.

Administrators (and conference owners) can copy and paste the password for the conference from the Conference Edit page and email it to the users with the conference URL. The password is not automatically included in the email for security reasons.

The screenshot shows a web interface for editing a conference. The main heading is "Dialed In Conference". Below it is a section titled "Conference Information" containing several form fields:

| | |
|-------------|---|
| Title | Dialed In Conference |
| Description | <input type="text"/> |
| Keywords | <input type="text"/> |
| Date | 2005-12-20 13:54:34 |
| Copyright | <input type="text"/> |
| URL | http://10.64.1.62/tcs/?id=F3EF9536-1D48-4E75-BA3D-A76DF101FD4A Watch Email |
| Password | XgzVcaruPh |
| Owner | Administrator |

In the original image, the "Password" field and the "Email" button are highlighted with red rectangular boxes.

6.1 Scheduling a Call with TMS

To schedule a call, go to the **Book Meeting Room** screen in TMS.

Fill in the fields for the meeting room booking with:

- Conference Title
- Date of the booking
- Room to be used
- Start and End time of the meeting.

To Record and Stream the Conference, select the '**Record and Stream Conference**' checkbox and then **CONFIRM** the details on the screen.

Book Meeting Room My Conferences Log Out

Confirm booking

Conference title
TMS Meeting

Date
01.11.2005 13:55

| Rooms | Start time (Local time) | End Time (Local time) |
|-----------------|-------------------------|-----------------------|
| magnus.rekkedal | 13:55:00 | 14:25:00 |
| carl.aaby | 13:55:00 | 14:25:00 |
| | | |
| | | |

Record and Stream Conference Advanced

PREVIOUS CANCEL CONFIRM

TANDBERG Scheduler 1 2 3 4 [Lars Hiim](#)

You will be prompted with a message if the date and time for the conference in the room you specify conflicts with another meeting.

If so, please choose a different location/date/time combination.

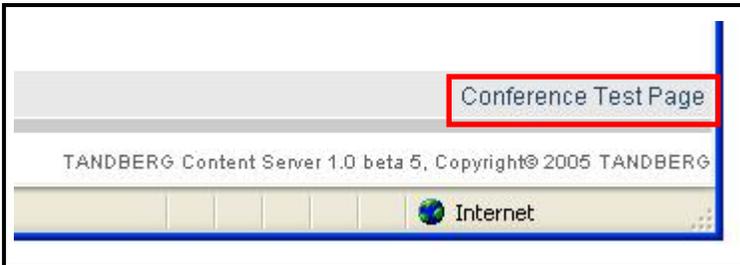
7 Viewing Content

Users can access a list of available conferences and access the public conferences. They can also access password protected conferences if the administrator or owner has emailed them the password for the conference.

A user's view may look similar to this:

The screenshot displays the TANDBERG Content Server interface. At the top left, the logo 'TANDBERG Content Server' is visible. On the top right, there are links for 'Administration' and a 'Log in' button. Below the header, a breadcrumb trail reads 'You are here: Conferences > Recorded Conferences'. The main content area is titled 'Recorded Conferences' and includes a search bar with 'Search' and 'Clear' buttons. Below the search bar, there are controls for 'Sort by' (set to 'Creation date') and 'Go to page' (with a list of page numbers 1-10 and a 'Next 10' button). A 'View Titles' button is also present. The conference list contains five entries, each with a title, date, time, duration, and icons for various file formats (e.g., 56K, 384K, Real, Windows). The entries are: 'Video conference to Oslo', 'Roadmap meeting' (with a sub-note 'Multisite videoconference'), 'Management meeting', 'Streaming demo for the Macintosh', and 'Competitive info discussion'. At the bottom right of the page, it says 'Conference Test Page'.

7.1.1 Conference Test Page



Click on the Conference Test Page at the bottom right of the screen to check the ability of your screen, browser and plug in settings to view conferences.

Example screen display

A screenshot of the "Conference Test Page" results. The page title is "Conference Test Page". The results are as follows:

| | |
|--|---------------------------------|
| JavaScript | version 1.3 |
| Browser | Microsoft Internet Explorer 6.0 |
| Screen resolution at least 1024 x 768 | Yes (1400 x 1050) |
| Pop-ups | Allowed |
|  Windows Media plugin | Yes |
| Windows Media supported in this browser | Yes |
| Check streaming movie in Windows Media Player | View |
|  Real Media plugin | Yes |
| Real Media supported in this browser | Yes |
| Check streaming movie in Real Media Player | View |
|  QuickTime plugin | Yes |
| QuickTime supported in this browser | Yes |
| Check streaming movie in QuickTime Player | View |

You will be able to successfully view conferences.

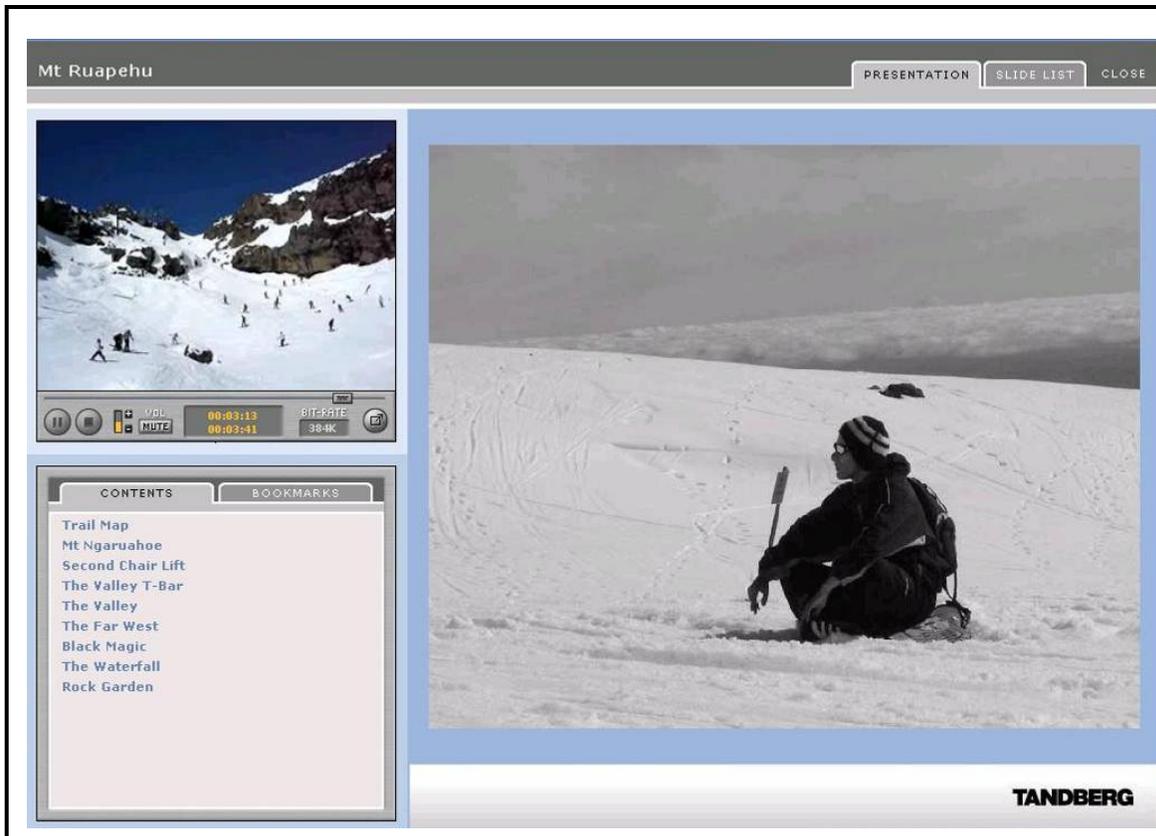
To check the streaming movie in your browser, click View next to the Player you have installed.

7.1.2 The Content Viewer

To access the content viewer, click on one of the displayed bit rates for the conference.

Dialed In Conference  56K 384K

Date: 2005-12-16 **Time:** 17:00:24 **Duration:** 00:00:39



The Content Window has three parts

- 1) The video display in the top left hand corner of the window
- 2) The public and private indexing underneath the video display
- 3) The presentation of slides or graphics, in the right hand side of the window.

7.1.3 The Video Display



Bit-Rate: 384Kbytes

128Kbytes

56Kbytes

Size: 320X240

240X180

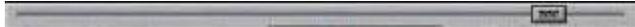
160X120

The video can be displayed in a number of different sizes.

The example shows three different bit-rates with their recommended sizes for the videos.

7.1.4 The Video Controls

7.1.4.1 The Slide Bar



The **Slide Bar** shows:

- the progress of the video downloading,
- the position where the video is playing and
- a controller you can move to any position in the video.

There are two ways that the videos can be viewed.

1. The whole video is downloaded to your computer (pseudo-streaming)
The yellow line in the Slide Bar shows you the download progress. When the video has completely downloaded, it is ready for you to play by moving the slider or clicking on any item in the Table of Contents.
You can still start playing the video before it is completely downloaded but you can only move the slide bar to any position on the yellow line.
- 2) The video is streamed (true streaming)
The yellow line will not be displayed in this case.
You can move the controller to any part of the video to view it. The video will stop, load the requested part of the video to your browser (called 'buffering') and then begin playing.
You can also click on an item in the Index to view the video from that location.

7.1.4.2 Play and Pause



Click the play button and the presentation will play from the current position of the slider. If the video is playing, click the pause button to halt the video at its current position.

7.1.4.3 Audio



The **sound** level controller is for muting and adjusting the volume of the video. Click on the MUTE button to toggle the volume on and off.

To increase the volume click **+** and click **-** to decrease the volume.

Note: Please check your computer's audio level if no sound can be heard.

7.1.4.4 Time Display



The yellow numbers on the **time indicator** display:

- Left: the time elapsed from the start of the video
- Right: the total length of the video.

The format of the time display is *hours: minutes: seconds*.

7.1.4.5 Bit rate:



The number displayed beneath the Bit-rate e.g. 384K is the current **download speed** of the video that is displayed on the screen.

To choose another speed, click the speed displayed and choose another one.



The video will select the new format and start playing from the position you were at with the previous video.

Note: The higher the number, the better the quality but the file size is bigger and the video may also take longer to display, due to data buffering on the server.

7.1.4.6 Image size



If you have selected a video download option that is not the largest size of 320 X 240 pixels, the video will be displayed inside the player and not fill up the window.



To increase the display size, click on  as displayed.
Click  to restore to the original size of the video.

Note: The image quality will be reduced if you increase the display size.

Example shows a 56KByte video at size 160 X 120 increased to 320 X 240



Note the decrease in picture quality when the video is enlarged.

7.1.4.7 Index



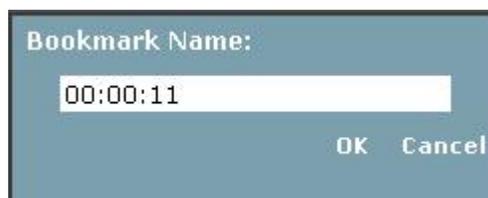
The Content Viewer contains two indexes. The **Index** are the shared indexes for the presentation being played and the **Bookmarks** are the individual indexes for any user.

Index: The items in the index can only be changed by the owner of the conference.

By clicking an item in the Index, the video will move and start playing at that reference and display the corresponding slide.

Bookmarks: To access your own bookmarks for a conference, click the Bookmarks tab at the top. Click on any of your bookmarks and the video will begin playing from this point and the corresponding slide in the presentation will be displayed.

To create your own Bookmark, click on the **Add Bookmark** button.

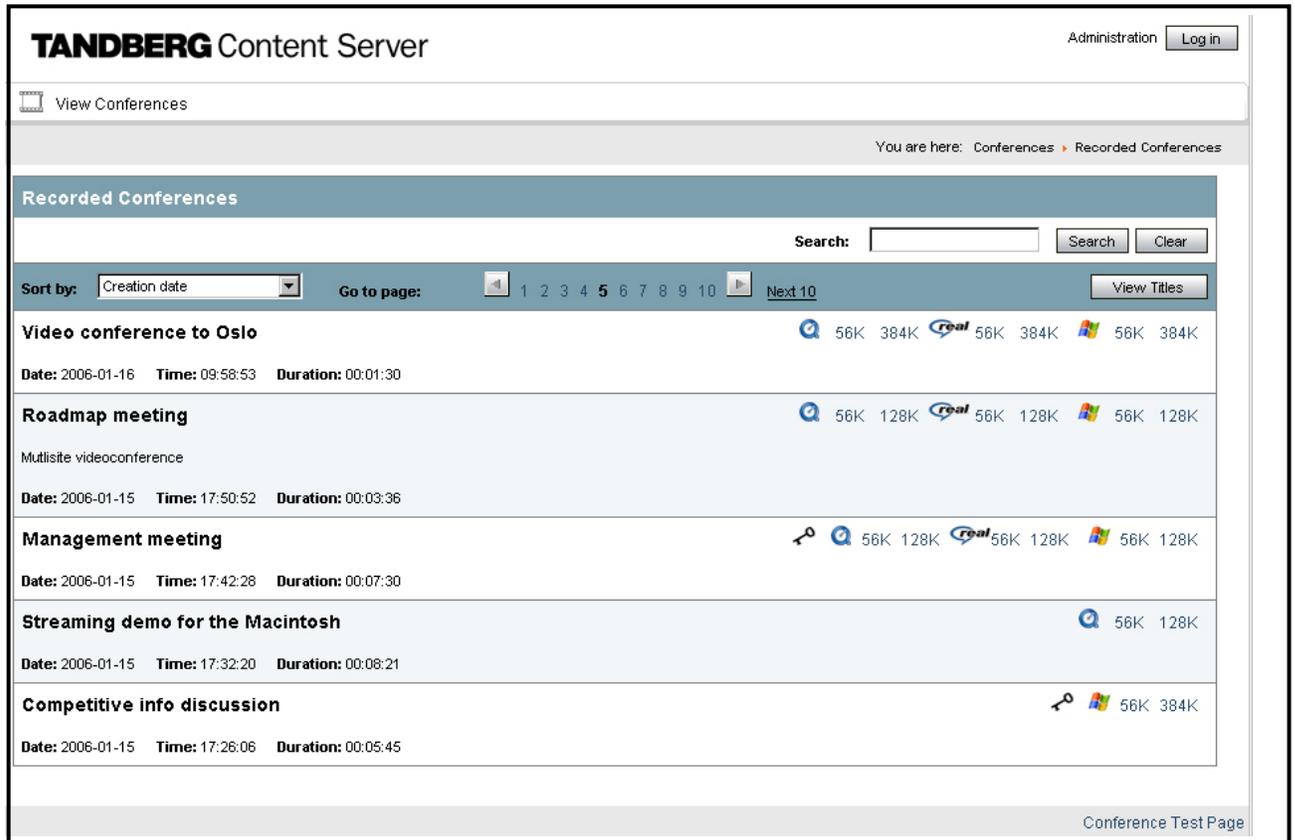


Replace the time displayed with an appropriate name for your personal bookmark.

Bookmarks are stored as cookies in your web browser, so using bookmarks requires that cookies are allowed (enabled) in your web browser. This also means that your bookmarks will only be available from the computer you created them with.

7.1.5 Conference Views

Users of the system will see a view of the recorded conferences when they first enter the conference screen.



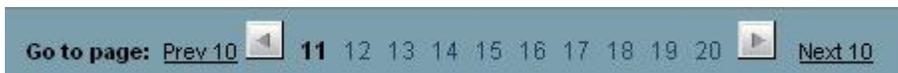
The screenshot displays the TANDBERG Content Server interface. At the top left, it says "TANDBERG Content Server" and at the top right, there are links for "Administration" and "Log in". Below this is a breadcrumb trail: "View Conferences" and "You are here: Conferences > Recorded Conferences". The main content area is titled "Recorded Conferences" and features a search bar, a "Sort by:" dropdown menu set to "Creation date", and a "Go to page:" navigation bar with links for pages 1 through 10 and a "Next 10" link. A "View Titles" button is also present. The list of conferences includes:

- Video conference to Oslo**: Date: 2006-01-16, Time: 09:58:53, Duration: 00:01:30. Includes icons for 56K, 384K, Real, 56K, 384K, and Windows.
- Roadmap meeting**: Date: 2006-01-15, Time: 17:50:52, Duration: 00:03:36. Includes icons for 56K, 128K, Real, 56K, 128K, and Windows. Description: Multisite videoconference.
- Management meeting**: Date: 2006-01-15, Time: 17:42:28, Duration: 00:07:30. Includes icons for a key, 56K, 128K, Real, 56K, 128K, and Windows.
- Streaming demo for the Macintosh**: Date: 2006-01-15, Time: 17:32:20, Duration: 00:08:21. Includes icons for 56K and 128K.
- Competitive info discussion**: Date: 2006-01-15, Time: 17:26:06, Duration: 00:05:45. Includes icons for a key, Windows, 56K, and 384K.

At the bottom right of the interface, it says "Conference Test Page".

They will be initially sorted by the Conference Date with the most recent conferences first.

As the number of conferences increase, the screens will be displayed in groups of 10 with links to view the previous and next group as below.



The screenshot shows a "Go to page:" navigation bar. It includes a "Prev 10" link, a left arrow icon, the page number "11" (which is highlighted), and page numbers "12", "13", "14", "15", "16", "17", "18", "19", "20". To the right of "20" is a right arrow icon and a "Next 10" link.

Click on the **Prev 10** and **Next 10** links to move between the conferences in groups of 10.

7.1.5.1 Sorting Conferences

To sort all the conferences in a different order, click the arrow of the pull-down menu as shown to display other sort options. Choose from the list.



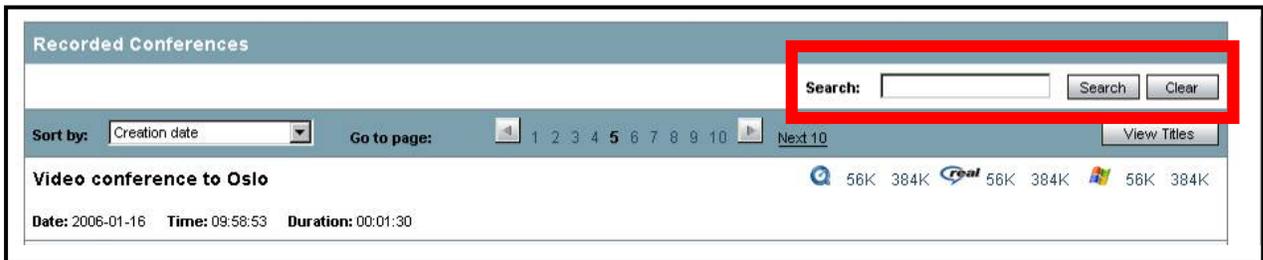
7.1.5.2 Searching for Conferences

Conferences can be searched by Title, Description and Keywords.

To search for a conference, enter the search criteria in the search field and click on the **Search** button.

The conference list will show only those conferences that match your search criteria.

Click the **Clear** button will return all the conferences in the list to you.



The screenshot displays a web interface for 'Recorded Conferences'. At the top, there is a search bar with the label 'Search:' and two buttons: 'Search' and 'Clear'. Below the search bar, there is a 'Sort by:' dropdown menu set to 'Creation date', a 'Go to page:' section with a list of page numbers (1-10) and a 'Next 10' button, and a 'View Titles' button. The main content area shows a conference entry titled 'Video conference to Oslo'. Below the title, there are three icons with associated file sizes: a blue icon (56K 384K), a 'Real' logo (56K 384K), and a Windows logo (56K 384K). At the bottom of the entry, the date is '2006-01-16', the time is '09:58:53', and the duration is '00:01:30'.

7.1.5.3 Conferences Views

The three types of conference views are recorded, live and scheduled.



Recorded Conferences

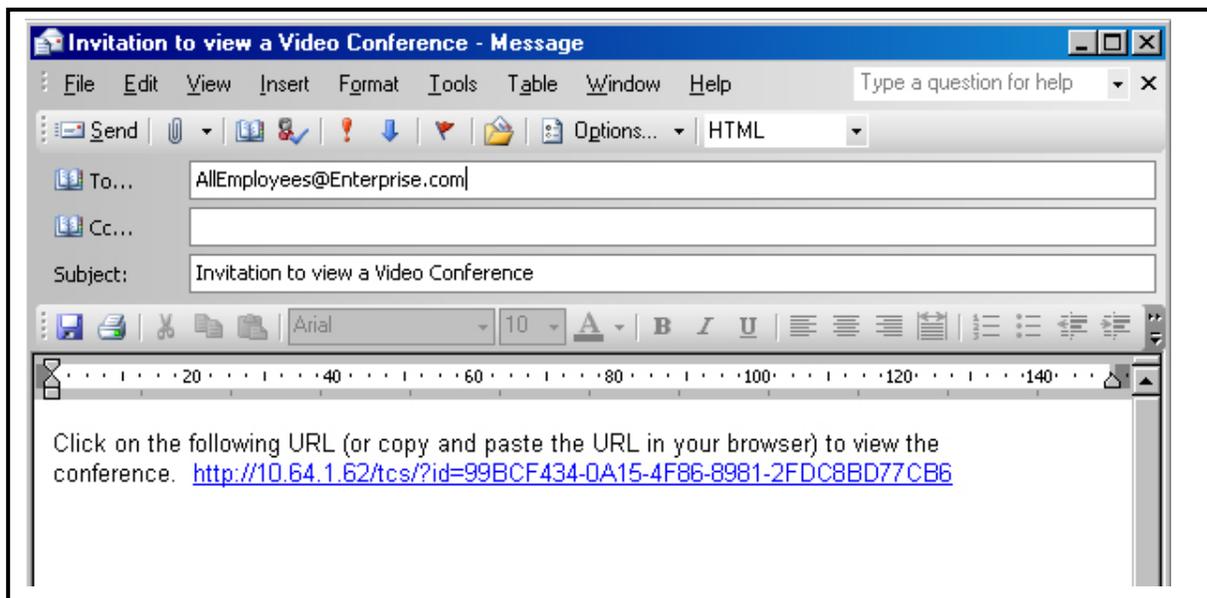
These conferences were live but have been recorded and are now viewable at any time.

To view one of the types of conferences, click on the "View Conferences" text link and choose from the list.

Live Conferences

They are occurring at the current time.

Users can receive an e-mail with a URL link to view the Conference



Or can click the link provided in the list of current conferences.

Note: If the live conference finishes while you are watching it, close the window and reopen it to watch the conference again, presuming the live conference was recorded.

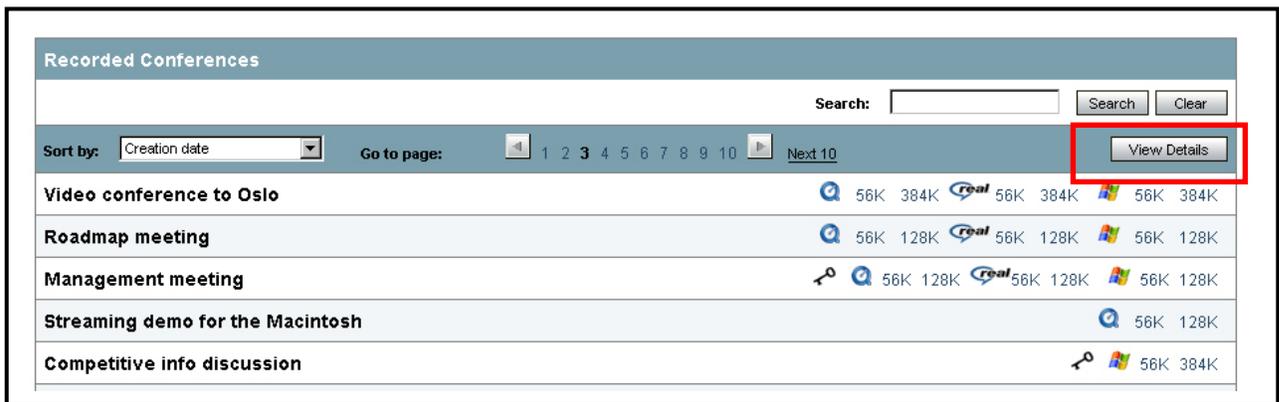
Scheduled Conferences

Happen at a later date. There is no conference content to view but the title, description and scheduled date and time will be displayed.

7.1.5.4 Titles and Details

By default, conferences will show their titles and description details.

Click the **“View Titles”** button to see the titles without the descriptions.



The screenshot shows a web interface titled "Recorded Conferences". At the top right, there is a search bar with a "Search" button and a "Clear" button. Below the search bar, there is a "Sort by:" dropdown menu set to "Creation date" and a "Go to page:" section with a pagination control showing pages 1 through 10, with "Next 10" and a "View Details" button highlighted with a red box. The main content area displays a list of five conference entries, each with a title and associated icons and file sizes:

| Conference Title | Icons | File Sizes |
|----------------------------------|---------------------------|------------------------------|
| Video conference to Oslo | Zoom, RealPlayer, Windows | 56K 384K, 56K 384K, 56K 384K |
| Roadmap meeting | Zoom, RealPlayer, Windows | 56K 128K, 56K 128K, 56K 128K |
| Management meeting | Zoom, RealPlayer, Windows | 56K 128K, 56K 128K, 56K 128K |
| Streaming demo for the Macintosh | Zoom | 56K 128K |
| Competitive info discussion | Zoom, Windows | 56K 384K |

Click the **“View Details”** button to restore the view to show the descriptions.

7.1.5.5 Access to a Recorded Conference

Each recorded conference will have details displayed of the player type and the bit rates that can be viewed.

Conferences may be available in a range of player formats:

| | |
|---|----------------------|
|  | Windows Media Player |
|  | QuickTime |
|  | RealPlayer |

Your browser needs to be set-up correctly for you to view a conference using either player. Please see your systems administrator if you are unsure of how your computer is set-up.

You may also have a number of bandwidth options: **56K** - dial up modem, **128K** – broadband connection, or **384K or higher** - high speed network.

To access a conference, click on one of the Bit Rates displayed next to the codec.

To access the content viewer, click on one of the displayed bit rates for the conference.

| | |
|---|--|
| Dialed In Conference |  56K 384K |
| Date: 2005-12-16 Time: 17:00:24 Duration: 00:00:39 | |

8 Appendices

Appendix 1 – LED panel menu structure

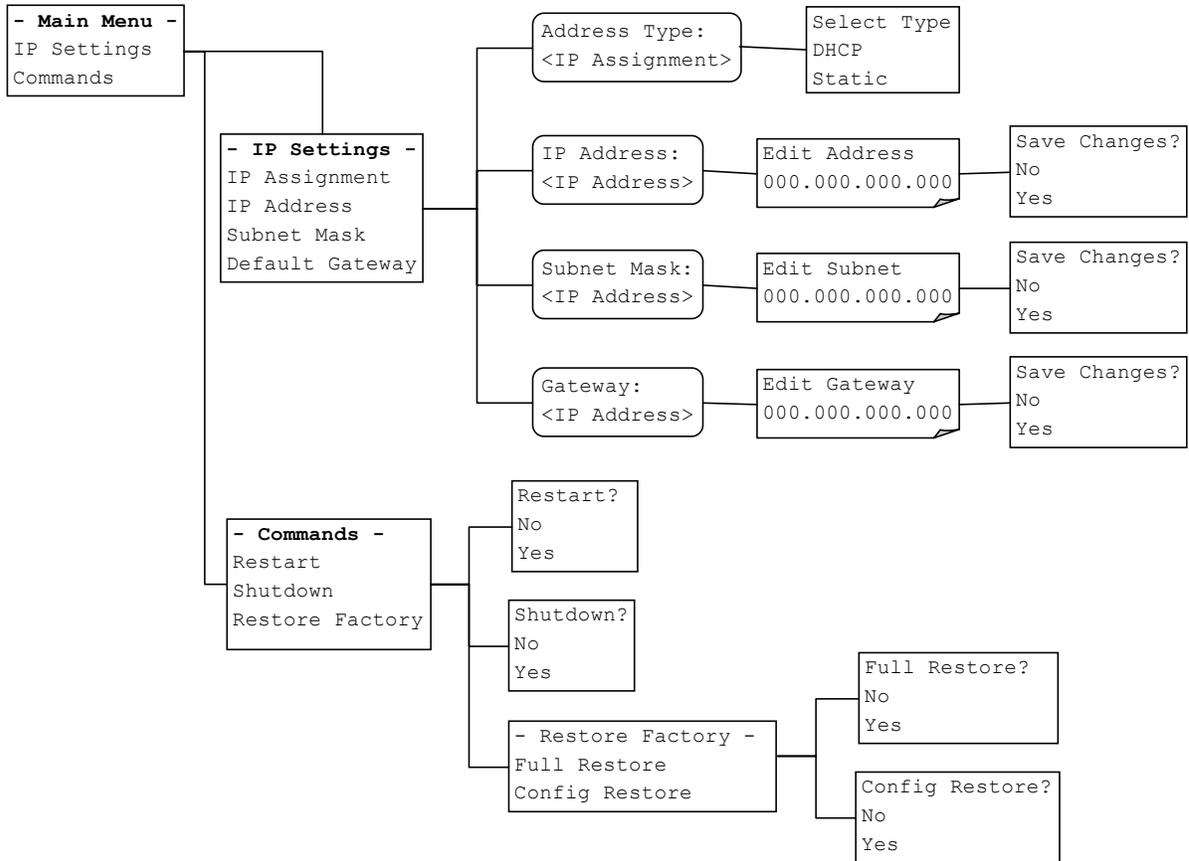
Appendix 2 – Compatibility

Appendix 3 – Troubleshooting guide

Appendix 4 – Example XML File

Appendix 5 – TANDBERG Content Server port assignment

Appendix 1 – LED panel menu structure



Appendix 2 – Compatibility

| Platform | <p>1. Check the platform, browser and browser version, then select the appropriate streaming format for content creation and playback as per the compatibility matrix below:</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|---|-----------|---------------|------------|---------------|------------|-----|----------------------|-----|----|----|-------------|-----|-------------|-----|-----|--------------|-----|-----|-----|----------------|-----|-----|-----|----------------------------|-----|-----|-----|-----------------------|-----|-----|-----|
| Browser version | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Streaming content format | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>OS</th> <th>Browser</th> <th>QuickTime</th> <th>Windows Media</th> <th>Real Media</th> </tr> </thead> <tbody> <tr> <td rowspan="3">MAC</td> <td>Netscape 7.1 and 7.2</td> <td>Yes</td> <td rowspan="3">No</td> <td rowspan="3">No</td> </tr> <tr> <td>Mozilla 1.7</td> <td>Yes</td> </tr> <tr> <td>FireFox 1.0</td> <td>Yes</td> </tr> <tr> <td rowspan="4">WIN</td> <td>Netscape 7.2</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>Mozilla 1.7.12</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>FireFox 1.0.7²</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>Internet Explorer 6.0</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> </tr> </tbody> </table> | OS | Browser | QuickTime | Windows Media | Real Media | MAC | Netscape 7.1 and 7.2 | Yes | No | No | Mozilla 1.7 | Yes | FireFox 1.0 | Yes | WIN | Netscape 7.2 | Yes | Yes | Yes | Mozilla 1.7.12 | Yes | Yes | Yes | FireFox 1.0.7 ² | Yes | Yes | Yes | Internet Explorer 6.0 | Yes | Yes | Yes |
| OS | Browser | QuickTime | Windows Media | Real Media | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MAC | Netscape 7.1 and 7.2 | Yes | No | No | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Mozilla 1.7 | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | FireFox 1.0 | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WIN | Netscape 7.2 | Yes | Yes | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Mozilla 1.7.12 | Yes | Yes | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | FireFox 1.0.7 ² | Yes | Yes | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Internet Explorer 6.0 | Yes | Yes | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Player version | <p>2. Recommended player versions:</p> <p>2.1. For Windows Media content, use Windows Media Player 6.4, 9.x or 10.x³</p> <p>2.2. For Real Media content, use RealPlayer™ One</p> <p>2.3. For QuickTime content, use QuickTime 6 or higher</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes on compatibility:

| | |
|---------------------------------|--|
| Platform | Windows |
| Browser version | Mozilla, Firefox (all versions) |
| Streaming content format | Windows Media content from transcoding lines (WMV format) and archiving lines (ASF format) |

² The viewer won't work in Firefox 1.5 as there has been no ActiveX plugin built for the FF1.5 release yet.

³ Windows Media 7.x and 8.x players do not support H.263 format playback, therefore users cannot use these players for viewing content created with non-transcoding lines (original conference format wrapped in an asf container).

Mozilla and Firefox browsers require ActiveX control plugin to be installed to display the movies in Windows Media WMV and ASF formats.

Download Active X control plugin from

<http://www.iol.ie/~locka/mozilla/plugin.htm#download>

ActiveX plugin are browser-version specific. If users download the wrong version of the plugin, this can break their browser.

Platform

Windows

Browser version

Internet Explorer (all versions)

Streaming content format

Windows Media content from original lines (ASF format)

Internet Explorer requires the Intel I263 codec to be installed to play back content from archiving lines in the ASF format.

Download Intel I263 codec from

<http://www.wmplugins.com/ItemDetail.aspx?codec=I263>

Download: codinstl.exe

Ver:1.0

Date:4/26/1999

Size:1817 (KB)

Time @56Kbps:4.21 min

OS:Windows* 2000, Windows* 95, Windows* 98, Windows* 98 SE, Windows* Me, Windows* XP Home Edition, Windows* XP Professional

Appendix 3 – Troubleshooting guide

Dialing out from the Content Server interface - Create Conference

| Message | Solution |
|--|--|
| Please enter an address for your call. | Ensure that you have typed a valid IP address, H.323 ID or E.164 alias address in the Call Information: Address field |
| Call State: PARTY_NOT_REGISTERED | Check that the IP address, H.323 ID or E.164 alias address you have typed in the Call Information: Address field is valid and that the device you are trying to dial is registered to the gatekeeper. |
| Call State: Not in call | Your call has not been connected. This could be due to a number of reasons. Check that the IP address, H.323 ID or E.164 alias address you have typed in the Call Information: Address field is correct. |
| You cannot make a call on Line [x] as it is already in a call | Your call could not be connected, as the line you were trying to call is busy. You can try again later, or dial another line, if it is available. |
| Call State: IN_CONFERECE | Occurs when an invalid IP address is dialed. |

Content Library – Live Conferences

| Message | Solution |
|------------------------------|--|
| Recording in progress | If you go to a Live Conferences view in the Content Library and Recording in Progress message is displayed instead of movies, that means that the template attached to this line does not allow for live streaming of the conference. This is the case for all QuickTime format content, which can only be viewed on-demand from the Content Server. QuickTime format content from Archiving lines can be viewed live, if streamed from an external streaming server. |

Content Viewer

| Message | Solution |
|--|---|
| Video stopped Black video display | If video is not displayed, your browser may not have the required plug-in or may be unsupported. For a list of supported browsers and player versions, view Appendix 3. |

Site Settings

| Message | Solution |
|---|---|
| The TANDBERG Content Server service is not responding, please restart the service remotely or via the appliance front panel. | The Server is not responding and has not for some reason restarted the service automatically. The administrator needs to restart the service via remote desktop or the LCD panel. |

Appendix 4 - Example XML File

An example of a XML file for a Transcoding Line template which results in three formats at two bitrates each (six outputs).

```
<job title="TCS Triple Play Default" readonly="true" job_description="TCS Default three format triple play">
  <writer writer_codec="WindowsMedia"
    profile_filename="WM8_56k.prx"
    audio_only="false"
    streaming_path="mms://(local)/56k"
    on_demand_path="mms://(local)/"
    on_demand_output="file"
    source="normal"
    title="WindowsMedia Writer"
    picture_in_picture="false"
    pip_location="topright">
    <output type="serverpush"
      filename_base="56k"
      server_name="(local)"
      port="8080"
      publishing_point_copy=""
      username=""
      password=""
      title="Serverpush Output"/>
    <output type="file"
      directory="E:/data/media"
      filename_base="56k_"
      title="File Output"/>
  </writer>
  <writer writer_codec="WindowsMedia"
    profile_filename="WM8_384k(15fps).prx"
    audio_only="false"
    streaming_path="mms://(local)/384k"
    on_demand_path="mms://(local)/"
    on_demand_output="file"
    source="normal"
    title="WindowsMedia Writer"
    picture_in_picture="false"
    pip_location="topright">
    <output type="serverpush"
      filename_base="384k"
      server_name="(local)"
      port="8080"
      publishing_point_copy=""
      username=""
      password=""
      title="Serverpush Output"/>
    <output type="file"
      directory="E:/data/media"
      filename_base="384k_"
      title="File Output"/>
  </writer>
  <writer writer_codec="Real"
    on_demand_path="http://(local)/tcs/data"
    on_demand_output="file"
    source="normal"
    picture_in_picture="false"
    pip_location="topright"
    title="RealMedia Writer 56k"
    video_width="160"
    video_height="120"
    profile_filename="56k Dial-up.rpad"
```

```

        audio_only="false">
    <output type="file"
        directory="E:\data\www"
        filename_base="56k-" />
</writer>
<writer writer_codec="Real"
    on_demand_path="http://(local)/tcs/data"
    on_demand_output="file"
    source="normal"
    picture_in_picture="false"
    pip_location="topright"
    title="RealMedia Writer 384k"
    video_width="320"
    video_height="240"
    profile_filename="384k DSL or Cable.rpad"
    audio_only="false">
    <output type="file"
        directory="E:\data\www"
        filename_base="384k-" />
</writer>
<writer writer_codec="Quicktime"
    profile_filename="QT6_56k.xml"
    audio_only="false"
    streaming_path=""
    on_demand_path="http://(local)/tcs/data"
    source="normal"
    title="QuickTime Writer"
    picture_in_picture="false"
    pip_location="topright">
    <output type="file"
        directory="E:/data/www"
        filename_base="56k-"
        title="File Output"/>
</writer>
<writer writer_codec="Quicktime"
    profile_filename="QT6_384k.xml"
    audio_only="false"
    streaming_path=""
    on_demand_path="http://(local)/tcs/data"
    source="normal"
    title="Quicktime Writer"
    picture_in_picture="false"
    pip_location="topright">
    <output type="file"
        directory="E:/data/www"
        filename_base="384k-"
        title="File Output"/>
</writer>
</job>

```

Appendix 5 – TANDBERG Content Server port assignment

Ports used by the TANDBERG Content Server:

| | |
|---|--|
| Content Library and Viewer: | HTTP 80, HTTPS 443 |
| Windows Admin Web Interface: | HTTP 8099, HTTPS 8098 |
| Windows Media Server Web Admin: | HTTP 8097, HTTPS 8096 |
| Windows Media Services: | Push HTTP 8080 RTSP 554 MMS 1755 |
| Internal XMLRPC communication to the Content Server H.323 client | HTTP 8008 |
| Video conferencing to H.323 endpoints: | RAS UDP 1719 Listen Port 1720 Gatekeeper discovery UDP 1718 |
| | Configurable TCP ports for media Configurable UDP ports for media |