

# TANDBERG

## Movi 3.0

### Administrator guide

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# Introduction

This guide provides the IT administrator with comprehensive information on the capabilities of Movi and how Movi works. Understanding the information in this guide will allow you to take full advantage of what Movi has to offer.

Many of the capabilities in Movi emerge from the interaction between Movi and the TANDBERG infrastructure, primarily TANDBERG VCS, TMS and the TMS Agent, which is the provisioning option on the TMS and VCS. It is assumed that the reader of this guide is familiar with these products and possesses basic knowledge of video communication.

## Related documents

More relevant documentation can be found on the TANDBERG website::

- ▶ [All current Movi and provisioning documentation](#)
- ▶ [VCS Administrators Guide](#) – details the available functionalities in the VCS.
- ▶ [TANDBERG Knowledge Base](#) – search and find answers to frequently asked questions.
- ▶ [TANDBERG Movi Troubleshooter](#) – solutions to problem scenarios.

## Prerequisites

### Video conferencing infrastructure

Movi requires the provisioning option on the VCS and the TMS to be enabled. Provisioning was introduced in TMS 12.1 and VCS X4.1.

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**Tip:** While Movi is backwards compatible to work with TMS 12.1 and VCS X4.1, TANDBERG recommends that you upgrade to the latest software for Movi to be able to make the most of its capabilities.

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### End-user system requirements

To run the Movi client, users require a PC with:

- ▶ Processor: Any processor supporting SSE2 (such as Pentium IV) or better
- ▶ Memory: 512MB RAM or more
- ▶ Operating System: Windows XP SP2 and later, Windows Vista, or Windows 7
- ▶ Connection: IP network connection (broadband, LAN, wireless). At least 24 kbps is required for an audio connection
- ▶ Graphics card:  
OpenGL version 1.2 or better. See also [this FAQ article on upgrading OpenGL](#).  
Hardware support for DirectX8 or higher. See also [this FAQ article](#).
- ▶ Sound card: Full-duplex, 16-bit or better

### Multimedia device requirements

#### Microphone

All microphones work well with Movi. Note that some cameras have built-in microphones.

#### Camera

Movi works with most common web cameras. For more information, see the FAQ article: [What cameras have been tested with Movi?](#)

## Deploying and upgrading Movi

This section describes the process of deploying and upgrading the Movi client and details the pre-configuration options that are available and the settings required for Movi to operate.

It is expected that prior to this stage, the TMS and VCS have been set up and configured appropriately for provisioning; see the [Provisioning Deployment Guide](#) available on the TANDBERG web site for more information about configuring TMS and VCS to provision Movi.

### Obtaining the setup files

When a new version of Movi is available, you will get a TMS ticket if:

- ▶ Automatic check for updates is enabled. To do this:
  1. Go to **Administrative Tools > Configuration > Network Settings**
  2. Under **Automatic Software Update**, set **Automatically Check for Updates** to Yes.
- ▶ TMS Agents are enabled. To do this:
  1. Go to **Administrative Tools > Configuration > General Settings**
  2. Set **Enable TMS Agents** to Yes.

The description field of the TMS ticket includes a link to download a zip file containing a Movi.msi and a MoviSetup.exe file. The Movi.msi is supplied for companies that would like to prepare their own installer. The MoviSetup.exe file is a ready-made installer containing the Movi.msi file.

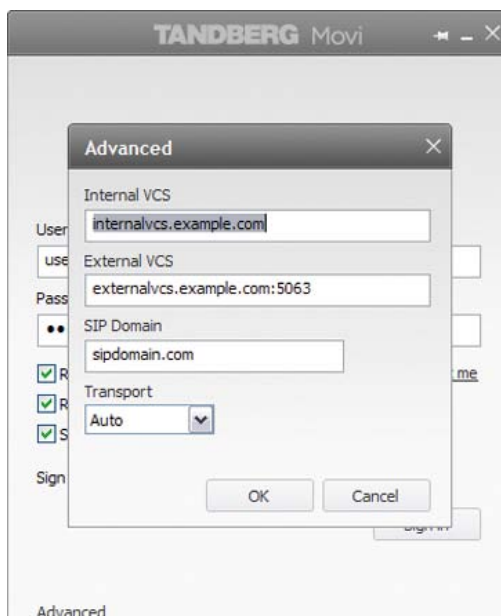
### Configuring the client

This section describes ways to configure Movi and details the available and recommended settings.

TANDBERG recommends that you create an installation file that will install Movi with the **Advanced** settings pre-configured. However, it is of course also possible to use the MoviSetup.exe file supplied by TANDBERG to install Movi and then manually configure the **Advanced** settings.

### Advanced settings

The four settings that are accessed by clicking the **Advanced** link in Movi's sign-in window are all related to network communication.



Setting	Description
<b>SIP Domain</b>	This should be identical to the SIP domain configured on the VCS. <b>VCS configuration &gt; Protocols &gt; SIP &gt; Domains</b>
<b>Internal VCS</b>	The DNS address of the VCS Control cluster you want Movi to connect to. Movi will always look for this address first when connecting.  It is possible to specify which port on the VCS Movi should connect to. For example InternalVCS.example.com:5063.
<b>External VCS</b>	The DNS address of the VCS Expressway cluster you want Movi to connect to. If Movi fails to connect to the <b>Internal VCS</b> , it will try this address.  It is possible to specify which port on the VCS Movi should connect to. For example ExternalVCS.example.com:5063
<b>Transport</b>	Determines the transport layer used when connecting to the VCS. The options available are <i>Auto</i> , <i>TLS</i> , and <i>TCP</i> . See the section Encryption for more information.

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**Note:** If one or more of these settings are provisioned by the TMS Agent, the provisioned settings will override the locally configured settings.

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## Using DNS

Movi can use IP or DNS addresses to locate the VCSs.

Using DNS addresses offers advantages such as:

- ▶ Redundancy – if you have more than one VCS, using a DNS that translates to the IP address of all VCSs will enable Movi to “fail over” to other VCSs in case of a fault in one VCS.
- ▶ Location awareness – for global companies, it is possible to configure the DNS servers so that Movi will be directed to the “local” VCS wherever it may be.
- ▶ Flexibility – using DNS makes it possible to change the IP address of your VCS later on.

Movi also supports DNS SRV records, which allow for even greater redundancy and flexibility because they contain information such as “Priority” and “Weight”.

## Pre-setting the Movi client with registry files

Movi can be pre-configured by setting the Movi registry files, which are located at:

- ▶ HKEY\_LOCAL\_MACHINE\Software\TANDBERG\Movi\2.0 – default settings for all users
- ▶ HKEY\_CURRENT\_USER\Software\TANDBERG\Movi\2.0 – settings for a specific user

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**Note:** The paths for Movi 2.x and 3.0 are the same. This means that if you are upgrading to Movi 3.0 from Movi 2.x, there is no need for you to set the registry files again.

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The following is an example of how to set the registry files:

```
Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\Software\TANDBERG\Movi\2.0]

"InternalVcs"="internal.provserver.com"
"ExternalVcs"="external.provserver.com"
"Domain"="example.com"
```

## Pre-setting the Movi client by running MsiExec.exe with special arguments

Any installer needs to run MsiExec.exe in order to install the Movi client. In addition to the arguments that are innate in MsiExec.exe, there are also special arguments that can be given to MsiExec.exe and pre-set the Movi client.

Argument	Description
DOMAIN	Corresponds to <b>SIP Domain</b> in Movi's <b>Advanced</b> settings
EXTERNALVCS	Corresponds to <b>External VCS</b> in Movi's <b>Advanced</b> settings
INTERNALVCS	Corresponds to <b>Internal VCS</b> in Movi's <b>Advanced</b> settings.
ENCRYPTIONPOLICY	Corresponds to <b>Transport</b> in Movi's <b>Advanced</b> settings.
HIDEADVANCEDLOGIN	A value of 1 hides the <b>Advanced</b> settings link in the Movi client. TANDBERG recommends using this setting so that end users will not be able to make changes to the <b>Advanced</b> settings
USEWINDOWSUSERNAME	A value of 1 has the following effects: <ul style="list-style-type: none"> <li>• Movi uses the current Windows user's logon name as username</li> <li>• The <b>Username</b> and <b>Password</b> fields are disabled.</li> <li>• The Remember my Username/Password check boxes in the login window are selected and disabled.</li> <li>• The <b>Forget me</b> link is disabled.</li> </ul> For information on how to disable authentication on the VCS and TMS Agent, contact your TANDBERG support agent.

## Passing arguments to MoviSetup.exe

The MoviSetup.exe file supplied by TANDBERG is a basic InstallShield-generated installer.

MoviSetup.exe can be run with standard InstallShield arguments, such as

- ▶ /s for a silent install
- ▶ /x for performing an uninstall

MoviSetup.exe can also be run with arguments on the format /v"<arguments>". MoviSetup.exe will then run MsiExec.exe with these arguments.

A /v option argument on the form `UPPERCASE=value` will set the "UPPERCASE" property to that value.

For example, from the command line or script, run:

```
MoviSetup.exe /s /v"/qn DOMAIN=example.com HIDEADVANCEDLOGIN=1"
```

- ▶ /s is a basic InstallShield command that hides the initialization dialog.
- ▶ /v"arguments" passes the arguments to the MsiExec.exe that is actually performing the install.
- ▶ /qn is a basic MsiExec.exe command, an instruction to install silently.
- ▶ DOMAIN=example.com sets the **SIP Domain** field in the **Advanced** settings of the Movi client to example.com.
- ▶ HIDEADVANCEDLOGIN=1 hides the **Advanced** settings link in the Movi client sign-in screen.

## Distributing and installing the setup file

**Note:** Installing Movi requires administrative rights on the computer. By default, Movi will be installed to %ProgramFiles%\TANDBERG\Movi\.

### New deployment

For new deployments of MOVI, TANDBERG recommends that you use your own deployment tools.

To distribute to end users, you can send a customized email message from TMS:

1. Go to **Systems > Provisioning > Directory**.
2. In the **Workspace** pane, click **Send Account Info**.
3. In the dialog that opens, click **Configure email settings**.
4. Verify that SMTP host, username, and password have been added correctly, or add them yourself.
5. Choose a suitable subject for the email notification.
6. By default, this email message will contain login credentials for Movi and E20. If you want users to download and install Movi themselves, you can add the download link to the same message.

### Upgrading

The process of upgrading Movi is controlled by the IT administrator through two Provisioning options in TMS: Software URL and Software Version. (See the [Provisioning options](#) section for further information.)

Users will then be able to upgrade their own Movi client by clicking a link in the application, which downloads the setup file for the new version.



The method described above presents users with a choice to upgrade their Movi client. If you want to make absolutely sure that all clients are upgraded, you can instead opt to use your deployment tool(s) to force the upgrade.

### File locations

Movi 3 stores its files in the same directories as Movi 2. This allows for upgrading without information loss.

#### Contact information

Movi stores the contact list and the recent calls information at %APPDATA%\TANDBERG\Movi\2.0

For each user signing in, Movi creates a new folder and files; therefore several people can use Movi on the same computer without having access to each others' contact list and recent calls information.

#### Logs

Movi creates logs that can be configured and used for debugging, if necessary. By default, Movi logs very little information. The logs are stored on the client at "`<CSIDL_LOCAL_APPDATA>\TANDBERG\Movi\2.0\Logs\`"

The <CSIDL\_LOCAL\_APPDATA> folder is typically:

- ▶ Windows XP: %USERPROFILE%\Local Settings\Application Data\
- ▶ Windows Vista and Windows 7: %LOCALAPPDATA% (typically %USERPROFILE%\AppData\Local)

The directory is hidden by default.

## Provisioning the client

Upon subscribing to the VCS, the Movi client will receive provisioning information from the TMS Agent and act on it. Provisioning is a powerful tool for the administrator to control the Movi clients. The following table details the provisioning options available, including tips on how they can be used and in which situations.

To access the provisioning configurations, go to **Systems > Provisioning > Directory** and the **Configurations** pane.

The “Default” column in the table below describes how Movi behaves if no specific provisioning information is configured.

Field	Default	Description	Additional information
<b>Encryption</b>	Default behavior depends on the <b>Transport</b> configuration in the <b>Advanced</b> settings of the Movi client, which is <i>Auto</i> by default.	Determines the encryption policy for the account. This configuration affects both the SIP communication (Transport TLS or TCP) and the media communication (SRTP or no SRTP).	See the Encryption section.
<b>Maximum In Bandwidth</b>	512 kbps (adjustable to up to 2014 kbps from within the client)	Determines the maximum bandwidth that can be received/sent by the account. The Movi client will be set to send the provisioned value. With no provisioning, the default starting level is lower than the maximum that can be set by the user.	High bandwidth is directly related to good video quality, but bandwidth control can be useful to prevent a client from trying to receive/send beyond its capacity, as this may result in packet loss, jitter and general low video quality.
<b>Maximum Out Bandwidth</b>	384 (adjustable to up to 2014 kbps from within the client)		
<b>Media Port Range End</b>	21900	The upper/lower bound of the port numbers that that are used in the video and audio communication.	Can be configured to control security/firewall issues.
<b>Media Port Range Start</b>	21000		
<b>Phone Book Uri</b>	If no value is set, the Movi client will not be able to search for contacts.	Enables the account to search for other accounts in the TMS Agent database.	This configuration should be a URI on the following form: phonebook@<sip domain>.com
<b>Presence Server Uri</b>	If no value is set, the Movi client will not be able to publish presence and appear offline.	Enables the account to send presence status.	This configuration should be a URI of the following form: presence@<sip domain>.com
<b>Public Maximum In Bandwidth</b>	Uses the value set for the <b>Maximum In Bandwidth</b> configuration (changes	Determines the maximum bandwidth that can be received/sent by the account after connecting to the external	Useful for controlling the bandwidth of users that connect from outside the company's network.

Field	Default	Description	Additional information
	dynamically).	VCS configured in Movi's Advanced settings.	These users may have slow network connection, or the company may want to limit their bandwidth usage.
<b>Public Maximum Out Bandwidth</b>	Uses value set for the <b>Maximum Out Bandwidth</b> configuration (changes dynamically).		
<b>Public Phone Book Uri</b>	Uses value set for <b>Phone Book Uri</b> (changes dynamically).	Enables the account to search for other accounts in the TMS Agent database after connecting to the external VCS configured in Movi's Advanced settings.	It is sufficient to set the <b>Phone Book Uri</b> configuration.
<b>Public Presence Server Uri</b>	Uses value set for <b>Presence Server Uri</b> (changes dynamically).	Enables the account to send presence status after connecting to the external VCS configured in Movi's Advanced settings.	It is sufficient to set the <b>Presence Book Uri</b> configuration.
<b>Public SIP Server Address</b>	Uses value set for <b>SIP Server Address</b> (changes dynamically).	Address of the server to which the user should send a register request after connecting to the external VCS configured in Movi's Advanced settings.	Generally, this configuration should be the same as the <b>External VCS</b> in the Movi <b>Advanced</b> settings.
<b>Resolution Preferences</b>	High	The highest possible value of the video resolution setting in the Movi client.	Clients using old computers may need to lower the resolution to ensure the Movi client runs smoothly.
<b>SIP Keep Alive Interval</b>	24 seconds	The interval at which SIP Keep Alive messages are sent.	For more information, see the SIP keep alive section.
<b>SIP Server Address</b>	The SIP server (VCS) that the client subscribed to.	Address of the server the user should send a register request to.	Generally, this configuration should be the same as the Internal VCS configuration in the Movi <b>Advanced</b> settings.
<b>Software URL</b>		URL linking to the setup file for the new version of the Movi client. The URL should use HTTP(S).	The combination of these settings allow the administrator to inform the Movi users that a new version of Movi is available, and provide a clickable link from within the Movi client to the setup file.
<b>Software Version</b>		Indicates the version number of the new Movi client (the version that the users will have once they have upgraded). For example, 3.0.5.5287. The version number is indicated both in the release notes and in the <b>About</b> box in Movi's settings.	

## How Movi communicates

Communication in Movi can be divided into two main categories: SIP and media. This section includes general information on these types of communication and is essential for the next section, in which specific messages are described.

### SIP communication

Movi communicates with the VCS using the Session Initiation Protocol (SIP). Subscribing, registering, presence querying, call invites—all communication except video and audio, is done in SIP. SIP messages are sent using TCP, with or without TLS encryption depending on the **Transport** configuration in the **Advanced** settings.

The default SIP listening ports used on the VCS are 5060 (unencrypted) and 5061 (encrypted). These are both configurable. Go to **VCS Configurations > Protocols > SIP > Configuration** to change the listening ports.

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**Note:** If you change the SIP listening port number on the VCS, you must also configure the Movi clients to contact the VCS on this port. See *Advanced settings* for more information.

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Movi itself will use ephemeral TCP ports for this communication. These ports are handed over to the Movi client by the TCP stack and are not configurable.

To enable communication with endpoints and other devices that rely on H.323 and do not support SIP, interworking on the VCS can be used.

### Media communication

Media data is transferred through six UDP links (ports). There are at most three media streams:

- ▶ Audio
- ▶ Primary video
- ▶ Secondary video (presentation sharing)

Each of these streams requires two links: one link for RTP packets and one link for RTCP packets. The SRTP protocol is used if encryption is enabled.

The default port range for Movi to receive media is 21,000-21,900. This range is configurable in TMS:

1. Go to **Systems > Provisioning > Directory**.
2. Add (or select) the configuration's **Media Port Range Start** and **Media Port Range End**.

The default port range used on the VCS is 50,000-52,399. To configure:

1. Go to **VCS Configuration > Local zone > Traversal subzone**.
2. Set the **Traversal media port start** and **Traversal media port end**.

Note that in both cases, the port numbers used will be consecutive, but chosen randomly within the specified range.

### Duo video–Binary Floor Control Protocol (BFCP)

Movi supports BFCP for handling the control of duo video. BFCP communication can be sent over a UDP or a TCP link. Movi uses port 5070 for this communication. On the VCS, a port will be chosen at random from the same range that has been assigned to the media links.

## Traversal calls

Media links can be established directly between the two endpoints in non-traversal calls, or between Movi and the VCS in traversal calls. As a general rule, non-traversal calls are defined as calls between two participants that are on the same network and that don't require interworking.

Note that SIP to H.323 calls require interworking and are therefore traversal calls irrespective of whether the endpoints are on the same network. For detailed information, see the latest [VCS Administrator Guide](#).

## Running Movi

Movi is designed to be straight forward and easy to use, but as a highly versatile tool it also has many hidden configurations and features of use to the administrator. This section details these options so that you as an administrator will know how to make the most of these features. It also provides an overview of Movi's communication with the servers, which should help you identify which part of the process to troubleshoot if you are having problems with your setup.

### Signing in

Movi will attempt to sign in to a VCS according to its **Advanced** settings, whether pre-configured or provided manually. The sign-in stages are described below.

### Subscribing to the VCS

Movi first attempts to subscribe to the internal VCS configured in its **Advanced** settings. If this fails, for example because the user's computer is connected to the public internet, Movi will try to subscribe to the external VCS.

However, if the internal VCS is a DNS address that translates to more than one IP address, Movi will attempt to connect to all these IP numbers before trying the external VCS. If the DNS server contains SRV records, Movi will adhere to the priority and weight of the IP addresses, otherwise they will be tried in random order. Typically, the VCS or the TMS Agent will challenge the first subscription message. Movi will answer this challenge by sending another SUBSCRIBE message with the authentication information.

After the subscription has been authenticated, the TMS Agent will send provisioning information to the Movi client.

### Registering to the VCS

Movi will register to the VCS according to the provisioning configuration in TMS; **SIP Server URI** or **Public SIP Server URI**. If this provisioning configuration is identical to the **Advanced** setting in the Movi client (recommended), Movi will register to the same VCS it subscribed to. As long as the client is registered, the VCS will know to forward messages to the client.

After initial registration, Movi will continue to send registration messages to the VCS according to the **Registration expire delta** setting under **VCS configuration > Protocols > SIP > Configuration**. Movi will send the message after 75% of the specified time interval has elapsed.

### Movi is registered to the VCS

After Movi has signed in, a number of tasks are performed continuously.

### Presence

The presence status service is provided by the VCS. Movi publishes its own presence to the VCS and subscribes to presence statuses for any contacts stored in its **My contacts** list. Subscribing to the presence status of a contact informs the VCS that the client should be notified when the contact's presence status changes.

In **Applications > Presence** there are two settings that determine timeouts for the Presence server:

- ▶ **Subscription expiration time**
- ▶ **Publication expiration time**

Movi will subscribe and publish when 75% of the specified time intervals have elapsed. The client will be automatically subscribed to the presence status of any contact that is added.

In addition to these periodic messages, Movi will also publish presence information when the user's status has been changed, either manually or because the user is in a call.

See the "Presence" section of the [VCS Administrators Guide](#) for more information about the presence server.

## SIP keep alive

To make sure that the connection between the Movi client and the VCS remains open and does not get closed by a firewall as an idle connection, Movi sends SIP Keep Alive messages.

By default the interval for these messages is 24 seconds. To configure the SIP Keep Alive Interval:

1. In TMS, go to **Systems > Provisioning > Directory**.
2. Click on the group or user you want to provision and find the **Configurations** pane.
3. Change the **SIP Keep Alive Interval** configuration if it exists, or add one

## Losing connection

If Movi gets an indication that the connection has been lost or is unable to continue registering to the VCS, Movi will sign out and display the sign-in screen.

If the **Sign in automatically** box is checked, Movi will attempt to sign in again. The first attempt will be one second after connection got lost, the second attempt after two, the third after four, then eight and next sixteen. From the ninth attempt onwards, Movi will try to sign in only once every 5 minutes, to prevent putting too much strain on system resources.

## Searching for a contact

Every time a user types a character in the search field of the Movi client, Movi queries the TMS Agent on the VCS, and the TMS Agent answers with matching results.

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**Note:** Phone book search results are determined by the VCS/TMS Agent and dependent on VCS version.

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When a search result is selected, Movi will also query the VCS for the presence status of that contact.

## Call setup

Call setup is communicated using SIP messages passed through the VCS. The following describes how the call's attributes are determined during call setup.

## Encryption

For a call to be encrypted, both the SIP and the media communication must be encrypted, and all parties must support encryption. Encrypted media communication is sent using the Secure Real-time Transport Protocol (SRTP) with a 128-bit Advanced Encryption Standard (AES).



The **Encryption policy** setting is provisioned to the client as configured in **Systems > Provisioning > Directory** in TMS.

- ▶ Force TLS/TCP determines whether the SIP communication is encrypted (TLS) or not (TCP).
- ▶ Force/No Srtp determines whether the media communication is encrypted or not.
- ▶ Auto means the Movi client will try to have an encrypted call, but if not possible, it will allow the call to be unencrypted.

If no provisioning is supplied, the **Transport** field in the **Advanced** settings determines the encryption policy. The mapping is as follows:

- ▶ *Auto* is equivalent to the *Auto* provisioning option
- ▶ *TLS* is equivalent to the *ForceTlsAutoSrtp* provisioning option
- ▶ *TCP* is equivalent to the *ForceTcpNoSrtp* provisioning option

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**Note:** Users can tell whether their current call is encrypted by the icon in the information bar at the top of the video window.  means the call is encrypted,  means it is unencrypted.

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## Sent and received bandwidth

During call setup Movi signals the maximum bandwidth it would like to receive according to the settings in the client. It is up to the system on the other end of the call to respect this signaling.

Both the maximum bandwidth to be sent during call and the bandwidth sent at the start of the call are determined at call setup.

During the call, Movi can change and send more or less bandwidth, but never more than the maximum bandwidth decided during call setup.

### Maximum bandwidth sent

To determine the maximum bandwidth to be sent, Movi chooses the lowest of these two values:

- ▶ Max outgoing bandwidth, configured in the Movi client's settings
- ▶ Max incoming bandwidth restriction from the far end

### Bandwidth sent at the start of the call

To determine the initial bandwidth for a new call, Movi uses its traffic data history, pulled from a database of your last 250 calls. The calls are indexed by the network locations from which the calls were made. Based on what Movi knows about the network and the far end SIP URI, a "safe" initial bandwidth is chosen.

The database resides in the Windows user profile:

Windows XP: %userprofile%\Local Settings\Application Data\TANDBERG\Movi\2.0

Windows Vista and Windows 7: %userprofile%\AppData\Local\TANDBERG\Movi\2.0

## Resolution

High image resolution is not the only factor linked to high video quality. Movi determines which resolution to send according to the following criteria:

1. Movi must be able to get the resolution in native format from the camera.
2. Priority is given to resolutions that can be received from the camera at 30 frames per second.
3. Sending high resolution at low bandwidth will result in poor quality. The bandwidth sent must be sufficient for the resolution:
  - a. HD (1280x720) requires a minimum of 1200 kbps
  - b. VGA (640x480) requires a minimum of 442kbps
 Increasing the bandwidth further will improve image quality.
4. The resolution must be permitted by Movi's own settings, as explained below.
5. The resolution must be permitted by the receiving end.

The **Resolution** settings in Movi will restrict both the incoming and the outgoing resolution. It is up to the far end to obey the restrictions on incoming video. The restrictions depend on many factors, but generally speaking:

- ▶ *Medium* will restrict resolutions to wide CIF (512x288) or lower
- ▶ *Low* will restrict resolutions to wide QCIF (256x144) or lower.

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## Video and audio standards

Movi supports both sending and receiving the standards described below. Movi will always use the best standard that is supported by the far end.

### Audio

- ▶ MPEG4/AAC-LD
- ▶ G.722.1
- ▶ G.711

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**Note:** If the bandwidth available is less than 192kbps and the far end supports G.722.1 at 24kbps, Movi will send that protocol in order to free up bandwidth for better video quality.

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### Video

- ▶ H.264
- ▶ H.263+
- ▶ H.263

## During a call

Once a call has been set up, there are a number of actions that can be prompted in Movi, either as a result of a user action or as an automated response to changing conditions.

### Muting media streams

If the camera or microphone is muted, Movi allocates the bandwidth for the other media links to use. This means that if the user does not have enough bandwidth for two video streams, it is possible to mute one video stream and improve the quality of the other stream.

To prevent the unused link from being closed (for example by a firewall), Movi sends STUN keep alive messages every 7 seconds.

### Automatic bandwidth adaptation

In case of a Movi client sending or receiving bandwidth which exceeds the network capabilities, high packet loss may occur and the user may experience poor call quality. Movi uses automatic bandwidth adaptation mechanisms to tackle bandwidth issues.

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**Note:** Automatic adaptations take time. Configuring the client to fit the network and system capabilities is always recommended.

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### Automatic CPU adaptation

Running Movi with the highest video quality on a less powerful computer might result in 100% CPU usage and a poor call quality. Movi monitors the CPU usage of the computer.

If CPU usage exceeds 95% for 10 seconds or more, Movi will either:

- ▶ if Movi is responsible for less than 90% of the CPU usage, display a warning asking the user to close other applications.
- ▶ if Movi is responsible for 90% or more of the CPU usage, lower the resolution for the video picture sent.

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**Note:** Automatic adaptations take time. Configuring the client to fit the network and system capabilities is always recommended.

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## Conference information

When moving the cursor over the video window, an information bar appears at the top. Clicking the **i** button opens **Conference information**, an overview of outgoing (transmit) and incoming (receive) traffic data.

Max allowed bitrate	Restrictions taken from Movi's settings.
Signaled bitrate	The signaled bitrate combines Movi's restrictions with those from the far end.
Configured bitrate	The configured bitrate varies based on automatic bandwidth adaptation. This value is not transmitted to the far end.
Encryption	This field is blank if no encryption is used.
Protocol	The video and audio standards currently in use.
Resolution	The current outgoing and incoming resolution. This value changes based on automatic adaptation.
Bitrate	The actual bandwidth sent and received, which will always be equal to or lower than the configured bitrate.
Total packet loss	Number of packets lost during the call so far.
Current packet loss	Percentage of packets lost in the last five seconds (transmit) or three seconds (receive).
Jitter	Jitter is a continuously calculated estimate of the mean deviation of the difference in transit time of adjacent packets. The transmit jitter information is based on RTCP reports from the far end. High jitter affects the call quality and is usually indicative of poor network conditions.

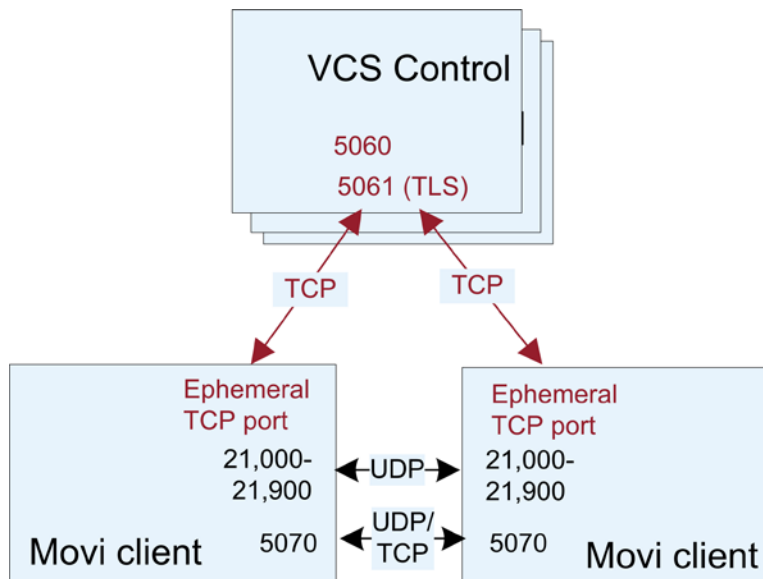
## Call scenarios

Below are three diagrams that illustrate communication paths in three different call scenarios for Movi. The communication types are color coded as follows:

-  SIP communication
-  Media communication
-  H.323 communication

### Movi to Movi non-traversal call

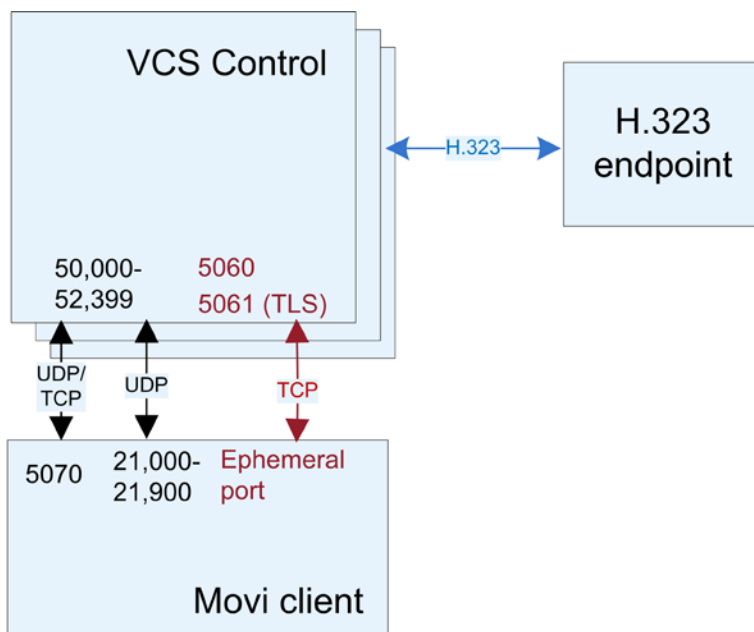
The following diagram shows a Movi to Movi call. Both Movi clients are registered to the same VCS and are in the same network; therefore the call is non-traversal, and the media communication between the two Movi clients is direct. The numbers on the Movi clients and on the VCS Control indicate the default port numbers used in such links.



Call between two Movi clients on the same network.

### Traversal call between Movi and an H.323 endpoint

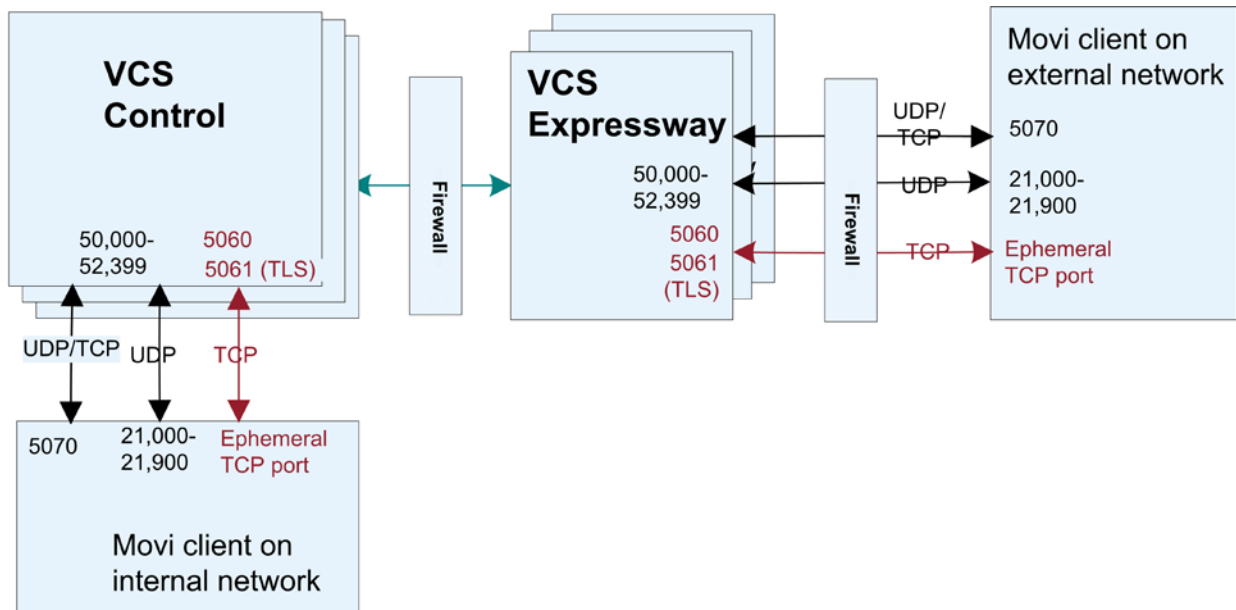
The following diagram shows a traversal call between a Movi client and a H.323 endpoint registered to the same VCS Control and in the same network. In traversal calls, the media communication is sent through the VCS.



Call between Movi and an H.323 endpoint.

## Call between an internal Movi client and a Movi client on the public internet

This following diagram shows a typical Movi to Movi call in which one Movi client is on the internal network and the other Movi client is using the public Internet. In such cases, all communication goes through the internal VCS Control and the VCS Expressway. This behaviour provides maximum security for your company's network.



Call between Movi clients on the internal network and the public internet.

## Disclaimers and notices

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