



Avaya Scopia® XT Desktop Server for IP Office Installation Guide



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Chapter 1: About Scopia® XT Desktop server for IP Office

Scopia® XT Desktop server extends the capabilities of videoconferences hosted on the Avaya Scopia® XT Series SMB Edition by enabling Scopia® Desktop Clients and Scopia® Mobile devices to join.

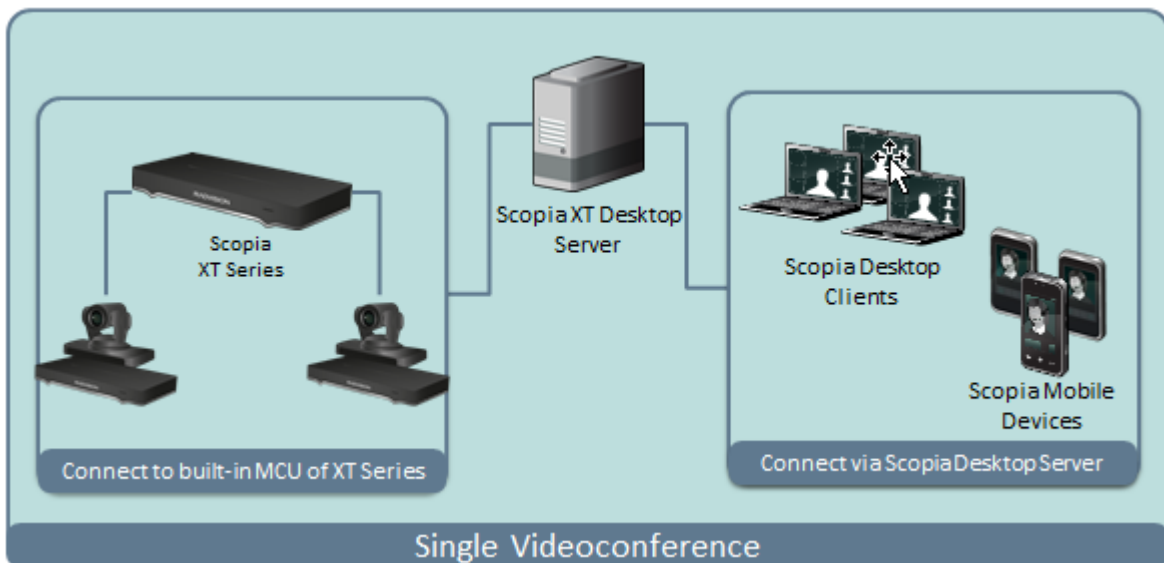


Figure 1: Scopia® XT Desktop server extends meetings to include Scopia® Desktop Clients

The Avaya Scopia® XT Series SMB Edition solution is especially suited to the communication requirements of Small and Medium Businesses (SMB). Built on the XT Series HD room system, with the highest capacity embedded MCU in the industry today, the Avaya Scopia® XT Series SMB Edition combines HD room system capabilities, embedded multi-party conferencing, desktop conferencing and firewall traversal into the only integrated solution of its kind available.

Related Links

[About Components of the Scopia® Desktop server](#) on page 7

About Components of the Scopia® Desktop server

Scopia® Desktop server includes several different servers, each fulfilling its own function.

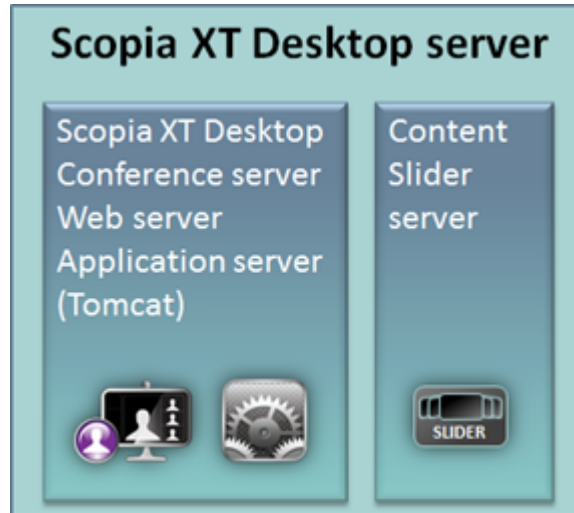


Figure 2: Components of the Scopia® XT Desktop server

- Scopia® Desktop Conference Server

At the center of Scopia® Desktop server, the conference server creates conferences with Scopia® Desktop Clients and Scopia® Mobile devices, relaying media to the MCU to enable transparent connectivity with H.323 and SIP endpoints.

- Web server

- Scopia® Desktop Application Server (Tomcat)

The underlying Scopia® Desktop web server and application server is implemented by Tomcat. It serves as , the update server, , the Scopia® Content Slider server and the Scopia® Desktop web portal.

- Scopia® Content Slider server

Part of the Tomcat Application Server, it stores the data already presented in the videoconference and makes it available for participants to view during the meeting.

- Avaya Scopia® Streaming and Recording server

The server support recording and streaming video conferences. Using the streaming feature, you can broadcast live video conferences to stakeholders who cannot join the video conference.

- Avaya Scopia® Web Collaboration server

The server supports sharing content in video conferences, such as documents, presentations, and whiteboards.

Related Links

[About Scopia® XT Desktop server for IP Office](#) on page 7

Chapter 2: Planning your Scopia® Desktop server Deployment

When planning your Scopia® Desktop server deployment, consider the following:

- Will most Scopia® Desktop Clients connect to videoconferences from within the enterprise, or from outside? For example, if there are many internal Scopia® Desktop Clients, consider placing a dedicated Conference Server in the enterprise.
- What is your network's security policy?

Depending on where you deploy the Scopia® Desktop server and other video network devices, you may need to open different ports on the firewall.

- How much internal and external bandwidth is required, based on the number of simultaneous users joining videoconferences? Consider also whether most users will be joining in standard or high definition.

See the following sections for details on the different deployment options and how to plan your bandwidth:

Related Links

[Minimum Requirements and Specifications of Scopia® Desktop server](#) on page 9

[Planning the Topology of Avaya Scopia® XT Series with Scopia® XT Desktop](#) on page 11

[Deploying Scopia® Desktop server with Dual-NIC](#) on page 13

[Estimating and Planning your Bandwidth Requirements](#) on page 14

[Ports to Open on Scopia® Desktop](#) on page 18

Minimum Requirements and Specifications of Scopia® Desktop server

This section details the system specifications of your Scopia® Desktop server. Refer to this data when preparing system setup and afterwards as a means of verifying that the environment still complies with these requirements.

Scopia® Desktop server Software Requirements

The minimum software requirements for the Scopia® Desktop server are:

Operating systems:

- Windows® 2012 Server and Windows® 2012 R2 Server (English)
- Windows® 2008 SP2 or Windows® 2008 R2, 32 and 64 bit (English, Japanese)
- Windows 7 Professional

! **Important:**

Scopia® Desktop servers can be deployed using the VMware Sphere v5.5 virtual machine.

Web browsers (for the Scopia® Desktop server Administration):

Scopia® Desktop is tested with the latest internet browser versions available at the time of release.

- Mozilla Firefox 31 or later (Mac and Windows)
- Safari 6 or later (Mac and Windows)
- Google Chrome 36 or later (Mac and Windows)
- Microsoft Internet Explorer 8.0 and later

Scopia® XT Desktop server Hardware Requirements

The minimum hardware requirements for Scopia® XT Desktop server are:

- Intel® Core™ i3 Processor, 2GHz and up
- 4 GB or more RAM

Scopia® Desktop server Audio and Video Specifications

Scopia® Desktop interoperates with both SIP and H.323 endpoints to provide a seamless user experience joining the ease of use of Scopia® Desktop Clients and Scopia® Mobile devices with dedicated endpoints like Scopia® XT Executive and the Avaya Scopia® XT Series.

- Audio support:
 - G.722.1 codec
 - DTMF tone detection (in-band, H.245 tones, and RFC2833)
- Video support:
 - High Definition (HD) Continuous Presence video with a maximum resolution of 720p at 30 frames per second (fps).
 - Video codec: H.264 with SVC (Scalable Video Coding) and H.264 High Profile
 - Video send resolutions: Up to HD 720p
 - Video receive resolution: HD 720p
 - Video bandwidth: HD up to 4Mbps for 720p resolutions; standard definition up to 448 kbps for 352p or lower
 - Presentation video: H.239 dual stream
 - Scopia® Content Slider can function with presentation set to H.263 or H.264 on the MCU.

Scopia® Desktop server Security Specifications

Scopia® Desktop server has extensive support for security inside private networks as well as across sites. In addition to a proprietary secure protocol between the client and server, Scopia® Desktop server has the following security specifications:

- Using HTTPS protocol for protecting signaling, management and media over TCP data streams between Scopia® Desktop Client/Scopia® Mobile and Scopia® Desktop server.
- Using SRTP encryption for protecting media over UDP data stream between Scopia® Desktop Client/Scopia® Mobile and Scopia® Desktop server.

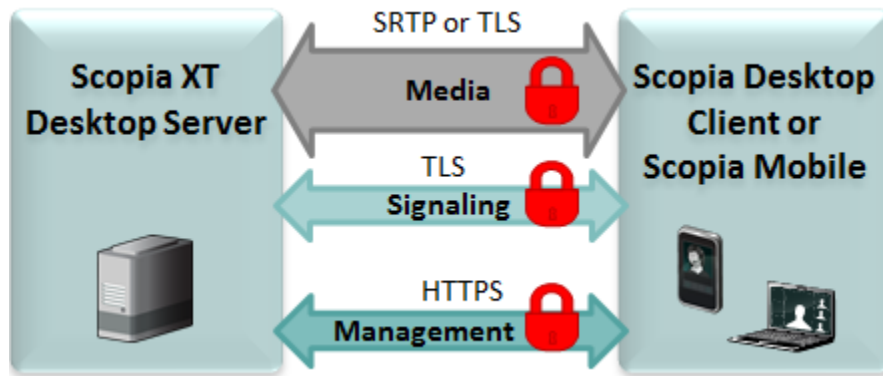


Figure 3: Securing Scopia® Desktop server communications

Related Links

[Planning your Scopia® Desktop server Deployment](#) on page 9

Planning the Topology of Avaya Scopia® XT Series with Scopia® XT Desktop

Avaya Scopia® XT Series SMB Edition enables you to locally host videoconferences using its built-in MCU, and extends your videoconferences to participants joining from a computer (with Scopia® Desktop Client) or a mobile device (using Scopia® Mobile).

For example, when you start a videoconference with the XT Series hosting the call, you can add other participants by asking them to connect via a web link to the Scopia® XT Desktop server, which would automatically install and launch Scopia® Desktop Client on their computers, or Scopia® Mobile on their mobile devices.

If you do not register to IP Office, you cannot host videoconferences on the built-in MCU.

The main features of the Avaya Scopia® XT Series SMB Edition include:

- Remote users can easily connect to a meeting hosted by the built-in MCU on the XT Series, by connecting via the Scopia® XT Desktop server.

The deployment has very few components. You do not need additional hardware like an external MCU, Avaya Scopia® PathFinder for firewall traversal, or Avaya Scopia® ECS Gatekeeper for routing calls.

- The included Scopia® XT Desktop provides built-in NAT and firewall traversal functionality, enabling secure remote connections from Scopia® Mobile and Scopia® Desktop Clients.

The Avaya Scopia® XT Series SMB Edition includes the following :

- Full SMB9 - Advanced MCU level, with one local participant and up to eight remote endpoints or PC clients.

There is no local endpoint if you deploy the XT Series as a server.

[Figure 4: Avaya Scopia® XT Series SMB Edition Deployment](#) on page 12 shows a typical topology for the Avaya Scopia® XT Series SMB Edition solution. For more information, see the *Solution Guide for Scopia® Solution*.

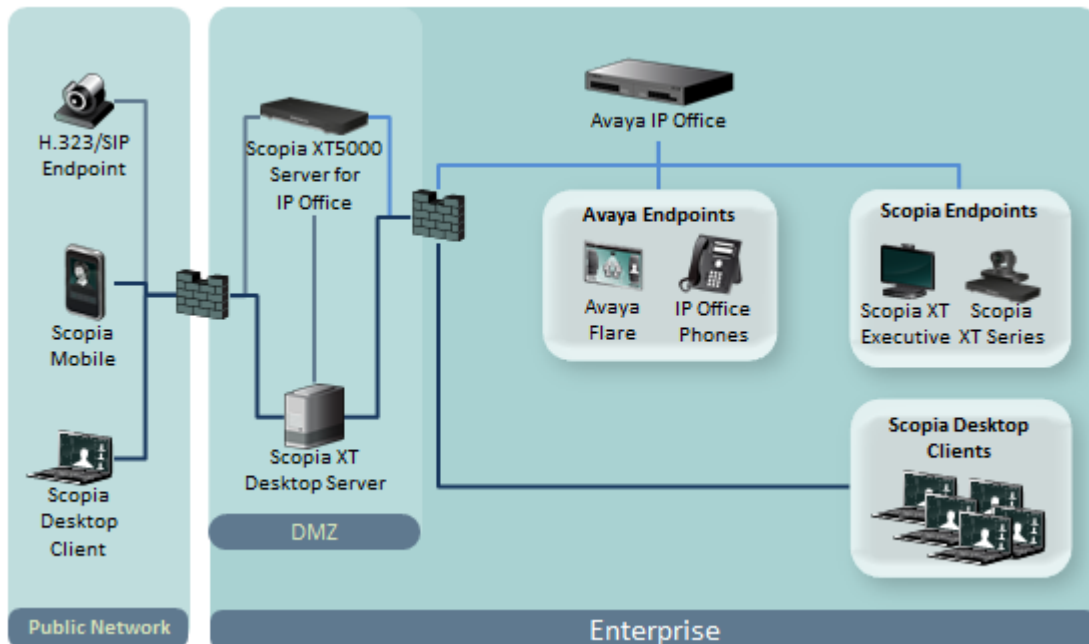


Figure 4: Avaya Scopia® XT Series SMB Edition Deployment

As you add more XT Series endpoints, you can also manage them centrally with Scopia® Management. This would enable centralized updating, backing up and control.

Related Links

[Planning your Scopia® Desktop server Deployment](#) on page 9

Deploying Scopia® Desktop server with Dual-NIC

Scopia® Desktop server can be installed on servers with multiple Network Interface Cards (NICs). Depending on the deployment and network configuration, you may want to control which NIC is used for various server communications.

! Important:

The minimum requirement is to use a 100 Mbit NIC. It is recommended that you use a Gigabyte NIC for better performance. Bandwidth shown is for Standard Definition (384 kbps) or High Definition (1024 kbps).

For example, in secure multiple NIC deployments you can use a NIC configured behind the firewall to communicate with the Avaya Scopia® XT Series, while using another NIC for Scopia® Desktop Client connections ([Figure 5: Scopia® Desktop server with a dual-NIC deployment](#) on page 13). In this case, configure the Scopia® Desktop IP address to represent the NIC behind the firewall. For the Scopia® Desktop public address, use a DNS name which resolves to the NIC outside the firewall, and is accessible both inside and outside the enterprise.

For more information and to configure the public address, see [Defining Scopia® Desktop server Public Address and Other Client Connection Settings](#) on page 34.

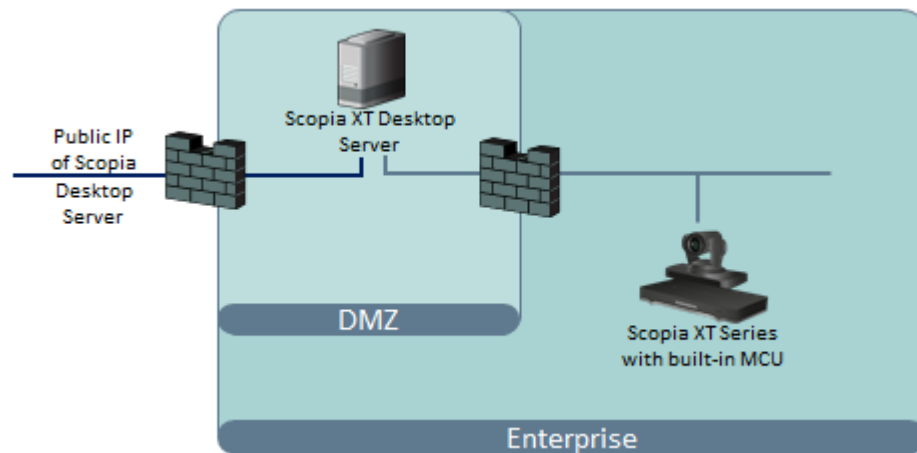


Figure 5: Scopia® Desktop server with a dual-NIC deployment

Scopia® Desktop Clients can connect to the Scopia® Desktop server either by an IP address or a DNS name. In many deployments the Scopia® Desktop server IP address is not accessible to clients outside the enterprise due to NAT or firewall restrictions. Therefore, Scopia® Desktop server has a public address, which must be a DNS name resolving to the correct Scopia® Desktop server IP address both inside and outside the corporate network.

Related Links

[Planning your Scopia® Desktop server Deployment](#) on page 9

Estimating and Planning your Bandwidth Requirements

We recommend estimating Scopia® Desktop's impact on bandwidth to determine if your current infrastructure needs updating. Planning bandwidth may help reduce costs in your organization.

This section explains how to estimate the bandwidth for external Scopia® Desktop users connecting to your network.

Important:

You do not need to estimate bandwidth required by users who connect from within the internal network, because, typically, internal bandwidth is sufficient for videoconferencing.

You can allocate the bandwidth depending on the needs of your organization.

To assess the overall bandwidth for the videoconferencing solution including other types of endpoints, refer to the Avaya Scopia® Solution Guide.

Related Links

[Planning your Scopia® Desktop server Deployment](#) on page 9

[Calculating the Bandwidth Used by Scopia® Desktop Participants](#) on page 14

Calculating the Bandwidth Used by Scopia® Desktop Participants

About this task

Videoconference participants consume most of the bandwidth in your Avaya Scopia® Desktop deployment, because they both upload and download live media.

This section explains how to estimate the bandwidth for external Scopia® Desktop users connecting to your network.

Important:

You do not need to estimate bandwidth required by users who connect from within the internal network, because, typically, internal bandwidth is sufficient for videoconferencing.

The amount of bandwidth consumed by participants mainly depends on the chosen topology and the maximum bandwidth you allow per participant. You configure the maximum bandwidth per participant in the Scopia® Desktop server which is the maximum possible bandwidth for any participant connecting to this server.

You calculate the maximum bandwidth used by Scopia® Desktop participants in the following steps:

Procedure

1. Estimate the number of Scopia® Desktop participants connecting externally, as shown in [Figure 6: External bandwidth required for centralized deployments](#) on page 14:

Figure 6: External bandwidth required for centralized deployments

- (Optional for a distributed deployment) Estimate the number of Scopia® Desktop participants connecting to the Scopia® Desktop server from other branches of your organization, as shown in [Figure 7: External bandwidth required for distributed deployments](#) on page 15:

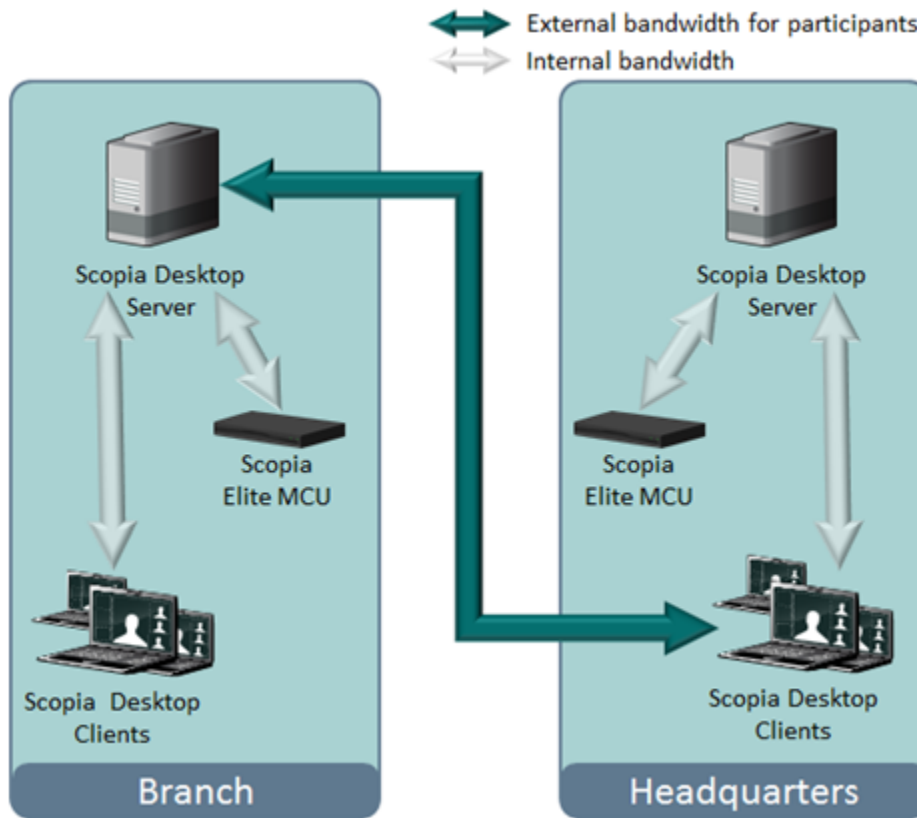


Figure 7: External bandwidth required for distributed deployments

- (Optional for a distributed deployment) Calculate the total number of participants using external bandwidth by adding the numbers you acquired in steps [1](#) on page 14 and [2](#) on page 15.

To illustrate how to estimate bandwidth, we shall use an example of 200 external participants: 100 external participants and 100 participants connecting from other branches.

- Define the ratio of participants in concurrent videoconferences to all Scopia® Desktop participants.

A typical ratio for Scopia® Desktop and Scopia® Mobile is between 1/20 and 1/10, so that on average, one of every 10 or 20 users participate in a videoconference at the same time.

- Estimate the peak usage for participants connecting from the external network and from other branches.

This value represents the maximum number of participants connecting to your Scopia® Desktop server simultaneously. Use the following formula to calculate it:

$$\text{Peak usage} = \text{total number of participants} / \text{ratio}$$

For example, if there are 200 external participants and the ratio is 20, the peak usage is 10.

6. Decide on the maximum bandwidth per Scopia® Desktop Client (measured as its bitrate).

Consider the following factors:

- Sharing bandwidth between live video and presentation

When one of the participants is presenting during a videoconference, presentation uses the bandwidth you defined for Scopia® Desktop participants. Typically, presentation uses 384 kbps. For example, if the maximum bandwidth you define for participants is 768 kbps, it decreases to 384 kbps after presentation is started. To ensure the video quality, add 384 kbps required for presentation to the bandwidth for participants.

- The desired video resolution

Increasing video resolution requires higher bitrate. For example, each Scopia® Desktop Client requires at least 384 kbps for a SD videoconference at 480p, or at least 512 kbps for an HD videoconference at 720p .

7. Calculate the peak bandwidth according to the following formula:

`Peak bandwidth = peak usage x maximum bandwidth per participant`

In our example of the Scopia® Desktop deployment, where the peak usage is 10 and the chosen maximum bandwidth is 768 Kbps, the peak bandwidth equals 7680 kbps. This is the rough estimation of the bandwidth required for videoconference participants.

8. Fine-tune your estimation by deciding on the following bandwidth effective policies supported in Scopia® Solution:

- Cascading for using bandwidth and resources more effectively

A cascaded videoconference is a meeting distributed over more than one physical Scopia® Elite MCU, where a master MCU connects to one or more slave MCUs to create a single videoconference. It increases the meeting capacity by combining the resources of several MCUs. This can be especially useful for distributed deployments across several locations, reducing bandwidth usage.

You can configure Scopia® Management to determine whether your distributed MCUs form cascaded meetings. For more information, see *Administrator Guide for Scopia® Management*.

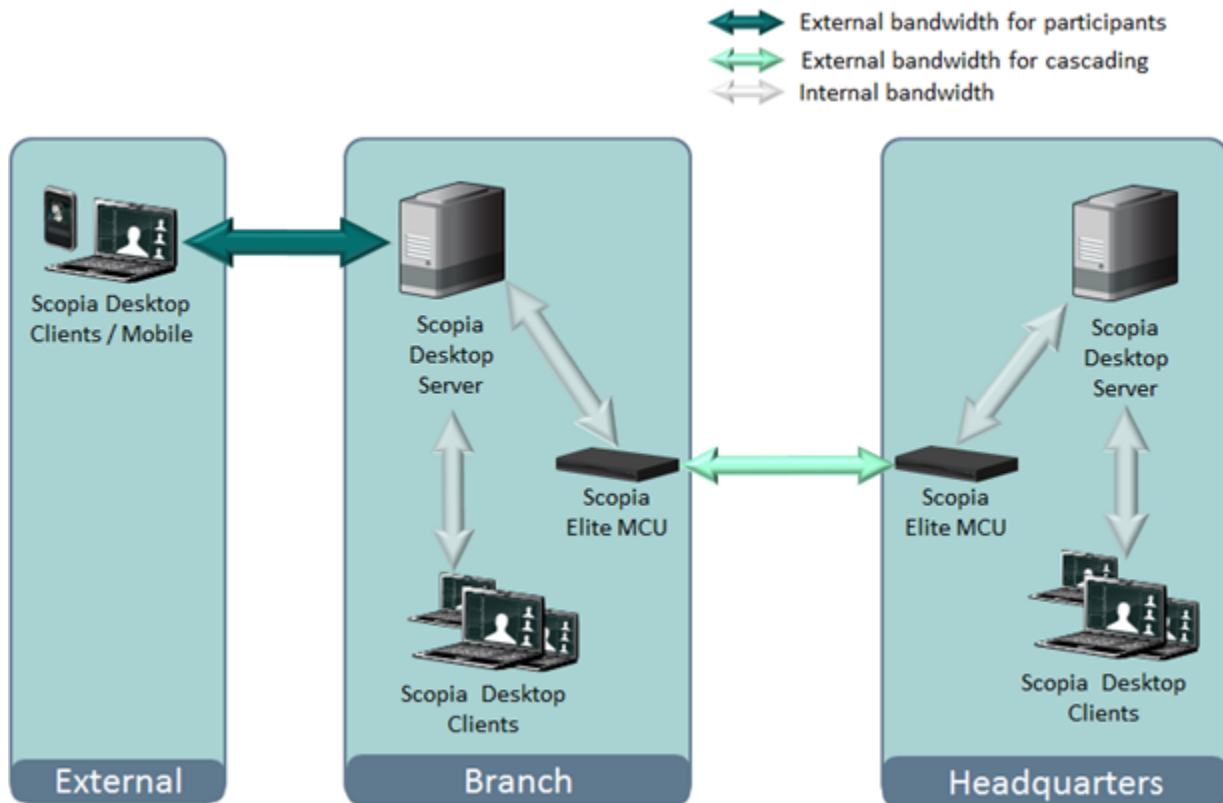


Figure 8: Using cascading to reduce bandwidth usage

The bandwidth used by a cascaded link is equivalent to only a single client connection in each direction: upload and download. The bandwidth value is determined by the MCU meeting type (or service), which is invoked when choosing a dial prefix for the meeting. You define the maximum bandwidth for each meeting type in the MCU. For more information on defining meeting types, see *Administrator Guide for Scopia® Elite 6000 Series MCU*.

- Setting bandwidth limits for Scopia® Desktop users.

You can define different maximum bandwidth for Scopia® Desktop authenticated users and guests using Scopia® Management. The maximum bandwidth configured in Scopia® Management cannot exceed the maximum bandwidth configured on a Scopia® Desktop server to which the users connect. For more information see *Administrator Guide for Scopia® Management*.

9. Add margins to make sure that even in poor network conditions video quality does not drop below the standard you decided on.

! Important:

An average margin is 20% of your fine-tuned estimation.

Related Links

[Estimating and Planning your Bandwidth Requirements](#) on page 14

Ports to Open on Scopia® Desktop

The Scopia® Desktop server is typically located in the DMZ (see [Figure 9: Locating the Scopia® Desktop server in the DMZ](#) on page 18) and is therefore connected to both the enterprise and the public networks. Scopia® Desktop Clients can be located in the internal enterprise network, in the public network, or in a partner network.

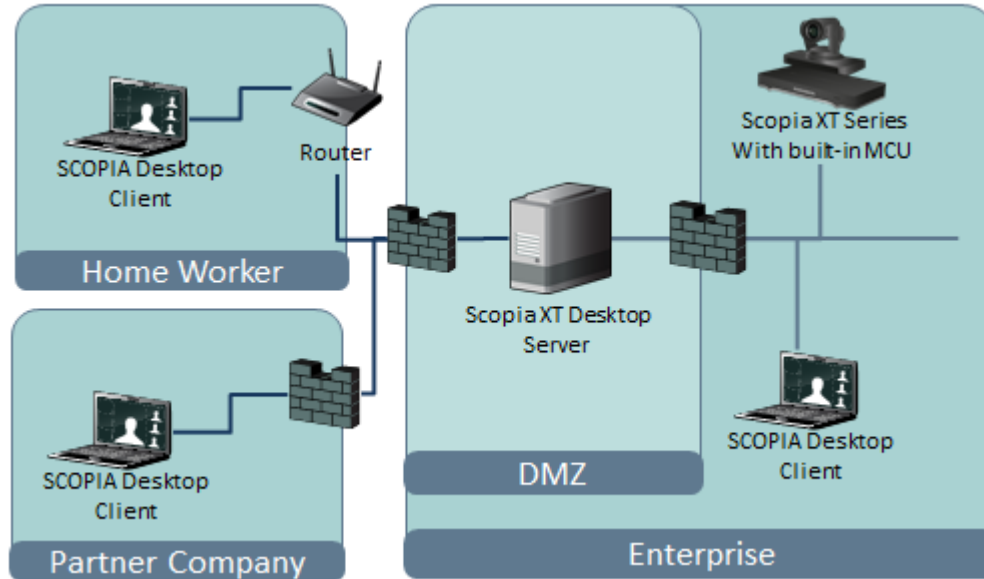


Figure 9: Locating the Scopia® Desktop server in the DMZ

When opening ports between the DMZ and the enterprise on the Scopia® Desktop server, use the following as a reference:

- When opening ports that are both in and out of the Scopia® Desktop server, see [Table 1: Bidirectional Ports to Open Between the Scopia® Desktop server and the Enterprise](#) on page 19.
- When opening ports that are outbound from the Scopia® Desktop server, see [Table 2: Outbound Ports to Open from the Scopia® Desktop server to the Enterprise](#) on page 19.
- When opening ports that are inbound to the Scopia® Desktop server, see [Table 3: Inbound Ports to Open from the Enterprise to the Scopia® Desktop server](#) on page 20.

When opening ports between the DMZ and the public on the Scopia® Desktop server, use the following as a reference:

- When opening ports that are both in and out of the Scopia® Desktop server, see [Table 4: Bidirectional Ports to Open Between the Scopia® Desktop server and the Public](#) on page 20.
- When opening ports that are inbound from the Scopia® Desktop server, see [Table 5: Inbound Ports to Open from the Public to the Scopia® Desktop server](#) on page 20.

! Important:

The specific firewalls you need to open ports on depends on where your Scopia® Desktop and other Scopia® Solution products are deployed.

Table 1: Bidirectional Ports to Open Between the Scopia® Desktop server and the Enterprise

Port Range	Protocol	Destination	Functionality	Result of Blocking Port	Required
1024- 65535	TCP (H. 245/ Q. 931)	Avaya Scopia® XT Series SMB Edition	Enables connection to Scopia® Desktop meetings.	Cannot connect to the meeting	Mandatory To limit range, see Limiting the TCP Port Range for H.245/Q.931 on the Scopia® Desktop server on page 22
10000-65535	UDP (RTP)	Avaya Scopia® XT Series SMB Edition or Scopia® Desktop Client	Enables media connection to the Avaya Scopia® XT Series SMB Edition, and the Scopia® Desktop Client or Scopia® Mobile.	Media cannot be passed from the Avaya Scopia® XT Series SMB Edition to Scopia® Desktop Clients. Also, connection is tunneled via TCP port 443 resulting in a drop in performance.	Mandatory To limit range, see Limiting the UDP Port Range for RTP/RTCP on the Scopia® Desktop server on page 21

Table 2: Outbound Ports to Open from the Scopia® Desktop server to the Enterprise

Port Range	Protocol	Destination	Functionality	Result of Blocking Port	Required
1720	TCP	Avaya Scopia® XT Series SMB Edition	Enables connection to Scopia® Desktop meetings.	Cannot connect to the meeting	Mandatory
3337	TCP (XML)	Avaya Scopia® XT Series SMB Edition	Enables meeting cascading connection to the Avaya Scopia® XT Series SMB Edition	Meeting cascading connection is disabled	Mandatory
3336	TCP	Avaya Scopia® XT Series SMB Edition	Enables meeting control with Avaya Scopia® XT Series SMB Edition	Meeting control is disabled	Mandatory

Table 3: Inbound Ports to Open from the Enterprise to the Scopia® Desktop server

Port Range	Protocol	Destination	Functionality	Result of Blocking Port	Required
80	TCP (HTTP)	Web client	Provides access to the Scopia® Desktop server Web Portal (you can configure port 443 instead)	Cannot access the Scopia® Desktop server Web Portal	Mandatory if using HTTP. You can configure this port during installation. For more information, see Installation Guide for Scopia® Desktop server on page 24.
443	TCP (TLS)	Scopia® Desktop Clients and Scopia® Mobile	Enables sending control messages between the Scopia® Desktop server and Clients, and is also used to tunnel RTP media if the UDP ports are blocked	Scopia® Desktop Client or Scopia® Mobile cannot connect to the Scopia® Desktop server	Mandatory

Table 4: Bidirectional Ports to Open Between the Scopia® Desktop server and the Public

Port Range	Protocol	Destination	Functionality	Result of Blocking Port	Required
10000-65535	UDP (RTP/RTCP)	Scopia® Desktop Client or Scopia® Mobile	Enables media connection with the Scopia® Desktop Client or Scopia® Mobile	Connection is tunneled via TCP port 443 and performance is not optimal	Recommended To configure, see Limiting the UDP Port Range for RTP/RTCP on the Scopia® Desktop server on page 21

Table 5: Inbound Ports to Open from the Public to the Scopia® Desktop server

Port Range	Protocol	Destination	Functionality	Result of Blocking Port	Required
80	TCP (HTTP)	Web client	Provides access to the web user interface (you can configure port 443 instead)	Cannot access the web user interface	Mandatory if using HTTP. You can configure this port during

Table continues...

Port Range	Protocol	Destination	Functionality	Result of Blocking Port	Required
					installation. For more information, see Installation Guide for Scopia® Desktop server on page 24.
443	TCP (TLS)	Scopia® Desktop Clients and Scopia® Mobile	Enables sending control messages between the Scopia® Desktop server and Clients, and is also used to tunnel RTP media if the UDP ports are blocked	Scopia® Desktop Clients cannot connect to the Scopia® Desktop server	Mandatory

Related Links

[Planning your Scopia® Desktop server Deployment](#) on page 9

[Limiting Port Ranges on the Scopia® Desktop server](#) on page 21

Limiting Port Ranges on the Scopia® Desktop server

About this task

This section provides instructions of how to limit the following port ranges on the Scopia® Desktop server:

Related Links

[Ports to Open on Scopia® Desktop](#) on page 18

[Limiting the UDP Port Range for RTP/RTCP on the Scopia® Desktop server](#) on page 21

[Limiting the TCP Port Range for H.245/Q.931 on the Scopia® Desktop server](#) on page 22

Limiting the UDP Port Range for RTP/RTCP on the Scopia® Desktop server

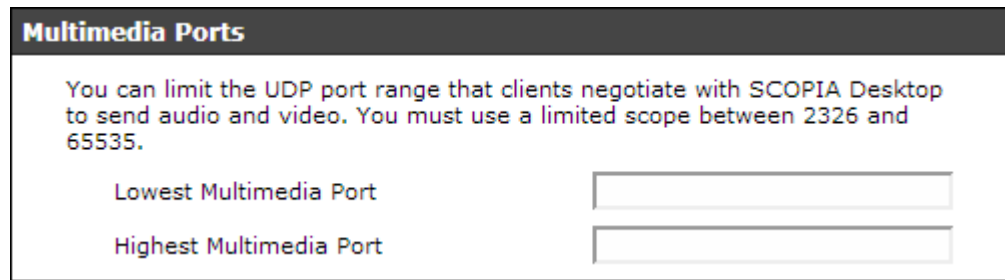
About this task

The Scopia® Desktop server has designated 10000-65535 as the default port range for UDP (RTP/RTCP). To provide additional security for your firewall, you can limit this range.

To calculate approximately how many ports the Scopia® Desktop server uses, multiply the number of license connections by 14, which amounts to reserving 14 ports per client.

Procedure

1. Log in to the Scopia® Desktop server Administrator web user interface.
2. Select **Client > Settings**.
3. Locate the **Multimedia Ports** section (see [Figure 10: Multimedia Ports Area](#) on page 22).



Multimedia Ports

You can limit the UDP port range that clients negotiate with SCOPIA Desktop to send audio and video. You must use a limited scope between 2326 and 65535.

Lowest Multimedia Port

Highest Multimedia Port

Figure 10: Multimedia Ports Area

4. Configure your port range (using any values between 2326 and 65535) by doing the following:
 - a. Enter the base port value in the **Lowest Multimedia Port** field.
 - b. Enter the upper port value in the **Highest Multimedia Port** field.
5. Select **OK** or **Apply**.

Related Links

[Limiting Port Ranges on the Scopia® Desktop server](#) on page 21

Limiting the TCP Port Range for H.245/Q.931 on the Scopia® Desktop server

About this task

The Scopia® Desktop server has designated ports 1024-65535 for TCP for H.245 and Q.931 signaling. To provide additional security for your firewall, you can limit this range.

For each conference, the Scopia® Desktop server uses 2 ports. In addition, add extra ports for:

- Add 2 ports for each participating Scopia® Desktop Client client.
- Add 1 port per conference when presenting using the content slider.

Procedure

1. Navigate to `<Scopia® Desktop install_dir>\ConfSrv`.
2. Edit the `config.val` file as follows:
 - a. Locate the text `1 system`.
 - b. At the bottom of that section, add two lines:

```
2 portFrom = <lowest range limit>
2 portTo = <highest range limit>
```

Where `<lowest range limit>` is the base port of your port range and `<highest range limit>` is the upper value of your port range.

3. Access the Windows services and restart the **Scopia® Desktop - Conference Server** service.

Related Links

[Limiting Port Ranges on the Scopia® Desktop server](#) on page 21

Chapter 3: Installing the Scopia® Desktop server

About this task

Follow these recommendations when installing the Scopia® Desktop server components:

- Do not install the Scopia® Desktop Client on the same PC as any Scopia® Desktop component.
- If you want to encrypt communication with HTTPS, configure the Conference Server for Scopia® Desktop to port 443 after the installation is completed (see [Securing Your Scopia® Desktop Deployment](#) on page 41).

Important:

Using encryption is subject to local regulation. In some countries it is restricted or limited for usage. For more information, consult your local reseller.

Follow this procedure to install the Scopia® Desktop server.

Before you begin

To enable Scopia® Desktop to work with the Avaya Scopia® XT Series, your XT Series must have two licenses: an MCU license and a Scopia® Desktop license.

- Before installing, verify the computer meets the minimum hardware requirements for the number of intended users.
- By default, Scopia® Desktop Clients access the Scopia® Desktop server via port 80. If other applications on this PC use port 80, and you nevertheless want to use this port, access the Services panel in Windows and disable the IIS Administration, HTTP SSL, and World Wide Web Publishing services before installing the Conference Server.

Procedure

1. Launch the *setup.exe* file to start the Scopia® Desktop Setup Wizard.
2. Select the installation language in the **Choose Setup Language** window, and select **OK**.

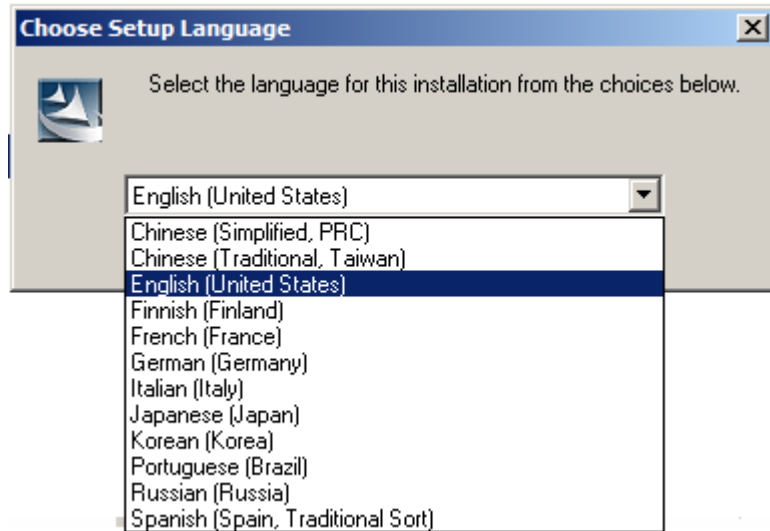


Figure 11: Choosing language for the installation

Scopia® Desktop starts the installation wizard.

3. Click **Next** and accept the license agreement.
4. Select **Custom Install**, and click **Next**.
5. Enter the IP address or DNS name of the Avaya Scopia® XT Series SMB Edition which hosts videoconferences with its built-in MCU in the **XT Series Address** window, and select **Next**.

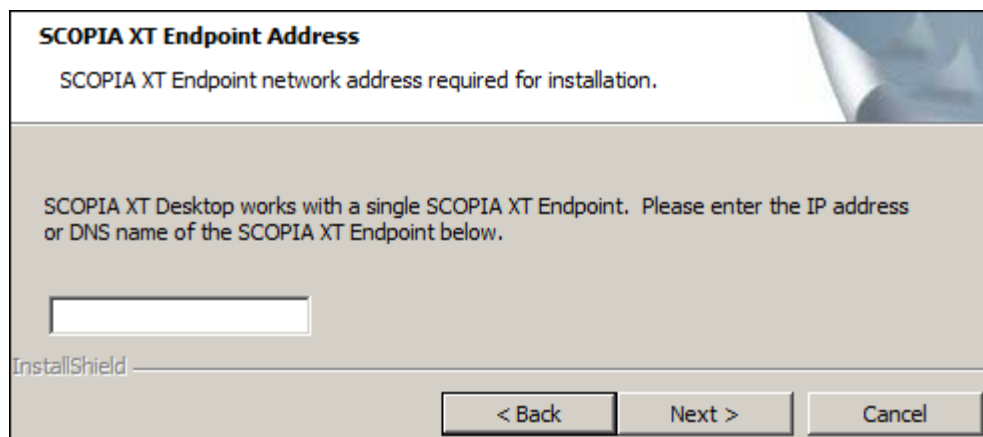


Figure 12: Specifying the XT Series with built-in MCU

6. In the **Network Configuration** window, select the IP address used for communicating with the Avaya Scopia® XT Series SMB Edition.

If the server has one NIC card, the **Network Interface** field has only one value to choose, the IP of the NIC. For dual-NIC servers, select the network IP address pointing to the internal firewall.

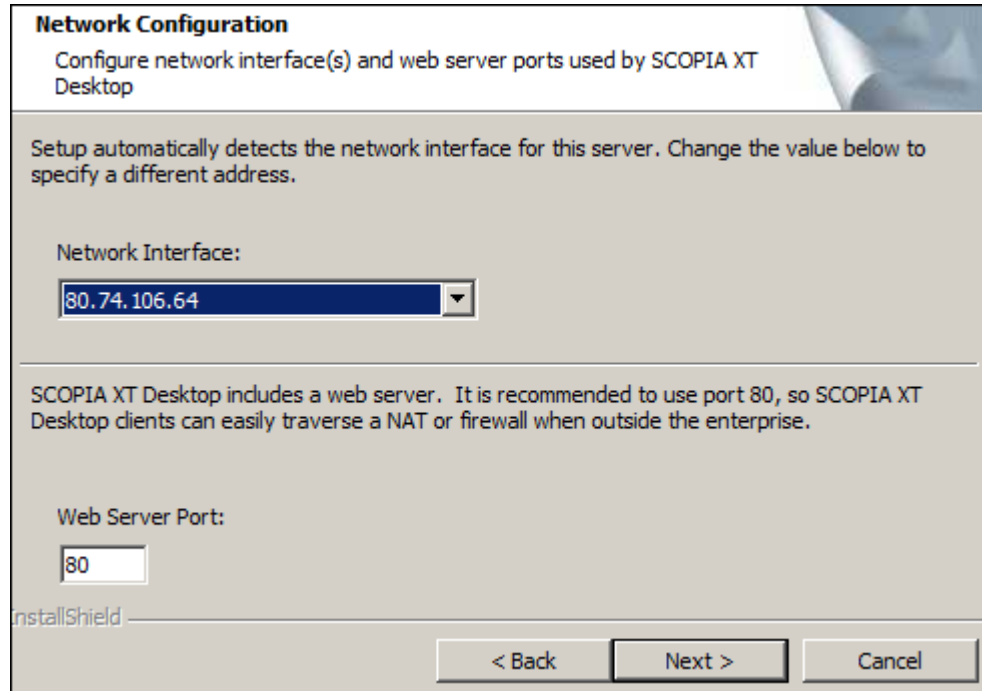


Figure 13: Selecting the NIC pointing to the internal network

7. Change the default web server port if required, and then select **Next**.
8. In the **Hostname Configuration** window specify the public name of the Scopia® Desktop server, to be used later as part of the URL sent to Scopia® Desktop Clients to connect to videoconferences.

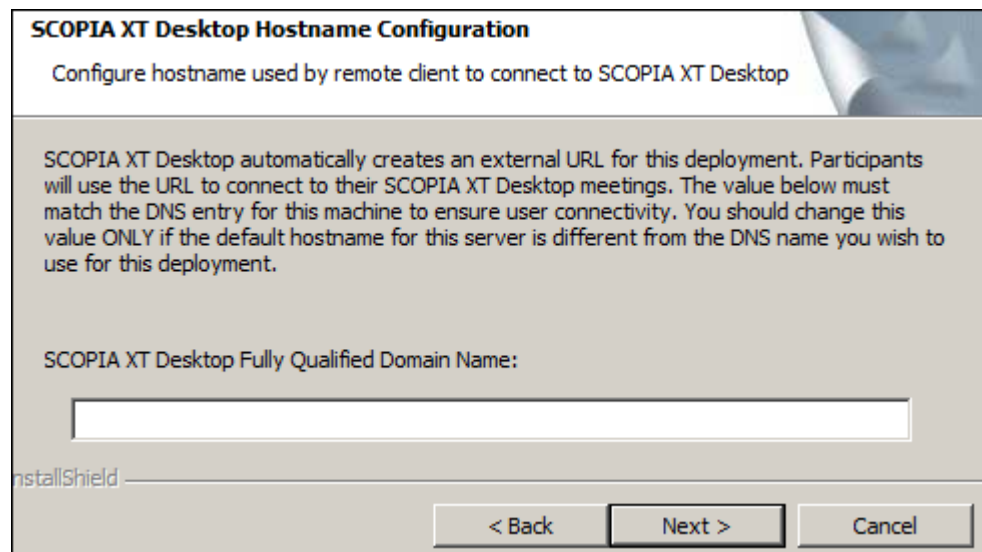


Figure 14: Defining the public address of the Scopia® Desktop server

! Important:

An external Scopia® Desktop Client must be able to resolve the server's hostname to the correct IP address from its location outside the enterprise. For example, do not use an internal DNS name if you have clients connecting from the public Internet.

9. Select **Install** in the **Ready to Install the Program** window.
10. Select **Finish**.
11. If the local Windows Firewall is active on the Scopia® Desktop server, two core services which must have permission to communicate through the firewall. Navigate to the Windows Firewall Control Panel ([Figure 15: Enabling public access for essential services](#) on page 27) and enable the following programs:
 - **Commons Daemon Service Runner**, located at `<install_dir>\tomcat\bin\tomcat7.exe`.
 - **ScopiaDesktopServer**, located at `<install_dir>\ConfSrv\ConfSrv.exe`

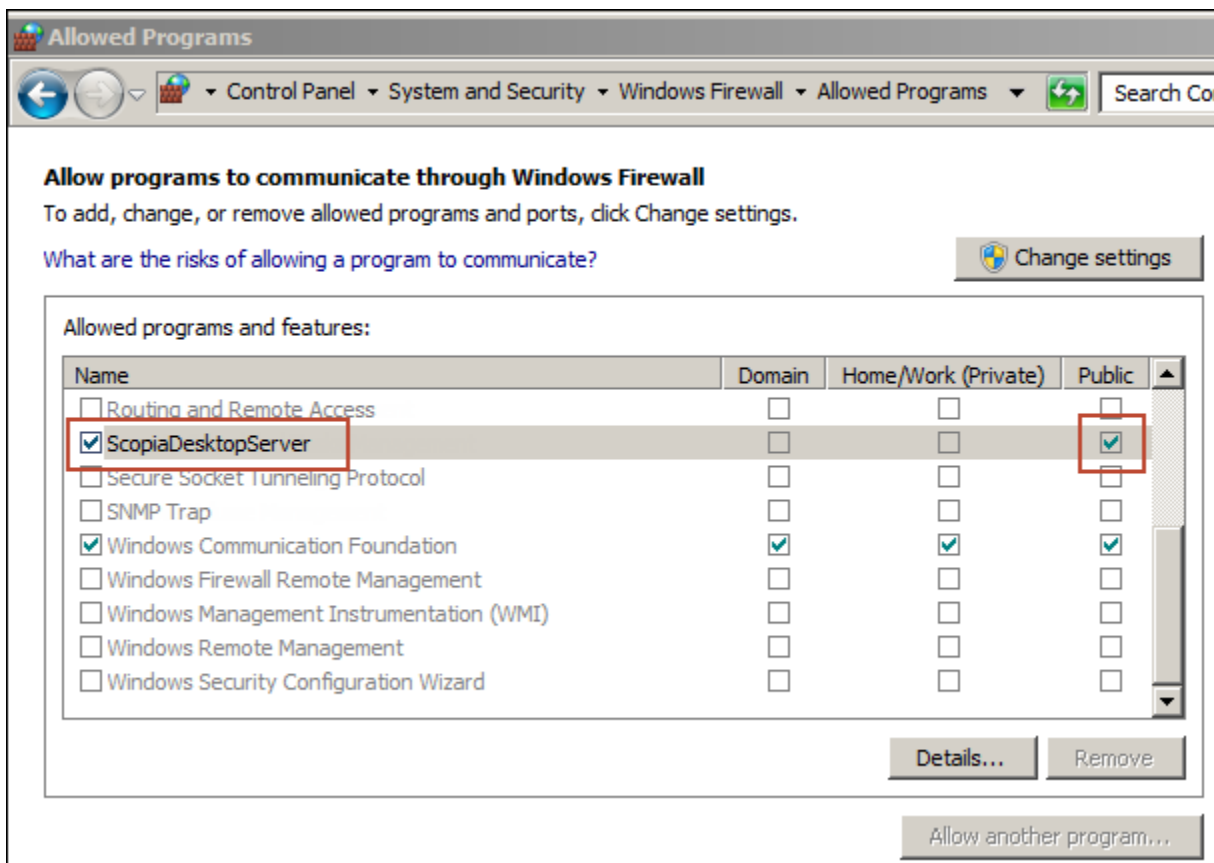


Figure 15: Enabling public access for essential services

Chapter 4: Configuring Your Deployment

This section describes how to access the Scopia® Desktop Administration web interface, configure your Scopia® Desktop , define a local administrator account, and verify that the Avaya Scopia® XT Series SMB Edition and Scopia® Desktop are successfully connected.

Related Links

[Accessing the Scopia® Desktop server Web Administration Interface](#) on page 28

[Defining an Administrator Account](#) on page 29

[Connecting Scopia® XT Desktop with the XT Series](#) on page 29

[Verifying Scopia® Desktop server Installation and Connection with Other Components](#) on page 31

[Defining a Local Directory of Endpoints](#) on page 32

[Defining Bandwidth Settings in Scopia® Desktop server](#) on page 33

[Defining Scopia® Desktop server Public Address and Other Client Connection Settings](#) on page 34

[Enabling Scopia® Desktop Client Features](#) on page 35

[Rolling-Out Scopia® Desktop Client to End Users](#) on page 37

Accessing the Scopia® Desktop server Web Administration Interface

About this task

The Scopia® Desktop server web administration interface is a web-based application to configure the settings of your Scopia® Desktop server.

Perform this procedure to access the administration web interface.

Procedure

1. Access the Scopia® Desktop server Administration web interface in a browser at *http://<server_name>/scopia/admin*

where *<server_name>* is the FQDN of your Scopia® Desktop server. If you have deployed a non-standard port to access the Scopia® Desktop server, enter the port number in the standard way: *<server_name>:<port_number>*. If you have implemented secure access to the server, use the *https://* prefix.

2. Enter your username and password.

The default username is **admin** and the password is **admin**.

3. Select **Sign In**.

Related Links

[Configuring Your Deployment](#) on page 28

Defining an Administrator Account

About this task

You can define a username and password for an administrator to access Scopia® Desktop server Administration web interface.

Procedure

1. Select **Directory and Authentication** in the sidebar.

The **Settings** tab is displayed.

Figure 16: Configuring the local administrator credentials

2. Enter a **User Name** and **Password** in the **Local Administrator** section.
3. Select **OK**.

Related Links

[Configuring Your Deployment](#) on page 28

Connecting Scopia® XT Desktop with the XT Series

About this task

This section describes how to connect the Scopia® XT Desktop server with the Avaya Scopia® XT Series SMB Edition with its built-in MCU.

Procedure

1. Access the Scopia® XT Desktop server administration web interface.
2. Select **Deployment** in the sidebar.
3. Enter the IP address of the XT Series with its built-in MCU in the **Management Address** field.



Figure 17: Setting the address of the managing Avaya Scopia® XT Series

4. For dual-NIC deployments only, select the correct NIC address from the drop-down menu for the following fields:

Field	Description
Scopia® XT Desktop Network Interface	Select the NIC address used to communicate management messages with the Avaya Scopia® XT Series, like configuring via the administration web interface.
Scopia® XT Desktop Control Interface	Select the NIC address used for signaling and control in your deployment, such as call routing, establishing media channels (codecs), starting presentations, and so on.
Scopia® XT Desktop Media Interface	Select the NIC address used to transmit the actual audio and video media.

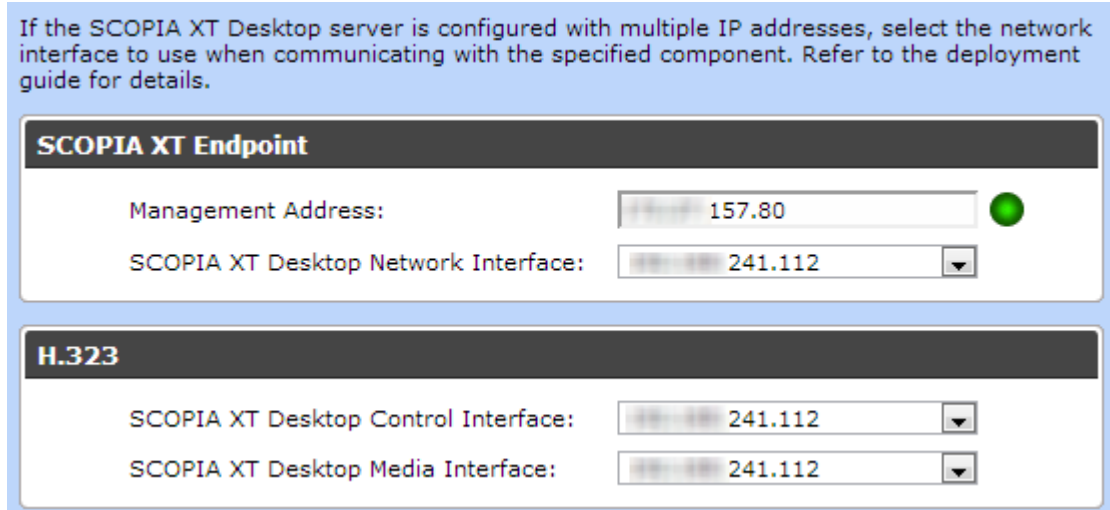


Figure 18: Configuring a dual-NIC Scopia® XT Desktop server

5. Select **OK**.

Related Links

[Configuring Your Deployment](#) on page 28

Verifying Scopia® Desktop server Installation and Connection with Other Components

About this task

The Scopia® Desktop Administrator web interface displays the connectivity status of your deployment. The indicators next to each link shows whether or not the connection or registration to the target server is successful. When the indicator is red, hover over the indicator to view the tooltip containing the error details.

Procedure

1. To verify that Scopia® Desktop Server is connected to the Avaya Scopia® XT Series , select **Status** in the sidebar.
2. View the connection status for each server or component. If necessary, select any red indicators to view further error information.

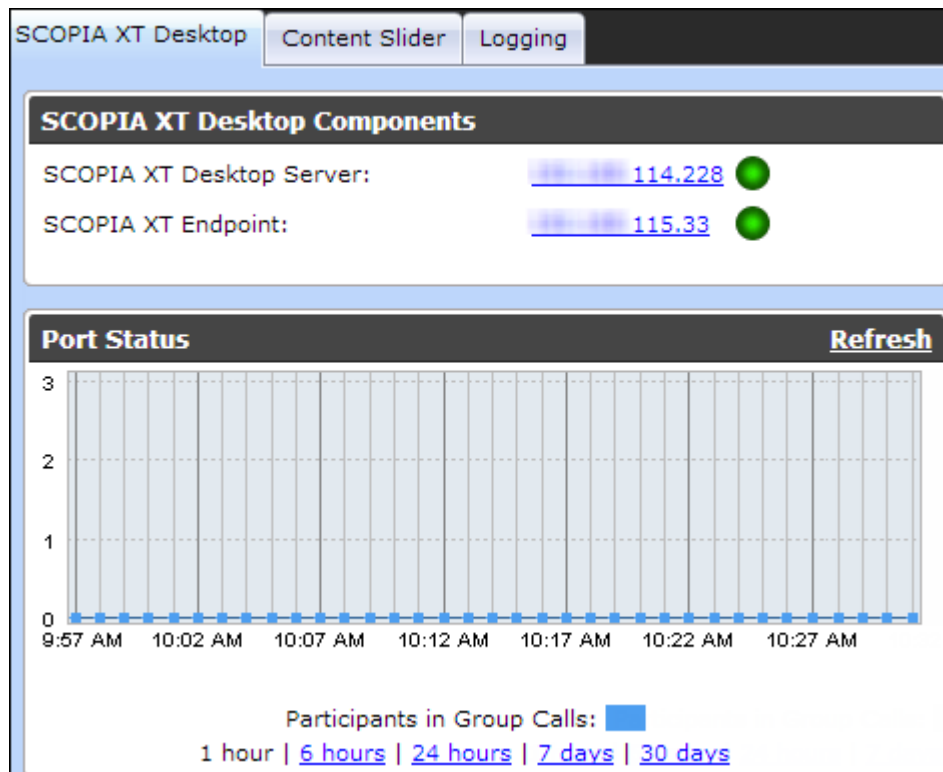


Figure 19: Viewing the connection status with Scopia® Desktop server

3. (Optional) View the connection status of the Scopia® Content Slider by selecting the **Content Slider** tab. For more information on the Content Slider, see [About Components of the Scopia® Desktop server](#) on page 7.
4. If necessary, select any red indicators to view further error information.

Related Links

[Configuring Your Deployment](#) on page 28

Defining a Local Directory of Endpoints

About this task

The local directory is a local database containing names and IP addresses of endpoints on the Scopia® Desktop server deployment. Typically, a local directory of endpoints is maintained in deployments which do not include Scopia® Management.

This list of endpoints is displayed when users select **Moderate > Invite** in their **Meeting** window in Scopia® Desktop Client.

Procedure

1. Access the Scopia® Desktop server Administration web interface.
2. Select **Directory and Authentication** icon in the sidebar.
3. Select the **Directory** tab.

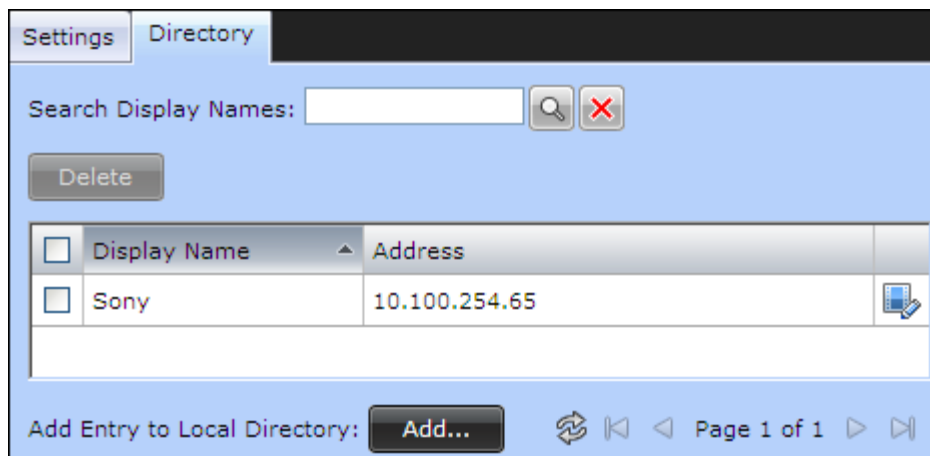


Figure 20: Local database of endpoints

4. To add a new endpoint to your local directory:
 - a. Select **Add**.
 - b. Enter the endpoint name and IP address.
 - c. Select **OK**.
5. To edit properties for an endpoint:
 - a. Select the **Edit** icon next to the endpoint whose properties you want to edit.
 - b. In the **Edit Entry** window, edit properties as needed.
 - c. Select **OK**.

6. To delete an endpoint from the database:
 - a. Select the check boxes for the endpoints you want to delete.
 - b. Select the **Delete** button.

Related Links

[Configuring Your Deployment](#) on page 28

Defining Bandwidth Settings in Scopia® Desktop server

About this task

This section details how to define the maximum bandwidth used between the Scopia® Desktop Client and the Scopia® Desktop server. [Calculating the Bandwidth Used by Scopia® Desktop Participants](#) on page 14 explains how to assess the maximum bandwidth per Scopia® Desktop Client.

This value determines the maximum bandwidth used by a Scopia® Desktop participant uploading and downloading media during a videoconference. A webcast viewer uses half of this bandwidth because media is only downloaded from the Scopia® Desktop server when a videoconference is streamed.

Before you begin

Decide on the maximum bandwidth per Scopia® Desktop Client as explained in [Calculating the Bandwidth Used by Scopia® Desktop Participants](#) on page 14.

Procedure

1. Access the Scopia® Desktop server Administration web interface.
2. Select the **Client** icon in the sidebar.
3. Select the **Settings** tab.
4. Select the maximum call rate in the **Maximum Video Quality** section.

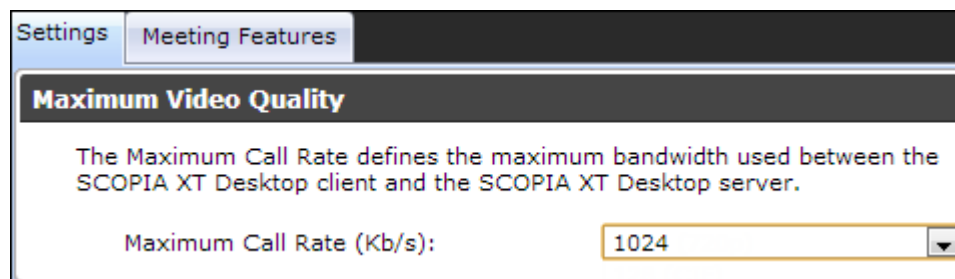


Figure 21: Setting maximum bandwidth in Scopia® XT Desktop server

Related Links

[Configuring Your Deployment](#) on page 28

Defining Scopia® Desktop server Public Address and Other Client Connection Settings

About this task

This section details how to define the public address of the Scopia® Desktop server, which is pushed to Scopia® Desktop Clients participating in a videoconference on that server.

You can also define Scopia® Desktop server's size of network packets (MTU size). The MTU, or Maximum Transmission Unit, is the maximum size of data packets sent around your network.

Procedure

1. Access the Scopia® Desktop server Administration web interface.
2. Select the **Client** icon in the sidebar.
3. Select the **Settings** tab.
4. Insert the public address of the Scopia® Desktop server to be accessed by the client. Use a FQDN which Scopia® Desktop Clients can resolve from their location, to arrive at the correct IP address of the server.

If a DNS name is not specified in the **Public Address** field, the Scopia® Desktop server network interface address is used.

Figure 22: The public address for Scopia® Desktop Clients to connect to the server

5. Define the **MTU Size** if your network routers and the XT Series are configured to accept network packets of a different size. The default value is **1360**.

Figure 23: Setting the MTU size for Scopia® Desktop Client

! Important:

This value must remain the same across all network components to guard against packet fragmentation.

6. Select **OK** or **Apply**.

Related Links

[Configuring Your Deployment](#) on page 28

Enabling Scopia® Desktop Client Features

About this task

This section describes how to enable or disable features in the **Meeting** window of the Scopia® Desktop Client for all users logged in to the Scopia® Desktop server. You can:

- Enable or disable presentations (desktop sharing).
- Enable or disable text chat.
- Enable or disable encryption.

! Important:

Using encryption is subject to local regulation. In some countries it is restricted or limited for usage. For more information, consult your local reseller.

- Add a pane in the videoconferencing window containing web content for all users in your organization.

The changes you make in this procedure are global and affect all Scopia® Desktop Clients connecting to this Scopia® Desktop server.

Procedure

1. Access the Scopia® Desktop server Administrator web user interface.
2. Select the **Client** icon in the sidebar.
3. Select the **Meeting Features** tab.

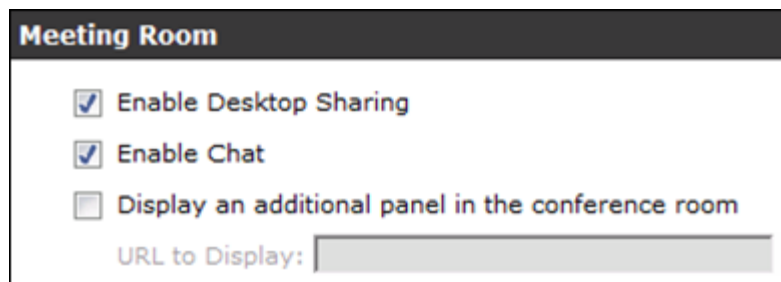


Figure 24: Enabling or disabling client videoconferencing features

4. Enter the fields as described in [Table 6: Settings for the Scopia® Desktop Client Meeting window](#) on page 36.

Table 6: Settings for the Scopia® Desktop Client Meeting window

Field	Description
Enable Desktop Sharing	Determines whether participants can share their PC desktop content with others in the videoconference. If desktop sharing disabled, the Present button does not appear in the Meeting window of Scopia® Desktop Client.
Enable Chat	Determines whether to display the chat window pane in the Meeting window of Scopia® Desktop Client.
Display an additional panel in the conference room	Determines whether to display an additional pane in Scopia® Desktop Client's Meeting window within your organization. The pane's contents are drawn from an external web address.
URL to Display	Enter the web address in this field. When the system accesses the web address, it automatically appends two parameters: the current meeting ID and the participant's nickname. This enables your external web content to relate to the meeting and participant if required. The parameters added are: ?meetingid=NNN&nickname=XXX. If your external web content already takes different parameters in its URL, these parameters are appended to the URL string. Use standard URL-encoding in this field, for example '&' is %26, '=' is %3D and so on.

5. Configure the **Push to Talk** section to define how participants use the microphone button in the **Meeting** window of Scopia® Desktop Client.

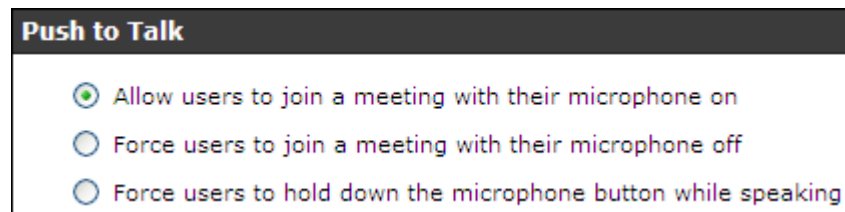


Figure 25: Push to Talk Settings

Enter the fields as described in [Table 7: Defining microphone behavior during a meeting](#) on page 36.

Table 7: Defining microphone behavior during a meeting

Field	Description
Allow users to join a meeting with their microphone on	When selected, this field enables the microphone by default, so participants must select the microphone button to mute themselves.
Force users to join a meeting with their microphone off	(Recommended) When selected, this field disables the microphone by default, so participants must select the microphone button to unmute themselves.

Table continues...

Field	Description
	This is eliminates background noise from a videoconference until the participant is ready to contribute.
Force users to hold down their microphone button while speaking	When selected, this field requires participants to select and hold down the microphone button to activate their microphones and send their audio.

6. Select **Encrypt Media** to encrypt audio and video over UDP between Scopia® Desktop server and Scopia® Desktop Client.

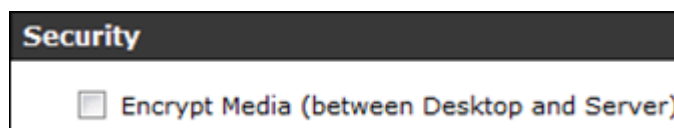


Figure 26: Security Settings

7. Select **OK** or **Apply**.

Related Links

[Configuring Your Deployment](#) on page 28

Rolling-Out Scopia® Desktop Client to End Users

About this task

This section provides the recommended procedures for rolling-out your deployment to end users.

The section includes these topics:

Related Links

[Configuring Your Deployment](#) on page 28

[Minimum Requirements for Scopia® Desktop Client](#) on page 37

[Installing Scopia® Desktop Client Locally on a PC](#) on page 39

[Centrally Deploying Scopia® Desktop Clients in your Organization](#) on page 40

Minimum Requirements for Scopia® Desktop Client

This section details the minimum hardware and software requirements of the Scopia® Desktop Client.

The minimum hardware requirements for the Scopia® Desktop Client depend on the video resolution.

- Standard definition hardware specifications:
 - PC Intel Pentium 4, 3.0 GHz or faster
 - PC AMD Athlon 3.0 GHz or faster

Configuring Your Deployment

- PC Intel Centrino Mobile Processor 1.8 GHz or faster
- Mac with Intel Core Duo 1.8 GHz or faster
- Netbook Intel Atom Processor 1.6 GHz or faster
- 1GB of RAM or more
- Enhanced definition hardware specifications:
 - PC Intel true dual core processors - Core 2 Duo 1.8 GHz or faster
 - PC AMD true dual core processors - e.g. Phenom IIx4 91- 2.X GHz or faster
 - Minimum 2GB of RAM
- High definition hardware specifications:
 - Intel PC architecture
 - 2nd Generation Intel® Core™ i3, i5 or i7 processors (Sandy Bridge) or newer
 - Or
 - Any Intel generation with quad-core processors
 - i5 or i7 recommended
 - PC AMD Quad-Core Opteron
 - Mac with Intel Core 2 Duo 2.7 GHz or faster
 - Minimum 2GB of RAM, 3GB of RAM or more recommended

The minimum software requirements of the Scopia® Desktop Client are:

- Operating systems:
 - Windows XP (SP3, 32 and 64-bit)
 - Windows Vista (SP2 or higher, 32 and 64-bit)
 - Windows 7 (32 and 64-bit)
 - Windows 8 and 8.1 (desktop mode, 32 and 64-bit)
 - Windows 10 (32 and 64 bit)
 - Mac OS X version 10.7 (Lion) or higher, Intel CPU only

We recommend using the latest service pack of the Windows operating systems listed in this section.

- Internet browsers:

Scopia® Desktop is tested with the latest internet browser versions available at the time of release.

! Important:

Internet Explorer must be installed on your Windows PC when using the Scopia® Desktop Client, even if you access meeting with other web browsers like Firefox or Chrome.

- Google Chrome (version 30 and later)
- Internet Explorer (version 8 and later, for windows)
- Firefox (version 25 and later)
- Safari (version 5 and later)

Related Links

[Rolling-Out Scopia® Desktop Client to End Users](#) on page 37

Installing Scopia® Desktop Client Locally on a PC


About this task

The web portal provides an automatic download and update manager. When you select the **Updates** link, it displays any currently installed components and versions, and enables you to install components, including Scopia® Add-in for Microsoft Outlook .

Before you begin

- Connect a headset or speaker and microphone to your computer, and ensure it is configured in the control panel or system settings.
- Connect a video camera or webcam to your computer.

Procedure

1. To activate Scopia® Desktop for the first time, go to the .
2. Select **Updates** in the top-right corner of the web portal.
3. Select **Conference Client** to install or update the Scopia® Desktop Client.
4. Select **Install**. When the Scopia® Desktop Client installation is complete, you should see the following icon in the task tray at the lower right corner of the screen: 
5. To verify that any optional components were installed, select the **View Installed Updates** link. A list of installed components appears.

Related Links

[Rolling-Out Scopia® Desktop Client to End Users](#) on page 37

Centrally Deploying Scopia® Desktop Clients in your Organization

About this task

You can push Scopia® Desktop Clients simultaneously to end users using one of these standard Microsoft server tools:

- Microsoft Active Directory (AD)
- Microsoft Systems Management Server (SMS).

Contact Customer Support to obtain pre-prepared scripts which can run using either of these infrastructures. There is also accompanying documentation on how to deploy throughout your organization using either of these infrastructures.

Related Links

[Rolling-Out Scopia® Desktop Client to End Users](#) on page 37

Chapter 5: Securing Your Scopia® Desktop Deployment

This section describes how you can enhance the security of your Scopia® Desktop deployment by encrypting Scopia® Desktop communications and by protecting meetings.

! Important:

Using encryption is subject to local regulation. In some countries it is restricted or limited for usage. For more information, consult your local reseller.

Related Links

[Encrypting Scopia® Desktop server Communications](#) on page 41

[Protecting Meetings with a PIN](#) on page 50

[Securing your Scopia SR public interfaces](#) on page 50

Encrypting Scopia® Desktop server Communications

You can secure Scopia® Desktop server communications by encrypting its traffic.

There are several data streams between Scopia® Desktop server and Scopia® Desktop Client which are transmitted using different protocols as shown in [Figure 27: Protocols used in an unsecure environment](#) on page 41:

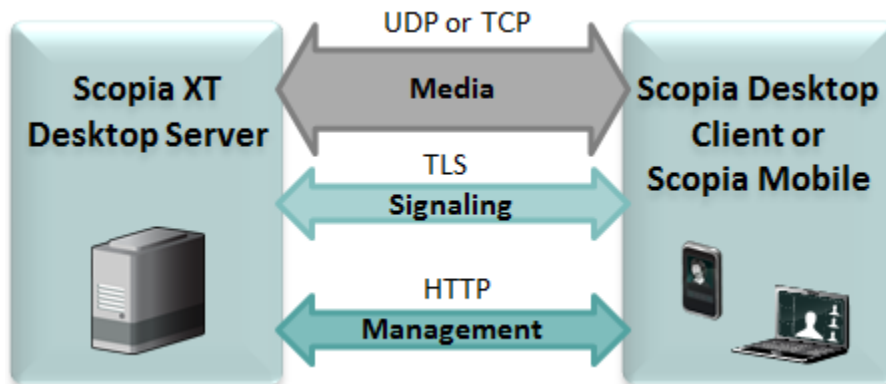


Figure 27: Protocols used in an unsecure environment

The media stream consists of audio, video and presentation. Audio and video are sent over UDP by default. If the UDP connection fails, for example, if the UDP port is closed, TCP is used instead. Presentation always uses TCP.

In a secure environment you encrypt Scopia® Desktop server communications as shown in [Table 8: Protocols used for encrypting Scopia® Desktop server communications](#) on page 42.

Table 8: Protocols used for encrypting Scopia® Desktop server communications

Data stream	Unsecure environment	Secure environment
Audio and video	UDP	SRTP
	TCP	TLS
Signaling and presentation	TCP	TLS
Management	HTTP	HTTPS

Make sure that you protect all data streams and have a secure environment as shown in [Figure 28: Protocols used in a secure environment](#) on page 42.

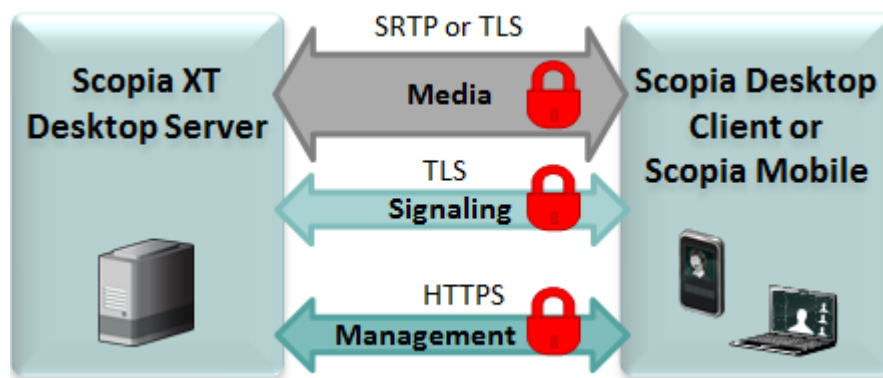


Figure 28: Protocols used in a secure environment

Related Links

- [Securing Your Scopia® Desktop Deployment](#) on page 41
- [Encrypting Web Access to the Scopia® Desktop server](#) on page 42
- [Generating a Unique TLS Certificate for Scopia® Desktop server](#) on page 46
- [Encrypting Media over UDP between Scopia® Desktop server and Scopia® Desktop Client](#) on page 48

Encrypting Web Access to the Scopia® Desktop server

About this task

You can secure access to the Scopia® Desktop server web administration interface and web portal by enabling HTTPS encryption of the management traffic. HTTPS is the secured version of the

standard web browser protocol HTTP. It secures communication between a web browser and a web server through authentication of the web site and encrypting communication between them.

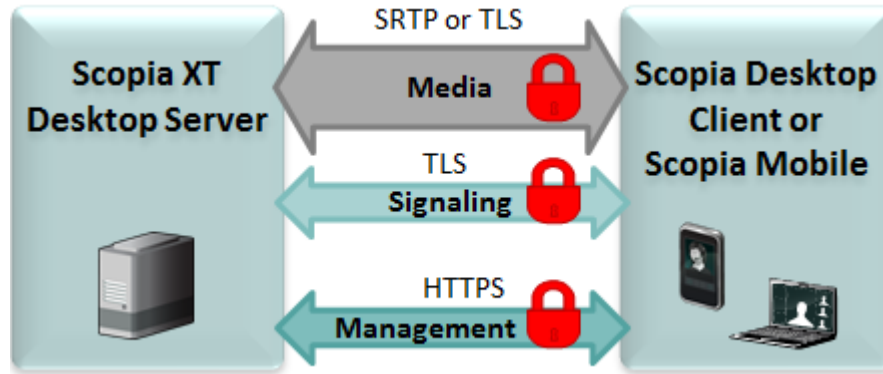


Figure 29: Encrypting communications between Scopia® Desktop server and Scopia® Desktop Client

Encrypting web access to the Scopia® Desktop server requires a signed certificate for it. Scopia® Desktop server comes with a non-unique certificate pre-installed on the Scopia® Desktop Conference Server, however, we recommend that you use a unique certificate for stronger authentication as described in the procedure below.

Before you begin

For stronger authentication, make sure you have a unique HTTPS certificate on the Scopia® Desktop Conference Server. Do not save the certificate in the Scopia® Desktop installation directory or any of its sub-directories, to avoid its accidental deletion during an upgrade.

Procedure

1. Select **Start > All Programs > Scopia® Desktop > ConfigTool**.
2. Select the **Enable HTTPS** check box in the **HTTPS** tab.

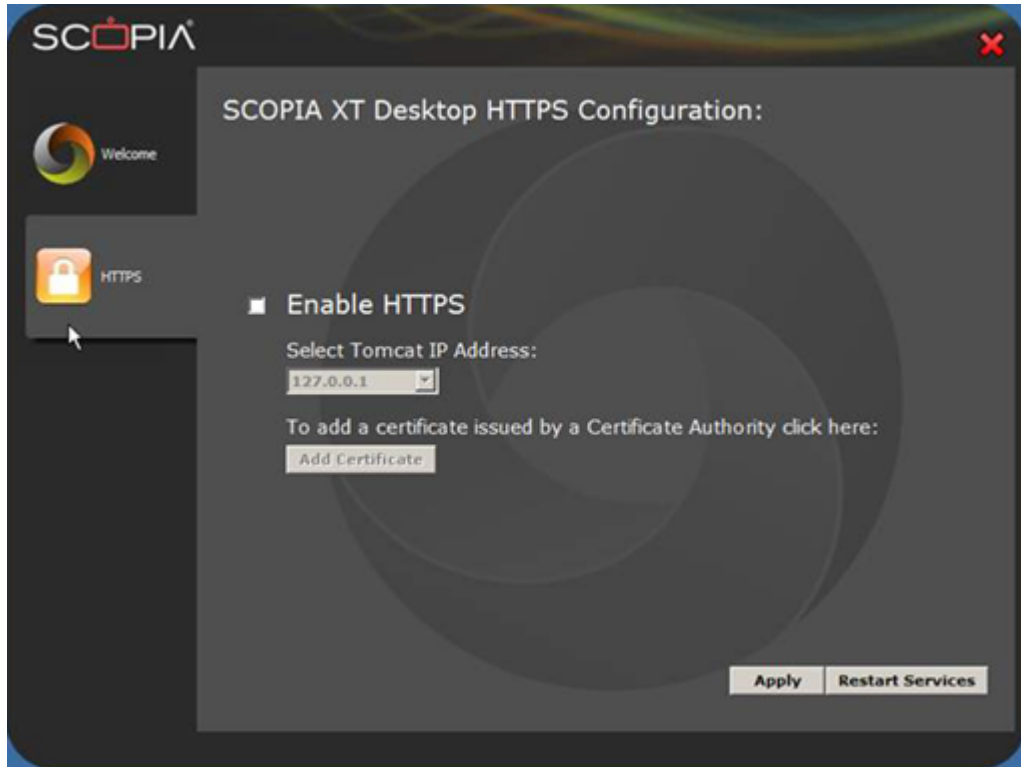


Figure 30: Adding a certificate to Scopia® Desktop server

3. Ensure that the real IP address of Scopia® Desktop server is displayed in the **Select Tomcat IP Address** list.
4. Select **Apply**.

You have enabled HTTPS with the pre-installed non-unique certificate. For stronger authentication, use a unique certificate by following the rest of this procedure.
5. Select **Add Certificate** to upload an existing signed certificate.
6. If the certificate is installed in the local machine's Windows Certificate Store (WCS):
 - a. Select the **Configure Certificate via Certificate Store**.

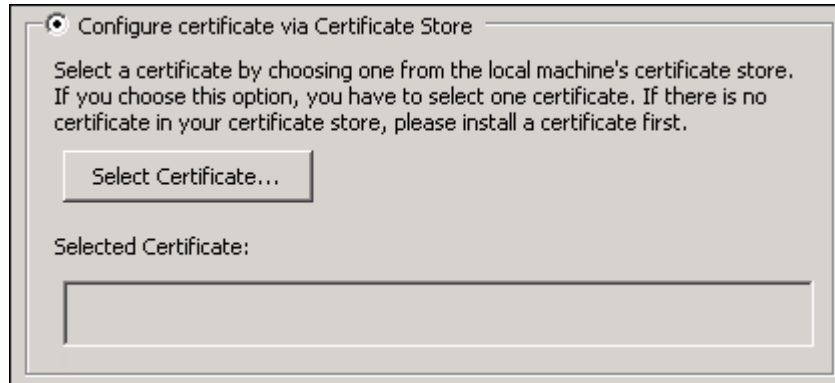


Figure 31: Configuring certificate using installed on the local machine

- b. Select **Select Certificate** to browse the WCS.
 - c. Select the certificate from the list of certificates in the WCS.
7. To locate a certificate by its filename:
- a. Select **Configure Certificate via File Name**.

Verify the certificate is not in the Scopia® Desktop installation directory or any of its sub-directories, to avoid its accidental deletion during an upgrade.

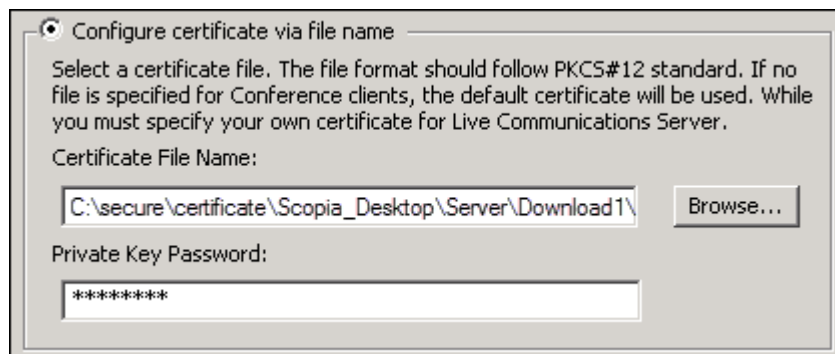


Figure 32: Configuring certificate using the file name

- b. Browse to the PKCS12 certificate and select it.
 - c. Enter the private key password for the certificate.
8. Select **OK**.
9. Verify that the certificate information is listed in the **Selected Certificate** pane.
10. Select **Apply**.
11. Select **OK**, and then select **OK** again.
12. Select **Restart Services**.

Related Links

[Encrypting Scopia® Desktop server Communications](#) on page 41

Generating a Unique TLS Certificate for Scopia® Desktop server

About this task

You can secure Avaya Scopia® Desktop's media and signaling between Avaya Scopia® Desktop server and Avaya Scopia® Management using TLS encryption. TLS enables network devices to communicate securely using certificates, to provide authentication of the devices and encryption of the communication between them. This method also checks the data integrity of messages.

By default, audio and video between Scopia® Desktop server and Scopia® Desktop Client are transmitted using the UDP protocol. If Scopia® Desktop server fails to establish the UDP connection with its client, it sends media over TCP. If this is the case your media is protected using TLS together with other data streams between Scopia® Desktop server and Scopia® Desktop Client.

! Important:

Using encryption is subject to local regulation. In some countries it is restricted or limited for usage. For more information, consult your local reseller.

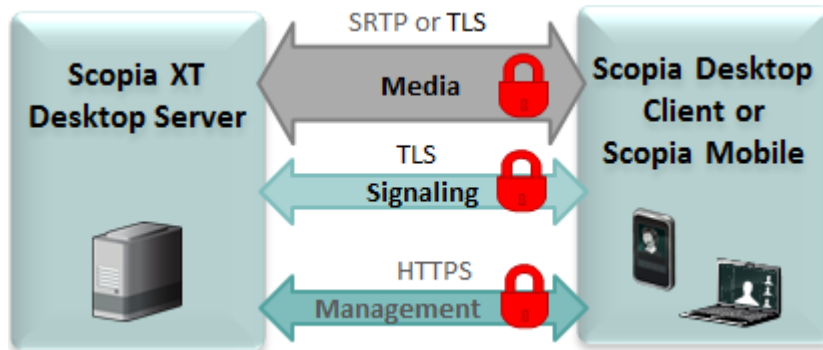


Figure 33: Encrypting communications using TLS

Each time a video network device starts the TLS communication session, it sends its own signed certificate together with the CA root certificate and requests the same certificates from the other devices to which it wants to connect. After both devices verify each other's identity, a secure TLS connection can be established. Exchanging certificates between devices is part of the TLS protocol; it happens in the background and is transparent to a user.

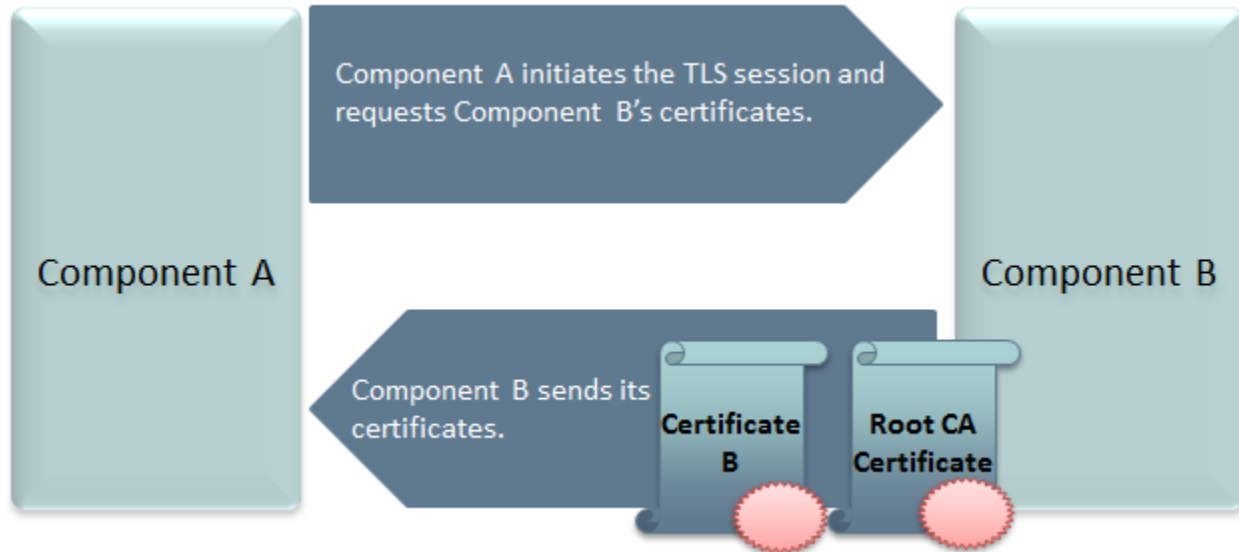


Figure 34: Establishing TLS connection

Scopia® Desktop server is shipped with a pre-created and pre-installed certificate, but its encryption keys are non-unique. You can create a unique certificate for stronger authentication as described in this section.

You create a unique certificate by generating a certificate signing request (CSR) using the `keytool` utility and sending it to a certificate authority (CA) for signing. The `keytool` utility is part of the Java installation.

! Important:

This section does not explain each of the parameters of the `keytool` command. For a full description of this Java utility, see <http://docs.oracle.com/javase/7/docs/technotes/tools/windows/keytool.html>.

Procedure

1. Stop the **Scopia® Desktop - Apache Tomcat** service.
2. Copy the `.keystore` file located in `<SD_install_dir>\data\sds.keystore` to a temporary working folder, for example `C:\cert`. The keystore file holds the certificates on each server. Currently they hold the default non-unique certificates.

! Important:

The password on the `.keystore` file is `radvision`.

3. Open a command line window. The `keytool` utility is located in `<SD_install_dir>\JRE\bin`.
4. Use the `keytool` utility to remove the pre-installed certificate from the `.keystore` file with the `-delete` parameter. The default certificate has an alias of `default`:

```
keytool -delete -alias default -keystore sds.keystore -storepass radvision
```

5. Generate a unique key pair using an appropriate DN with the `-genkeypair` parameter:

```
keytool -genkeypair -keyalg RSA -alias sds -sigalg MD5withRSA -dname "CN=<FQDN of server>"  
-keystore sds.keystore -storepass radvision -validity 365 -keysize 1024
```

6. Create a certificate signing request file (CSR) for the newly generated key pair using the `-certreq` parameter:

```
keytool -certreq -alias sds -sigalg MD5withRSA -keystore sds.keystore -storepass radvision  
-file C:\cert\certreq.csr
```

7. Send the certificate request to a Certificate Authority.

! Important:

Make sure that you use the same CA for signing certificates for both Scopia® Management and Scopia® Desktop server for a more efficient process.

8. The CA returns the certificate signed in form of `.crt` file, for example `signed_cert.crt`. It also returns a root certificate, `root_cert.crt`.

9. Import the root certificate of the CA into the keystore file using the `-import` parameter:

```
keytool -import -trustcacerts -alias root -file root_cert.crt -keystore sds.keystore  
-storepass radvision
```

where `root_cert.crt` is the trusted root certificate.

The `trustcacerts` parameter instructs `keytool` to check both the specific and the system `.keystore` file for the root certificate.

10. Import the signed certificate into the keystore file. Use the same alias you used in step 6 on page 48.

```
keytool -import -trustcacerts -alias sds -file signed_cert.crt -keystore sds.keystore  
-storepass radvision
```

`Keytool` issues a confirmation message if the certificate was uploaded successfully.

11. Copy the `.keystore` file back to its original location.
12. Restart the services on the Scopia® Desktop server.

Related Links

[Encrypting Scopia® Desktop server Communications](#) on page 41

Encrypting Media over UDP between Scopia® Desktop server and Scopia® Desktop Client

About this task

By default, audio and video between Scopia® Desktop server and Scopia® Desktop Client are transmitted using the UDP protocol. You can configure your Scopia® Desktop server to encrypt this data stream using the SRTP protocol.

Secure Real-time Transport Protocol (SRTP) adds security to the standard RTP protocol, which is used to send media (video and audio) between devices in SIP calls. It offers security with encryption, authentication and message integrity. The encryption uses a symmetric key generated at the start of the call, and being symmetric, the same key locks and unlocks the data. So to secure transmission of the symmetric key, it is sent safely during call setup using TLS.

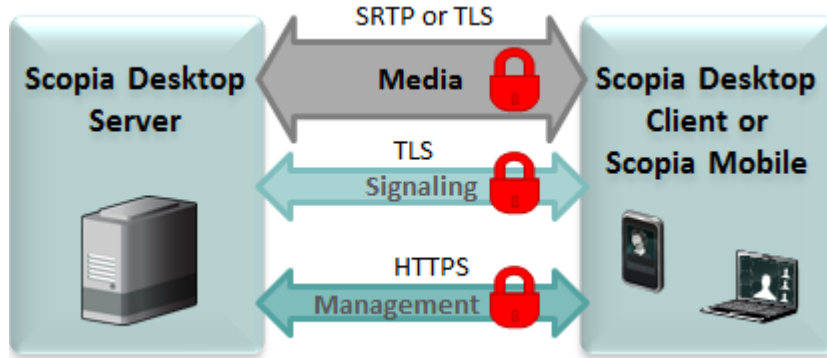


Figure 35: Encrypting media between Scopia® Desktop server and Scopia® Management

! Important:

Encrypt signaling between Scopia® Desktop server and Scopia® Desktop Client to protect transmission of the symmetric key.

If Scopia® Desktop server fails to establish the UDP connection with its client, it sends media over TCP. If this is the case and you enabled HTTPS on the Scopia® Desktop server, your media is protected using HTTPS together with other data streams between Scopia® Desktop server and Scopia® Desktop Client.

Procedure

1. Access the Scopia® Desktop web administration interface.
2. Select the **Client** icon in the sidebar.
3. Select the **Meeting Features** tab.
4. Select **Encrypt Media** to encrypt audio and video over UDP between Scopia® Desktop server and Scopia® Desktop Client.

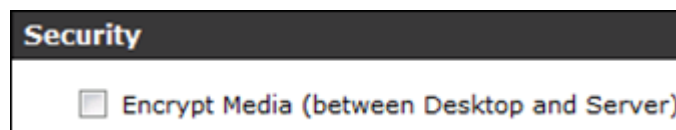


Figure 36: Security Settings

5. Select **OK** or **Apply**.

Related Links

[Encrypting Scopia® Desktop server Communications](#) on page 41

Protecting Meetings with a PIN

About this task

You can require all users whose endpoints access meetings through this server must enter a predefined PIN.

Procedure

1. Access the Scopia® Desktop server Administration web interface.
2. Select **Directory and Authentication** in the sidebar.
3. Select the **Require attendees to enter a PIN to gain access to the meeting** check box in the **Meeting PIN** section.

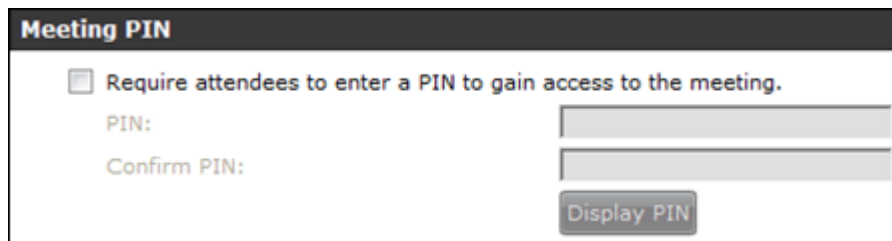


Figure 37: Meeting PIN Section

4. Enter a PIN in the **PIN** field.
5. Enter the PIN again in the **Confirm PIN** field.
6. To check the PIN you have configured, select **Display PIN**.
7. Select **OK**.

Related Links

[Securing Your Scopia® Desktop Deployment](#) on page 41

Securing your Scopia® SR public interfaces

Scopia® SR has three public interfaces:

- The Scopia® SR Manager portal interface used to view the portal pages from Scopia® Desktop.
- The delivery node interface used for media playback.
- The virtual delivery node (VDN) interface used by the content delivery network (CDN) to fetch media for playback.

There are another two interfaces that are not accessed by users:

- The transcoder, which communicates with the Scopia® SR Manager, the conference point, and other delivery node.
- The conference point, which communicates with the Scopia® SR Manager and the transcoder.

You can enable settings in Scopia® SR Manager and Scopia® Management to secure the media, as well as the user portal pages.

For more information, see the *Avaya Scopia® Management Administrator Guide*, which is available on <https://support.avaya.com/>.

Related Links

[Securing Your Scopia® Desktop Deployment](#) on page 41

[Configuring external addresses for public interfaces](#) on page 51

Configuring external addresses for public interfaces

About this task

To secure the Scopia® SR public interfaces, proper certificates have to be generated. The certificates have to match the fully qualified domain name (FQDN) or the IP address of the machine. Avaya recommends setting the use of FQDNs.

When you configure your system to use FQDNs, they need to be used to register every device with the Scopia® SR Manager.

You must also configure Scopia® SR to use external addresses, using the FQDN, and not the IP address.

Procedure

1. Configure the external address of the delivery node.
 - a. Type `https://<DN IP Address>` in a web browser.
 - b. Log in using the following credentials:
 - Username: administrator
 - Password: administrator
 - c. Click the **Network** tab.
 - d. Enter the external address in the **External Address (optional)** field in the **Global Network Configuration** section.
 - e. Click **Submit**.
2. Configure the external address for the conference point.
 - a. Type `https://<CP IP Address>` in a web browser.
 - b. Log in using the following credentials:
 - Username: administrator
 - Password: administrator
 - c. Navigate to **System Configuration > Network Configuration**.
 - d. Enter the external address in the **External Address (optional)** field in the **Global Network Configuration** section.

- e. Click **Finish**.
3. Configure the external address for the transcoder.
 - a. Type `https://<CP IP Address>` in a web browser.
 - b. Log in using the following credentials:
 - Username: administrator
 - Password: administrator
 - c. Navigate to **System Configuration > Transcoder Configuration**.
 - d. Enter the external address in the **Transcoder Address** field.
 - e. Click **Finish**.

 **Note:**

If you are using IP addresses, the certificates have to be generated for the IP address. The IP address has to be included on both the **Common Name** field and the **Subject Alternative Name** field when generating the certificates. If the IP address is not included in the **Subject Alternative Name** field, certain devices, such as Mac computers or Android mobile devices may not operate correctly.

Related Links

[Securing your Scopia SR public interfaces](#) on page 50

Chapter 6: Introducing Avaya Scopia® Streaming and Recording

Avaya Scopia® Streaming and Recording server

The Avaya Scopia® 8.3.2 solution introduces a new component, Avaya Scopia® Streaming and Recording server (Scopia® SR). Scopia® SR is the Avaya next generation HD streaming and recording platform, bringing significant enhancements to the Avaya Scopia® solution for streaming and recording. The Avaya Scopia® Streaming and Recording server replaces the Avaya Scopia® Content Center Recording server (SCC) server.

Before you install Scopia® SR, you must make a number of decisions in order to ensure that the solution exactly matches the requirements of your deployment. For example, you must make a decision about scalability in accordance with the size of your enterprise. For a small enterprise, you can choose a single appliance which houses all of the Scopia® SR components. For a large enterprise, you can choose a distributed solution with multiple media nodes. Scopia® SR is highly flexible and easily adaptable, whatever your requirements. In addition, you must decide if you require a high degree of redundancy and whether you would like to enable external access and storage in the 'cloud'.

If you would like users outside of the enterprise to access recordings, you can deploy Scopia® SR in a Demilitarized Zone (DMZ) or use a reverse proxy server. In this way, the Scopia® SR is similar to the Avaya Scopia® Web Collaboration server (WCS). If you would like users outside of the enterprise to access the videoconference, you must deploy the WCS in a DMZ or use a reverse proxy server. Scopia® SR and WCS also support a Network Address Translation NAT Firewall configuration in a DMZ deployment. NAT Firewall is an additional layer of security. It blocks unrequested inbound traffic.

For more information, see the *Avaya Scopia® Solution Solution Guide*, which is available on <https://support.avaya.com/>.

Components

The Scopia® SR consists of the following components:

- Scopia® SR Conference Point™ (CP)
- Scopia® SR Delivery Node™ (DN)
- Scopia® SR Virtual Delivery Node™ (VDN)
- Scopia® SR Manager™

Scopia® SR Conference Point™

You must configure a conference point to capture H.323 video content and deliver live and on demand webcasting. The Scopia® SR conference point includes an embedded transcoder to convert H.323 calls into Windows Media or .MP4 format.

Each conference point must be associated with a delivery node. A delivery node streams and optionally archives the content captured by the conference point and delivers it to client systems.

You can configure a conference point to be in a geographic location. This means that you can assign a location to one or more conference points which coincide with locations set for Scopia® MCUs in Scopia® Management. When a program starts, Scopia® Management includes the desired location, and a conference point close to the MCU can be selected. If there are no conference points matching the location passed by Scopia® Management, then any conference points without a location are treated as a single pool of conference points, and one of those is selected. If there are no conference points available, the call fails.

Each conference point has a limit to the number of simultaneous high definition or standard definition calls it can handle.

The CP includes the following features:

- Video conferencing H.323 capture and transcoding
- High definition support
- Scalability for up to 10 high definition (1080p) or 30 standard definition (480p) calls, which include an audio/video and data stream each
- G.711 and AAC-LC audio capture and transcoding
- H.263, H.263+, H.264 capture and transcoding

The media node or all-in-one server can include the CP and transcoder components. The H.323 video and audio and the optional H.239 stream received by the CP are sent to the internal encoder for transcoding into Windows Media™ format or H.264/AAC MP4/MPEGTS/HLS formats.

- Operating Systems: The transcoder runs on the Windows Server 2012 R2 64-bit operating system with Hyper-V (an add-on to Windows Server 2012 that allows a Linux operating system to run on the same server). The CP runs on the CentOS 6.6 64-bit operating system. Using virtualization software, this enables both applications to run two different operating systems on the same server.
- Licensing: The server requires a single media node license for the CP. The license defines the number of simultaneous H.323 connections. An H.323 connection includes audio, video, and an optional H.239 secondary stream.
- Transcoding H.323 audio and Video: The CP connects H.323 calls to the Scopia® MCUs (Multipoint Control Units). When it establishes a video connection, the CP sends the audio and video data from the MCU to the internal transcoder. The transcoder converts the data into a format that is suitable for streaming.
- Transcoding with H.239: H.239 is an ITU recommendation that allows for establishment of multiple channels within a single H.323 session. Existing videoconference equipment can be used to stream audio and video and a secondary channel can stream a slide presentation or another data stream to the viewers of a program. This function is typically used to stream slide presentations synchronized with live audio and video. If a program uses a secondary H.239 channel, the encoder inputs the second stream, decodes, scales and mixes it with the main

video input for transcoding/streaming. The streams are then sent to the DN for delivery to the distribution network. The dual stream can also be recorded as a single MP4 program.

- High definition support: The CP supports high definition video and higher rate streaming quality and bandwidth. The CP supports the following ITU recommendations:
 - H.261 up to CIF Video
 - H.262 up to CIF video
 - H.263 up to CIF video
 - H.264 up to 1080p video
 - H.263+ up to 1024 x 768 H.239 data
 - H.264 up to 1080p H.239 data
 - G.711 audio
 - AAC-LC audio

The CP negotiates up to H.264 Level 3.2 video at 1.92 Mbps, and accepts up to 1080p and down to H.261 QCIF along with G.711 or AAC-LC audio. The streaming resolution and bandwidth rate depend on what you select for the bitrate when creating the program and what the Scopia® MCU negotiates.

Scopia® SR Delivery Node™

The DN provides on-demand and broadcast video delivery. Used alone or in a hierarchy of devices, the DN supports thousands of concurrent streams. The DN uses intelligent routing, content caching, and inherent redundancy to ensure transparent delivery of high-quality video.

Delivery nodes store all content that is created by the conference point and deliver the content to client systems. You must associate the conference point with the delivery nodes.

The Delivery Node Details dialog displays a list of **Source Programs** and **Distributed Programs**. Source programs are programs for which this delivery node is the main source for storage. Distributed programs are programs which other delivery nodes have forwarded to this delivery node.

Scopia® SR Virtual Delivery Node™ (VDN)

A virtual delivery node (VDN) delivers content to a global content delivery network (CDN) provider for cloud-based viewer playback. The appliance and the network of the CDN act as one delivery mechanism. Therefore, the VDN appliance and the CDN together create the Scopia® SR VDN solution.

Upon program creation, the publisher includes the options of distributing the program to delivery nodes and to the Scopia® SR VDN solution. VDN supports publishing recordings as well as live broadcast.

You can view the programs distributed to the VDN appliance and to be delivered to the CDN with the associated status of the program.

Scopia® SR currently only supports the HighWinds™ CDN

Scopia® SR Manager™

The Scopia® SR Manager provides a web-based interface to configure and manage streaming and recording software, devices, services, and users. The Scopia® SR Manager application resides on a single hardware platform and provides access to all content in the Scopia® SR environment.

There are two Scopia® SR Manager portals:

- Scopia® SR Manager Administrator Portal: Administrators use this portal to perform the following tasks:
 - Configure and manage video communications devices
 - Manipulate content
 - Monitor user roles
 - Create and set global policies
 - Identify best practices and usage effectiveness through comprehensive reporting
 - Allow access to the VDN for CDN deployment or programs
 - Manage organizations, in a multi-tenant deployment (including what profiles, categories and CDN settings they can access)
 - Create and manage viewer mappings to associate viewers with the appropriate distribution node location
- Scopia® SR Manager Viewer Portal: Viewers select the **Recordings and Events** tab on the main Avaya Scopia® Desktop page to access the viewer portal. Viewers can perform the following tasks:
 - View programs
 - Navigate categories
 - View live or on-demand programs

Related Links

[Example of a direct DMZ deployment](#) on page 56

[Example of a reverse proxy deployment](#) on page 58

[Example of a distributed deployment](#) on page 59

[Example of a cloud deployment](#) on page 62

[Scalability](#) on page 63

[System requirements](#) on page 64

Example of a direct DMZ deployment

[Figure 38: Direct DMZ Deployment](#) on page 57 displays an example of a Scopia® SR deployment that is situated directly in the demilitarized zone (DMZ). The deployment is a centralized or all-in-one solution, which means that all of the Scopia® SR components reside on a single server. An all-in-one solution is suitable for a small or medium deployment that does not require redundancy.

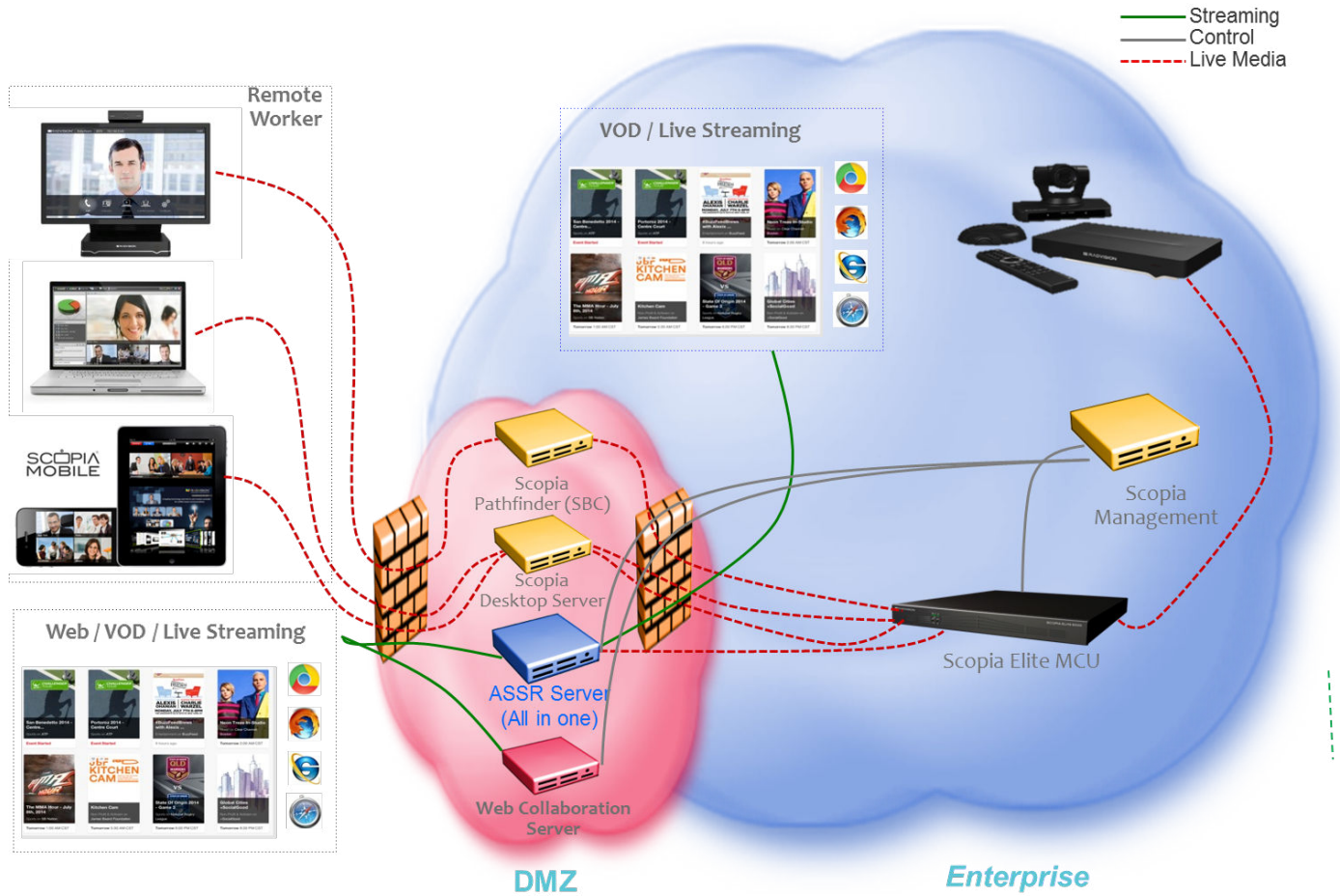


Figure 38: Direct DMZ Deployment

In a typical small deployment, all of the Scopia® SR components reside on a single server. The Scopia® SR Manager and the transcoder run directly on the host server. The conference point (CP), delivery node (DN), and, optionally, a virtual delivery node (VDN) run as virtual servers. VDNs enable enterprises to host recordings in the cloud.



Figure 39: Components in an All-In-One Deployment

Related Links

[Avaya Scopia Streaming and Recording server](#) on page 53

Example of a reverse proxy deployment

[Figure 40: Reverse Proxy Deployment](#) on page 59 displays an example of a Scopia® SR deployment that includes a reverse proxy server. The deployment is a centralized or all-in-one solution.

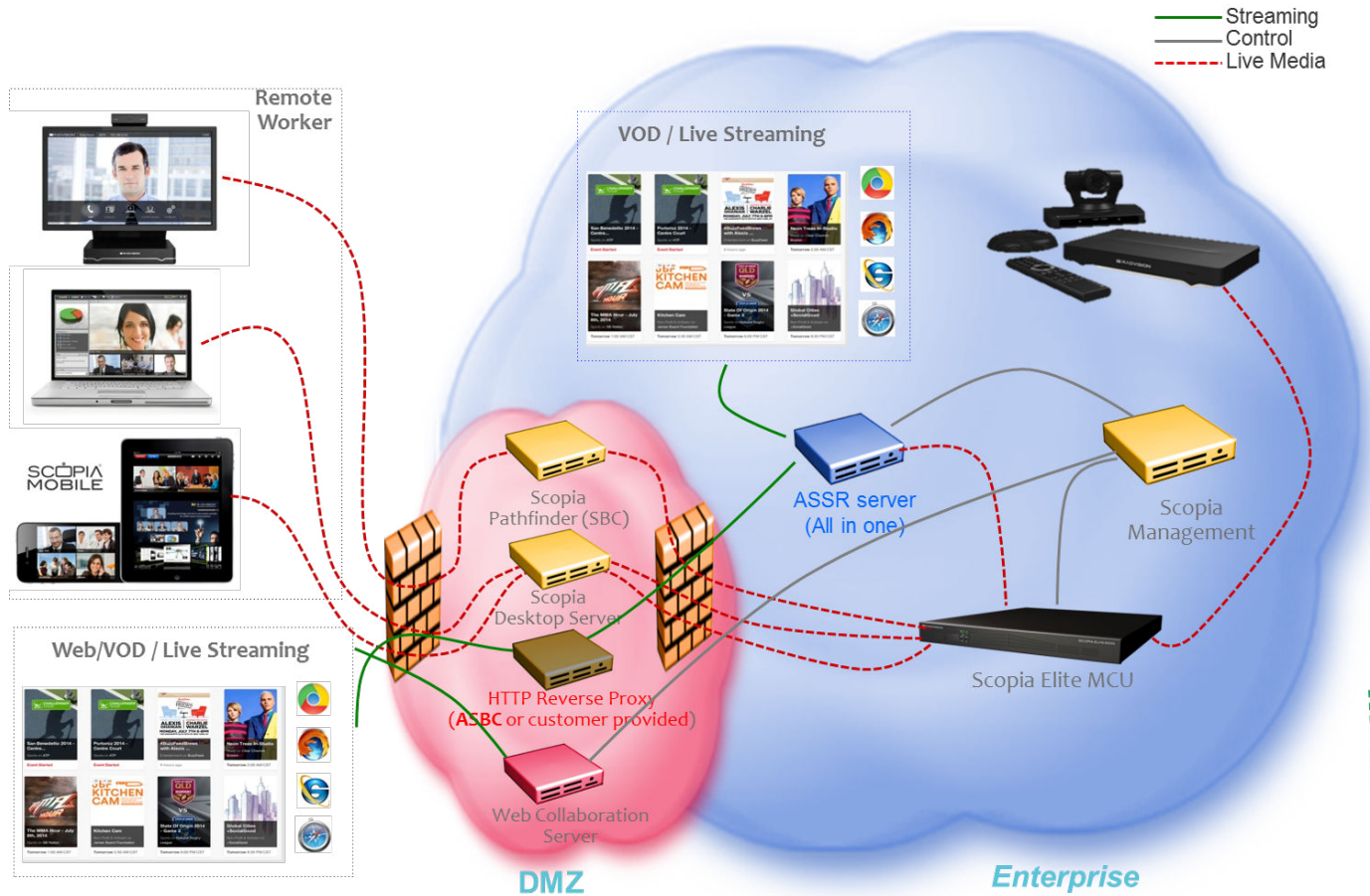


Figure 40: Reverse Proxy Deployment

Related Links

[Avaya Scopia Streaming and Recording server](#) on page 53

Example of a distributed deployment

Figure 41: Distributed Deployment on page 60 displays an example of a distributed Scopia® SR deployment. The deployment also uses a reverse proxy server. In this example, there are several delivery nodes (DNs) and/or conference points (CPs). This configuration enables Scopia® SR to host large numbers of recordings. A configuration with multiple media nodes can also provide redundancy.

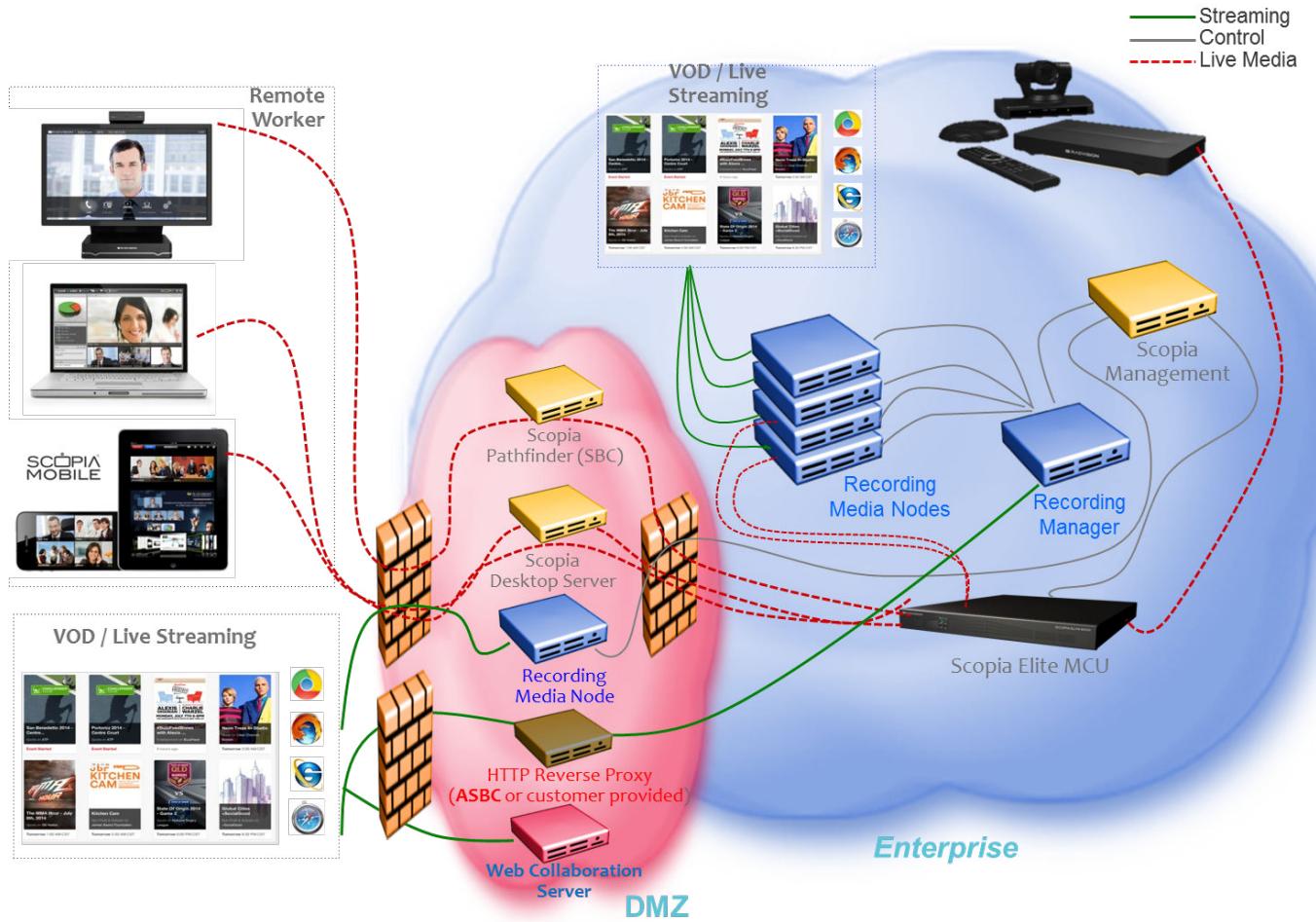


Figure 41: Distributed Deployment

In a typical distributed deployment, the Scopia® SR Manager resides on a separate, dedicated server. The various media nodes can operate as CPs, DNS, or virtual delivery nodes (VDNs). VDNs enable enterprises to host recordings in the cloud.

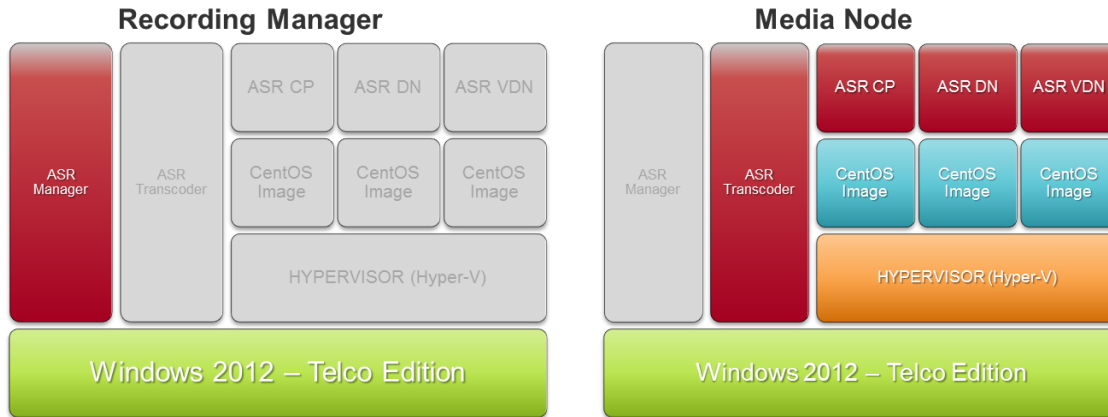


Figure 42: Components in a Distributed Deployment

Related Links

[Avaya Scopia Streaming and Recording server](#) on page 53

[Deployment choices for centralized and distributed solutions](#) on page 61

Deployment choices for centralized and distributed solutions

The Scopia® SR server performs three functions:

- Content recording
- Content delivery
- Content management

Content delivery, in this context, refers to streaming.

When you run the configuration utility (or *wizard*), you choose between three deployment options for the Avaya Scopia® Streaming and Recording server (Scopia® SR). You can choose to house all three functions on a single server. Alternatively, you can choose to house the management function on one server and the recording and delivery functions on another server or servers. This configuration involving multiple servers is called a distributed system.

If you intend to house all three functions on a single server, you must run the configuration utility on that server. On the selection screen, you must choose **All-in-One**.

If you intend to install a distributed system, you must run the configuration utility on each server in the system. On the selection screen, you must choose whether the server will house the content management or the recording and delivery functions.

Related Links

[Example of a distributed deployment](#) on page 59

[All-in-one](#) on page 62

[Content Management components only](#) on page 62

[Media Node only](#) on page 62

All-in-one

If your Scopia® SR deployment is an all-in-one system, all Scopia® SR components reside on a single server.

Related Links

[Deployment choices for centralized and distributed solutions](#) on page 61

Content Management components only

If your Scopia® SR deployment is a distributed system, the Scopia® SR components reside on multiple servers. You must install the content management components on one server and install the recording and delivery components on another server or servers.

For a distributed system, you must run the Scopia® SR Configuration Utility on each of the servers. When you are running the configuration utility on the server which will act as the content management server, you must select **Content management components only** on the Select Configuration dialog of the configuration wizard.

Related Links

[Deployment choices for centralized and distributed solutions](#) on page 61

Media Node only

If your Scopia® SR deployment is a distributed system, the Scopia® SR components reside on multiple servers. You must install the content management components on one server and install the recording and delivery components on another server or servers.

For a distributed system, you must run the Scopia® SR Configuration Utility on each of the servers. You can install the recording component on one server and the delivery component on another server. Alternatively, you can install both aspects on a single server. In this distributed configuration, these servers act as media nodes. When you are running the configuration utility on a server which will act a media node, you must select **Media Node only** on the Select Configuration dialog of the configuration wizard.

A media node that is used for the recording component is called a Conference Point (CP).

A media node that is used for the delivery component is called a Delivery Node (DN).

Related Links

[Deployment choices for centralized and distributed solutions](#) on page 61

Example of a cloud deployment

[Figure 43: Cloud Deployment](#) on page 63 displays an example of a Scopia® SR deployment that hosts recordings in the cloud. The deployment is a centralized or all-in-one solution that uses a reverse proxy server. A cloud deployment uses a virtual delivery node (VDN) to host recordings remotely.

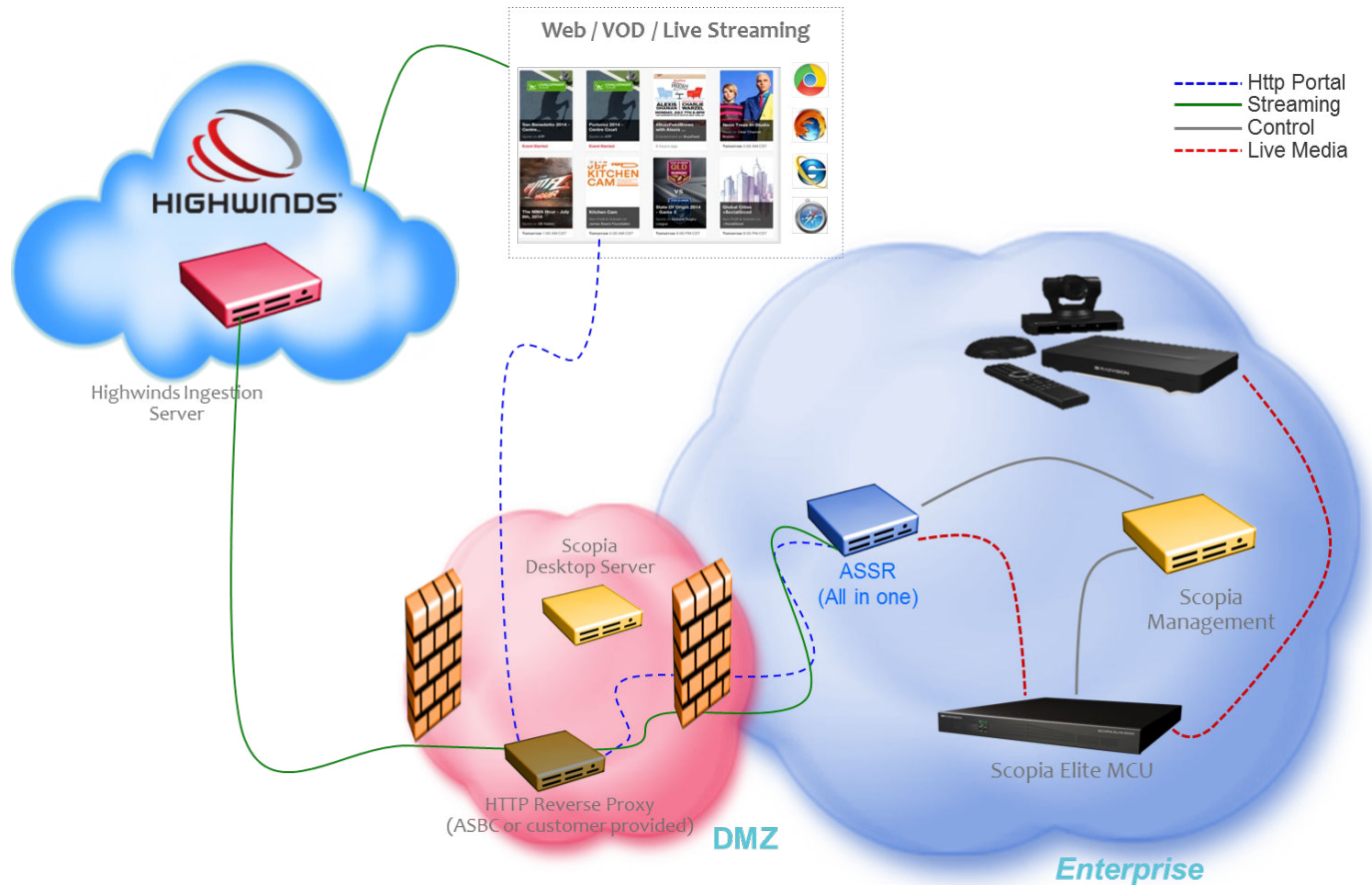


Figure 43: Cloud Deployment

Related Links

[Avaya Scopia Streaming and Recording server](#) on page 53

Scalability

Recording

Scopia® SR supports up to 10 high definition (1080p) or 30 standard definition (480p) recordings with H.239 simultaneously. The system negotiates high definition whenever possible.

The resolution negotiated is based on the configuration of the MCU service as well as the Scopia® SR profile. By limiting the profile to 480p or less, you can do 30 simultaneous recordings (trading off higher quality recordings versus the ability to do more recordings).

Scopia® SR supports a mix of resolutions, and can do three standard definition calls for every one high definition call. So, for example, if the system is licensed for 10 concurrent recordings, you can do any of the combinations of calls in [Table 9: Call Combinations](#) on page 64.

Table 9: Call Combinations

High Definition	Standard Definition
0	30
1	27
2	24
3	21
4	18
5	15
6	12
7	9
8	6
9	3
10	0

Playback

On a standalone media node configured for DN only, Scopia® SR supports up to 3,500 viewers at 720p / 768K for live broadcast or video on demand playback simultaneously.

On all-in-one servers or media nodes configured with DN and CP, Scopia® SR supports up to 1,500 viewers at 720p / 768K for live broadcast or video on demand playback simultaneously.

Related Links

[Avaya Scopia Streaming and Recording server](#) on page 53

System requirements

Before you log on to Scopia® SR Manager administration pages, your client system must meet the system requirements listed in [Table 10: Requirements](#) on page 64.

Table 10: Requirements

Component	Requirement
Operating system	<ul style="list-style-type: none"> • Mac OS X 10.7 (Lion) or later • Windows Vista™ • Windows 20XX • Windows 7™ (32 and 64 Bit) • Windows 8™
Web browser	<ul style="list-style-type: none"> • Microsoft Internet Explorer 8.0™ or later • Mozilla Firefox 35™ or later (Mac or Windows) • Chrome 30™ or later (Mac or Windows)

Table continues...

Component	Requirement
	<ul style="list-style-type: none"> • Safari 6™ or later (Mac) JavaScript must be enabled.

Before you log on to Scopia® SR Manager user pages, your client system must meet the system requirements listed in [Table 11: Requirements](#) on page 65.

Table 11: Requirements

Component	Requirement
Web browser	<ul style="list-style-type: none"> • Microsoft Internet Explorer 8.0™ or later • Mozilla Firefox 35™ or later (Mac or Windows) • Chrome 30™ or later (Mac, Windows, or Android) • Safari 6™ or later (Mac, iOS) JavaScript must be enabled.
Operating system	<ul style="list-style-type: none"> • Mac OS X 10.7 (Lion) or later • Windows Vista™ • Windows 20XX • Windows 7™ (32 and 64 Bit) • Windows 8™ • iOS • Android
Media Player	Microsoft Windows Media Player™ Release 9.0, 10.0, or 11.0 to view programs.
Silverlight	Microsoft Silverlight™ player to view programs.
HTMLV5 Browsers	A select number of browsers support video playback directly for MP4 VoD files including: <ul style="list-style-type: none"> • Internet Explorer 9, 10, 11 • Safari 6™ or later • Chrome 30™ or later
IOS Tablet and Phones, Android Tablets and Phones, Windows Phones/Tablets	Playback function for MP4 VoD files

*** Note:**

To support non-Western language character sets, install the particular language pack on the client system from which you are accessing the Scopia® SR Manager. Refer to the operating system documentation for your system.

Related Links

[Avaya Scopia Streaming and Recording server](#) on page 53

Chapter 7: Installing the new streaming and recording server

Installation checklist

Follow the steps in this checklist to install the Avaya Scopia® Streaming and Recording server (Scopia® SR).

+ Tip:

It is a good idea to print out this checklist and to mark each task as you complete it.

No.	Task	Description	Notes	✓
1	Learn more about the new streaming and recording server and figure out your deployment type.	Avaya Scopia® Streaming and Recording server on page 53		
2	Connect the LAN cables, keyboard, mouse, and monitor.	Physically connecting the new server on page 67		
3	Start up the server.	Starting the new server on page 68	You require the Microsoft Windows product key.	
4	Configure the server using the Avaya Scopia® Streaming and Recording server Configuration Wizard.	Configuring the new server on page 69		
5	Set the IP addresses and apply the licenses.	Licensing the new server on page 72		
6	Configure the network that each device will use to communicate with the Scopia® SR Manager.	Configuring external addresses for public interfaces on page 51	Before registering devices, you may want to set which network each device uses to communicate	

Table continues...

No.	Task	Description	Notes	✓
			with the Scopia® SR Manager. This forces the proper communication path to and from the Scopia® SR Manager no matter which IP the Scopia® SR Manager uses to communicate with the Scopia® SR device.	
7	Register each of the components with the main server.	Registering each of the components on page 81		

Physically connecting the new server

Before you begin

You require a keyboard, a mouse, and a monitor. You also require several IP addresses and up to four category 5e LAN cables. Ensure that you received the following items with your Avaya Scopia® Streaming and Recording server (Scopia® SR):

- Power cords
- Rack mount kit

Procedure

1. Connect the keyboard, mouse, and monitor.
2. Connect the LAN cable(s).

Scopia® SR comes with four 1 Gbit NICs which are bonded. Connect to at least one or all four. They all respond with a single IP address.

[Figure 44: Front and Rear Views](#) on page 68 displays the unit.

Front View



Rear View



Figure 44: Front and Rear Views

3. Connect the power cable.
4. Power up the unit.

Next steps

Return to the [Installation checklist](#) on page 66 to see your next task.

Starting the new server

The Microsoft Windows™ 2012 R2 license is already configured on your server.

Procedure

1. Start up the server.
2. Press Ctrl+Alt+Delete to log in.
3. Choose **C** to configure the network settings.

You can configure the network addresses statically or dynamically. Avaya recommends using statically assigned IP addresses, as the IP address needs to remain constant. If you do choose to use dynamically assigned IP addresses, your network must be DHCP-enabled.

4. Choose **S** for statically assigned IP addresses or **D** for dynamically assigned IP addresses.

If you choose **D**, the setup tries to obtain an address. If you choose **S**, you are prompted to enter the IP address.

5. Enter your subnet mask by choosing an appropriate prefix length.
6. Enter the gateway address.

You must enter a valid gateway address that fits within the IP and subnet mask that you previously entered. The system provides a valid range of IPs that you can use for the gateway. You must pick one of these IP addresses.

7. Enter your primary DNS Server IP.

This is a mandatory step.

8. **(Optional)** Enter a secondary DNS IP or press **Enter** if you want to skip this step.

9. **(Optional)** Enter a DNS suffix.

You should enter a DNS suffix for FQDN/SSL configurations.

10. Enter the server host name, or press **Enter** to use the default generated hostname.

You should enter a hostname for FQDN/SSL configurations.

11. Confirm the configuration and select **Y** if it is correct, or **N** if you would like to reenter the data.

When you enter **Y**, the server reboots.

12. When the server starts up again, press Ctrl+Alt+Delete to log in.

13. **(Optional)** Synchronize the time on the new server with the time on your NTP server.

a. Click on the time and date in the task bar.

b. Click **(Change date and time settings...)**.

c. On the Date and Time tab, perform the following actions:

- Set the correct date and time using the **Change date and time** button.
- Set the correct timezone using the **Change timezone** button.

d. On the Internet Time tab, click **Change settings...** and perform the following actions:

- Ensure that **Synchronize with an Internet time server** is selected.
- Enter the NTP server in the **Server** list.
- Click **OK**.

14. Click **OK**.

Next steps

Return to the [Installation checklist](#) on page 66 to see your next task.

Configuring the new server

The Avaya Scopia® Streaming and Recording server Configuration Utility launches automatically when the operating system is loaded for the first time. You can also run the configuration utility at any time from the Start menu or from the desktop shortcut.

If you previously installed a Delivery Node (DN), either as part of an all-in-one deployment or on its own, you can add or remove a Virtual Delivery Node (VDN) without disrupting the server configuration. If you have not previously installed a DN, the configuration utility erases any previous configurations on the Scopia® SR server.

About this task

This task describes how to configure Scopia® SR in an enterprise deployment. If yours is a service provider deployment, the steps vary slightly.

Procedure

1. On the Choose Setup Language dialog, select your preferred language.
2. On the next screen, click **Next**.

The first time you run the configuration utility, a Welcome screen is displayed.

If you run the configuration utility again, a Warning screen is displayed.

3. On the End-User License Agreement screen, select **I accept the terms of the License Agreement** to accept the license agreement.
4. Click **Next**.
5. On the Select Configuration screen, select your deployment type.

For more information, see [Deployment types](#) on page 61.

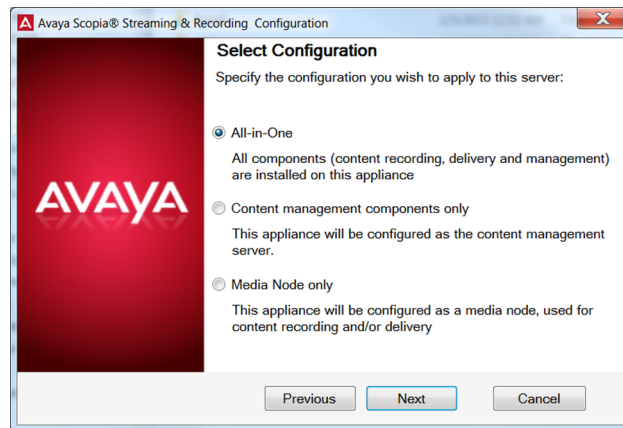


Figure 45: Select Configuration

6. On the Deployment Type screen, perform one of the following actions:
 - If you have selected **All-in-One** on the Select Configuration screen, select **Enterprise deployment** or **Multi-tenant** to match your Scopia® Management deployment.

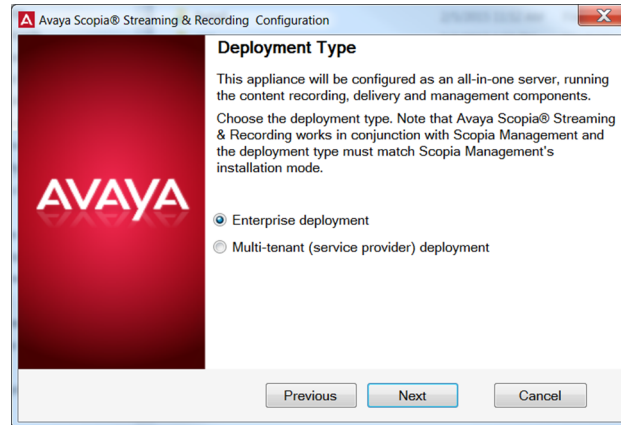


Figure 46: Deployment Type

- If you have selected **Content management components only** on the Select Configuration screen, select **Enterprise deployment** or **Multi-tenant** to match your Scopia® Management deployment. The screen is similar to [Figure 46: Deployment Type](#) on page 71.
- If you have selected **Media Node only** on the Select Configuration screen, select whether you want to install the recording and delivery (streaming) components, the recording components, or the delivery components by selecting **Configure content recording and streaming components**, **Configure content recording components only**, or **Configure content streaming components only**.



Figure 47: Deployment Type

7. Click **Next**.
8. **(Optional)** At this point, you can choose to install a Virtual Delivery Node (VDN).
You should only use a VDN if you subscribe to the HighWinds Content Delivery Network (CDN). CDN is a cloud-based streaming system.
 - a. Select **Install a Virtual Delivery Node (VDN) on this server**.
 - b. Click **Next**.
9. On the Finish Configuration screen, click **Finish**.

The Scopia® SR Configuration Utility installs the Scopia® SR components.

10. On the Complete Configuration screen, click **View Addresses** to display the MAC addresses of the Scopia® SR.

You require these MAC addresses in order to license the Scopia® SR. The MAC addresses are also stored in C:\assrconfigtool\MAC_Addresses.txt.

11. Make note of the MAC addresses.

This information is required when you access the Avaya PLDS system to obtain a license key.

Next steps

Return to the [Installation checklist](#) on page 66 to see your next task.

Licensing checklist

Follow the steps in this checklist to license the Avaya Scopia® Streaming and Recording server (Scopia® SR).

No.	Task	Description	Notes	✓
1	Set the IP address of each of the remaining components. You have already set the IP address of the Scopia® SR Manager.	Setting the IP address of the recording component (Conference Point) on page 73 Setting the IP address of the delivery component (Delivery Node) on page 76		
2	Restart services.	Restarting services on page 77		
3	Apply the license to each of the components.	Applying the license to the management component on page 77 Applying the license to the recording component (Conference Point) on page 78 Applying the license to the delivery component (Delivery Node) on page 79	You must apply the license to all components.	

Related Links

[Setting the IP address of the recording component \(Conference Point\)](#) on page 73

[Setting the IP address of the delivery component \(Delivery Node\)](#) on page 76

[Restarting services](#) on page 77

[Applying the license to the management component](#) on page 77

[Applying the license to the recording component \(Conference Point\)](#) on page 78

[Applying the license to the delivery component \(Delivery Node or Virtual Delivery Node\)](#) on page 79

Setting the IP address of the recording component (Conference Point)

The recording component is known as the conference point or CP.

About this task

You should set an IPv4 address.

Before you begin

Obtain the Avaya Scopia® Streaming and Recording server license keys from the Avaya Product Licensing and Delivery System (PLDS).

Procedure

1. Double-click on the Hyper-V Manager shortcut on the desktop.
2. In the Virtual Machines panel, double-click on the **CP** entry.

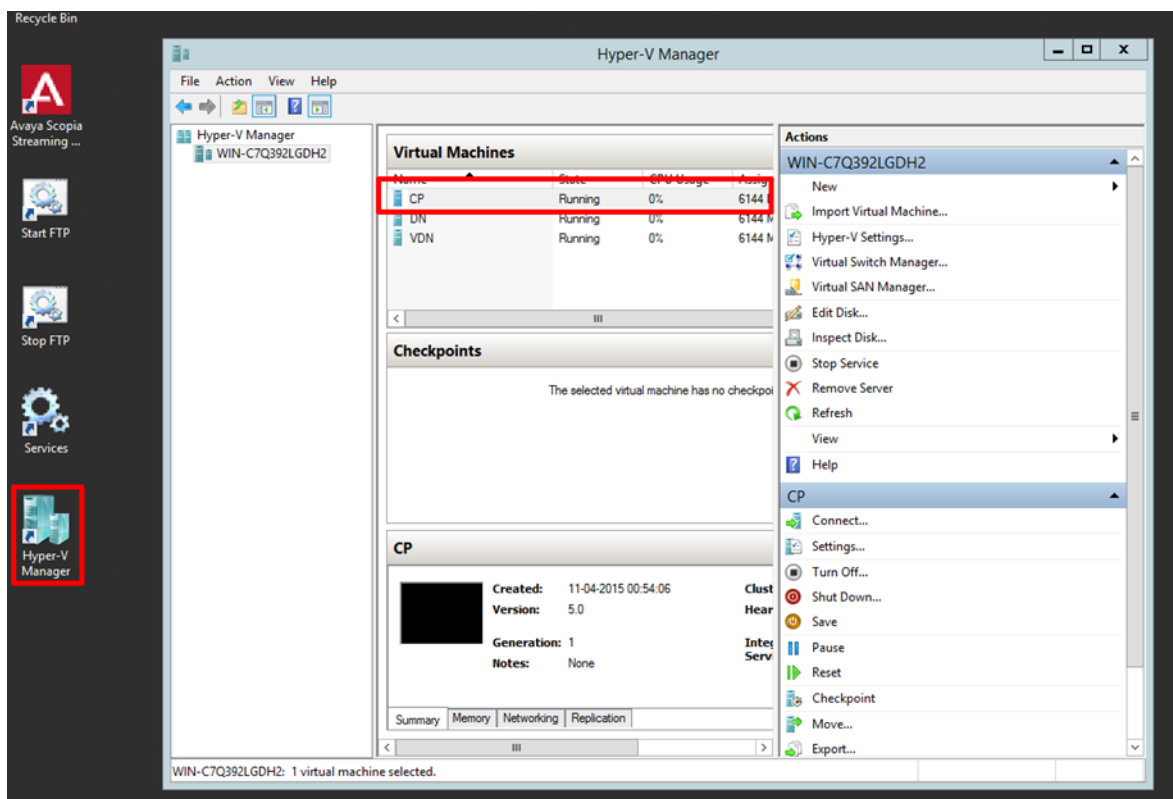


Figure 48: Hyper-V Manager

3. On the Log-in screen, select **Other** and enter `root` in the **Username** field.

Installing the new streaming and recording server

4. Click **Log-in**.
5. Enter `Avaya123!` in the **Password** field.
This is the default password.
6. On the CP Virtual Machine Connection screen, double-click on the **Network** icon.
7. On the Terminal window, highlight **Device configuration** and press `Enter`.

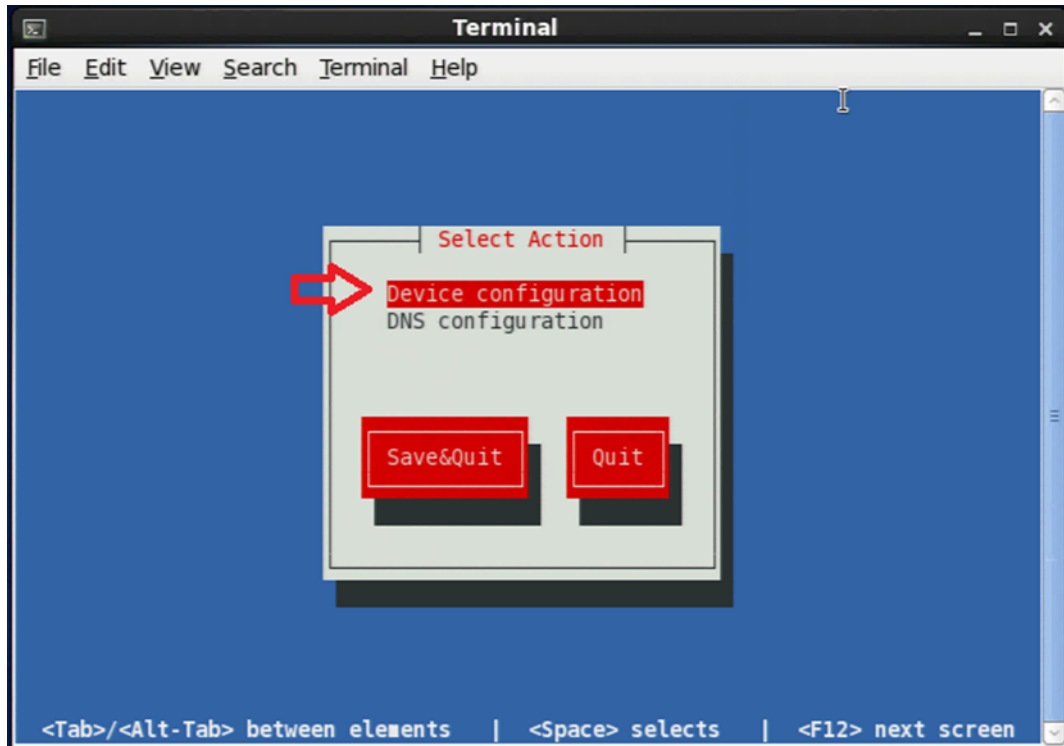


Figure 49: Device Configuration

8. On the Select A Device window, highlight **eth0** and press `Enter`.



Figure 50: eth0

9. Use the **Tab** key to highlight **Use DHCP** and press the **Spacebar** key to disable DHCP.
10. Use the **Tab** key to navigate to the other fields and enter the following details:
 - Static IP
 - Netmask
 - Default gateway IP
 - Primary DNS Server
 - Secondary DNS Server

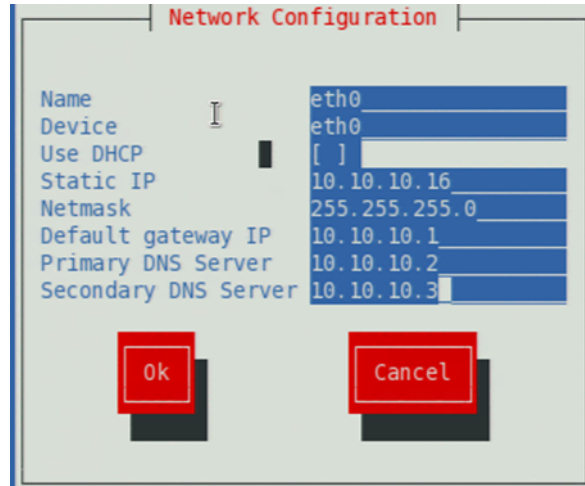


Figure 51: Network Configuration

11. Use the **Tab** key to highlight **Ok** and press `Enter`.
12. On the Select A Device window, use the **Tab** key to highlight **Save** and press `Enter`.
13. Restart Network Services:
 - a. Right-click on the desktop and select **Open in Terminal** from the right-click menu options.
 - b. In the terminal window, type `service network restart`.

Next steps

Return to the [Licensing checklist](#) on page 72 to see your next task.

Related Links

[Licensing checklist](#) on page 72

Setting the IP address of the delivery component (Delivery Node)

A Delivery Node (DN) can be a Virtual Delivery Node (VDN). You should only use a VDN if you subscribe to the HighWinds Content Delivery Network (CDN). CDN is a cloud-based streaming system. The delivery component is also called streaming.

Procedure

Use the same set of steps that you used for [Setting the IP address of the recording component \(Conference Point\)](#) on page 73.

Next steps

Return to the [Licensing checklist](#) on page 72 to see your next task.

Related Links

[Licensing checklist](#) on page 72

Restarting services

About this task

The services that you must restart are:

- Apache Tomcat
- Apache 2.2
- Avaya Scopia® Streaming and Recording server Transcoder

Procedure

1. Double-click on the Services icon on the desktop.
2. On the Services screen, right-click **Apache Tomcat 7.0 Tomcat7** and select **Restart** from the right-click menu options.
3. Repeat [2](#) on page 77 for **Apache2.2** and the **Avaya Scopia Streaming & Recording Transcoder**.

Next steps

Return to the [Licensing checklist](#) on page 72 to see your next task.

Related Links

[Licensing checklist](#) on page 72

Applying the license to the management component

Procedure

1. Type `http://<wildcat manager IP>` in a web browser.
2. Log in using the following credentials:
 - Username: `admin`
 - Password: `admin`
3. At the prompt, enter the license key in the **License Information** field and click **Update**.
4. Refresh the browser.

Next steps

Return to the [Licensing checklist](#) on page 72 to see your next task.

Related Links

[Licensing checklist](#) on page 72

Applying the license to the recording component (Conference Point)

Procedure

1. Double-click on the Hyper-V Manager shortcut on the desktop.
2. In the Virtual Machines panel, double-click on the **CP** entry.

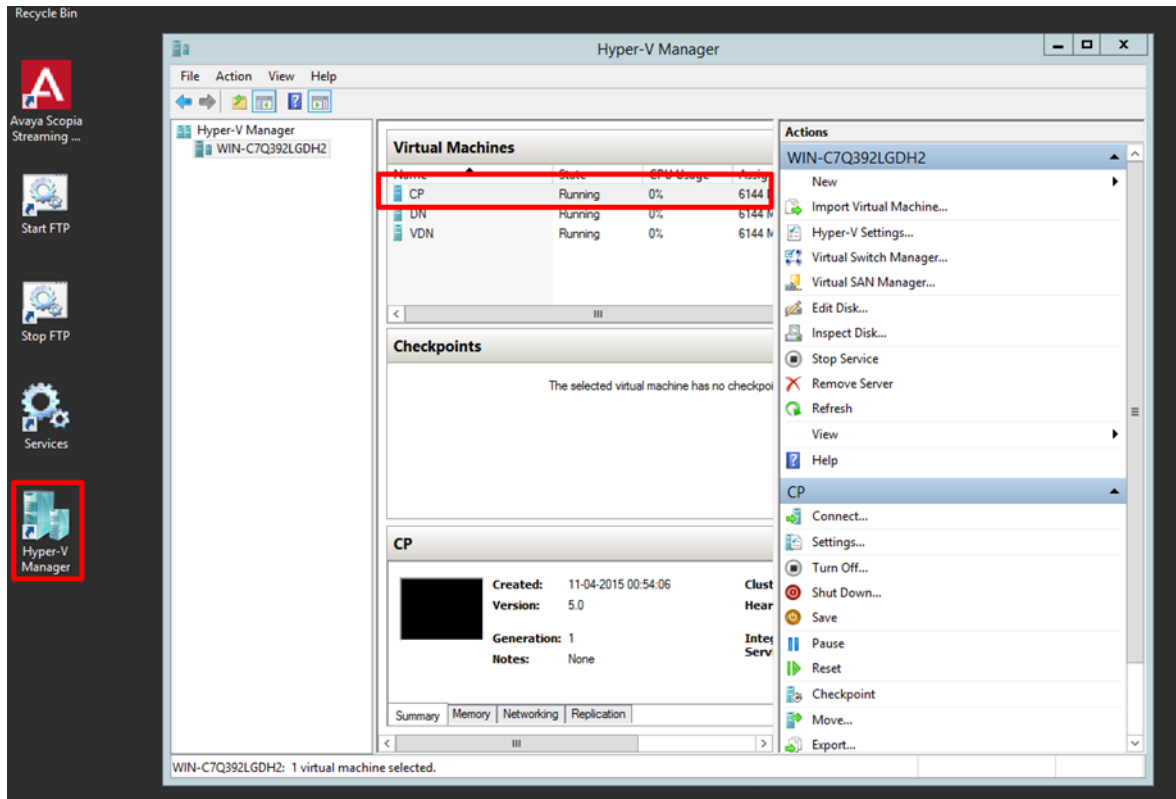


Figure 52: Hyper-V Manager

3. On the Log-in screen, select **Other** and enter `root` in the **Username** field.
4. Click **Log-in**.
5. Enter `Avaya123!` in the **Password** field.

This is the default password.

6. Double-click on the **Conference Point Web Interface** icon to launch a web browser.
7. On the Conference Point license screen, enter the license key in the **License Key** field and click **Submit**.



Figure 53: Conference Point

Next steps

Return to the [Licensing checklist](#) on page 72 to see your next task.

Related Links

[Licensing checklist](#) on page 72

Applying the license to the delivery component (Delivery Node or Virtual Delivery Node)

There can only be a single virtual delivery node (VDN) in a deployment.

Procedure

1. Double-click on the Hyper-V Manager shortcut on the desktop.
2. In the Virtual Machines panel, double-click on the **DN** or **VDN** entry.

You should only use a VDN if you subscribe to the HighWinds Content Delivery Network (CDN). CDN is a cloud-based streaming system.

3. On the Log-in screen, select **Other** and enter `root` in the **Username** field.
4. Click **Log-in**.

5. Enter `Avaya123!` in the **Password** field.

This is the default password.

6. Double-click on the **Delivery Node Web Interface** icon to launch a web browser.
7. On the Delivery Node license screen, enter the license key in the **License Key** field and click **Submit**.
8. Select the type of delivery node.

The available options are:

- DN (Delivery Node)
- VDN (Virtual Delivery Node)



Figure 54: Delivery Node

9. Click **Submit**.

The DN or VDN is ready for use. The login screen is displayed.

Next steps

Return to the [Installation checklist](#) on page 66 to see your next task.

Related Links

[Licensing checklist](#) on page 72

Registering each of the components

After you have applied a license to each of the components of the Avaya Scopia® Streaming and Recording server, you must register them with the Avaya Scopia® Streaming and Recording server Manager.

You must register all delivery nodes, virtual delivery nodes, and conference points with the Manager. In addition, you must register the transcoder with the conference point. You do not have to register the transcoder with the Manager.

About this task

The registration process is the same for all delivery nodes, virtual delivery nodes, and conference points.

Procedure

1. Type `http://<Scopia® SR manager IP>` in a web browser.
2. Log in to Scopia® SR using the following credentials:
 - Username: `admin`
 - Password: `admin`
3. Select the **Devices** tab.
4. Click on **Register Devices** from the left **Actions** menu.
5. Enter the IP address or FQDN of the component that you want to register and click **Register**.
6. Repeat [5](#) on page 81 for each of the components.
7. **(Optional)** Verify the registration for the conference point.
 - a. Type `https://<CP IP Address>` in a web browser.
 - b. Log in using the following credentials:
 - Username: `administrator`
 - Password: `administrator`
 - c. From the left menu bar, click **System Configuration**.
 - d. Click **Enable Services**.
 - e. Under Manage Device, click **Configure**.
 - f. Verify that the **Manage Registration State** is Registered and the **Manager Host** is the proper manager IP.
8. **(Optional)** Verify the registration for the delivery node or virtual delivery node.
 - a. Type `https://<DN IP Address>` in a web browser.
 - b. Log in using the following credentials:
 - Username: `administrator`
 - Password: `administrator`

- c. From the menu bar, click **Configuration**.
 - d. Verify that the **Manage Registration State** is Registered and the **Network Address** is the proper manager IP.
9. Register the transcoder.
- a. Type `https://<CP IP Address>` in a web browser.
 - b. Log in using the following credentials:
 - Username: administrator
 - Password: administrator
 - c. From the left menu bar, click **System Configuration**.
 - d. Click **Transcoder Configuration**.
 - e. Enter the IP address of the transcoder and click **Finish**.

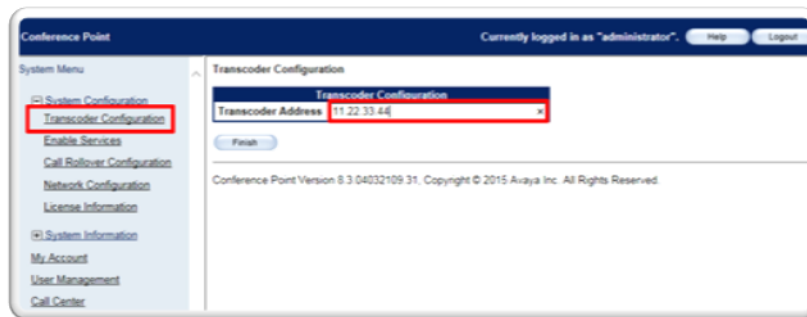


Figure 55: Transcoder Registration

Next steps

Return to the [Installation checklist](#) on page 66 to see your next task.

Related Links

[Unregistering each of the components](#) on page 82

Unregistering each of the components

If you plan to move a device to a different Scopia® SR environment, unregister the device before changing its location. If you do not unregister the device using the Scopia® SR Manager, you must unregister it using its local web interface before you can register it to the new Scopia® SR environment.

About this task

The process of unregistering is the same for all delivery nodes, virtual delivery nodes, and conference points.

Procedure

1. Log in to Scopia® SR.

2. Click the **Devices** tab.
3. From the **Browse** menu, select the device you want to access.
A list of devices of that type is displayed.
4. Select one of the devices.
The device details dialog is displayed.
5. Click **Unregister**.

Related Links

[Registering each of the components](#) on page 81

Chapter 8: Working with recordings

Recordings

The Avaya Scopia® 8.3.2 solution introduces a new component, Avaya Scopia® Streaming and Recording server (Scopia® SR). Scopia® SR is the Avaya next generation HD streaming and recording platform, bringing significant enhancements to the Avaya Scopia® solution for streaming and recording. The Avaya Scopia® Streaming and Recording server replaces the Avaya Scopia® Content Center Recording server (SCC) server.

If you choose to upgrade from the Avaya Scopia® Content Center Recording server to the Avaya Scopia® Streaming and Recording server, you can easily transfer all of your existing recordings to Scopia® SR using the Avaya Scopia® Streaming and Recording server Migration Utility.

Scopia® SR imports the SCC recordings as .mp4 files.

Scopia® SR also imports all of the information related to the recordings, including categories and meta data. Meta data refers to information associated with each recording, such as the library description, the owner name, and the access level.

Categories are labels that SCC and Scopia® SR use to classify recordings. SCC supports multiple categories. For example, a recording can belong to the “Sales” category and the “Marketing” category. Scopia® SR supports a single category. For example, a recording can belong to the “Sales” category only. During the migration, if there are multiple categories associated with a recording, Scopia® SR assigns the first category in the list to the recording.

If a recording does not have an owner, it is publicly available on the Scopia® SR server. Only an administrator can edit it.

The process of transferring recordings from the SCC to the Scopia® SR consists of three stages:

- Installing prerequisites
- Migrating recordings
- Converting recordings

Migrating recordings

Before you begin

- Configure Scopia® Management with Scopia® SR so that Scopia® SR has access to the user database prior to the migration of the recordings.
- Ensure that the .NET 3.5 framework is installed on the SCC.

- Ensure that you have the FTP username and password. The default username and password are `assrftp` and `P@ssw0rd`. You can change the default by editing the user at **Administrative Tools > Computer Management > Local Users and Groups > Users**.

*** Note:**

Avaya recommends limiting the size of the recordings that you are migrating to 600GB so that the Scopia® SR has room for new recordings.

Procedure

1. On the Scopia® SR, enable FTP.
 - a. Double-click the **Start FTP** shortcut on the desktop.
FTP is enabled and the FTP folder is `C:\inetpub\ftproot`.
 - b. **(Optional)** Change the FTP password by navigating to **Administrative Tools > Computer Management > Local Users and Groups > Users**.
The default username and password are `assrftp` and `P@ssw0rd`.
2. Obtain the Avaya Scopia® Migration Utility using the Avaya Product Licensing and Delivery System (PLDS).
3. On the SCC, run the Avaya Scopia® Migration Utility.
4. Read the welcome message and click **Next**.
The Source Recordings Location page displays. You can use this page to identify the location of the existing recordings on the SCC server.
5. Perform the following steps.
 - a. Accept the default location or browse to and select an alternative location for recordings in the **Recordings** field.
 - b. Accept the default location or browse to and select an alternative location for meta-data in the **Meta data** field.
 - c. Accept the default location or browse to and select an alternative location for categories in the **Categories** field.
6. Click **Next**.
The Destination Avaya Streaming & Recordings Server page displays. You can use this page to identify the location on the Scopia® SR server to which the utility will migrate the files
7. Perform the following steps.
 - a. Enter the Scopia® SR Manager server IP address in the **Server IP** field.
 - b. Enter the FTP user name in the **User Name** field.
 - c. Enter the FTP administrator password in the **Password** field.
 - d. Enter the folder into which you want to migrate the recordings in the **Root Folder** field.
 - e. Click **Test Connection**.

The utility tests the connection between the SCC and Scopia® SR servers. It displays an information dialog to indicate the result of the test.

The **Next** button is enabled if there is a successful connection.

- f. Click **Next**.

The Categories screen displays.

8. **(Optional)** Click **Migrate** to migrate the categories file.

All categories created on the SCC are imported into the Scopia® SR.

9. Click **Next**.

The Recordings screen displays. Use this page to select the recordings you wish to migrate. You can sort the recordings using a number of attributes, such as size and status. The total size of all the recordings is displayed on the bottom left and the size of your current selection is displayed next to it.

10. Perform the following steps.

- a. Select the recordings you want to migrate.
- b. Click **Migrate**.
- c. **(Optional)** Click **Rescan** to update the list of recordings.

If this is your first time using the tool, there is no need to rescan. However, if you continued to use the SCC after you performed an initial migration, you can run the tool again. The rescan feature detects any additional recordings that have been added since the tool was initially run.

- d. Click **Close**.

The Avaya Scopia® Migration Utility migrates the identified files from the SCC server to the Scopia® SR server.

11. On the Scopia® SR, disable FTP.

Double-click the **Stop FTP** shortcut on the desktop.

Converting recordings

A converter utility runs on the Scopia® SR Manager and it monitors the FTP folder to look for categories and recordings from the SCC, which are transferred to the Scopia® SR using the migration tool. When the converter utility finds files, it converts them from the .mov format to the .mp3 format and moves the converted files into a specified `autopublish` folder.

You must enable the AutoPublish feature in the Scopia® SR Manager administration interface. When you enable the AutoPublish feature, it monitors the `autopublish` folder and imports files into the Scopia® SR as it finds them.

*** Note:**

Depending on the size of recordings and the speed of your network, it can take some time to convert all of the recordings.

Procedure

1. Enable the Autopublish utility.
 - a. On the Scopia® SR, log in to the Scopia® SR Manager Administration interface.
 - b. Navigate to **Global Policies > Media AutoPublish**.
 - c. Select **Enabled**.
 - d. Enter the destination folder to use for auto-publishing.
Make sure to use this folder as the **Destination Path** in the converter utility.
 - e. Enter the destination folder that you specified for your recordings in the **Directory** field.
 - f. Enter a polling interval in the **Polling Interval** field. The default is two minutes.
 - g. Select **Save**.
2. Configure the converter utility.
 - a. On the Scopia® SR, run the Avaya Scopia® Streaming and Recording Converter Utility.
 - b. Read the welcome message and click **Next**.
The Configuration page displays.
 - c. Enter your Scopia® SR Manager administrator username in the **User name** field.
The default username is `admin`.
 - d. Enter your Scopia® SR Manager administrator password in the **Password** field.
The default password is `admin`.
 - e. Enter the destination location of the recordings in the **Destination Path** field. This is a folder on the Scopia® SR.
You cannot edit the **Source Path** field. This field is pre-configured with the FTP root folder.
 - f. Click **Next**.
The converter utility is configured and the Monitoring page displays.
 - g. Use the Monitoring page to view the live status of the conversion process. You can view a description of the columns in [Table 12: Monitoring Page columns](#) on page 87.

Table 12: Monitoring Page columns

Status	Description
MeetingID	Scopia® Solution Meeting ID for the meeting that was recorded.

Table continues...

Status	Description
Name	Name of the recording.
Size (MB)	Size of the recording.
Date	Date when the recording was made.
Status	Status of the conversion (see Table 13: Monitoring Page status values on page 88).
Organization	Organization that the recording belongs to (in an enterprise solution, this is always 999).
File	Name of the file on disk.

You can remove or retry any failed conversions. See [Table 13: Monitoring Page status values](#) on page 88.

Table 13: Monitoring Page status values

Status	Description
Pending	The file is in the FTP folder but are not processed yet.
Convert Error	There has been an error converting the .mov or the .xml. An .err file has been created.
Converted	The file is converted and moved to the autoimport folder, but not imported yet.
Import Error	The file is in the Autopublish folder but there has been an error importing it. An .err file has been created.
Complete	The file has been successfully imported.
Import Pending	The file has not yet been imported to the Autopublish folder.

Next steps

If there is an error, an err file is generated.

Glossary

1080p	See Full HD on page 93.
2CIF	2CIF describes a video resolution of 704 x 288 pixels (PAL) or 704 x 240 (NTSC). It is double the width of CIF, and is often found in CCTV products.
2SIF	2SIF describes a video resolution of 704 x 240 pixels (NTSC) or 704 x 288 (PAL). This is often adopted in IP security cameras.
4CIF	4CIF describes a video resolution of 704 x 576 pixels (PAL) or 704 x 480 (NTSC). It is four times the resolution of CIF and is most widespread as the standard analog TV resolution.
4SIF	4SIF describes a video resolution of 704 x 480 pixels (NTSC) or 704 x 576 (PAL). This is often adopted in IP security cameras.
720p	See HD on page 94.
AAC	AAC is an audio codec which compresses sound but with better results than MP3.
AGC (Automatic Gain Control)	Automatic Gain Control (AGC) smooths audio signals through normalization, by lowering sounds which are too strong and strengthening sounds which are too weak. This is relevant with microphones situated at some distance from the speaker, like room systems. The result is a more consistent audio signal within the required range of volume.
Alias	An alias in H.323 represents the unique name of an endpoint. Instead of dialing an IP address to reach an endpoint, you can dial an alias, and the gatekeeper resolves it to an IP address.
Auto-Attendant	Auto-Attendant, also known as video IVR, offers quick access to meetings hosted on MCUs, via a set of visual menus. Participants can select menu options using standard DTMF tones (numeric keypad). Auto-Attendant works with both H.323 and SIP endpoints.
Avaya Scopia® Streaming and Recording Manager	The Avaya Scopia® Streaming and Recording Manager provides a web-based interface to configure and manage Scopia® Streaming and Recording server software, devices, services, and users. The Scopia® Streaming and Recording server Manager application resides on a single

hardware platform and provides access to all content in the Scopia® Streaming and Recording server environment.

Avaya Scopia® Streaming and Recording Manager Portals

The Scopia® Streaming and Recording server Manager provides a portal for administering content. When you log in to the web interface, you can access the Administrator portal.

The Manager also provides the Viewer portal. This portal is embedded within the Avaya Scopia® Desktop User portal. Use the User portal to schedule Scopia® Streaming and Recording server broadcasts.

Balanced Microphone

A balanced microphone uses a cable that is built to reduce noise and interference even when the cable is long. This reduces audio disruptions resulting from surrounding electromagnetic interference.

BFCP (Binary Floor Control Protocol)

BFCP is a protocol which coordinates shared videoconference features in SIP calls, often used by one participant at a time. For example, when sharing content to others in the meeting, one participant is designated as the presenter, and is granted the floor for presenting. All endpoints must be aware that the floor was granted to that participant and react appropriately.

Bitrate

Bitrate is the speed of data flow. Higher video resolutions require higher bitrates to ensure the video is constantly updated, thereby maintaining smooth motion. If you lower the bitrate, you lower the quality of the video. In some cases, you can select a lower bitrate without noticing a significant drop in video quality; for example during a presentation or when a lecturer is speaking and there is very little motion. Bitrate is often measured in kilobits per second (kbps).

Call Control

See [Signaling](#) on page 100.

Cascaded Videoconference

A cascaded videoconference is a meeting distributed over more than one physical Scopia® Elite MCU, where a master MCU connects to one or more slave MCUs to create a single videoconference. It increases the meeting capacity by combining the resources of several MCUs. This can be especially useful for distributed deployments across several locations, reducing bandwidth usage.

CIF

CIF, or Common Intermediate Format, describes a video resolution of 352 × 288 pixels (PAL) or 352 × 240 (NTSC). This is sometimes referred to as Standard Definition (SD).

Conference Point

The Avaya Scopia® Streaming and Recording Conference Point is a video conferencing gateway appliance that captures standard or high definition video conferences. It transcodes, creates, and records the video conferences in a streaming media format. You can use it to capture H.323 video for instant video webcasting or on-demand publishing.

Content Slider	The Scopia® Content Slider stores the data already presented in the videoconference and makes it available for participants to view during the meeting.
Continuous Presence	Continuous presence enables viewing multiple participants of a videoconference at the same time, including the active speaker. This graphics-intensive work requires scaling and mixing the images together into one of the predefined video layouts. The range of video layouts depends on the type of media processing supported, typically located in the MCU.
Control	Control, or media control, sets up and manages the media of a call (its audio, video and data). Control messages include checking compatibility between endpoints, negotiating video and audio codecs, and other parameters like resolution, bitrate and frame rate. Control is communicated via H.245 in H.323 endpoints, or by SDP in SIP endpoints. Control occurs within the framework of an established call, after signaling.
CP	See Continuous Presence on page 91.
Dedicated Endpoint	A dedicated endpoint is a hardware endpoint for videoconferencing assigned to a single user. It is often referred to as a personal or executive endpoint, and serves as the main means of video communications for this user. For example, Scopia® XT Executive. It is listed in the organization's LDAP directory as associated exclusively with this user.
Delivery Node	The Avaya Scopia® Streaming and Recording Delivery Node provides on-demand and broadcast video delivery. You can use it alone or in a hierarchy of devices. It supports thousands of concurrent streams. The Delivery Node uses intelligent routing, content caching, and inherent redundancy to ensure transparent delivery of high-quality video.
Dial Plan	A dial plan defines a way to route a call and to determine its characteristics. In traditional telephone networks, prefixes often denote geographic locations. In videoconferencing deployments, prefixes are also used to define the type and quality of a call. For example, dial 8 before a number for a lower bandwidth call, or 6 for an audio-only call, or 5 to route the call to a different branch.
Dial Prefix	A dial prefix is a number added at the beginning of a dial string to route it to the correct destination, or to determine the type of call. Dial prefixes are defined in the organization's dial plan. For example, dial 9 for an outside line, or dial 6 for an audio only call.
Distributed Deployment	A distributed deployment describes a deployment where the solution components are geographically distributed in more than one network location.

DNS Server	A DNS server is responsible for resolving domain names in your network by translating them into IP addresses.
DTMF	DTMF, or touch-tone, is the method of dialing on touch-tone phones, where each number is translated and transmitted as an audio tone.
Dual Video	Dual video is the transmitting of two video streams during a videoconference, one with the live video while the other is a shared data stream, like a presentation.
Dynamic Video Layout	The dynamic video layout is a meeting layout that switches dynamically to include the maximum number of participants it can display on the screen (up to 9 on the XT Series, or up to 28 on Scopia® Elite MCU). The largest image always shows the active speaker.
E.164	E.164 is an address format for dialing an endpoint with a standard telephone numeric keypad, which only has numbers 0 - 9 and the symbols: * and #.
Endpoint	An endpoint is a tool through which people can participate in a videoconference. Its display enables you to see and hear others in the meeting, while its microphone and camera enable you to be seen and heard by others. Endpoints include dedicated endpoints, like Scopia® XT Executive, software endpoints like Scopia® Desktop Client, mobile device endpoints like Scopia® Mobile, room systems like XT Series, and telepresence systems like Scopia® XT Telepresence.
Endpoint Alias	See Alias on page 89.
FEC	Forward Error Correction (FEC) is a proactive method of sending redundant information in the video stream to preempt quality degradation. FEC identifies the key frames in the video stream that should be protected by FEC. There are several variants of the FEC algorithm. The Reed-Solomon algorithm (FEC-RS) sends redundant packets per block of information, enabling the sender (like the Scopia® Elite MCU) to manage up to ten percent packet loss in the video stream with minimal impact on the smoothness and quality of the video.
FECC	Far End Camera Control (FECC) is a feature of endpoint cameras, where the camera can be controlled remotely by another endpoint in the call.
Forward Error Correction	See FEC on page 92.
FPS	See Frames Per Second on page 92.
Frame Rate	See Frames Per Second on page 92.
Frames Per Second	Frames Per Second (fps), also known as the frame rate, is a key measure in video quality, describing the number of image updates per second. The

average human eye can register up to 50 frames per second. The higher the frame rate, the smoother the video.

Full HD	Full HD, or Full High Definition, also known as 1080p, describes a video resolution of 1920 x 1080 pixels.
Full screen Video Layout	The full screen view shows one video image. Typically, it displays the remote presentation, or, if there is no presentation, it displays the other meeting participant(s).
Gatekeeper	A gatekeeper routes audio and video H.323 calls by resolving dial strings (H.323 alias or URI) into the IP address of an endpoint, and handles the initial connection of calls. Gatekeepers also implement the dial plan of an organization by routing H.323 calls depending on their dial prefixes. Scopia® Management includes a built-in Avaya Scopia® Gatekeeper, while ECS is a standalone gatekeeper.
Gateway	A gateway is a component in a video solution which routes information between two subnets or acts as a translator between different protocols. For example, a gateway can route data between the headquarters and a partner site, or between two protocols like the TIP Gateway, or the Scopia® 100 Gateway.
GLAN	GLAN, or gigabit LAN, is the name of the network port on the XT Series. It is used on the XT Series to identify a 10/100/1000MBit ethernet port.
H.225	H.225 is part of the set of H.323 protocols. It defines the messages and procedures used by gatekeepers to set up calls.
H.235	H.235 is the protocol used to authenticate trusted H.323 endpoints and encrypt the media stream during meetings.
H.239	H.239 is a widespread protocol used with H.323 endpoints, to define the additional media channel for data sharing (like presentations) alongside the videoconference, and ensures only one presenter at a time.
H.243	H.243 is the protocol used with H.323 endpoints enabling them to remotely manage a videoconference.
H.245	H.245 is the protocol used to negotiate call parameters between endpoints, and can control a remote endpoint from your local endpoint. It is part of the H.323 set of protocols.
H.261	H.261 is an older protocol used to compress CIF and QCIF video resolutions. This protocol is not supported by the XT Series.
H.263	H.263 is an older a protocol used to compress video. It is an enhancement to the H.261 protocol.

- H.264** H.264 is a widespread protocol used with SIP and H.323 endpoints, which defines video compression. Compression algorithms include 4x4 transforms and a basic motion comparison algorithm called P-slices. There are several profiles within H.264. The default profile is the H.264 Baseline Profile, but H.264 High Profile uses more sophisticated compression techniques.
- H.264 Baseline Profile** See [H.264](#) on page 94.
- H.264 High Profile** H.264 High Profile is a standard for compressing video by up to 25% over the H.264 Baseline Profile, enabling high definition calls to be held over lower call speeds. It requires both sides of the transmission (sending and receiving endpoints) to support this protocol. H.264 High Profile uses compression algorithms like:
- CABAC compression (Context-Based Adaptive Binary Arithmetic Coding)
 - 8x8 transforms which more effectively compress images containing areas of high correlation
- These compression algorithms demand higher computation requirements, which are offered with the dedicated hardware available in Scopia® Solution components. Using H.264 High Profile in videoconferencing requires that both the sender and receiver's endpoints support it. This is different from SVC which is an adaptive technology working to improve quality even when only one side supports the standard.
- H.320** H.320 is a protocol for defining videoconferencing over ISDN networks.
- H.323** H.323 is a widespread set of protocols governing the communication between endpoints in videoconferences and point-to-point calls. It defines the call signaling, control, media flow, and bandwidth regulation.
- H.323 Alias** See [Alias](#) on page 89.
- H.350** H.350 is the protocol used to enhance LDAP user databases to add video endpoint information for users and groups.
- H.460** H.460 enhances the standard H.323 protocol to manage firewall/NAT traversal, employing ITU-T standards. Endpoints which are already H.460 compliant can communicate directly with the PathFinder server, where the endpoint acts as an H.460 client to the PathFinder server which acts as an H.460 server.
- HD** A HD ready device describes its high definition resolution capabilities of 720p, a video resolution of 1280 x 720 pixels.
- High Availability** High availability is a state where you ensure better service and less downtime by deploying additional servers. There are several strategies for

achieving high availability, including deployment of redundant servers managed by load balancing systems.

High Definition	See HD on page 94.
High Profile	See H.264 High Profile on page 94.
HTTPS	HTTPS is the secured version of the standard web browser protocol HTTP. It secures communication between a web browser and a web server through authentication of the web site and encrypting communication between them. For example, you can use HTTPS to secure web browser access to the web interface of many Scopia® Solution products.
Image Resolution	See Resolution on page 99.
KBps	Kilobytes per second (KBps) measures the bitrate in kilobytes per second, not kilobits, by dividing the number of kilobits by eight. Bitrate is normally quoted as kilobits per second (kbps) and then converted to kilobytes per second (KBps). Bitrate measures the throughput of data communication between two devices.
kbps	Kilobits per second (kbps) is the standard unit to measure bitrate, measuring the throughput of data communication between two devices. Since this counts the number of individual bits (ones or zeros), you must divide by eight to calculate the number of kilobytes per second (KBps).
LDAP	LDAP is a widespread standard database format which stores network users. The format is hierarchical, where nodes are often represented as <i>branch location > department > sub-department, executives > managers > staff members</i> . The database standard is employed by most user directories including Microsoft Active Directory, IBM Sametime and others. H.350 is an extension to the LDAP standard for the videoconferencing industry.
Lecture Mode	Scopia® Desktop's lecture mode allows the participant defined as the lecturer to see all the participants, while they see only the lecturer. All participants are muted except the lecturer, unless a participant asks permission to speak and is unmuted by the lecturer. This mode is tailored for distance learning, but you can also use it for other purposes like when an executive addresses employees during company-wide gatherings.
Load balancer	A load balancer groups together a set (or cluster) of servers to give them a single IP address, known as a virtual IP address. It distributes client service requests amongst a group of servers. It distributes loads according to different criteria such as bandwidth, CPU usage, or cyclic (round robin). Load balancers are also known as application delivery controllers (ADC).

Location	A location is a physical space (building) or a network (subnet) where video devices can share a single set of addresses. A distributed deployment places these components in different locations, often connected via a VPN.
Management	Management refers to the administration messages sent between components of the Scopia® Solution as they manage and synchronize data between them. Management also includes front-end browser interfaces configuring server settings on the server. Management messages are usually transmitted via protocols like HTTP, SNMP, FTP or XML. For example, Scopia® Management uses management messages to monitor the activities of an MCU, or when it authorizes the MCU to allow a call to proceed.
MBps	Megabytes per second (MBps) is a unit of measure for the bitrate. The bitrate is normally quoted as kilobits per second (kbps) and then converted by dividing it by eight to reach the number of kilobytes per second (KBps) and then by a further 1000 to calculate the MBps.
MCU	An MCU, or Multipoint Control Unit, connects several endpoints to a single videoconference. It manages the audio mixing and creates the video layouts, adjusting the output to suit each endpoint's capabilities.
MCU service	See Meeting Type on page 96.
Media	Media refers to the live audio, video and shared data streams sent during a call. Presentation and Far end camera control (FECC) are examples of information carried on the data stream. Media is transmitted via the RTP and RTCP protocols in both SIP and H.323 calls. The parallel data stream of both live video and presentation, is known as dual video.
Media Control	See Control on page 91.
Meeting Type	Meeting types (also known as MCU services) are meeting templates which determine the core characteristics of a meeting. For example, they determine if the meeting is audio only or audio and video, they determine the default video layout, the type of encryption, PIN protection and many other features. You can invoke a meeting type by dialing its prefix in front of the meeting ID. Meeting types are created and stored in the MCU, with additional properties in Scopia® Management.
Moderator	A moderator has special rights in a videoconference, including blocking the sound and video of other participants, inviting new participants, disconnecting others, determining video layouts, and closing meetings. In Scopia® Desktop Client, an owner of a virtual room is the moderator when the room is protected by a PIN. Without this protection, any participant can assume moderator rights.
MTU	The MTU, or Maximum Transmission Unit, is the maximum size of data packets sent around your network. This value must remain consistent for all

network components, including servers like the MCU and Scopia® Desktop server, endpoints like XT Series and other network devices like LDAP servers and network routers.

Multi-Point	A multi-point conference has more than two participants.
Multi-tenant	Service provider, or multi-tenant, deployments enable one installation to manage multiple organizations. All the organizations can reside as tenants within a single service provider deployment. For example, Scopia® Management can manage a separate set of users for each organization, separate local administrators, separate bandwidth policies etc. all within a single multi-tenant installation.
Multicast Streaming	Multicast streaming sends a videoconference to multiple viewers across a range of addresses, reducing network traffic significantly. Scopia® Desktop server multicasts to a single IP address, and streaming clients must tune in to this IP address to view the meeting. Multicasts require that routers, switches and other equipment know how to forward multicast traffic.
NAT	A NAT, or Network Address Translation device, translates external IP addresses to internal addresses housed in a private network. This enables a collection of devices like endpoints in a private network, each with their own internal IP address, can be represented publicly by a single, unique IP address. The NAT translates between public and private addresses, enabling users to place calls between public network users and private network users.
NetSense	NetSense is a proprietary Scopia® Solution technology which optimizes the video quality according to the available bandwidth to minimize packet loss. As the available bandwidth of a connection varies depending on data traffic, NetSense's sophisticated algorithm dynamically scans the video stream, and then reduces or improves the video resolution to maximize quality with the available bandwidth.
Packet Loss	Packet loss occurs when some of the data transmitted from one endpoint is not received by the other endpoint. This can be caused by narrow bandwidth connections or unreliable signal reception on wireless networks.
PaP Video Layout	The PaP (Picture and Picture) view shows up to three images of the same size.
Phantom Power	Microphones which use phantom power draw their electrical power from the same cable as the audio signal. For example, if your microphone is powered by a single cable, it serves both to power the microphone and transmit the audio data. Microphones which have two cables, one for sound and a separate power cable, do not use phantom power.
PiP Video Layout	The PiP (Picture In Picture) view shows a video image in the main screen, with an additional smaller image overlapping in the corner. Typically, a

remote presentation is displayed in the main part of the screen, and the remote video is in the small image. If the remote endpoint does not show any content, the display shows the remote video in the main part of the screen, and the local presentation in the small image.

Point-to-Point	Point-to-point is a feature where only two endpoints communicate with each other without using MCU resources.
PoP Video Layout	The PoP (Picture out Picture) view shows up to three images of different size, presented side by side, where the image on the left is larger than the two smaller images on the right.
Prefix	See Dial Prefix on page 91.
PTZ Camera	A PTZ camera can pan to swivel horizontally, tilt to move vertically, and optically zoom to devote all the camera's pixels to one area of the image. For example, the XT Standard Camera is a PTZ camera with its own power supply and remote control, and uses powerful lenses to achieve superb visual quality. In contrast, fixed cameras like webcams only offer digital PTZ, where the zoom crops the camera image, displaying only a portion of the original, resulting in fewer pixels of the zoomed image, which effectively lowers the resolution. Fixed cameras also offer digital pan and tilt only after zooming, where you can pan up to the width or length of the original camera image.
Q.931	Q.931 is a telephony protocol used to start and end the connection in H.323 calls.
QCIF	QCIF, or Quarter CIF, defines a video resolution of 176 × 144 pixels (PAL) or 176 x 120 (NTSC). It is often used in older mobile handsets (3G-324M) limited by screen resolution and processing power.
Quality of Service (QoS)	Quality of Service (QoS) determines the priorities of different types of network traffic (audio, video and control/signaling), so in poor network conditions, prioritized traffic is still fully transmitted.
Recordings	A recording of a videoconference can be played back at any time. Recordings include audio, video and shared data (if presented). Users can access recordings from the Scopia® Desktop web portal or using a web link to the recording on the portal.
Redundancy	Redundancy is a way to deploy a network component, in which you deploy extra units as 'spares', to be used as backups in case one of the components fails.
Registrar	A SIP Registrar manages the SIP domain by requiring that all SIP devices register their IP addresses with it. For example, once a SIP endpoint

registers its IP address with the Registrar, it can place or receive calls with other registered endpoints.

Resolution	Resolution, or image/video resolution, is the number of pixels which make up an image frame in the video, measured as the number of horizontal pixels x the number of vertical pixels. Increasing resolution improves video quality but typically requires higher bandwidth and more computing power. Techniques like SVC, H.264 High Profile and FEC reduce bandwidth usage by compressing the data to a smaller footprint and compensating for packet loss.
Restricted Mode	Restricted mode is used for ISDN endpoints only, when the PBX and line uses a restricted form of communication, reserving the top 8k of each packet for control data only. If enabled, the bandwidth values on these lines are in multiples of 56kbps, instead of multiples of 64kbps.
Room System	A room system is a hardware videoconferencing endpoint installed in a physical conference room. Essential features include its camera's ability to PTZ (pan, tilt, zoom) to allow maximum flexibility of camera angles enabling participants to see all those in the meeting room or just one part of the room.
RTCP	Real-time Control Transport Protocol, used alongside RTP for sending statistical information about the media sent over RTP.
RTP	RTP or Real-time Transport Protocol is a network protocol which supports video and voice transmission over IP. It underpins most videoconferencing protocols today, including H.323, SIP and the streaming control protocol known as RTSP. The secured version of RTP is SRTP.
RTSP	RTSP or Real-Time Streaming Protocol controls the delivery of streamed live or playback video over IP, with functions like pause, fast forward and reverse. While the media itself is sent via RTP, these control functions are managed by RTSP
Sampling Rate	The sampling rate is a measure of the accuracy of the audio when it is digitized. To convert analog audio to digital, it must collect or sample the audio at specific intervals. As the rate of sampling increases, it raises audio quality.
SBC	A Session Border Controller (SBC) is a relay device between two different networks. It can be used in firewall/NAT traversal, protocol translations and load balancing.
Scalability	Scalability describes the ability to increase the capacity of a network device by adding another identical device (one or more) to your existing deployment. In contrast, a non-scalable solution would require replacing existing components to increase capacity.

Scopia® Content Slider	See Content Slider on page 91.
SD	Standard Definition (SD), is a term used to refer to video resolutions which are lower than HD. There is no consensus defining one video resolution for SD.
Service	Also known as MCU service. See Meeting Type on page 96.
SIF	SIF defines a video resolution of 352 x 240 pixels (NTSC) or 352 x 288 (PAL). This is often used in security cameras.
Signaling	Signaling, also known as call control, sets up, manages and ends a connection or call. These messages include the authorization to make the call, checking bandwidth, resolving endpoint addresses, and routing the call through different servers. Signaling is transmitted via the H.225.0/Q.931 and H.225.0/RAS protocols in H.323 calls, or by the SIP headers in SIP calls. Signaling occurs before the control aspect of call setup.
Single Sign On	Single Sign On (SSO) automatically uses your network login and password to access different enterprise systems. Using SSO, you do not need to separately login to each system or service in your organization.
SIP	Session Initiation Protocol (SIP) is a signaling protocol for starting, managing and ending voice and video sessions over TCP, TLS or UDP. Videoconferencing endpoints typically are compatible with SIP or H.323, and in some cases (like Avaya Scopia® XT Series), an endpoint can be compatible with both protocols. As a protocol, it uses fewer resources than H.323.
SIP Registrar	See Registrar on page 98.
SIP Server	A SIP server is a network device communicating via the SIP protocol.
SIP URI	See URI on page 102.
Slider	See Content Slider on page 91.
SNMP	Simple Network Management Protocol (SNMP) is a protocol used to monitor network devices by sending messages and alerts to their registered SNMP server.
Software endpoint	A software endpoint turns a computer or portable device into a videoconferencing endpoint via a software application only. It uses the system's camera and microphone to send image and sound to the other participants, and displays their images on the screen. For example, Scopia® Desktop Client or Scopia® Mobile.
SQCIF	SQCIF defines a video resolution of 128 x 96 pixels.

S RTP	Secure Real-time Transport Protocol (S RTP) adds security to the standard RTP protocol, which is used to send media (video and audio) between devices in SIP calls. It offers security with encryption, authentication and message integrity. The encryption uses a symmetric key generated at the start of the call, and being symmetric, the same key locks and unlocks the data. So to secure transmission of the symmetric key, it is sent safely during call setup using TLS.
SSO	See Single Sign On on page 100.
Standard Definition	See SD on page 100.
Streaming	Streaming is a method to send live or recorded videoconferences in one direction to viewers. Recipients can only view the content; they cannot participate with a microphone or camera to communicate back to the meeting. There are two types of streaming supported in Scopia® Solution: unicast which sends a separate stream to each viewer, and multicast which sends one stream to a range of viewers.
STUN	A STUN server enables you to directly dial an endpoint behind a NAT or firewall by giving that computer's public internet address.
SVC	SVC extends the H.264 codec standard to dramatically increase error resiliency and video quality without the need for higher bandwidth. It is especially effective over networks with high packet loss (like wireless networks) which deliver low quality video. It splits the video stream into layers, comprising a small base layer and then additional layers on top which enhance resolution, frame rate and quality. Each additional layer is only transmitted when bandwidth permits. This allows for a steady video transmission when available bandwidth varies, providing better quality when the bandwidth is high, and adequate quality when available bandwidth is poor.
SVGA	SVGA defines a video resolution of 800 x 600 pixels.
Switched video	Switching is the process of redirecting video as-is without transcoding, so you see only one endpoint's image at a time, usually the active speaker, without any video layouts or continuous presence (CP). Using video switching increases the port capacity of the Scopia® Elite MCU only by four times. ! Important: Use switched video only when all endpoints participating in the videoconference support the same resolution. If a network experiences high packet loss, switched video might not be displayed properly for all endpoints in the videoconference.
SXGA	SXGA defines a video resolution of 1280 x 1024 pixels.

Telepresence	A telepresence system combines two or more endpoints together to create a wider image, simulating the experience of participants being present in the same room. Telepresence systems always designate one of the endpoints as the primary monitor/camera/codec unit, while the remainder are defined as auxiliary or secondary endpoints. This ensures that you can issue commands via a remote control to a single codec base which leads and controls the others to work together as a single telepresence endpoint.
Telepresence - Dual row telepresence room	Dual row telepresence rooms are large telepresence rooms with two rows of tables that can host up to 18 participants.
TLS	TLS enables network devices to communicate securely using certificates, to provide authentication of the devices and encryption of the communication between them.
Transcoding	Transcoding is the process of converting video into different sizes, resolutions or formats. This enables multiple video streams to be combined into one view, enabling continuous presence, as in a typical videoconferencing window.
UC (Unified Communications)	UC, or unified communications deployments offer solutions covering a wide range of communication channels. These include audio (voice), video, text (IM or chat), data sharing (presentations), whiteboard sharing (interactive annotations on shared data).
Unbalanced Microphone	An unbalanced microphone uses a cable that is not especially built to reduce interference when the cable is long. As a result, these unbalanced line devices must have shorter cables to avoid audio disruptions.
Unicast Streaming	Unicast streaming sends a separate stream of a videoconference to each viewer. This is the default method of streaming in Scopia® Desktop server. To save bandwidth, consider multicast streaming.
URI	URI is an address format used to locate a device on a network, where the address consists of the endpoint's name or number, followed by the domain name of the server to which the endpoint is registered. For example, <i><endpoint name>@<server_domain_name></i> . When dialing URI between organizations, the server might often be the Avaya Scopia® PathFinder server of the organization.
URI Dialing	Accessing a device via its URI on page 102.
User profile	A user profile is a set of capabilities or parameter values which can be assigned to a user. This includes available meeting types (services), access to Scopia® Desktop and Scopia® Mobile functionality, and allowed bandwidth for calls.

VFU	See Video Fast Update (VFU) on page 103.
VGA	VGA defines a video resolution of 640 x 480 pixels.
Video Fast Update (VFU)	Video Fast Update (VFU) is a request for a refreshed video frame, sent when the received video is corrupted by packet loss. In response to a VFU request, the broadcasting endpoint sends a new intra-frame to serve as the baseline for the ongoing video stream.
Video Layout	A video layout is the arrangement of participant images as they appear on the monitor in a videoconference. If the meeting includes a presentation, a layout can also refer to the arrangement of the presentation image together with the meeting participants.
Video Resolution	See Resolution on page 99.
Video Switching	See Switched video on page 101.
Videoconference	A videoconference is a meeting of more than two participants with audio and video using endpoints. Professional videoconferencing systems can handle many participants in single meetings, and multiple simultaneous meetings, with a wide interoperability score to enable a wide variety of endpoints to join the same videoconference. Typically you can also share PC content, like presentations, to other participants.
Viewer Portal	The Avaya Scopia® Streaming and Recording Viewer Portal is embedded in the Avaya Scopia® Desktopuser portal. To access the Viewer Portal, you can select Recordings and Events on the main Scopia® Desktop page. From the Viewer Portal, you can watch recordings and navigate through the categories.
Virtual Delivery Node	<p>The Avaya Scopia® Streaming and Recording Virtual Delivery Node (VDN) is a device to push content to an external Content Delivery Network (CDN). The method for publishing content to a CDN is tightly coupled to the Avaya Scopia® Streaming and Recording platform which allows a company's video assets to be managed from a central location.</p> <p>If you want to use a VDN and a CDN, you must buy cloud storage and services from Highwinds™, with the appropriate bandwidth and capacity for your needs. You apply the credentials you receive from Highwinds in the Avaya Scopia® Streaming and Recording Manager to securely access the CDN.</p>
Virtual Room	A virtual room in Scopia® Desktop and Scopia® Mobile offers a virtual meeting place for instant or scheduled videoconferences. An administrator can assign a virtual room to each member of the organization. Users can send invitations to each other via a web link which brings you directly into their virtual room. Virtual meeting rooms are also dialed like phone extension numbers, where a user's virtual room number is often based on

that person's phone extension number. You can personalize your virtual room with PIN numbers, custom welcome slides and so on. External participants can download Scopia® Desktop or Scopia® Mobile free to access a registered user's virtual room and participate in a videoconference.

VISCA Cable	A crossed VISCA cable connects two PTZ cameras to enable you to use the same remote control on both.
Waiting Room	A waiting room is a holding place for participants waiting for the host or moderator to join the meeting. While waiting, participants see a static image with the name of the owner's virtual room, with an optional audio message periodically saying the meeting will start when the host arrives.
Webcast	A webcast is a streamed live broadcast of a videoconference over the internet. Enable Scopia® Desktop webcasts by enabling the streaming feature. To invite users to the webcast, send an email or instant message containing the webcast link or a link to the Scopia® Desktop portal and the meeting ID.
WUXGA	WUXGA defines a video resolution of 1920 x 1200 pixels.
XGA	XGA defines a Video resolution of 1024 x 768 pixels.
Zone	Gatekeepers like Avaya Scopia® ECS Gatekeeper split endpoints into zones, where a group of endpoints in a zone are registered to a gatekeeper. Often a zone is assigned a dial prefix, and usually corresponds to a physical location like an organization's department or branch.