Using IP Office System Monitor

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Chapter 1: System Monitor

SysMonitor can assist in the detailed diagnosis of system problems. Through configuration of its trace options, it displays information on specific areas of a system's operation. It can also record that information as log files for later analysis.

- SysMonitor is also known as System Monitor, Monitor or SysMon.
- SysMonitor is intended primarily for use by Avaya support and development staff. The application settings and the information shown frequently change between software releases.
- Analysis of the information shown can require detailed data and telecommunications knowledge and so is not intended for general users. For general purpose monitoring of the status of a system and calls, use the System Status Application. System Status Application provides much easier to interpret data and information and is suitable for use by system maintainers and advanced system users.
- Despite the above, all persons maintaining systems need to be able to run SysMonitor in order to capture logs for submission with fault reports, even if they cannot interpret those logs themselves.

Related links

What's New on page 9
Default Logging on page 10
Installing System Monitor on page 10
System Status Report on page 11
The Alarm Log on page 14
Monitor Icons on page 14
Keyboard Shortcuts on page 15

What's New

For IP Office Release 11.1 FP1, the application has the following enhancements:

- **Access Through Customer Operations Manager for Subscription Mode Systems**

  SysMonitor access to IP Office subscription mode systems is supported via Customer Operations Manager acting as a proxy for the connection. The address to use is shown within the system details within Customer Operations Manager. Refer to Using Customer Operations Manager for IP Office Subscription Systems.

Related links

System Monitor on page 9

Default Logging

The following options apply for the monitoring of new or defaulted IP Office systems:

- ***55 Log Stamp Short Code:**

  All new and defaulted systems have the short code *55 added. When the user dials the code, it inserts a log stamps (see Adding Log Stamps on page 38) into any traces running against the system. This allows users to indicate in the trace when an event has occurred.

- **Default Syslog Monitor Tracing:**

  The default configuration of Linux-based servers other than UCM, automatically adds a monitor Syslog output to the system configuration. The entry is configured to store the records on the server using the `127.0.0.1` address. This provides hourly Syslog files which are retained for 3–days. See Configuring the Syslog Trace Options on page 76.

- **Cloud Edition Systems:**

  For these system, the system's monitor Syslog output is automatically directed to the **Cloud Diagnostic Agent** service run by the cluster hosting the system. Those logs are kept for up to 3-days and can be downloaded through the cluster's Customer Operations Manager.

- **Subscription Systems:**

  These systems can be monitored and managed through Customer Operations Manager running on the cluster providing the system subscriptions. In that case, the system Syslog files can also be collected using Customer Operations Manager.

Related links

System Monitor on page 9

Installing System Monitor

About this task

Monitor is a Windows application. It runs in English only but does not require any licenses. Avaya supplies SysMonitor as part of the IP Office administrator suite DVD. This is available from a number of sources:

- Avaya supply the suite on the IP Office Applications DVD made available for each IP Office release. You can download an ISO file of the DVD from the Avaya support at https://support.avaya.com.
- Users of Customer Operations Manager can download the installer from the **Applications | IP Office Admin** menu.
- Users of Server Edition web manager can download the installer from the **Platform View | App Center** menu.

The default installation process also installs the System Status Application and IP Office Manager applications. However, if necessary, you can install just SysMonitor.

Minimum PC requirements	
RAM	128 MB
Hard disk free space	10 GB

Processor	
Pentium	PIII 800MHz
Celeron	Celeron 3 800Mhz
AMD	Athlon B 650MHz

- Any Ethernet speed mismatch between the PC running monitor and the system being monitored increases the likelihood of dropped packets. The PC port must match or exceed the speed of the system being monitored. The same problem may also arise from speed differences in any intermediate devices between the PC and the monitored system.

Procedure

1. Insert the DVD into the PC's DVD drive. This starts the installation wizard.
2. Select the required language and click **Next**.
3. Select the file path for the installed files and click **Next**.
4. From the list of available applications, check that **System Monitor** is selected for installation. Be careful about de-selecting any other options as that triggers their removal if already installed.
5. Click **Next**.
6. Click **Install**.

Related links

System Monitor on page 9

System Status Report

The status report is output whenever monitor connects to a system. The information included varies depending on the type of system and the equipment installed with it.

In addition, when monitor starts, the initial output may include the system's alarm log. See Alarms on page 84.

IP500 V2 System Example

The example below is a typical output for an IP500 system. The first few lines include the time, date plus the IP address of the system and up time of the monitored system.

```
********** SysMonitor v6.2 (4) **********
********** contact made with 192.168.42.1 at 10:45:17 22/7/2008 **********
********** System (192.168.42.1) has been up and running for 1day, 2hrs and
19secs(93619928mS) **********
93619928mS PRN: System Monitor Started IP=192.168.42.203 IP 500 4.2(4) IP500 Site A
```

```
(IP Office: Supports Unicode, System Locale is eng)
93619928mS PRN: LAW=A PRI=0, BRI=4, ALOG=4, ADSL=0 VCOMP=64, MDM=0, WAN=0, MODU=0
LANM=0 CkSRC=5 VMAIL=1(VER=3 TYP=1) CALLS=0(TOT=3)
93623929mS PRN: ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
93623929mS PRN: + loader: 0.0
93623929mS PRN: + cpu: id 2 board a0 pld 17 type c10 options 802
93623929mS PRN: + fpga: id 1 issue 0 build 5e
93623929mS PRN: ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
93623929mS PRN: ++++++++++++++++++++ LIST OF MODULES ++++++++++++++++++++
93623930mS PRN: +------------------------------------------------------------
93623930mS PRN: + Slot 1: Base DIGSTA8 Board=0xc0 PLD=0x05
93623930mS PRN: + Mezzanine NONE
93623930mS PRN: +------------------------------------------------------------
93623930mS PRN: + Slot 2: Base VCM64 Board=0x01 PLD=0x10
93623930mS PRN: + Mezzanine BRI8 Board=0x01 PLD=0x07
93623930mS PRN: +------------------------------------------------------------
93623930mS PRN: + Slot 3: Base PHONE8 Board=0x01 PLD=0x03
93623931mS PRN: + Mezzanine ATM4 Board=0x00 PLD=0x06
93623931mS PRN: +------------------------------------------------------------
93623931mS PRN: + Slot 4: Base NONE
93623931mS PRN: + Mezzanine NONE
93623931mS PRN: +------------------------------------------------------------
93623931mS PRN: ++++++++++++++++ END OF LIST OF MODULES +++++++++++++++
```

The next line gives information about various aspects of the system. This line is output at regular intervals, set through the Logging to a file on page 36.

```
93619928mS PRN: LAW=A PRI=0, BRI=4, ALOG=4, ADSL=0 VCOMP=64, MDM=0, WAN=0, MODU=0
LANM=0 CkSRC=5 VMAIL=1(VER=3 TYP=1) CALLS=0(TOT=3)
```

Output	Description
LAW	A-Law or U-law system.
PRI	Number of PRI channels
BRI	Number of BRI channels
ALOG	Number of Analog Trunk Channels
ADSL	Not used
VCOMP	Number of voice compression channels installed.
MDM	Size of Modem Card Fitted
WAN	Number of WAN Ports configured.
MODU	Number of external expansion modules (excluding WAN3 modules) attached.
LANM	Number of WAN3 external expansion modules attached.
CKSRC	The current clock source being used for PRI/BRI trunks (0 = Internal Clock Source).
VMAIL	Indicates whether the voicemail server is connected. 1 if connected, 0 if not connected.
VER	The software version of the voicemail server if obtainable.

Table continues…

Output	Description
TYP	The type of Voicemail Server: 0 = None. 1 = Voicemail Lite/Pro. 2 = Centralized Voicemail Pro. 3 = Embedded Voicemail. 4 = Group (3rd party) voicemail. 5 = Remote Audix Voicemail
CALLS	Number of current calls
TOT	Total number of calls made to date since last system reboot.

IP Office Server Edition System Example

The example below is for an primary server in a IP Office Server Edition system. It shows details of the server and lists the core services running on the server.

```
Monitor Started IP=192.168.0.6 S-Edition Primary 9.1.0.0 build 87 ServerEdition (Server
Edition(P))
(Supports Unicode, System Locale is default)
PRN: Linux Whoo
8147790mS LIC: Processing token (serial number = 1342837622)
8147790mS LIC: Processing token (serial number = 2749693813)
8147790mS LIC: Processing token (serial number = 1351209077)
8147791mS LIC: Processing token (serial number = 3748848757)
8147791mS LIC: Processing token (serial number = 197602678)
8147791mS LIC: Processing token (serial number (big) = 611926526051)
8147791mS LIC: ProcessToken (Serial number (big) = 611926526051)
8148673mS PRN: IPOKeepaliveTask::Main sending keepalives at 5000 ms
8150830mS PRN: ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
8150864mS PRN: + hardware id: Generic
8150864mS PRN: + virtualized: no
8150864mS PRN: + ova: no
8150864mS PRN: + hosted: no
8150864mS PRN: + cpu: Intel(R) Pentium(R) 4 CPU 3.20GHz
8150864mS PRN: + ram: 1868MB
8150864mS PRN: + hdd: WDC
8150864mS PRN: + hdd size: 73579MB
8150864mS PRN: + inventory code:
8150864mS PRN: + model info:
8150864mS PRN: + serial number:
8150864mS PRN: ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
8150864mS PRN: ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
8150864mS PRN: ++++++++++++++++++ LIST OF SERVICES ++++++++++++++++++++
8150864mS PRN: +------------------------------------------------------------
8150864mS PRN: + Service 1: IPO-Linux-PC
8150864mS PRN: +------------------------------------------------------------
8150864mS PRN: + Service 2: IPO-MediaServer
8150864mS PRN: +------------------------------------------------------------
8150864mS PRN: + Service 3: one-X Portal
8150864mS PRN: +------------------------------------------------------------
8150864mS PRN: + Service 4: Voicemail Pro
8150864mS PRN: +------------------------------------------------------------
8150864mS PRN: + Service 5: Contact Recorder
8150864mS PRN: +------------------------------------------------------------
8150864mS PRN: + Service 6: WebLM
8150864mS PRN: +------------------------------------------------------------
```

```
8150864mS PRN: + Service 7: Web RTC Gateway
8150864mS PRN: +-----------------------------------------------------------
8150864mS PRN: + Service 8: Authentication Module
8150864mS PRN: +-----------------------------------------------------------
8150864mS PRN: + Service 9: Web Collaboration
8150864mS PRN: +-----------------------------------------------------------
8150864mS PRN: +++++++++++++++ END OF LIST OF SERVICES +++++++++++++++
8150964mS RES: Mon 1/9/2014 11:46:26 UsedMem=16302080 MemObjs=0(Max 0) CMMsg=5(5)
Buff=5000 20000 30000 49694 500 Links=111938(160000) BTree=14819 CPU=01.05%
8150964mS RES2: (SE-P) S-Edition Primary 9.1.0.0 build 87 Tasks=36 RTEngine=0
CMRTEngine=0 ExRTEngine=0 Timer=61 Poll=0 Ready=0 CMReady=0 CMQueue=0 VPNNQueue=0
Monitor=2 SSA=0 TCP=26(TLS=6) TAPI=1
```

Related links

System Monitor on page 9

The Alarm Log

About this task

This menu displays the alarms records in the connected system's alarms log. When monitor connects to a system, the trace automatically includes the system's current alarm log at its start.

The alarms cannot be interpreted in the field. However, if a site experiences the same repeated problem, Avaya may request the alarm log details.

The presence of alarms is not necessarily critical as each system keeps a record of the first 8 alarms since the alarm log was last cleared. However, once the alarm log is full, the system ignores additional alarms.

```
3003mS PRN: +++ START OF ALARM LOG DUMP +++
3019mS PRN: ALARM: 18/03/2004 13:07:56 IP 412 2.1(8)  CRIT RAISED addr=00000000 d=5
pc=00000000 0082eef0 0094d780 00a13250 00a13638 00a0cb3c
3019mS PRN: ALARM: 22/04/2004 07:26:44 IP 412 2.1(11)CRIT RAISED addr=00000000 d=5
pc=00000000 0095dfe0 0095e278 008b0570 008b0734 008b07b8
3019mS PRN: ALARM: 22/04/2004 07:26:46 IP 412 2.1(11)CRIT RAISED addr=00000000 d=0
pc=00000000 01e75750 01f983d4 0095e278 00000001 01e757f8
3004mS PRN: +++ END OF ALARM LOG DUMP +++
```

Procedure

1. Click **Status** and select **Alarms**. Monitor displays the alarm records in a separate window.
2. To clear the alarm log, click **Clear Alarms**.

Related links

System Monitor on page 9

Monitor Icons

The system monitor window contains a number of icons:

Icon	Uses
Open File	Open a previous saved monitor log file, see Opening a Log File on page 32. Can also be used to open a Syslog file that has been produced by a system. See Converting Syslog Files on page 81.
Save Screen Log As	Save the current monitor log to a text file. See Saving the Screen Log as a Log File on page 33.
Rollover Log	Force the current log file to rollover. Monitor adds the date and time to the log file name and then starts a new log file. See Manually Rolling Over the Log File on page 40.
Stop Logging	Stop logging to a file. See Stopping File Logging on page 38.
Start Logging	Start logging to a file. See Starting File Logging on page 37.
Text Log Files	This icon indicates that monitor is currently set to text or binary file logging. Clicking the icon changes the mode and forces a rollover of the current log file. See Switching Between Binary and Text Logging on page 38.
Binary Log Files	
Clear Display	Clear the current log shown in the display.
Run Screen Display	Show the live monitor log in the display.
Freeze Screen Logging	Pause the live monitor log in the display. This does not stop the logging to file.
Reconnect	Connect to the system specified in the **Select Unit** options. See Reconnecting to the monitored system on page 30.
Trace Options	Set the filter options for what should be included in the logs.
Log Preferences	Set the format and destination for the monitor log file.
Select Unit	Set the details of the system to monitor. See Selecting the system to monitor on page 29.

Related links

System Monitor on page 9

Keyboard Shortcuts

You can use the following keyboard shortcuts with system monitor:

Function	Shortcut
Select Unit See Selecting the system to monitor on page 29.	`Ctrl+U`
Reconnect See Reconnecting to the monitored system on page 30.	`Ctrl+E`

Table continues…

Function	Shortcut
Open File See Opening a log file on page 32 and Converting syslog files on page 81.	Ctrl+O
Save Screen Log As See Saving the screen log as a log file on page 33.	Ctrl+S
Send to mail recipient See Emailing the screen log on page 31	Ctrl+M
Send to mail recipient as attachment See Emailing the screen log on page 31	Ctrl+H
Rollover Log See Manually rolling over the log file on page 40.	Ctrl+R
Log Preferences See Setting the log preferences on page 36.	Ctrl+L
Clear Display See Clearing the screen log on page 27.	Ctrl+X
Copy the screen log See Copying screen log information on page 32	Ctrl+C
Select All See Copying screen log information on page 32	Ctrl+A
Find See Serching the screen log on page 28	Ctrl+F
IP Calculated (Selected Hex) SeeConverting IP address hex values on page 29	Ctrl+D
Log to screen (start/pause) See Pausing the screen log on page 27.	Ctrl+G
Start/Stop File Logging	Ctrl+W
Trace Options See Setting a trace options on page 45	Ctrl+T
US PRI Trunk status See US PRI Trunks on page 108	Ctrl+I
Filter screen log See Filtering the screen log on page 28.	F4
Exit See Closing system monitor on page 22	Alt+F4

Related links

System Monitor on page 9

Chapter 2: Starting System Monitor

When starting monitor, you can select the protocol to be used for the connection. Use of unwanted protocols can be disabled if required for security.

Protocol	Description
UDP	This protocol has a low impact on the system of sending records, especially when a large number of records are being sent. • This is the preferred protocol if there are no security or bandwidth concerns between the monitor PC and the system being monitored. • To capture system resets, **UDP** is recommended to ensure maximum trace capture necessary to help diagnose the cause of the reset.
TCP	This protocol is supported for IP Office Release 9.0 or higher systems. For low volumes of traffic, this protocol is more reliable for routing across networks than **UDP**. • This is the required protocol when using monitor remotely through an Avaya SAL connection.
HTTP/HTTPS	These protocols are supported for IP Office Release 9.1 or higher systems. They are more secure than **UDP** and **TCP**. Rather than using the target system's monitor password, these protocols use the name and password of an IP Office service user account configured for monitor use. • For cloud systems and subscription systems being accessed via Customer Operations Manager, **HTTPS** on port 8433 must be used.

Connecting to a System using UDP

About this task

This protocol reduces the impact on the system of sending records, especially when a large number of records are being sent. However, this protocol is not secure. Use of **UDP** can be disabled through the system security settings, see Disabling UDP/TCP/HTTP Access on page 23.

- To capture system resets, **UDP** is recommended to ensure maximum trace capture necessary to help diagnose the cause of the reset.
- Any Ethernet speed mismatch between the PC running monitor and the system being monitored increases the likelihood of dropped packets. The PC port must match or exceed the speed of the system being monitored. The same problem may also arise from speed differences in any intermediate devices between the PC and the monitored system.

Procedure

1. Go to **Start** > **IP Office** > **Monitor**.
2. If **Monitor** has been previously run, it will attempt to automatically connect with the previous monitored system. Details of the connection are shown in the title bar. If otherwise or if you want to monitor another system, use the steps below.
3. Click on or select **File** > **Select Unit**. The **Select System to Monitor** dialog box is displayed.
4. Enter the system details:
   a. Enter the system's IP address or FQDN without any protocol prefix.
   b. Set the **Protocol** to **UDP**.
   c. The **Port**, **Certificate** and **Username** are not used.
   d. Enter the system's monitor password. See Setting the Monitor Password on page 23.
   e. If you want monitor to start with a previously saved set of trace options, use the **Trace Log Settings Filename** browse button to select the trace options file. See Saving Trace Options as a File on page 42.
5. Click **OK**.
6. Once **Monitor** has connected with a system, it displays the system's status report (see System Status Report on page 11) and alarm log (see Alarms on page 84).

Connecting to a System using TCP

About this task

TCP connection is supported for IP Office release 9.0 and higher. In order to use monitor remotely through Avaya SAL, select **TCP**.

However, this protocol is not secure. Use of **TCP** can be disabled through the system's security settings, see Disabling UDP/TCP/HTTP Access on page 23.

Procedure

1. Go to **Start** > **IP Office** > **Monitor**.
2. If **Monitor** has been previously run, it will attempt to automatically connect with the previous monitored system. Details of the connection are shown in the title bar. If otherwise or if you want to monitor another system, use the steps below.
3. Click on or select **File** > **Select Unit**. The **Select System to Monitor** dialog box is displayed.

4. Enter the system details:
    a. Enter the system's IP address or FQDN without any protocol prefix.
    b. Set the **Protocol** to **TCP**.
    c. The **Port**, **Certificate** and **Username** are not used.
    d. Enter the system's monitor password. See Setting the Monitor Password on page 23.
    e. If you want monitor to start with a previously saved set of trace options, use the **Trace Log Settings Filename** browse button to select the trace options file. See Saving Trace Options as a File on page 42.
5. Click **OK**.
6. Once **Monitor** has connected with a system, it displays the system's status report (see System Status Report on page 11) and alarm log (see Alarms on page 84).

Connecting to a System using HTTP

About this task

HTTP and **HTTPS** connections are supported for IP Office Release 9.1 and higher. Using these protocols is more secure.

This type of connection uses the name and password of an IP Office service user who has been configured for monitor access, see Configuring a service user for monitor access on page 24. By default, only the **Administrator** account is configured for such access.

Use of **HTTP** and **HTTPS** access can be disabled through the system's security settings. See Disabling UDP/TCP/HTTP Access on page 23.

Procedure

1. Go to **Start** > **IP Office** > **Monitor**.
2. If **Monitor** has been previously run, it will attempt to automatically connect with the previous monitored system. Details of the connection are shown in the title bar. If otherwise or if you want to monitor another system, use the steps below.
3. Click on or select **File** > **Select Unit**. The **Select System to Monitor** dialog box is displayed.
4. Enter the system details:
    a. Enter the system's IP address or FQDN without any protocol prefix.
    b. Set the **Protocol** to **HTTP**.
    c. The**Port** defaults to **80**. Change this if a different port is configured in the IP Office system's security settings.
    d. The **Certificate** field is not used for **HTTP** connections.

e. In the **Username** field enter the name of the service user account configured for monitor access to the system. In the **Password** field, enter the password for that service user account. Incorrect entry does not disable the account in the same way as for access from IP Office Manager. However, more than 10 incorrect login attempts in a 10 minute period will block further monitor access attempts for a minute.

f. If you want monitor to start with a previously saved set of trace options, use the **Trace Log Settings Filename** browse button to select the trace options file. See Saving Trace Options as a File on page 42.

5. Click **OK**.
6. Once **Monitor** has connected with a system, it displays the system's status report (see System Status Report on page 11) and alarm log (see Alarms on page 84).

Connecting to a System using HTTPS

About this task

HTTP and **HTTPS** connections are supported for IP Office Release 9.1 and higher. Using these protocols is more secure.

This type of connection uses the name and password of an IP Office service user who has been configured for monitor access, see Configuring a service user for monitor access on page 24. By default, only the **Administrator** account is configured for such access.

Use of **HTTP** and **HTTPS** access can be disabled through the system's security settings. See Disabling UDP/TCP/HTTP Access on page 23.

Procedure

1. Go to **Start** > **IP Office** > **Monitor**.
2. If **Monitor** has been previously run, it will attempt to automatically connect with the previous monitored system. Details of the connection are shown in the title bar. If otherwise or if you want to monitor another system, use the steps below.
3. Click on or select **File** > **Select Unit**. The **Select System to Monitor** dialog box is displayed.
4. Enter the system details:
   a. Enter the system's IP address or FQDN without any protocol prefix. For subscription systems being accessed via Customer Operations Manager, use the address shown in the system's details in Customer Operations Manager.
   b. Set the **Protocol** to **HTTPS**.
   c. The **Port** defaults to **443** (use **8443** for cloud based systems and systems being accessed via Customer Operations Manager). Change this if a different port is configured in the IP Office system's security settings.

d. Select the **Certificate** that should be used for the connection. To select a certificate, click on the browse button , select the certificate to use and click **OK**. If you do not select a certificate, monitor will auto-generate a self-signed certificate file.

e. In the **Username** field enter the name of the service user account configured for monitor access to the system. In the **Password** field, enter the password for that service user account. Incorrect entry does not disable the account in the same way as for access from IP Office Manager. However, more than 10 incorrect login attempts in a 10 minute period will block further monitor access attempts for a minute.

f. If you want monitor to start with a previously saved set of trace options, use the **Trace Log Settings Filename** browse button to select the trace options file. See Saving Trace Options as a File on page 42.

5. Click **OK**.
6. Once **Monitor** has connected with a system, it displays the system's status report (see System Status Report on page 11) and alarm log (see Alarms on page 84).

Closing System Monitor

Closing monitor ends screen and file logging.

1. Click the **X** icon at the top-right of the window. Alternatively, press `Alt+F4` or select **File** > **Exit**.
2. The application closes and all logging stops.

Chapter 3: IP Office Security Configuration

Use of monitor to access an IP Office system is configured through that system's security settings. Monitor can use a range of protocols for the connection with a balance between security and performance depending on the protocol chosen.

HTTPS is recommended for security. UDP is recommended for low performance impact but requires leaving an unsecure port open on the system. For full details, refer to the Avaya IP Office™ Platform Security Guidelines document.

Setting the Monitor Password

About this task

For UDP/TCP access, monitor uses the **Monitor Password** setting in the target system's security configuration. If no password is set, it uses the **System Password** setting in the same security configuration.

Procedure

1. Using IP Office Manager, access the IP Office system's security settings.
2. Click **System** and select the **Unsecure Interfaces** tab.
3. Next to the **Monitor Password**, click **Change**.
   - The **Use Service User Credentials** option can be used to disable the **Monitor Password**. When selected, UDP and TCP access uses the password of any service user configured for monitor access. See Configuring a service user for monitor access on page 24
4. Enter the existing password, then enter the new password and click **OK**. The default password for a system is blank.
5. Click on the icon to save the security changes.

Disabling UDP/TCP/HTTP Access

About this task

UDP/TCP/HTTP access to the IP Office using monitor can be disabled.

Important:

Note that this also disables the interface used by some legacy third-party applications and so also disables their access.

Procedure

1. Using IP Office Manager, access the IP Office system's security settings.
2. Click **System** and select the **Unsecure Interfaces** tab.
3. In the **Application Controls** section, clear **DevLink** check box.
4. Click **OK**.
5. Click on the icon to save the security changes.

Configuring a Service User for Monitor Access

About this task

HTTP or HTTPS access uses the name and password of a service user configured specifically for monitor access. Configuring such a user is done in two parts:

- A security rights group is configured with monitor access.
- Selected service users are made members of that rights group.

Procedure

To configure rights group access:

1. Using IP Office Manager, access the IP Office system's security settings.
2. Click **Rights Groups** and then select the rights group that you want to configure. By default the **System Status Group** has monitor access enabled.
3. Select the **System Status** tab.
4. The **SysMonitor Access** option is used to set for the service users who are the members of the rights group and can access a system using System Monitor.
5. Click **OK**.
6. Click on the icon to save the security changes.

To configure rights group membership:

7. Using IP Office Manager, access the IP Office system's security settings.
8. Click **Service Users** and select the service user.
9. In the **Rights Group Membership** section, ensure that the rights group configured for monitor access is selected.
10. Click **OK**.

11. Click on the icon to save the security changes.

Adjusting the HTTP Service

About this task

You can edit the level of security used for HTTP/HTTPS access.

Important:

The HTTP service is also used by other IP Office applications.

Procedure

1. Using IP Office Manager, access the IP Office system's security settings.
2. Click **Services** and select **HTTP**.
3. The **Service Security Level** is the only setting that can be changed. It controls the unsecure (HTTP) and or secure (HTTPS) access depending on the usage.

Service Security Level	Usage
Disabled	The service and corresponding Transmission Control Protocol (TCP) ports are inactive.
Unsecure Only	Allows only unsecured access to the service. The service's secure TCP port is disabled.
Unsecure + Secure	Allows both unsecured and secure (Low) access.
Secure, Low	Allows secure access to the service using Transport Layer Security (TLS), and demands weaker (for example 3 DES) encryption and authentication or higher. The service's unsecured TCP port is disabled.
Secure, Medium	Allows secure access to that service using TLS, and demands moderate (for example AES-128) encryption and authentication or higher. The service's unsecured TCP port is disabled.
Secure, High	Allows secure access to that service using TLS and demands stronger (for example AES-256) encryption and authentication, or higher. In addition, a certificate is required from the client. The service's unsecured TCP port is disabled.

4. Click **OK**.
5. Click on the icon to save the security changes.

Chapter 4: Using the Screen Log

System Monitor uses its main display area to show records received from the connected system. Alternatively, it can display a previously saved logged file for study.

Important:

The screen log is limited to approximately 5000 records. If you anticipate logging for a long period or selecting a lot of trace options, you should log to file and then display the file. Large log files can be displayed in a separate text editor.

The records displayed in the screen log are not the raw records as received from the system, instead that are interpreted records. System Monitor applies various changes to aid the interpretation of the records. For example, a record containing the raw entry *pcol=6* is interpreted and displayed as *pcol=6 (TCP)*.

Related links

Pausing the Screen Log on page 27
Starting the Screen Log on page 27
Clearing the Screen Log on page 27
Filtering the Screen Log on page 28
Searching the Screen Log on page 28
Converting IP Address Hex Values on page 29
Selecting the System to Monitor on page 29
Reconnecting to the Monitored System on page 30
Setting the Trace Options on page 30
Viewing the System Alarms on page 30
Viewing the Status Menus on page 31
Emailing the Screen Log on page 31
Opening a Log File on page 32
Copying Screen Log Information on page 32
Saving the Screen Log as a Log File on page 33
Setting the Screen Font on page 33
Setting the Screen Background Color on page 33
Setting the Trace Colors on page 34
Setting the Indenting on page 34
Showing the Date and Time on page 35

Pausing the Screen Log

When displaying the trace from a system, you can pause the trace to inspect it. Pausing the screen log does not affect logging to file if that is also running.

1. Click on the ⏸ icon. Alternatively, press `Ctrl+G` or select **View** > **Freeze Screen Logging**.
2. The message `Logging to Screen Stopped` is shown as part of the log.
3. To restart the screen log, see, Staring the screen log on page 27.

Related links

Using the Screen Log on page 26

Starting the Screen Log

The screen log can be paused (see Pausing the screen log on page 27) . If so, use the following options to restart displaying records received.

When you load a log file for display, any screen logging from a connected system is automatically paused. Restarting the screen log, adds records from the connected system when it is received.

1. Click the ▶ icon at the top-right of the window. Alternatively, press `Ctrl+G` or select **View** > **Log to Screen**.
2. The warning `Logging to Screen Started` is shown in the log.

Related links

Using the Screen Log on page 26

Clearing the Screen Log

You can clear the currently displayed trace:

- Clearing the trace does not affect any trace records logged to a file.
- If the screen log was loaded from a previously saved log file, clearing the trace clears the screen log but does not erase records from the log file.

To clear the screen log:

1. Click the ✘ icon. Alternatively, press `Ctrl+X` or select **Edit** > **Clear Display**.

Related links

Using the Screen Log on page 26

Filtering the Screen Log

About this task

The System Monitor displays a filtered summary of the current screen log. You can apply the filter on any selected part of the existing screen log, for example an IP address or on extension number. The System Monitor displays the filtered log as a separate window and you can save to a text file.

Procedure

To display a filtered screen log:

1. Using the cursor, highlight the part of the current screen log that you want use as filter. If necessary, pause the screen to select (see Pausing the Screen Log on page 27).
2. Press `F4`. Monitor displays a separate window containing the records that match to the filter.

To save a filtered screen log:

3. In the filtered log window, click **File** and select **Save As**.
4. Enter a file name or select an existing file to overwrite.
5. Click **Save**.

To copy the filtered screen log:

6. In the filtered log window, select the filter records that you want to copy.
7. Click **File** and select **Copy**.

Related links

Using the Screen Log on page 26

Searching the Screen Log

About this task

You can search the screen log for records that contain text that match the search string you specify.

Tip:

Selecting a piece of text in the screen log before starting a search, automatically makes the selected text the search string.

Procedure

1. Click **Edit** and select **Find**. Alternatively, press `Ctrl+F`.
2. Enter the search string for that you want to search on the screen log.

3. Click **Find Next** to find the first match.
4. Click **Find Next** again to find the next match.

Related links

Using the Screen Log on page 26

Converting IP Address Hex Values

About this task

Some values displayed in the screen log are hex values. These are indicated by a `0x` prefix to the number. Typically these are IP addresses. Monitor can display the converted value. For example, `0xff` becomes `0.0.0.255`.

Procedure

1. In the screen log, select and highlight the value to be converted. You can include the `0x` prefix in the selection.
2. Press `Ctrl+D`. Alternatively, select **Edit** > **IP Calculated (Selected Hex)**.

Related links

Using the Screen Log on page 26

Selecting the System to Monitor

About this task

While monitoring a system or viewing a log file, you can switch to receiving and displaying the log records from another system.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+U` or select **File** > **Select Unit**.
2. Follow the methods of connection you want to use:
   - Connecting to system using UDP on page 18
   - Connecting to system using TCP on page 19
   - Connecting to system using HTTP on page 20
   - Connecting to system using HTTPS on page 21

Related links

Using the Screen Log on page 26

Reconnecting to the Monitored System

Monitor automatically attempts to reconnect to a system when it detects that the connection has been lost. However, if necessary you can manually select to reconnect.

1. Click on the icon. Alternatively, press `Ctrl+E` or select **File** > **Reconnect**.
2. When reconnected with the system, its Status Report on page 11 and Alarms on page 84 reports are displayed.

Related links

Using the Screen Log on page 26

Setting the Trace Options

The output received from a system can includes records of almost all system activity. This can make it difficult to find just those details needed to diagnose a particular issue. Therefore, monitor allows you to select which types of records to included in the current screen log and file logging. See Setting the Trace Options on page 42.

Related links

Using the Screen Log on page 26

Viewing the System Alarms

About this task

This menu displays the alarms records in the connected system's alarms log. When monitor connects to a system, the trace automatically includes the system's current alarm log at its start.

The alarms cannot be interpreted in the field. However, if a site experiences the same repeated problem, Avaya may request the alarm log details.

The presence of alarms is not necessarily critical as each system keeps a record of the first 8 alarms since the alarm log was last cleared. However, once the alarm log is full, the system ignores additional alarms.

```
3003mS PRN: +++ START OF ALARM LOG DUMP +++
3019mS PRN: ALARM: 18/03/2004 13:07:56 IP 412 2.1(8)  CRIT RAISED addr=00000000 d=5
pc=00000000 0082eef0 0094d780 00a13250 00a13638 00a0cb3c
3019mS PRN: ALARM: 22/04/2004 07:26:44 IP 412 2.1(11)CRIT RAISED addr=00000000 d=5
pc=00000000 0095dfe0 0095e278 008b0570 008b0734 008b07b8
3019mS PRN: ALARM: 22/04/2004 07:26:46 IP 412 2.1(11)CRIT RAISED addr=00000000 d=0
pc=00000000 01e75750 01f983d4 0095e278 00000001 01e757f8
3004mS PRN: +++ END OF ALARM LOG DUMP +++
```

Procedure

1. Click **Status** and select **Alarms**. Monitor displays the alarm records in a separate window.

2. To clear the alarm log, click **Clear Alarms**.

Related links

Using the Screen Log on page 26

Viewing the Status Menus

In addition to the screen log, monitor can display a number of different status screens for different aspects of system operation.

1. Click **Status** and select the status screen required. See Status Screens on page 83.

Related links

Using the Screen Log on page 26

Emailing the Screen Log

About this task

You can use the default email application configured on the PC to send an email copy of the current screen log. You can send an email with the screen log either automatically pasted into the email text or attached as a separate `txt` file. Attaching it as a file allows the recipient to easily load the file back into their copy of monitor.

Procedure

1. Click **File** > **Send To** and then
2. Selection either:
   - Select **Mail Recipient**. The default email application displays a new email with the screen log pasted into the message text.
   - Select **Mail Recipient as Attachment**. The default email application displays a new email with the screen log pasted into the message text.
3. Complete the email details and click **Send**.

Related links

Using the Screen Log on page 26

Opening a Log File

About this task

You can open and view an existing log file. Opening a log file automatically pauses the display of the screen log from any connected system.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+O` or select **File** > **Open**.
2. Browse to select the log file.
   - You can select more than one file; the contents are concatenated in the monitor display.
   - Different file extensions are used for different types of log file. Either select the file from the files shown or use the **Files of type** drop-down list to filter the files shown to a particular type:
     - **Text Log Files** – A `.txt` file containing plain text logging.
     - **Binary Log Files** – A `.mon` file containing binary logging.
     - **Syslog Files** – A `.log` file containing Syslog monitor records. See Syslog tracing on page 75.
     - **Zipped Files** – A `.zip` zipped file containing multiple log files.
3. Click **Open**.
4. For a `.zip` file, you are prompted for a password. Enter the password if one was set and click **OK**.

Related links

Using the Screen Log on page 26
Logging to a File on page 36

Copying Screen Log Information

About this task

You can copy and paste the information shown in the screen log using the standard Windows methods.

Procedure

1. Using the cursor, select the section of the screen log to copy or press `Ctrl+A` to select the whole screen log.
2. Press `Ctrl+C` to copy the selected portion of the screen log.

Related links

Using the Screen Log on page 26

Saving the Screen Log as a Log File

About this task

You can save the screen log as a text log file.

To open a binary log file and then save it as a plain text log file can be problematic if the file contains a very large number of records. If a plain text copy of a binary log file is required, see Converting a Binary Log to a Text Log on page 40.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+S` or select **File** > **Save Screen Log As**.
2. Enter a file name for the file.
3. Click **Save**.

Related links

Using the Screen Log on page 26
Logging to a File on page 36

Setting the Screen Font

About this task

You can select the default font used for displaying the logs.

Procedure

1. Click **View** and select **Font** .
2. Select the required font settings.
3. Click **OK**.

Related links

Using the Screen Log on page 26

Setting the Screen Background Color

About this task

You can select the color used for the background of the screen log.

Procedure

1. Click **View** and select **Background Colour** .
2. Select the color required.

3. Click **OK**.

Related links

Using the Screen Log on page 26

Setting the Trace Colors

About this task

When applying trace options, you can select a particular color for the options to make them easier to spot in the screen log.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Select the tab showing the trace option for which you want a specific color applied.
3. Right click on the name of the trace option.
4. Select the required color.
5. Click **OK**.

Related links

Using the Screen Log on page 26

Setting the Indenting

About this task

To support the reading of the monitor trace and to import into other applications, you can adjust the indentation applied to the records.

Procedure

1. Click **View** and select **Formatting**.
2. Use the controls to adjust the indentation applied to the packets of information shown on each line.
3. Click **OK**.

Related links

Using the Screen Log on page 26

Showing the Date and Time

About this task

Every record shown in the screen trace and recorded in the a log is prefixed with the number of milliseconds since the system last rebooted. You can also prefix it with the current system date and/or time.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Select **System** tab.
   - To add the date, select **Prefix YYYY-M-DD**.
   - To add the time, select **Prefix hh:mm:ss**.
3. Click **OK**.

Related links

Using the Screen Log on page 26

Chapter 5: Logging to a File

In addition to displaying records in the screen log, monitor can copy records into a log file. You can view log files at a later time or send them for analysis by another person.

Related links

Setting the Log Preferences on page 36
Starting File Logging on page 37
Stopping File Logging on page 38
Switching Between Binary and Text Logging on page 38
Adding Log Stamps on page 38
Opening a Log File on page 32
Saving the Screen Log as a Log File on page 33
Manually Rolling Over the Log File on page 40
Converting a Binary Log to a Text Log on page 40

Setting the Log Preferences

About this task

These settings set where monitor stores log files and checks for a new log file.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+L` or select **File** > **Log Preferences**.
2. Select the required **Log Mode**. This setting controls how often monitor saves the current log file and starts a new file.

Log Mode option	Description
Periodic	Only rollover the log when the icon is pressed. See Manually Rolling Over the Log File on page 40.
Daily	Rollover the log automatically at the end of each day.
Every 'n' hours	Rollover the log automatically every few hours. When selected, the settings includes an **Hours Interval** box to set the number of hours between rollovers.

Log Mode option	Description
Every 'n' MBytes	Rollover the log automatically when it reaches a set size. When selected, the settings includes a **MBytes Interval** box to set the size limit.

3. Browse to set the log file location. The default location is the application program folder (by default `C:\Program Files (x86)\Avaya\IP Office\Monitor`). Each time file logging stops or rolls over, monitor adds the date and time to the log file name.
4. Select the log format required by selecting **Binary Logging** or not:
   - **Binary Log Files** – This is the raw format of records as received from the system. The records are not processed in any way by monitor other than being added to the log file. The file extension used is `.mon`.
   - **Text Log Files** – This is the interpreted format of records. Monitor adds additional information, for example, a record containing the raw entry `pcol=6` is changed to `pcol=6 (TCP)`. The file extension used is `.txt`.
     - When logging in text format or running the screen log, it is possible for some records to be lost due to the high number of packets that monitor has to interpret. Running a binary log and pausing the screen log reduces the chances of such lost packets.
5. You can select whether you want the loggin file zipped into a password protected `.zip` file. To do that, select **Enable Zip** and enter a password of at least four characters.
6. To start logging to file immediately, select **Log to File**. If not selected, you can start logging to file manually when required, see Starting File Logging on page 37.
7. Click **OK**.

Related links

Logging to a File on page 36

Starting File Logging

You can manually start logging to file if file logging is not already running.

1. Click the icon. Alternatively, press `Ctrl+W`.
   - The records are logged to file using the settings defined for the log preferences. See Setting the Log Preferences on page 36.
   - The icon changes that can be used to stop logging. See Stopping File Logging on page 38.

Related links

Logging to a File on page 36

Stopping File Logging

You can stop the file logging at any time. When logging is stopped, the log file is saved in the folder specified in the log preferences with the date and time appended to the file name.

1. Click the icon. Alternatively, press `Ctrl+W`.
   - The icon changes to that can be used to start logging. See Starting File Logging on page 37.

Related links

Logging to a File on page 36

Switching Between Binary and Text Logging

About this task

You can switch logging between using binary or text formats. Switching format automatically rolls over the current log file.

- **Binary Log Files** – This is the raw format of records as received from the system. The records are not processed in any way by monitor other than being added to the log file. The file extension used is `.mon`.
- **Text Log Files** – This is the interpreted format of records. Monitor adds additional information, for example, a record containing the raw entry `pcol=6` is changed to `pcol=6 (TCP)`. The file extension used is `.txt`.
  - When logging in text format or running the screen log, it is possible for some records to be lost due to the high number of packets that monitor has to interpret. Running a binary log and pausing the screen log reduces the chances of such lost packets.

Procedure

1. The B icon indicates that binary logging is being used, the T icon, text logging.
2. To change the mode, click on the icon.
3. The current file logging is stopped and a new log file started using the new format.

Related links

Logging to a File on page 36

Adding Log Stamps

Using their phone, system users can access a log stamp function. This allows them to insert a log stamp event into the system's monitor records. They can use these to indicate when an issue that you are trying to capture has occurred.

The log stamp record is prefixed with **LSTMP: Log Stamped** and a log stamp number. It also the date and time plus the user name and extension of the user who triggered the log stamp function.

The log stamp number starts from 000 whenever the system is restarted. Each time the log stamp function is used, the number is incremented in a cycle from 000 to 999. However, a specific log stamp number can be assigned to a button or short code used to trigger the function. When triggered, the user's phone briefly displays the log stamp number.

A default system short code, *55, is automatically added to new systems. For users with appropriate telephones, the log stamp function can also be assigned to a programmable button on the phone using the **Advanced** > **Miscellaneous** > **Stamp Log**.

- When the event to be marked occurs, dial *55. If already on a call, put that call on hold and then dial *55.

Related links

Logging to a File on page 36

Opening a Log File

About this task

You can open and view an existing log file. Opening a log file automatically pauses the display of the screen log from any connected system.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+O` or select **File** > **Open**.
2. Browse to select the log file.
   - You can select more than one file; the contents are concatenated in the monitor display.
   - Different file extensions are used for different types of log file. Either select the file from the files shown or use the **Files of type** drop-down list to filter the files shown to a particular type:
     - **Text Log Files** – A `.txt` file containing plain text logging.
     - **Binary Log Files** – A `.mon` file containing binary logging.
     - **Syslog Files** – A `.log` file containing Syslog monitor records. See Syslog tracing on page 75.
     - **Zipped Files** – A `.zip` zipped file containing multiple log files.
3. Click **Open**.
4. For a `.zip` file, you are prompted for a password. Enter the password if one was set and click **OK**.

Related links

Using the Screen Log on page 26
Logging to a File on page 36

Saving the Screen Log as a Log File

About this task

You can save the screen log as a text log file.

To open a binary log file and then save it as a plain text log file can be problematic if the file contains a very large number of records. If a plain text copy of a binary log file is required, see Converting a Binary Log to a Text Log on page 40.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+S` or select **File** > **Save Screen Log As**.
2. Enter a file name for the file.
3. Click **Save**.

Related links

Using the Screen Log on page 26
Logging to a File on page 36

Manually Rolling Over the Log File

You can force monitor to rollover the current log file at anytime. You can do this even if it is already set to automatically rollover the file.

1. Click on the icon. Alternatively, press `Ctrl+R` or select **File** > **Rollover Log**.
2. Monitor saves the existing log file by adding the time and date to its file name and then starts a new log file.

Related links

Logging to a File on page 36

Converting a Binary Log to a Text Log

About this task

You can use monitor to view binary log files (`.mon` files). However, it may sometimes be necessary to create a plain text copy of the log file so that it can be viewed in other applications.

Whilst you can save the current screen log to a text file at any time, this can be potentially problematic if a very large number of records have been displayed. Even if the procedure to convert a binary log to a text log is complex, it ensures that no records are lost.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+G` or select **View** > **Freeze Screen Logging**.
2. Clear any existing contents in the screen log by clicking the icon.
3. Configure monitor to a non existent IP address.
   a. Click the icon or press `Ctrl+U`.
   b. Enter an IP address that is not used.
   c. Click **OK**.
4. Set monitor to capture the screen log records as they appear into a plain text log file.
   a. Click on the icon. Alternatively, press `Ctrl+L` or select **File** > **Log Preferences**.
   b. Set the **Log Mode** to **Daily**.
   c. Ensure the **Binary Logging** is not selected.
   d. Select the **Log to File** option.
   e. Click **OK**.
5. Open the binary log file:
   a. Click on the icon. Alternatively, press `Ctrl+O` or select **File** > **Open**.
   b. Browse to and select the log file.
   c. Click **Open**.
6. The file opens in the screen log. Due to the log preferences selected, as monitor adds each binary log file record to the screen log, it also write the record into the plain text log file.
7. Once the binary log file has been fully loaded, rollover the log file. Click on the icon. Alternatively, press `Ctrl+R` or select **File** > **Rollover Log**.

Related links

Logging to a File on page 36

Chapter 6: Setting the Trace Options

The trace options settings affect what type of records are included in both the screen log and logging to file.

Related links

Setting the Trace Options on page 42
Saving Trace Options as a File on page 42
Loading trace options from a file on page 43
Coloring Individual Trace Options on page 43
Coloring Tab Trace Options on page 44
Clearing a Trace Options Tab on page 44
Setting a Trace Options Tab on page 45
Clearing All the Trace Options on page 45
Defaulting the Trace Options on page 45

Setting the Trace Options

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Click the setting to enable or disable it.
3. Click **OK**.

Related links

Setting the Trace Options on page 42

Saving Trace Options as a File

About this task

The current set of trace options settings can be exported to an `.ini` file. You can then reload the settings from the file or send the file to another user to set the saved trace options settings for their application. See Loading trace options from a file on page 43.

Note:

Monitor does not save trace option color settings as part of the trace options file.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Select **Save File**.
3. Enter the name for the file and select the location or select an existing file to overwrite.
4. Click **Save**.

Related links

Setting the Trace Options on page 42

Loading trace options from a file

About this task

You can import a previously saved set of trace options settings as a file. See Saving Trace Options as a File on page 42.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Select **Load File**.
3. Locate and select the file to load.
4. Click **Open**.

Related links

Setting the Trace Options on page 42

Coloring Individual Trace Options

About this task

You can select a color for a particular type of trace option. Monitor then applies the selected color to any matching records shown in the screen log.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Select the tab displaying the trace option for which you require a specific color.
3. Right-click on the name of the trace option.

4. Select the required color.
5. Click **OK**.

Related links

Setting the Trace Options on page 42

Coloring Tab Trace Options

About this task

For some tabs (**Call**, **H.323** and **System**), rather than applying colors to individual trace options (see Coloring Individual Trace Options on page 43), a single color selection can be applied for all options on the tab.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Select the required tab.
3. Click on **Trace Colour**.
4. Select the required color.
5. Click **OK**.

Related links

Setting the Trace Options on page 42

Clearing a Trace Options Tab

About this task

You can clear all the currently selected trace options on the currently displayed tab.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Select the tab that you want to clear.
3. Click **Tab Clear All**.

Related links

Setting the Trace Options on page 42

Setting a Trace Options Tab

About this task

You can set all the options on the currently displayed trace options tab.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Select the tab on which you want to set all the options.
3. Click **Tab Set All**.

Related links

Setting the Trace Options on page 42

Clearing All the Trace Options

About this task

You can clear all selected trace options.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Click **Clear AllClear All**.
3. To continue, click **Yes**.

Related links

Setting the Trace Options on page 42

Defaulting the Trace Options

About this task

You can set the trace options to store default settings. This enables you to set selected trace options and the trace option color settings to default.

Procedure

1. Click on the icon. Alternatively, press `Ctrl+T` or select **Filters** > **Trace Options**.
2. Click **Default AllDefault All**.
3. To continue defaulting the trace options, click **Yes**. The defaults are listed below. Tabs not listed default to all options off.

Tab	Default Selected Trace Options
Call	**Call**, **Call Delta**, **Call Logging**, **Extension**, **Targeting**, **ARS**, **LRQ**, **Extension Send**, **Extension Receive**, **Extension TxP**, **Extension RxP**, **Line Send**, **Line Receive**, **Sort IEs**.
Frame Relay	**Frame Relay Events**, **Management Events**.
H.323	**H.232** (Also automatically colored pink).
Interface	**Interface Queue**, **TCP**, **UDP**, **ARP**, **MultiCast**.
ISDN	**Layer 1**, **Layer 2**, **Layer 3**.
Media	**Map**.
PPP	**Err Msg**.
R2	**CAS**, **Channel**, **Dialler**, **DSP**, **Line**.
SIP	**STUN**, **SIP Rx**, **SIP Tx**.
System	**Error**, **Print**, **Prefix hh:mm:ss**, **Resource Status Prints**, **Licensing**.
VPN	Security Engine: **Regs on H/W Cmd Error**. SSL VPN: **Session** and **Session State**.
WAN	**WAN Events**.

Related links

Setting the Trace Options on page 42

Chapter 7: Trace Option Menus

The trace options are grouped onto the following tabs:

Menu	Description
ATM	Monitor analog trunk traffic and events.
Call	Monitor extensions and calls.
Directory	Monitor LDAP traffic and events.
DTE	Monitor the system's DTE port.
EConf	Monitor IP Office Conferencing Center events.
Frame Relay	Monitor Frame Relay traffic and events.
GOD	Monitor messages between the modules in a system.
H.323	Monitor H.323 VoIP calls.
Interface	Monitor IP data interfaces such as NAT and the Firewall.
ISDN	Monitor ISDN traffic and events.
Jade	For Linux-based systems, monitor the call media services.
Key/Map	Monitor appearance functions.
Media	Monitor the media support provided by the system.
PPP	Monitor PPP traffic and events.
R2	Monitor R2 trunk traffic and events.
Routing	Monitor IP traffic and events.
SCN	Monitor Small Community Network traffic and information.
Services	Monitor traffic and events for IP Office services like DHCP, DNS, HTTP, TAPI, Telnet, Time, TFTP, SMTP, SNMP, Web Services.
SIP	Monitor SIP trunks and connections.
SSI	Monitor the system's SSI connections.
System	Monitor internal events.
T1	Monitor T1 traffic and events.
VComp	Monitor the system's voice compression channels.
VPN	Monitor VPN events.
WAN	Monitor WAN traffic and events.

Related links

[ATM Trace Options](#) on page 48

Call Trace Options on page 49
CTI Trace Options on page 51
Directory Trace Options on page 52
DTE Trace Options on page 53
EConf Trace Options on page 54
Frame Relay Trace Options on page 54
GOD Trace Options on page 55
H.323 Trace Options on page 56
Interface Trace Options on page 57
ISDN Trace Options on page 58
Jade Trace Options on page 60
Key/Lamp Trace Options on page 61
Media Trace Options on page 61
PPP Trace Options on page 62
R2 Trace Options on page 63
Routing Trace Options on page 64
SCN Trace Options on page 65
Services Trace Options on page 66
SIP Trace Options on page 67
SSI Trace Options on page 68
T1 Trace Options on page 69
System Trace Options on page 69
VComp Trace Options on page 71
VPN Trace Options on page 72
WAN Trace Options on page 74

ATM Trace Options

This tab provides trace options for monitoring the system's analog trunks.

Option	Description
Channel	Log information relating to the Analog Trunk state machine.
CM Line	Log information relating to the interaction between the line handler and the Call Manager (CM).
I/O	Log events on the line or in the DSP.

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

Call Trace Options

This tab provides trace options for monitoring the system's calls including the use of voicemail.

Events

Events	Description
Call	Log changes of state for the call (Aend and Bend).
Call Delta	Log information on general call state changes.
Call Delta 2	Log information on additional call state changes.
Call Logging	Log **ACD** status messages, **CALL** message giving statistics of call and **SERVICE** message giving statistics of service.
Extension	Log changes of state for the extension plus console print on setting bchan.
Extension Cut	Log changes of cut state for the extension (mapping connections).
Line	Currently this option does not provide any trace messages. It is included for possible future use only.
MonCM	Log all received call control messages (NOT Short Code messages) and some additional console print messages such as `adjustcount` and `ringback`.
MonIVR	Log update information on the messages in a user's voicemail box.
Targeting	Log information concerning call routing (targeting).
ARS	–
LQR	–
ACD	–
IP Dect	–
Call Detail Records	–
CDR Extra Diganostics	–

Packets

Packets	Description
Call	Log all received call control messages and contents.
Extension Send	Log all call control messages and contents transmitted to an extension.
Extension Receive	Log all call control messages and contents received from an extension.

Table continues…

Packets	Description
Extension TxC	Log all call control messages and contents transmitted to the call object. This message is actually received from the extension.
Extension RC	Log all call control messages and contents received from the call object. This message is actually sent to the extension.
Extension TxP	Log all call control messages and contents transmitted to a partner application (for example SoftConsole). Also enables `CMExtnCopyProcessMsg` `CMExtnCopyProcessCallMsg` `CMExtnConfCopyProcessCallMsg` `CMExtnCopySendCallMsg` and `CMExtnCopyCallLostMsg` and messages.
Extension RxP	Log all call control messages and contents received from a partner application such as IP Office SoftConsole.
Line Send	Log all call control messages and contents sent to a line. Also enables `CMCallReleaseStart` `CMCallReleaseEnd` and `CMCallLostRecord Timeout` and messages.
Line Receive	Log all call control messages and contents received from a line. Also enables Incoming `Call Waiting` `CallRefused Incoming Blocked` and `CallRefused` and because channels are in use messages.
Short Code Msgs	Log short code messages associated with the selected **Extension Send**, **Extension Receive** and **MonCM** trace options.
Supplementary services	–
IP Dect Msgs	–
Sort IEs	If selected, sort the order of line alerting and connected events when displayed in the screen log. The order of line alerting and connected events varies depending on whether the system is transmitting or receiving. That makes it difficult to compare side by side traces of calls between two systems. This settings only affects those events that are sorted when displayed in the screen log and does not affect the order of the recorded log file.

Embedded voicemail

Option	Description
Voicemail Client	–
Audio Response	–
Message Recorder	–
Housekeeping	–
Flash Storage	–
Silence	–
Email	–

PC voicemail

Option	Description
Voicemail Events	–
Voicemail Messaging	–

Trigger string detection

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.

Option	Description
Call Log	–
Print	–
Auto Rollover	–
Allow Multiple Rollovers	–

Trace Color

This option allows selection of a color that is then applied to all options in the menu, see Coloring Tab Trace Options on page 44. This selection overrides any previous color selected for individual options. However, it does not prevent subsequent individual option coloring, see Coloring Individual Trace Options on page 43.

Default settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **Call**, **Call Delta**, **Call Logging**, **Extension**, **Targeting**, **ARS**, **LRQ**, **Extension Send**, **Extension Receive**, **Extension TxP**, **Extension RxP**, **Line Send**, **Line Receive**, **Sort IEs**.

Related links

Trace Option Menus on page 47

CTI Trace Options

This tab provides trace options for monitoring various external application services provided by the system.

Option	Description
TAPI	Log TAPI (Telephony Application Programming Interface) messages. • **TAPI Call Log**: If selected, this option logs TAPI Call Log messages. • **TAPI Line**: If selected, this option logs TAPI Line messages. • **TAPI Onex Resiliency** • **TAPI Raw Tx** • **TAPI Raw Rx**
WebRTC SDP Tx	
WebRTC SDP Rx	
MTCTI Tx	
MTCTI Rx	
MTCTI Events	
CTI1	
CTI3	

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

Directory Trace Options

This tab provides trace options settings to monitor the system's directory requests.

Events

Events	Description
LDAP Events	Log information on the status of the system’s LDAP software state machine and associated events.
Directory Events	

Packets

Use the following options with caution as they produce a prolific amount of records. For both, if **Packets In** (see Interface on page 57) is also selected, monitor also adds the packet information to the end of the record.

Events	Description
LDAP Tx	Log a breakdown of any transmitted LDAP data packets.
LDAP Rx	Log a detailed breakdown of any received LDAP data packets.

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

DTE Trace Options

This tab provides trace options for monitoring the system's DTE port.

Events

Events	Description
DTE Events	Log the status of Flow Control, Modem Controls (Data Terminal Ready (DTR), Data Carrier Detect (DCD)), baud rate changes on the DTE port, and so on.

Packets

Packets	Description
DTE Command Tx	Log the Hayes AT commands send out of the DTE interface.
DTE Command Rx	Log the Hayes AT commands received from the DTE interface.
DTE Filter Tx	Log serial data transmitted out of the DTE interface once connected.
DTE Filter Rx	Log serial data received from the DTE interface once connected.
DTE PPP Tx	Log Framed Point-to-Point Protocol (PPP) packets Transmitted to the DTE interface if the Hayes ATB0 option is set on the port.
DTE PPP Rx	Log Framed PPP packets received from the DTE interface if the Hayes ATB0 option is set on the port.
DTE V110 Tx	Log Framed V.110 packets received from the DTE interface if the Hayes ATB3 option is set on the port.
DTE V110 Rx	Log Framed V.110 packets received from the DTE interface if the Hayes ATB3 option is set on the port.
DTE V120 Tx	Log Framed V.120 packets received from the DTE interface if the Hayes ATB2 option is set on the port.
DTE V120 Rx	Log Framed V.120 packets received from the DTE interface if the Hayes ATB2 option is set on the port.

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

EConf Trace Options

This tab provides trace options for monitoring the IP Office conferencing services.

Events

Option	Description
Session	Log incoming and outgoing messages to/from the conferencing server. It also shows the session being established between the system and the conferencing server.
Api	Log state changes of the various EConf resources used.
Targets	Log the targeting information, as calls try to enter an enhanced conference.
Conf	Log events happening to *CMConference* object. It displays information on the creation/ deletion of conferences, as well as calls being added or removed.
Vmail	Log information on the call as it arrives at the system from the voicemail server. It displays the GUID's that the server has given for the calls transfer into the conference and it shows the voicemail server making announcements into the conference.

Packets

Option	Description
Vmail Tx	Log messages which show the contents of IP packets transmitted to the voicemail server that are specifically associated with the IP Officeconferencing centre.
Vmail Rx	Log messages which show the contents of IP packets received from the voicemail server that are specifically associated with the IP Officeconferencing centre.

Report

The **Report** button gives details of the state of all the resources in the **EConf** system. It displays the states of all the **EConferences**, **EChannels**, **CMConferences** and **CMCalls** that are associated with at that time. It also displays the number of free reserved resources that are available.

When the **Report** button is clicked, a series of PRN traces are output to the log. Note that the **Print** option (see, System Trace Options on page 69) must be enabled.

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

Frame Relay Trace Options

This tab provides trace options for monitoring the system's frame relay services.

Events

Option	Description
Frame Relay Events	Log Frame Relay events be it data in, data out, management, status and so on.
Management Events	Log Management events/packets, that is SE/FSE packets and management status.

Packets

Option	Description
Tx Data	Log transmitted packets on a Frame Relay link - both data and management.
Rx Data	Log received packets on a Frame Relay link - both data and management.

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **Frame Relay Events**, **Management Events**.

Related links

Trace Option Menus on page 47

GOD Trace Options

This tab provides trace options for monitoring the system's communications between individual modules.

Option	Description
Client Tx	Log Inter-Unit protocol messages sent by the unit, other those from the Gatekeeper.
Client Rx	Log Inter-Unit protocol messages received by the unit, other those to the Gatekeeper.
Server Tx	Log Inter-Unit protocol messages sent by the Gatekeeper
Server Rx	Log Inter-Unit protocol messages received by the Gatekeeper.

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

H.323 Trace Options

This tab provides trace options for monitoring H.323 and H.245 events related to VoIP calls. The Computing Center Management System (CCMS) options can also be used for tracing Session Initiation Protocol (SIP) telephones that uses the interface, for example the J169 and J179 telephones.

Events

Option	Description
H.323	Log the state changes of the H.323 call.
Summary Tracing	–

Packets

Option	Description
H.245 Send	Log H.245 messages sent to an H.323 endpoint (IP phone or IP trunk).
H.245 Receive	Log H.245 messages received from an H.323 endpoint (IP phone or IP trunk).
H.323	Log the state changes of the H.323 call.
H.323 Send	Log the H.323 messages sent to an H.323 endpoint (IP phone or IP trunk).
H.323 Receive	Log H.323 messages received from an H.323 endpoint (IP phone or IP trunk).
H.323 Fast Start	Log H.323 fast-start messages send to/received from an H.323 endpoint (IP phone or IP trunk).
RAS Send	Log RAS (registration, admission and status) messages sent to an IP phone.
RAS Receive	Log RAS messages received from an IP phone.
CCMS Send	Log the CCMS (Control Channel Message Set) messages sent to a VoIP endpoint (H.323/SIP phone or IP trunk).
CCMS Receive	Log CCMS messages received from an VoIP endpoint (H.323/SIP phone or IP trunk).
View Whole Packet	Decoded the full H.323 message and included in the trace. If not selected, the trace only includes the first two lines of the H.323 message.

Trace Color

This option allows selection of a color that is then applied to all options in the menu, see Coloring Tab Trace Options on page 44. This selection overrides any previous color selected for individual options. However, it does not prevent subsequent individual option coloring, see Coloring Individual Trace Options on page 43.

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **H.232** (Also automatically colored pink).

Related links

Trace Option Menus on page 47

Interface Trace Options

This tab provides trace options for monitoring the system's data network interfaces. An interface can be a physical interface like a LAN port or a configuration interface, like a data connection to a remote system or a Dial-In User.

Packets

The following trace options provide information on either the whole system or on the specific interface specified in the **Interface Name** field.

Option	Description
Interface Remote	Log traffic tunneled through to any externally connected WAN3 modules.
Interface Queue	Log packets being queued at an interface. Especially useful for determining what packet, and therefore which IP address on the internal network, caused an outgoing data call to be made.
Interface Packets In	Log all packets received.
Interface Packets Out	Log all packets transmitted.
NAT Fail In	Log all NAT (Network Address Translation) packets received that have failed to pass through the firewall.
NAT Fail Out	Log all NAT (Network Address Translation) packets transmitted that have failed to pass through the firewall.
NAT In	Log all NAT (Network Address Translation) packets received.
NAT Out	Log all NAT (Network Address Translation) packets transmitted.
Firewall Allowed In	Log all packets received that have successfully passed through the firewall.
Firewall Allowed Out	Log all packets transmitted that have successfully passed through the firewall.
Firewall Fail In	Log all packets received that have failed to pass through the firewall.
Firewall Fail Out	Log all packets transmitted by the system that have failed to pass through the firewall.
Firewall Generic In	Log all packets received (except UDP, TCP and ICMP) that have successfully passed through the firewall.
Firewall Generic Out	Log all packets transmitted (except UDP, TCP and ICMP) that have successfully passed through the firewall.
Firewall TCP Allowed In	Log all TCP packets received that have successfully passed through the firewall.
Firewall TCP Allowed Out	Log all TCP packets transmitted that have successfully passed through the firewall.
Firewall UDP Allowed In	Log all UDP packets received that have successfully passed through the firewall.

Table continues…

Option	Description
Firewall UDP Allowed Out	Log all UDP packets transmitted that have successfully passed through the firewall.
Interface Name	This option can be used to limit the information shown for the fields above to those associate with a selected service. A blank entry matches all services.

Filters

These options are used in conjunction with the other options on the tab to limit the number of packets displayed or to display packets from a range of devices.

Option	Description
IP Address 1	If set, only packets to and from the IP address are logged.
IP Address 2	If set, this field is used in conjunction with IP Address 1 to display only packets between the pair of addresses.
MAC Address 1	If set, only packets to and from the MAC are logged.
MAC Address 2	If set, this field is used in conjunction with MAC Address 1 to display only packets between the pair of MAC addresses.
TCP	• Src Port • Dst Port
UDP	• Src Port • Dst Port
Broadcast	If set, this option logs all broadcast packets except ARP broadcasts.
WAN3 chat	This option allows you to filter out the continuous dialogue which takes place between an system's control unit and an associated WAN3 module.
ARP	Log ARP packets.
Multicast	Log MultiCast packets (i.e. packets with either a source or destination address of 224.0.0.0).
Payload Display Size	This option limits the size of the IP packet displayed. Displayed payload can be set to anything between 0 and 1500 bytes. The default setting is 32 bytes.

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **Interface Queue**, **TCP**, **UDP**, **ARP**, **MultiCast**.

Related links

Trace Option Menus on page 47

ISDN Trace Options

This tab provides trace options for monitoring the system's Integrated Services Digital Network (ISDN) digital trunks (Basic Rate Interface (BRI) and Primary Rate Interface (PRI)).

Events

Option	Description
Layer 1	Log information on the status of the system's ISDN Layer 1 software state machine and associated events.
Layer 2	Log information on the status of the system's ISDN Layer 2 software state machine and associated events.
Layer 3	Log information on the status of the system's ISDN Layer 3 software state machine and associated events.

Packets

Option	Description
Layer 1 Send	Log the data packets transmitted at the ISDN Layer 1 level.
Layer 1 Receive	Log the data packets received at the ISDN Layer 1 level.
Layer 2 Send	Log the data packets transmitted at the ISDN Layer 2 level.
Layer 2 Receive	Log the data packets received at the ISDN Layer 2 level.
Layer 3 Send	Log the data packets transmitted at the ISDN Layer 3 level.
Layer 3 Receive	Log the data packets received at the ISDN Layer 3 level.

Layer 1 Event Messages

The following messages are output when Layer1 events are selected:

`ISDNL1Evt: v=[line_no.] peb=[hardware device no.], [new state] [old state]` where the state values shown are:

State Values	Definition
F1	Inactive
F2	Sensing
F3	Deactivated
F4	Awaiting signal
F5	Indentifying input
F6	Synchronised
F7	Activated
F8	Lost framing

`ISDNL1Evt: v=[line_no.] peb=[hardware device no.], [message]` where message values are:

Message Values	Definition
PHAI	Physical Activate Indication (i.e. Line is UP)
PHDI	Physical Deactivate Indication (Line is DOWN)
T3TO	T3 timeout has occurred

Table continues…

Message Values	Definition
TxErr	A Transmit error has occurred
UnLocked	The system is not able to lock its clock to this line
Locked	The system and the clock extracted from this line are locked together.

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **Layer 1**, **Layer 2**, **Layer 3**.

Related links

Trace Option Menus on page 47

Jade Trace Options

This tab provides trace options for monitoring the jade service used by Linux base systems.

Events

The drop-down is used to select the level of detail to include. The options are **Terse**, **Standard** or **Verbose**.

- **Mapper**
- **Remote Mapper**
- **SIP Handler**
- **MSML**

Voicemail Pro

- **Rx from Jade**
- **Tx to Jade**
- **Rx from VmPro**
- **Tx to VmPro**

Packets

- **MSML Rx**
- **MSML Tx**
- **Internal SIP Filter**
- **UDP**
- **TCP**

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

Key/Lamp Trace Options

This tab provides trace options for monitoring the events for T3 Series telephones.

T3

- **API Events**
- **API Messages**
- **Phone Model**

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

Media Trace Options

This tab provides trace options for monitoring the system's media service.

Media Events

- **Extension Cut**: When selected, it logs changes of 'cut' state for the extension (mapping connections).
- **Media handlers**
- **Connection handle**
- **Map**: The drop-down is used to select the level of detail to include. The options are **Terse**, **Standard** or **Verbose**.

VoIP Events

- **VoIP**: The drop-down is used to select the level of detail to include. The options are **Terse**, **Standard** or **Verbose**.
- **Primitives**: The drop-down is used to select the level of detail to include. The options are **Terse**, **Standard** or **Verbose**.

RTP Info Monitoring

For each record type, the **Clear Stats** button can be used to reset the values.

- **RTP Filter Info**
- **Priority Queue Info**

- **FEC Interrupt Info**

VoIP Packets

- **Fast Start Info**
- **Primitives**

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **Map**.

Related links

Trace Option Menus on page 47

PPP Trace Options

This tab provides trace options for monitoring the system's Point-to-Point Protocol (PPP) service events.

Events

Option	Description
Err Msg	Currently this option does not provide any trace messages. It is included for possible future use only.
Stack	Log interface utilisation and bandwidth allocation increase or decrease messages.
Include LCP Echo	Log all LCP Echo and LCP Echo Reply packets received and transmitted.

Packets

Option	Description
LCP Tx	Log all LCP (Link Control Protocol) packets transmitted.
LCP Rx	Log all LCP (Link Control Protocol) packets received.
Security Tx:	Log all PAP (Password Authentication Protocol) and/or CHAP (Control Handshake Authentication Protocol) packets transmitted.
Security Rx:	Log all PAP (Password Authentication Protocol) and/or CHAP (Control Handshake Authentication Protocol) packets received.
M LCP Tx	Log all MLCP (Multilink Layer Control Protocol messages) packets transmitted.
M LCP Rx	Log all MLCP (Multilink Layer Control Protocol messages) packets received.
IPCP Tx	Log all IPCP (Internet Protocol Control Protocol) packets transmitted.
IPCP Rx	Log all IPCP (Internet Protocol Control Protocol) packets received.
BACP Tx	Log all BACP (Bandwidth Allocation Control Protocol) packets transmitted.
BACP Rx	Log all BACP (Bandwidth Allocation Control Protocol) packets received.

Table continues…

Option	Description
CCP Tx	Log all CCP (Compression Control Protocol) packets transmitted.
CCP Rx	Log all CCP (Compression Control Protocol) packets received.
CRTP Tx	Log all CRTP (Compressed Real Time Protocol) packets transmitted.
CRTP Rx	Log all CRTP (Compressed Real Time Protocol) packets received.
IPHC Tx	Log all IPHC (IP Header compression) packets transmitted.
IPHC Rx	Log all IPHC (IP Header compression) packets received.
IP Tx	Log all IP (Internet Protocol) packets transmitted.
IP Rx	Log all IP (Internet Protocol) packets received.
Link Tx	Log all packets transmitted.
Link Rx	Log all packets received.
Interface Name	This option can be used to limit the information shown for the fields above to those associate with a selected service. A blank entry matches all services.

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **Err Msg**.

Related links

Trace Option Menus on page 47

R2 Trace Options

This tab provides trace options for monitoring the system's E1-R2 trunks.

Option	Description
CAS	Log the common-channel Channel Associated Signaling (CAS) being transmitted and received on all of the channels.
Channel	Log the events, messages and status changes on the lower level signaling handlers being used on each channel.
Dialler	Log Dialler events and state changes on all channels. This includes outgoing and incoming digits, MFC dialer state transitions and translations of transmitted and received MFC tones into the correct meanings.
DSP	Log all significant events, digits and MFC tones being processed by the DSP on the R2 card.
Line	Log the events, messages and status changes on the line in general, and of "upper level" channel events, messages and status changes, which are independent of the lower level signaling handler being used on each channel.

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **CAS**, **Channel**, **Dialler**, **DSP**, **Line**.

Related links

Trace Option Menus on page 47

Routing Trace Options

This tab provides trace options for monitoring the system's IP data routing events for data and for voice.

Data

The event options under the **Data** are used to display information pertinent to the IP Routing activities on the system. It provides information on the system's route cache, routing table, and any RIP updates it receive or transmits.

Events

Option	Description
Route Cache Events	Log information on the current state of the system's route cache.
Routing Table	Log information on the system's Routing table.
Routing Table Changes	Log changes made to the system's Routing Table.
RIP In	Log received RIP packets.
RIP Out	Log transmitted RIP packets.
IGMP	Log IGMP packets.

Voice

The options under the **Voice** are used to display event information pertinent to the Small Community Networking (SCN) Voice Routing activities on the system. These activities include information on SCN messages sent between Adjacent Nodes, and the actual information contained within those message packets.

Messages

Option	Description
Received AVRIP	Log the received AVRIP messages which are sent every 10 seconds during user activity and stop after 11 when idle. They can be used to check what nodes are active in a network. (If you want to see the actual messages then enable Voice/Packets/AVRIP Tx).
Inter Node	Log general Small Community Networking (SCN) messages which may help in the diagnosis of problem networks.

Table continues…

Option	Description
Remote Node	Log information on the establishment (or breakdown) of remote nodes in a SCN. These messages can be used to check what nodes are active in a network (note that a remote node is 2 or more hops away).
Node Forwarding	Log information about how this node is forwarding information about adjacent nodes to other adjacent nodes. Note that in a star network, the central node receives a large number of forwarding messages.

Packet Contents

An AVRIP packet contains information about the voicemail status of that node and information about what other nodes can be reached (IP address and number of hops and voicemail status). VPN TFTP packets contain information on the nodes of User configuration data, User VoiceMail message counts, extension BLF status, and call information.

Option	Description
AVRIP Tx	Log all transmitted SCN AVRIP packets from the Node being monitored.
AVRIP Rx	Log all received SCN AVRIP packets from Nodes adjacent to the one being monitored.
VPN TFTP Tx	Log all transmitted SCN TFTP packets from the Node being monitored.
VPN TFTP Rx	Log all received SCN TFTP packets from Nodes adjacent to the one being monitored.

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

SCN Trace Options

This tab allows the logging of SCN messages.

Events

- **DHG Call Routing**
- **DHG Membership**
- **DHG Service Change**
- **SCN Resilience**

Messages

- **Control Stream Tx**
- **Control Stream Rx**

Events

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are

not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.

- **DHG Longest Idle Info**
- **DHG Config Change**
- **SCN User Events**
- **SCN Dump**

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

Services Trace Options

This tab provides trace options for monitoring various services provided by the system.

SNMP Events

Option	Description
Received Message Processing	Log Simple Network Management Protocol (SNMP) requests (Get, Get-Next, Set) received by the system and the responses if valid or associated errors if invalid.
Trap Generation	Log SNMP trap events sent by the system.
Var Bind Processing	This option is available when either of the above SNMP trace options are selected. If selected, log a decode of SNMP Var Binds processed in received requests, returned Var Bind for Get-Next requests, and Var Binds sent out in Traps.

Others

Option	Description
FileSys	Log file requests received by the system.
Memory Card	Log memory card commands and actions.
TFTP	Log Trivial File Transfer Protocol (TFTP) file requests to the system and by the system. • **TFTP Warnings**: If selected, this option logs TFTP warnings that occur in response to file requests. • **TFTP Download**: If selected, this option logs the progress of TFTP downloads.
HTTP	Log HTTP requests. • **Websocket Ping Pong**

Table continues…

Option	Description
DHCP	Log Dynamic Host Configuration Protocol (DHCP) requests.
DNS	Log Domain Name System (DNS) requests.
Telnet	Log Telnet activity.
Time	Log time and date requests and responses to the system and between the system and its configured time server.
SMTP	Log Simple Mail Transfer Protocol (SMTP) activity on the system.
Outdialer	Log messages between the system and the outdialing server. System Monitor can also display a status summary of the current outdialer session, see Outdailer status on page 99.
Syslog	Log Syslog messages and responses.
SCEP	
ReferredAuth	
Firewall	
IP Filter	The value in this field can be used to only show only messages to and from the specified IP address. The filter is applied to all the other selected trace options on the tab.
Web Services	Log web service messages.

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

SIP Trace Options

This tab provides trace options for monitoring the system's SIP events.

Note:

For SIP phones that uses Control Channel Message Set (CCMS) signalling. The H.323 trace options menu are used.

Events

Option	Description
SIP	Log state changes for SIP calls. The drop-down is used to select the level of detail to include. The options are **Terse**, **Standard** or **Verbose**.
STUN	Log Session Traversal Utilities for NAT (STUN) server information.
SIP Dect	Log state changes for SIP DECT calls.

Packets

Option	Description
SIG Reg/Opt Tx	Log the SIP Registration and Option messages sent by SIP endpoints.
SIP Reg/Opt Rx	Log the SIP Registration and Option messages received by SIP endpoints.
SIP Call Tx	Log the SIP Call messages sent by SIP endpoints.
SIP Call Rx	Log the SIP Call messages received by SIP endpoints.
SIP Misc Tx	Log the SIP Miscellaneous messages sent by SIP endpoints.
SIP Misc Rx	Log the SIP Miscellaneous messages received by SIP endpoints.
Cm Notify Tx	Log the SIP Notify messages sent by SIP endpoints.
Cm Notify Rx	Log the SIP Notify messages received by SIP endpoints.
Sip Tx	Log all SIP messages sent from SIP endpoints.
Sip Rx	Log all SIP messages received by SIP endpoints

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **STUN**, **SIP Rx**, **SIP Tx**.

Related links

Trace Option Menus on page 47

SSI Trace Options

This tab provides trace options for monitoring the system's SSI connections. SSI is used for the IP Office Customer Call Reporter and System Status Application applications.

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.

- **SSI Request Messages**
- **SSI Reply and Event Messages**
- **SSI Object Event Messages**
- **Decode SSI**

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

T1 Trace Options

This tab provides trace options for monitoring the system's T1 trunks.

Events

Option	Description
CAS	Log the robbed-bit Channel Associated Signaling (CAS) being transmitted and received on all of the channels.
Channel	Log the events, messages and status changes on the lower level signaling handlers being used on each channel.
Dialler	Log "Dialler" events and state changes on all channels. This includes outgoing and incoming digits.
DSP	Log all significant events and digits being processed by the DSP on the T1 card.
Line	Log the events, messages and status changes on the T1 line in general, and "upper level" channel events, messages and status changes, which are independent of the lower level signaling handler being used on each channel.

Loop-back

These options are used to set loop-back operation. First select the line on which loop-back is required and then the type of loop-back. Click **OK** to apply the settings.

Loop-back Type

Option	Description
Line Loop-back	This loop-back type loops back the entire received signal to the far end of the line without the signal entering the system at all.
Payload Loop-back	This loop-back type allows the received signal into the line driver chip-set. The signal payload is extracted from the incoming framed signal and transmitted back to the line with new framing.
Loop-Back Off	This option disables any loop-back operation currently applied to the selected line.

Loop-back Line Selection

- **Loop-back Line Selection**: These settings are used to select the lines to which the selected **Loop-back Type** are applied.

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

System Trace Options

This tab provides general trace options.

Option	Description
Error	Log all messages that are tagged with [ERROR:].
Print	Log all messages that are tagged with [PRN:]. These are messages relating to major events or changes in status of the software modules running.
Prefix YYY-MM-DD	When selected, each record is prefixed with the current date.
Prefix hh:mm:ss	When selected, each record is prefixed with the current time.
Resource Status Prints	When selected, once every 20 seconds, the trace includes a summary of the system memory resources and the number of connections. The messages are tagged with `[RES:]`.
Date/Time Periodic Prints	When selected, once a minute the trace includes a record prefixed with `DTM` of the date and time plus details of the connected system name and IP address. This is useful in a trace if the **Prefix YYY-MM-DD hh:mm:ss** trace option is not selected. For example: `DTM: 29/05/2015 11:28:06 (Tue 30 June 2015) [192.168.0.1 (SystemA)]`
Licensing	Log messages relating to the verification of system licenses. Licensing messages are tagged with [LIC:].
Development Tracing	This option should only be selected when advised to do so by Avaya. Log additional trace option for SSI on page 68 and VComp on page 71 and a number of additional status screens, see Status screen on page 83.
Copy Logging to Main Window	This option is only available if **Development Tracing** is selected.
SNMP Periodic Status Traps	This option is only available if **Development Tracing** is selected. When selected, the system outputs a periodic SNMP trap containing a summary of the current system status (memory usage, alarms count, channel available and in uses, etc). The trap information is sent to the SNMP destination configured in the IP Office system's System Alarms configuration. The frequency of sending is configurable between 20 to 7200 seconds. Status element is not included is both values would be 0.
Copy Trap data to log	If selected, the SNMP periodic status trap information is also included in the monitor logs.

SNMP Period Status Trap

The following is an example of a status trap. The table below explains each field.

```
CP:1/2.67% ME:72014/22034 AL:4/1 VC:74/0 DC:48/1 VM:40/0 CC:128/0/0 N(1/R:162/T:651 2/
R:98/T:99)N E(10/10 S:1/1 H:1/1 D:6/6 P:2/2)E CA:1 VR:10.0.0.0(9601)
```

Status	Description
CP	CPUs: Number of CPUs , % use.
ME	Memory: total memory/used memory (KB).
AL	Alarm counts: SSA alarm count , system log hw alarm count.
VC	VCM Channels: total/used.
DC	Data Channels: total/used.
VM	Voicemail Channels: total/used.

Table continues…

Status	Description
MC	Modem Channels: total/used.
CC	Conference Channels: total/used/HQ used.
N	Network interface stats: interface/Rx/Tx. (Rx and Tx are average for previous 3 seconds).
E	Extension stats: total/connected, SIP registered/logged in, digital extensions/logged in, analog extensions/logged in, IP DECT extensions/logged in.
CA	Calls active count.
VR	Version: IP Office software version.

Trace Color

This option allows selection of a color that is then applied to all options in the menu, see Coloring Tab Trace Options on page 44. This selection overrides any previous color selected for individual options. However, it does not prevent subsequent individual option coloring, see Coloring Individual Trace Options on page 43.

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **Error**, **Print**, **Prefix hh:mm:ss**, **Resource Status Prints**, **Licensing**.

Related links

Trace Option Menus on page 47

VComp Trace Options

This tab provides trace options for monitoring the system's voice compression channels. Note that these options produce a large amount of trace records and so should be used with caution.

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.

General VCM Trace Options

Option	Description
Command Send	Log details of commands transmitted to the voice compressor chip.
Command Receive	Log details of commands received from the voice compressor chip.
Data Send	Log details of data transmitted to the voice compressor chip (additional detail from the Command Send option).

Table continues…

Option	Description
Data Receive	Log details of data received from the voice compressor chip (additional detail from the Command Receive option).
Print on Stuck	Log a summary trace if the system detects a severe problem.
Summary Trace	Log the commands to and from all the voice compressor chips (multiple occurrences are counted to reduce output) and the output is controlled so as not to swamp the system. Care should be exercised when selecting this option - especially if multiple VoIP calls are in progress.

Fax Specific VCM Trace Options

Option	Description
Development Test	Used when debugging private variations of Development software.
Fax Summary	Log the V.21 and T.30 messages.
Show all fax packet contents	Log the contents of ALL fax packets - including the actual fax data (only when connected to a Definity).
Show T.30 V.21 packet contents	Log the contents of T.30 and V.21 packet (only when connected to a Definity).

TI-VCM Trace Options

- **Command Trace**
- **Fax Debug**
- **DIM Spy Level**
- **CCU Spy Level**

Default Settings

None of the trace options are enabled by default. See Defaulting the Trace Options on page 45.

Related links

Trace Option Menus on page 47

VPN Trace Options

This tab provides trace options for monitoring the systems Virtual Private Network (VPN) connections.

These options should only be used under the guidance of an authorized Avaya development engineer.

IPSec Events

Option	Description
IPSec Events	Log primary events when bringing up and tearing down IPSec tunnels. It also indicates when packets are being discarded, and so on.
Decode	Log the decrypted IKE packets.
IPO-SNet	Not currently used.
Data Events	Log when packets are encrypted into and out of tunnel. It does not display the actual packet contents, they can be logged using the Interface on page 57 tab options **Interface Packets In** and **Interface Packets Out**.
Warnings	Log information relating to faults in the IPSec processing.
Debug	Log special engineering trace information.

IPSec Packets

Option	Description
Rx Data	Log the content of received ESP encrypted packets before decryption.
Tx Data	Log the content of sent ESP encrypted packets after encryption.

L2TP Events

- **L2TP Events**: If selected, this option logs the establishment of the L2TP tunnel (the stage underneath the PPP). You really need to include the appropriate PPP tracing additionally to this to see the complete picture.

L2TP Packets

- **Rx Data**: Currently not used.
- **Tx Data**: Currently not used.

Security Engine

- **Events**
- **Measurements**
- **Stack Trace**
- **Regs on H/W Cmd Init**
- **Regs on H/W Cmd Done**
- **Regs on H/W Cmd Error**

SSL VPN

- **Configuration**
- **Session**
- **Session State**
- **Fsm**
- **Socks**
- **SocksState**

- **Heartbeat**
- **Keepalive**
- **SignalingPktRx**
- **SignalingPkTx**
- **DataPktRx**
- **DataPktTx**
- **TunnelInterface**
- **TunnelRoutes**

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- Security Engine: **Regs on H/W Cmd Error**. SSL VPN: **Session** and **Session State**.

Related links

Trace Option Menus on page 47

WAN Trace Options

This tab provides trace options for monitoring the system's WAN ports.

Events

WAN Events: When selected, log messages that are associated with changes to the software state machine controlling the WAN link on the selected unit.

Packets

Option	Description
WAN Tx	Log all IP data packets transmitted on the WAN ports of the selected unit.
WAN Rx	Log all IP data packets received on the WAN ports of the selected unit.

Default Settings

The following trace options are enabled by default. See Defaulting the Trace Options on page 45.

- **WAN Events**.

Related links

Trace Option Menus on page 47

Chapter 8: Syslog Tracing

For IP Office Release 9.0 and higher, in addition to the existing Syslog output of alarms and events, IP Office systems can also output System Monitor events to Syslog. To view the `Syslog` files containing monitor events in monitor, they need to be converted to monitor log file. This task is done using monitor.

- Activation of Syslog monitor events output is done through IP Office Manager.
- Configuration of which trace options to include in the output is done using System Monitor.
- **Default Syslog Monitor Tracing:**

  The default configuration of Linux-based servers other than UCM, automatically adds a monitor Syslog output to the system configuration. The entry is configured to store the records on the server using the `127.0.0.1` address. This provides hourly Syslog files which are retained for 3–days. See Configuring the Syslog Trace Options on page 76.
- **Cloud Edition Systems:**

  For these system, the system's monitor Syslog output is automatically directed to the **Cloud Diagnostic Agent** service run by the cluster hosting the system. Those logs are kept for up to 3-days and can be downloaded through the cluster's Customer Operations Manager.
- **Subscription Systems:**

  These systems can be monitored and managed through Customer Operations Manager running on the cluster providing the system subscriptions. In that case, the system Syslog files can also be collected using Customer Operations Manager.

Related links

Enabling Syslog Monitor Output on page 76
Default Syslog Trace Options on page 77
Downloading a Syslog Archive from Web Control on page 78
Downloading a Syslog Archive from Cloud-based Systems on page 79
Downloading a Syslog Archive from Subscription Systems on page 80
Extracting the Syslog zip files on page 80
Converting Syslog Files on page 81

Enabling Syslog Monitor Output

About this task

The Syslog output from cloud edition systems is automatically configured. The Syslog output from non-cloud edition systems is configured using IP Office Manager.

- While an IP Office system can have several Syslog outputs, only one output can include System Monitor events.

Procedure

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Select **System** and then select the **System Events** tab.
3. Click **Add** and set the **Destination** to **Syslog**.
4. Enter the details for the destination server for the output.
   - For Linux-based IP Office servers you can use `127.0.0.1` to specify that the server should store the records itself.
   - On Linux-based IP Office servers, the logs are stored in `/var/log/sysmon`. This stores hourly Syslog monitor files a maximum of 3 days. However, the maximum total log files capacity per day is 4 Gigabyte (GB).
5. The recommended protocol is **UDP**.
6. Set the **Format** to **Enterprise**.
7. From the list of **Events** select **System Monitor**.
8. Click **OK** and save the configuration back to the IP Officesystem.

Next steps

You can now customize the monitor trace options to include in the Syslog output. See Configuring the syslog trace options on page 76.

Related links

Syslog Tracing on page 75

Configuring the Syslog Trace Options

About this task

The system's Syslog output includes the events and the default monitor trace options. However, you can alter the trace options used.

Procedure

1. Using monitor, connect to the IP Office system. See Selecting the System to Monitor on page 29.

2. Set the trace options required. See Setting the Trace Options on page 42.
3. Save the trace options as a file so that you can reload them at a later date if you need to reapply or amend them. See Saving Trace Options as a File on page 42.
4. Select **Filters** and click **Send to Syslog**.
5. The trace option settings are sent as a file to the connected system. The settings are applied to the monitor events and included in the system's Syslog output.

Default Syslog Trace Options

The following Syslog trace options are enabled by default on systems.

All systems

Release 9.0 and higher	Release 10 and higher
• **System** - **Print** - **Error** - **Resource Status Prints** - **Licensing**	• **System** - **Print** - **Error** - **Resource Status Prints** - **Licensing** - **Date/Time Periodic Prints** • **Service** - **Time**

Additional options for Linux-based systems

• **Call** - **Call Logging** - **Targeting** - **ARS** - **Extension** - **Extension Send** - **Extension Receive** - **Line Send** - **Line Receive** - **Call Delta** - **Voicemail Events** - Voicemail Messaging • **Media** - **Map (Standard)** • **H.323** - **Events**	• **SIP** - **SIP (Standard)** - **SIP Rx** - **SIP Tx** • **Services** - **TAPI** - **TAPI Call Log** - **TAPI Line** - **TAPI Onex Resiliency** • **Jade** - **Mapper (Standard)** - **Remote Mapper (Standard)** - **MSML Tx**

Related links

Syslog Tracing on page 75

Downloading a Syslog Archive from Web Control

About this task

Linux-based IP Office servers can store their own **Syslog** monitor records by using the destination 127.0.0.1. When doing this, you can download the records from the server's web management menus.

Procedure

1. Using a browser, login to the server's web management menus.
2. Click **SolutionSolution**.
3. Click on the ☰ icon next to the required server and select **Platform View**.
4. Select **Log** and then click **Download**.
5. Click **Create Archive** in the **Logs** section. The button remains greyed out while the server creates an compressed archive file for each of the different types of log files it is storing. Each file contains all the logs that have not been previously archived.

6. The Syslog monitor file is prefixed with `sysmon_logs` followed by the date and time.
7. To download the file, click on the file name and follow the normal download options for your browser.

To extract the System Monitor Syslog files:

8. Open the `sysmon_logs tar.gz` file using a suitable tool such as 7-Zip.
9. Browse to the required folder. The default is the `127.0.0.1` folder.
10. Extract the individual `.zip` files to your PC.

Next steps

The download file is a `.tar.gz` format archive file which can contain a number of `.zip` files. See Extracting the Syslog zip files on page 80.

Related links

Syslog Tracing on page 75

Downloading a Syslog Archive from Cloud-based Systems

About this task

For these system, the system's monitor Syslog output is automatically directed to the **Cloud Diagnostic Agent** service run by the cluster hosting the system. Those logs are kept for up to 3-days and can be downloaded through the cluster's Customer Operations Manager.

Procedure

1. Within Customer Operations Manager, select the system in the customer list.
2. Click **Action** and select **Log Management**.
3. To create an archive of any existing logs:
   a. Select **Archives**.
   b. Select **System Monitor**.
   c. Click **System Monitor**.
4. To download an archive:
   a. Select **Downloads**.
   b. The existing archives are listed. Click on a file to download it.

Next steps

The download file is a `.tar.gz` format archive file which can contain a number of `.zip` files. See Extracting the Syslog zip files on page 80.

Related links

Syslog Tracing on page 75

Downloading a Syslog Archive from Subscription Systems

About this task

These systems can be monitored and managed through Customer Operations Manager running on the cluster providing the system subscriptions. In that case, the system Syslog files can also be collected using Customer Operations Manager.

Procedure

1. Within Customer Operations Manager, select the system in the customer list.
2. Click **Action** and select **Log Management**. Any log files already fetched from the system are shown. By default, Customer Operations Manager retains files for 30-days.

To fetch any existing logs from a system:

3. Click **Fetch New Logs**.
4. It can take several minutes before the archive file is shown

To download log archives:

5. Click the checkbox next to the required logs.
6. Click **Download**.

Next steps

The download file is a `.tar.gz` format archive file which can contain a number of `.zip` files. See Extracting the Syslog zip files on page 80.

Related links

Syslog Tracing on page 75

Extracting the Syslog zip files

Before you begin

An archive of Syslog files held by a server can be download from the server:

- Downloading a Syslog Archive from Web Control on page 78
- Downloading a Syslog Archive from Cloud-based Systems on page 79
- Downloading a Syslog Archive from Subscription Systems on page 80

About this task

Having downloaded a syslog `.tar.gz` file, the individual `.zip` files need to be extracted from it. These `.zip` files can then be processed and viewed by monitor.

Procedure

1. Open the `sysmon_logs tar.gz` file using a suitable tool such as 7-Zip.

2. Browse to the required folder. The default is the `127.0.0.1` folder.
3. Extract the individual `.zip` files to your PC.

Next steps

See Converting Syslog Files on page 81.

Related links

Syslog Tracing on page 75

Converting Syslog Files

About this task

Using monitor, you can convert the **Syslog** monitor files to System Monitor log files. These can then be viewed in monitor.

- You can convert multiple files in a single operation.
- Zipped `.zip` monitor Syslog files can be converted without extracting the files.

Procedure

To configure the logging options for file conversion:

1. Start monitor.
2. Click **Log Preferences**.
3. Set the **Log Mode** setting to **Every 'n' MBytes**. The current `.txt` file is rolled over to start a new file when necessary. Otherwise, a new file is started each time the current log file reaches 100MB.
4. Set the log file name and location in the **Log Filename** field. The default location is the monitor program folder (`C:\Program Files (x86)\Avaya\IP Office\Monitor`). Each time and new log file is started, monitor adds the date and time to the log file name.
   - One monitor `.txt` file is created for each Syslog file being converted.
   - If the **Every 'n' MBytes** setting is set, a new file is started if it is reached during the conversion of a file.
5. Do not select **Binary Logging** and **Enable Zip**.
6. Select **Log to File** .
7. Click **OK**.

To convert the Syslog monitor files:

8. Configure the logging options for file conversion.
9. If converting a large file or numerous files, click to pause the screen trace display. This speeds up the conversion process.

10. Click .
11. Browse to and select the `.zip` file containing the monitor Syslog files. You can select more than one file if required. Or select the `.log` file or files if they have already been extracted from the archive file.
12. You are prompted for a password, click **OK**.
13. Click **Open**.

    The file or files are converted to monitor `.txt` log files using the logging settings.

Related links

Syslog Tracing on page 75

Chapter 9: Status Screens

In addition to screen logging, System Monitor can display a number of status screens that show additional information about the connected system. Click **Status** to access and select the required status menu.

Related links

Alarms on page 84
Blacklisted Extensions on page 84
Blacklisted IP Addresses on page 86
Buffer Data on page 88
Conference Status on page 89
DECT Line Status on page 90
DHCP Data on page 90
DSS Status on page 91
Equinox Sessions on page 92
H323 Phone Status on page 92
IPO-SNet on page 93
IPv6 Config on page 94
Jade Queue Status on page 94
Logging on page 95
Map Status on page 96
Memory Data on page 96
NAPT Status on page 97
Network View on page 98
Outdialer Status on page 99
Partner Sessions on page 100
Performance Data on page 101
Quarantined Phone Status on page 102
SCN Licence on page 104
SIP Phone Status on page 105
SIP TCP User Data on page 106
Small Community Networking on page 106
[S]RTP Sessions on page 107
TCP Streams Data on page 107
US PRI Trunks on page 108

Voicemail Sessions on page 108
Voice Compression on page 109
Voice Compression (TI) on page 109

Alarms

About this task

This menu displays the alarms records in the connected system's alarms log. When monitor connects to a system, the trace automatically includes the system's current alarm log at its start.

The alarms cannot be interpreted in the field. However, if a site experiences the same repeated problem, Avaya may request the alarm log details.

The presence of alarms is not necessarily critical as each system keeps a record of the first 8 alarms since the alarm log was last cleared. However, once the alarm log is full, the system ignores additional alarms.

```
3003mS PRN: +++ START OF ALARM LOG DUMP +++
3019mS PRN: ALARM: 18/03/2004 13:07:56 IP 412 2.1(8)  CRIT RAISED addr=00000000 d=5
pc=00000000 0082eef0 0094d780 00a13250 00a13638 00a0cb3c
3019mS PRN: ALARM: 22/04/2004 07:26:44 IP 412 2.1(11)CRIT RAISED addr=00000000 d=5
pc=00000000 0095dfe0 0095e278 008b0570 008b0734 008b07b8
3019mS PRN: ALARM: 22/04/2004 07:26:46 IP 412 2.1(11)CRIT RAISED addr=00000000 d=0
pc=00000000 01e75750 01f983d4 0095e278 00000001 01e757f8
3004mS PRN: +++ END OF ALARM LOG DUMP +++
```

Procedure

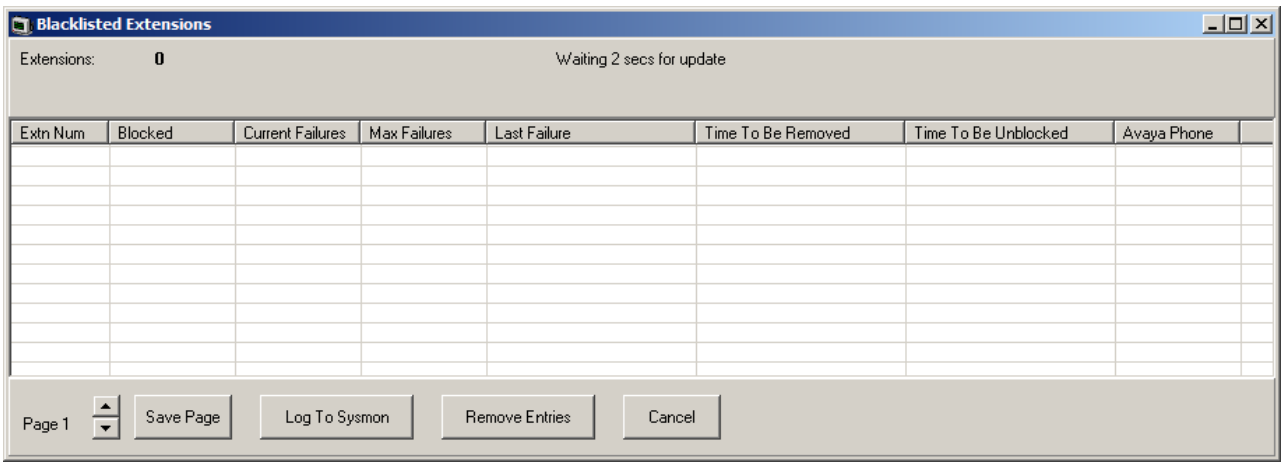
1. Click **Status** and select **Alarms**. Monitor displays the alarm records in a separate window.
2. To clear the alarm log, click **Clear Alarms**.

Related links

Status Screens on page 83

Blacklisted Extensions

This menu displays extensions that have attempted to register using the wrong password.



- Extensions are blocked after five failed registration attempts within a 10 minute period.
- The extensions are blocked for 10 minutes.
- Whilst blocked, further registration attempts are ignored even if correct password details are entered.
- For non-Avaya phones, if the extension continues to attempt to register during this period its blocking time is extended.
- When an extension becomes blocked, the system also generates an alarm in System Status Application application and adds an entry to the audit log. A system alarm is also generated and can be output using any of the configurable system alarm routes.
- The IP address of a phone attempting to register can also blocked, see, Blacklisted IP addresses on page 86. A phone can also be blocked from registering if it becomes quarantined, see Quarantined Phone Status on page 102.

Columns

Extn Num	The extension number.
Blocked	Indicates whether the extension is now blocked having exceeding the number of allowed registration failure.
Current Failures	The number of registration attempt failures.
Max Failures	The number of registration failures at which the extension was blocked.
Last Failure	The date and time of the last failed registration attempt.
Time To Be Removed	The date and time at which the extension, if not blocked, and removed from the blacklist if there are no further failed registration attempts.
Time To Be Unblocked	The date and time at which a blocked extension will beb unblocked and removed from the list. • For non-Avayaphones, this time is extended if the extension continues attempting to re-register before the time is reached.
Avaya Phone	Indicates whether the extension is a recognized Avaya phone.

Button

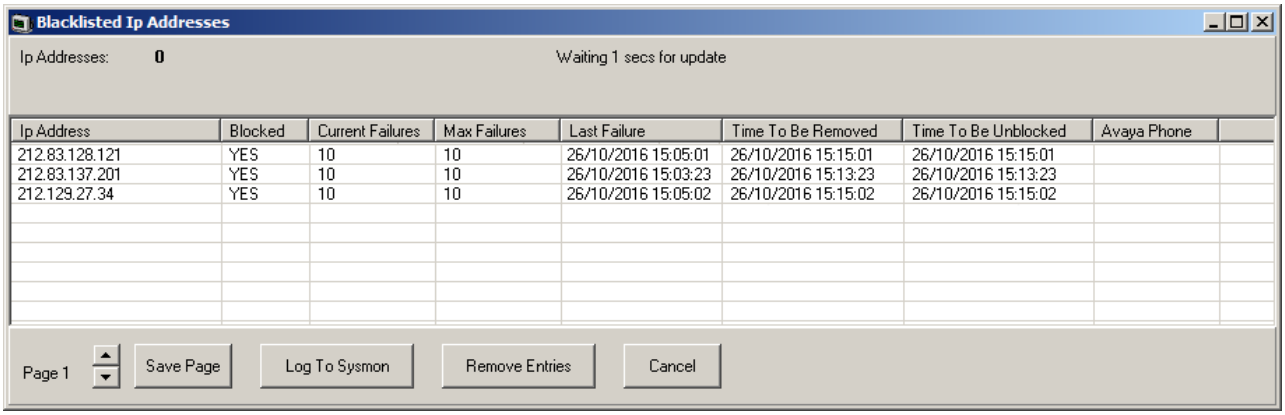
Save Page	Saves the current status menu data to a text file in comma separated format.
Log To Sysmon	When selected, the information is added to the Syslog monitor log. A comma separated row is added to the log output for each current entry.
Remove Entries	Removes the current blacklist entries. This allows to attempt to reregister again without having to wait for the expiry of their previous blacklisting.
Cancel	Close the status menu.

Related links

[Status Screens](#) on page 83

Blacklisted IP Addresses

This menu displays IP addresses that are currently blacklisted by the system. Blacklisting is typically applied after 10 failed access attempts. The IP address remains blacklisted for 10 minutes from the last failed access attempt.



When an address becomes blocked, the system generates an alarm in System Status Application application and adds an entry to its audit log. A system alarm is also generated and can be output using any of the configurable system alarm routes (Simple Mail Transfer Protocol (SMTP), Simple Network Management Protocol (SNMP), Syslog).

An IP address can become blacklisted for the following reasons:

Extension registration blacklisting	An extension that has repeatedly attempted to register an non-existing extension or to register an existing extension with the wrong password. When blacklisted, further registration attempts are ignored even if they use the correct parameters. Note that the extension number of a phone attempting to register can also become blocked, see Blacklisted extensions on page 84 • The use of IP address blacklisting can be disabled though the addition of the NoUser Source Number `B_DISABLE_HTTP_IPADDR`.
Application blacklisting	An application trying to connection on port 443 or 8443 has repeatedly entered the wrong password. That can apply, for example, to web manager, system status and system monitor connections. When blacklisted, further connected attempts are ignored. • The use of IP address blacklisting can be disabled though the addition of the NoUser Source Number `B_DISABLE_HTTP_IPADDR`.
Session Initiation Protocol (SIP) Invite blacklisting	Repeated SIP invites to an unregistered extension. • The use of SIP Invite blacklist can be disabled through the addition of the NoUser source number `B_DIS_UNREG_SIP_INVITE`.
Excessive SIP traffic blacklisting	IP address blacklisting can be applied when the number of SIP messages (all types) from the same address exceeds a set rate. The default rate is 100,000 messages in 100 milliseconds. Unlike the other blacklistings, this blacklisting can only be manually removed. • The following NoUser source numbers can be used to alter the use of SIP traffic blacklisting: - `B_RATE_DISABLE` disables the functionality (by defaultit is enabled). - `B_RATE_HIGH_LIMIT=X` where X is the number of SIP messages allowed within the time threshold. The default limit is 500, where minimum is 1 and maximum is 100,000. - `B_RATE_HIGH_THRESH=Y` where Y is the time threshold in milliseconds. The default limit is 100, where minimum is 100, and maximum is 300,000 (which is 5 minutes).

Columns

IP Address	The IP address
Blocked	Indicates whether the extension is now blocked from registering for exceeding the number of failed registration attempts.
Current Failures	The number of registration attempt failures.
Max Failures	The number of registration failures at which the extensions can be blocked.
Last Failure	The date and time of the last failed registration attempt.
Time To Be Removed	The date and time at which the extension, if not blocked, it is removed from the blacklist if there are no further failed registration attempts.

Table continues…

Time To Be Unblocked	The date and time at which the blocked extension is unblocked and removed from the blacklist. For non-Avaya phones this will extend if the extension attempts to re-register again before this time.
Avaya Phone	Indicates whether the extension is recognized as being an Avaya phone.
Protocol	The connection protocol being used by the phone or application that is now blocked. For example; `H.323`, `SIP` or `HTTP`. • `SIP-Message Limiter` is displayed for SIP message blacklisting. In this case, the blacklisting is not automatically removed but can be removed manually.
Client Name	The client name of the blocked application.

Table 1: Button

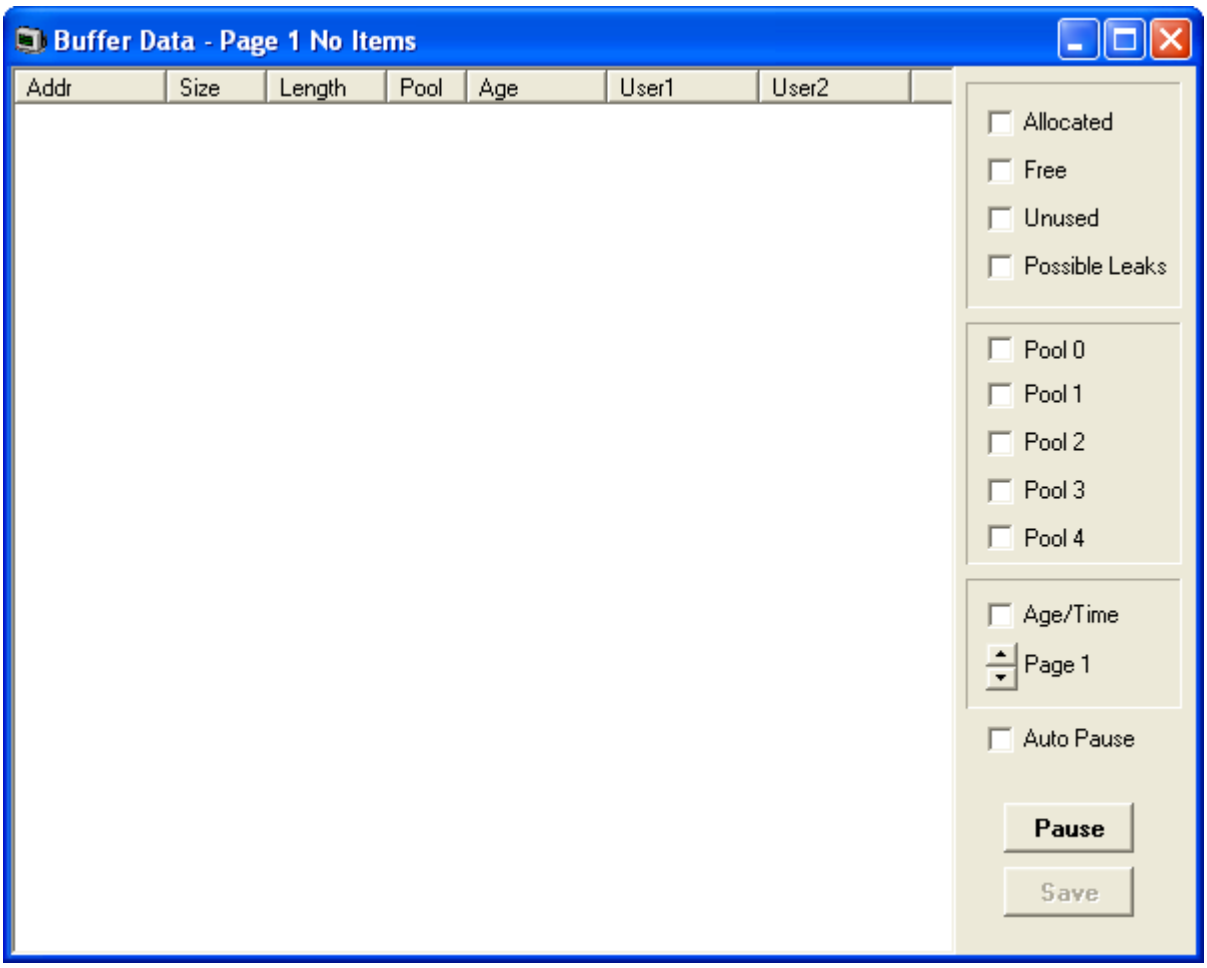
Save Page	Save the current status menu data to a text file in comma separated format.
Log To Sysmon	When selected, the information is added to the Syslog monitor log. A comma separated row is added to the log output for each current entry.
Remove Entries	Remove the current blacklist entries. This allows to attempt to reregister again without having to wait for the expiry of their previous blacklisting.
Cancel	Close the status menu.

Related links

Status Screens on page 83

Buffer Data

This menu displays data about the system's memory buffers.



These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

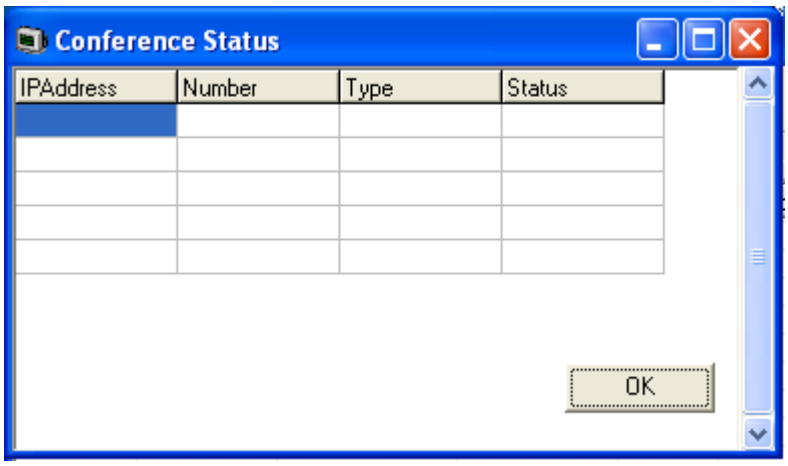
These options should only be used under the guidance of an authorized Avaya development engineer.

Related links

Status Screens on page 83

Conference Status

This menu displays the status of conference's being supported by the system.



Related links

Status Screens on page 83

DECT Line Status

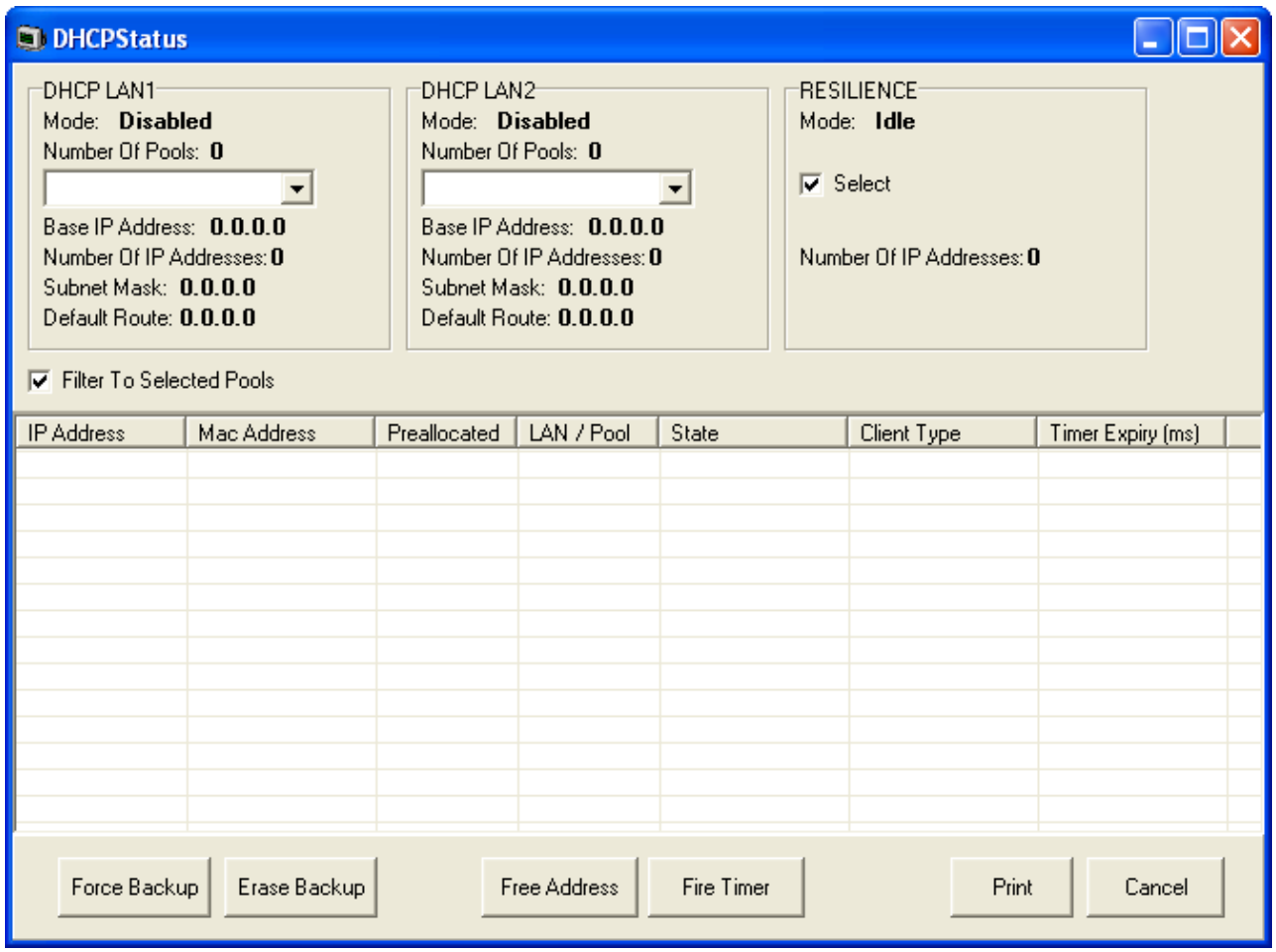
This menu displays the status of the Internet Protocol (IP) Digital Enhanced Cordless Telecommunications (DECT) lines used by the system. When DECT line resilience is being used multiple lines are displayed with the current status of each line indicated.

Related links

Status Screens on page 83

DHCP Data

This menu displays details of the system's DHCP server settings and the DHCP clients being supported by the system.



These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

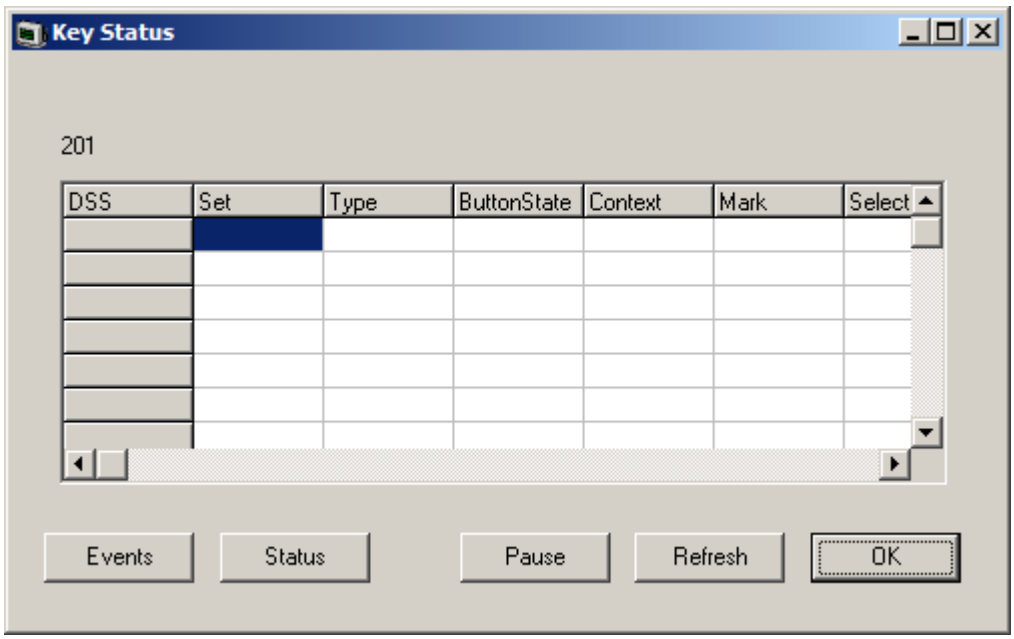
These options should only be used under the guidance of an authorized Avaya development engineer.

Related links

Status Screens on page 83

DSS Status

This menu displays details of an extension's programmable DSS keys. When selected, the menu prompts for the extension first. The status of that extension's DSS keys are then displayed.



These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.

Related links

Status Screens on page 83

Equinox Sessions

This menu displays details of equinox client connections to the system.

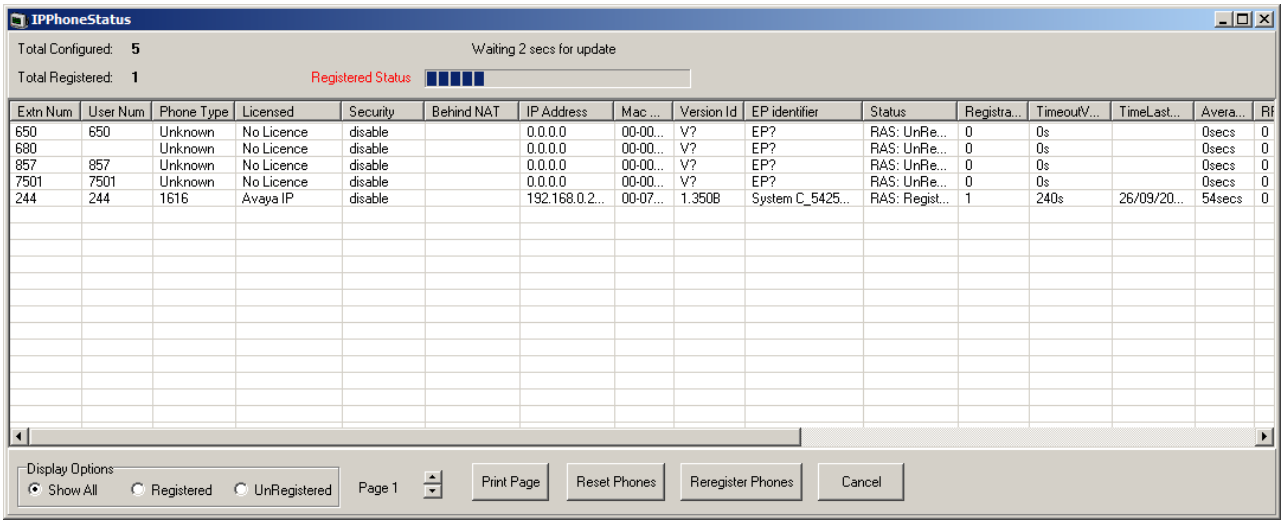
Related links

Status Screens on page 83

H323 Phone Status

This menu displays details of the H.323 end points known by the system.

For phones using NAT traversal, the private IP address is shown in the Private Address field. The **IP Address** field displays either the public IP address or, if no NAT Traversal is being used, the IP address. If the phone requires DTMF signaling is shown in the **ReqDTMF** field.



- **Reset Phones** - Cause the phones to restart and reregister.
- **Reregister Phones** - Cause the phones to reregister without restarting.

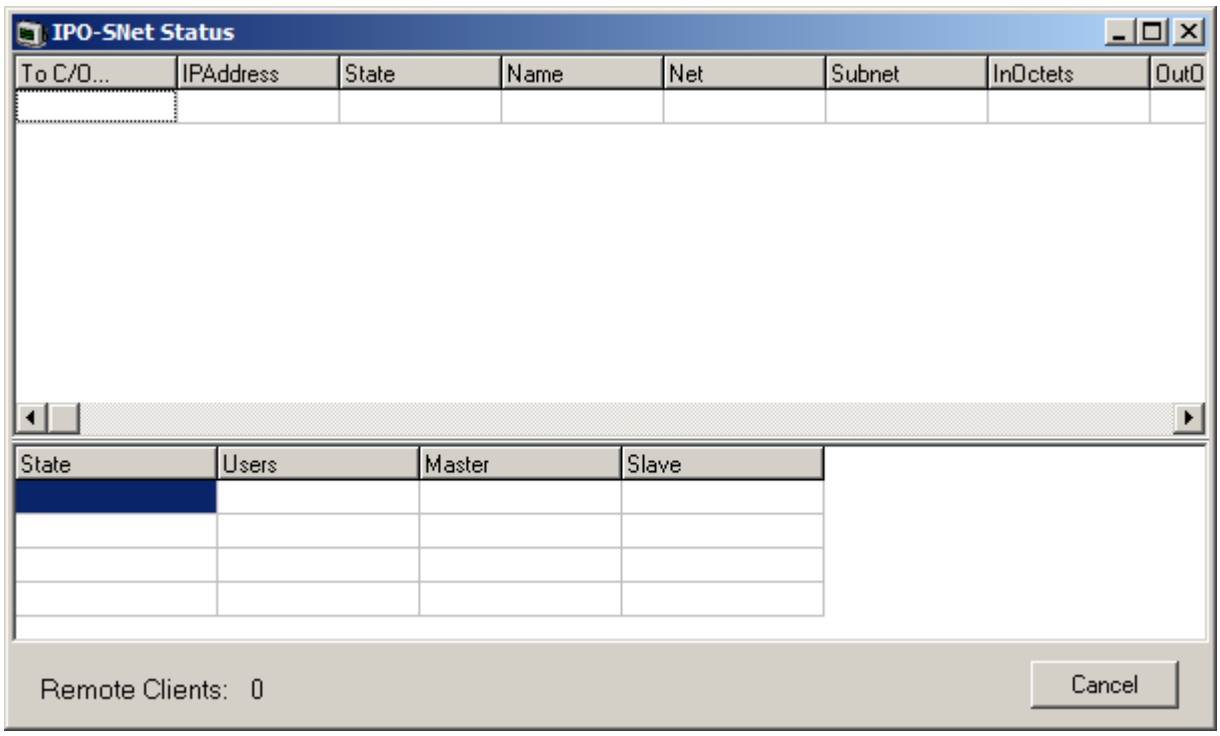
Related links

Status Screens on page 83

IPO-SNet

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.



Related links

Status Screens on page 83

IPv6 Config

This status menu is not currently used.

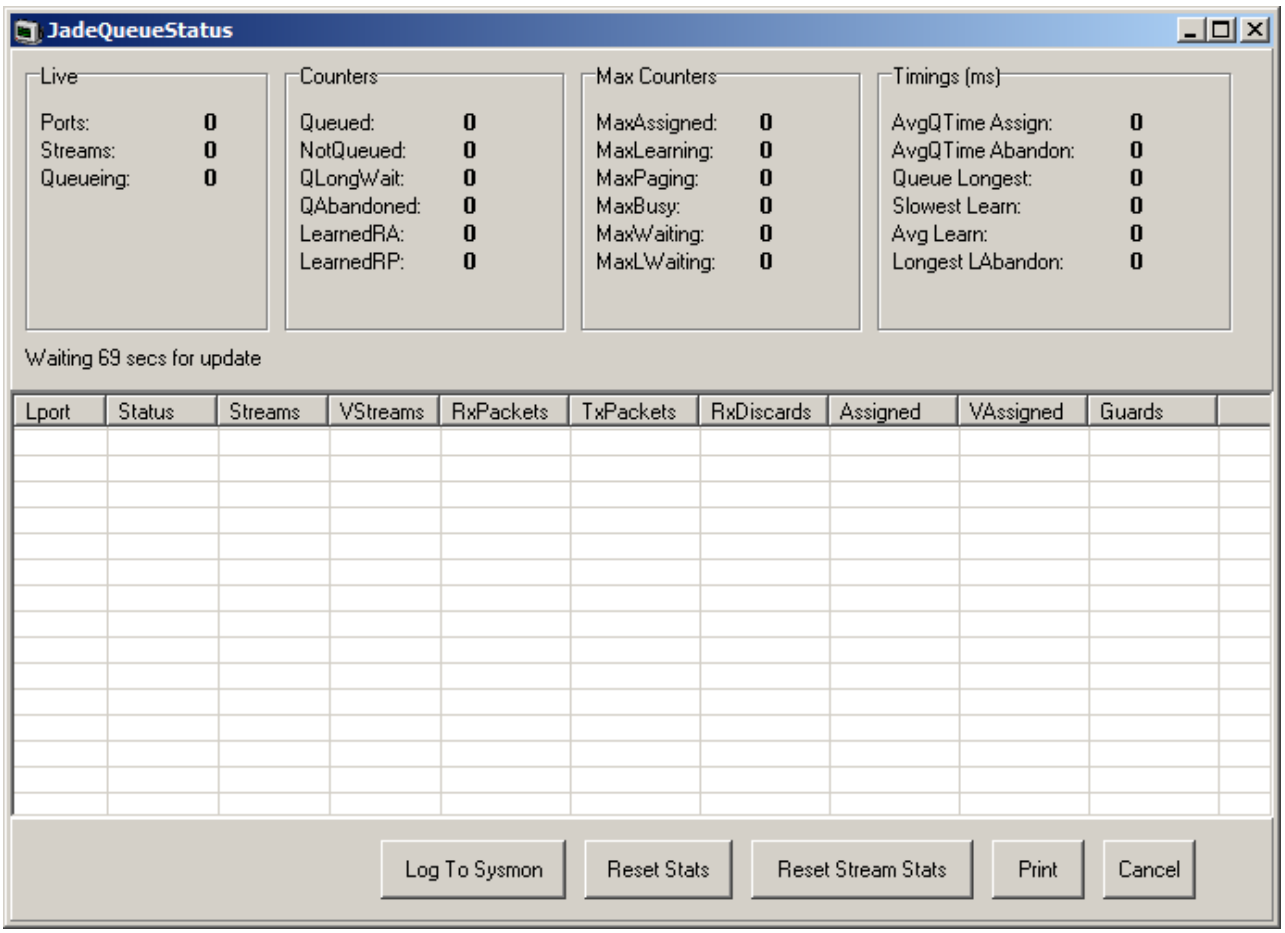
Related links

Status Screens on page 83

Jade Queue Status

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.



Related links

Status Screens on page 83

Logging

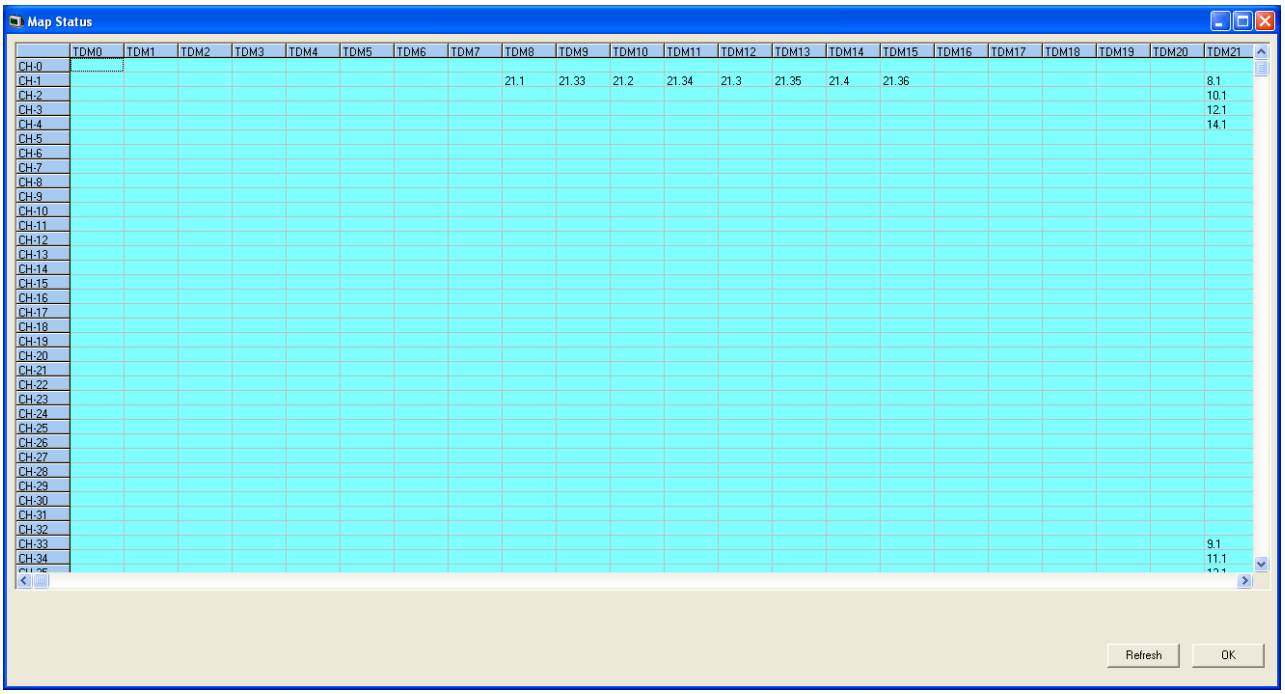
These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.

Related links

Status Screens on page 83

Map Status



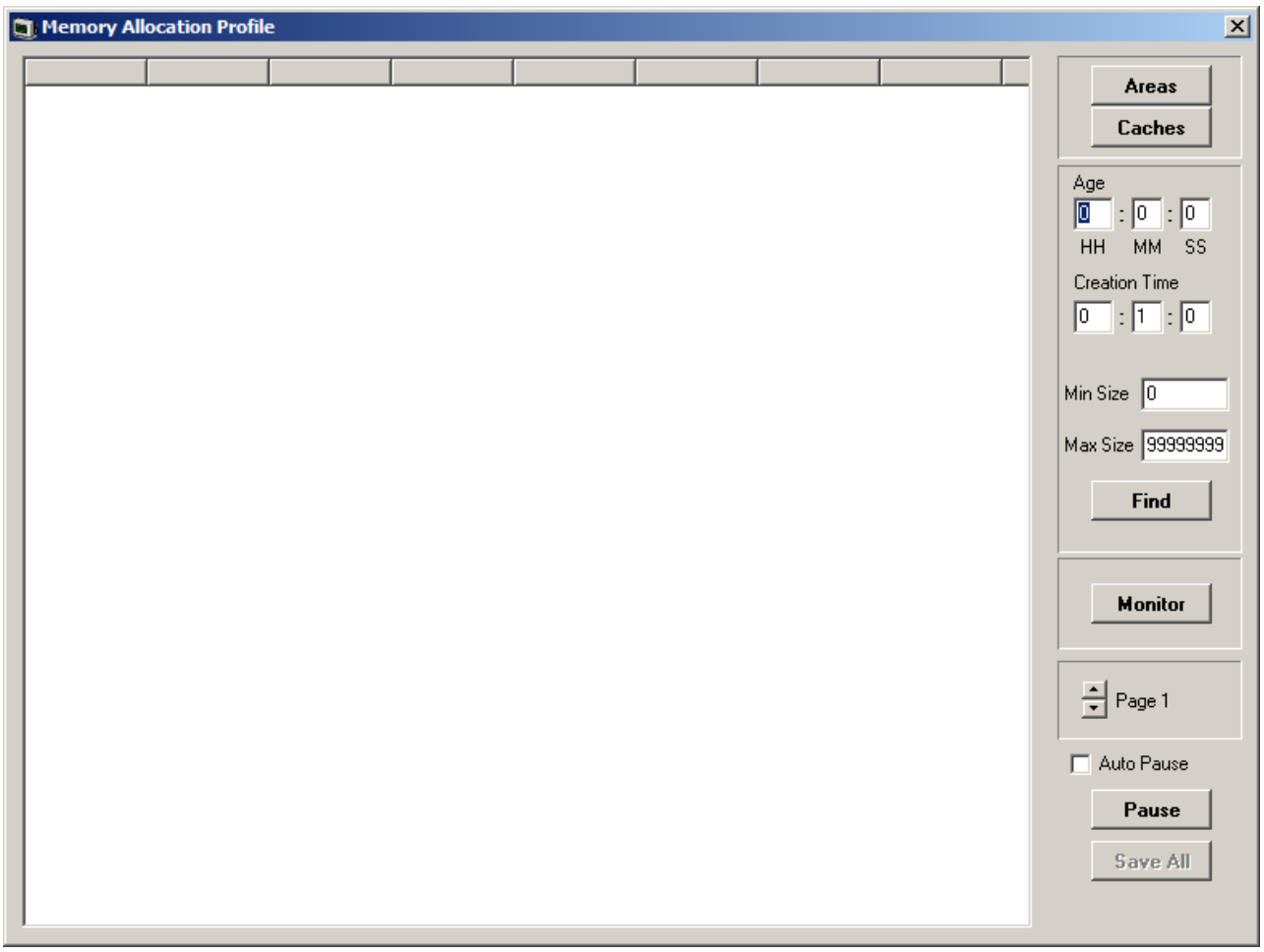
Related links

[Status Screens](#) on page 83

Memory Data

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.



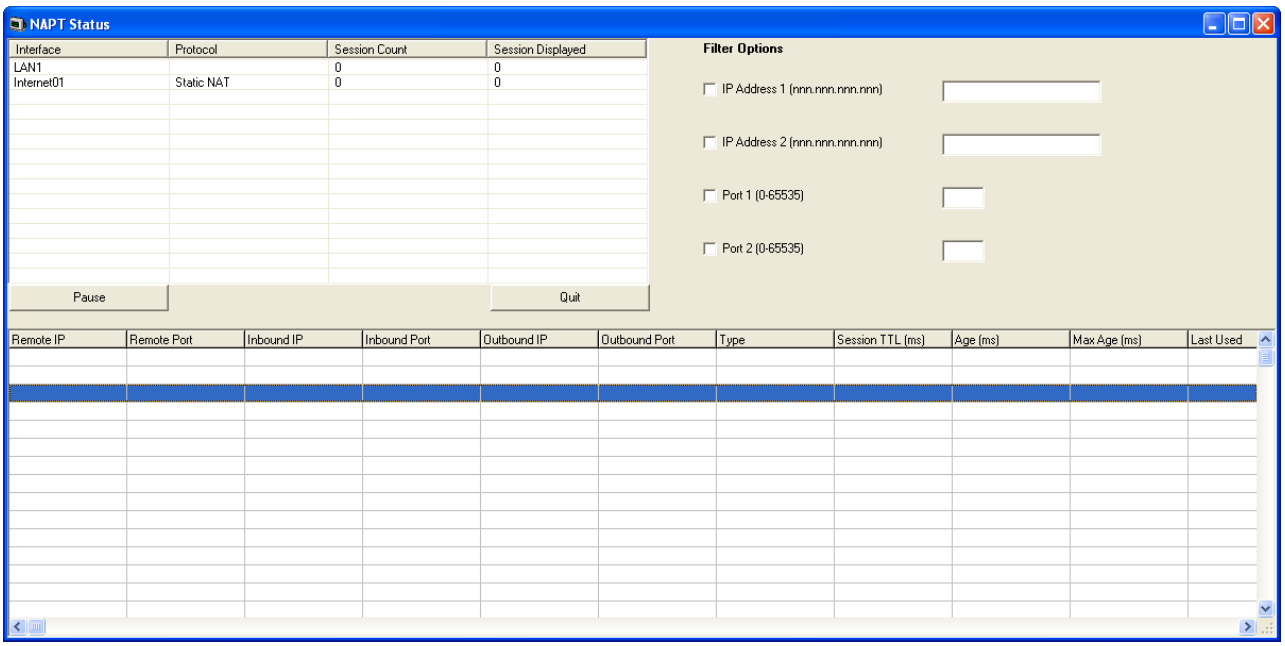
Related links

Status Screens on page 83

NAPT Status

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.

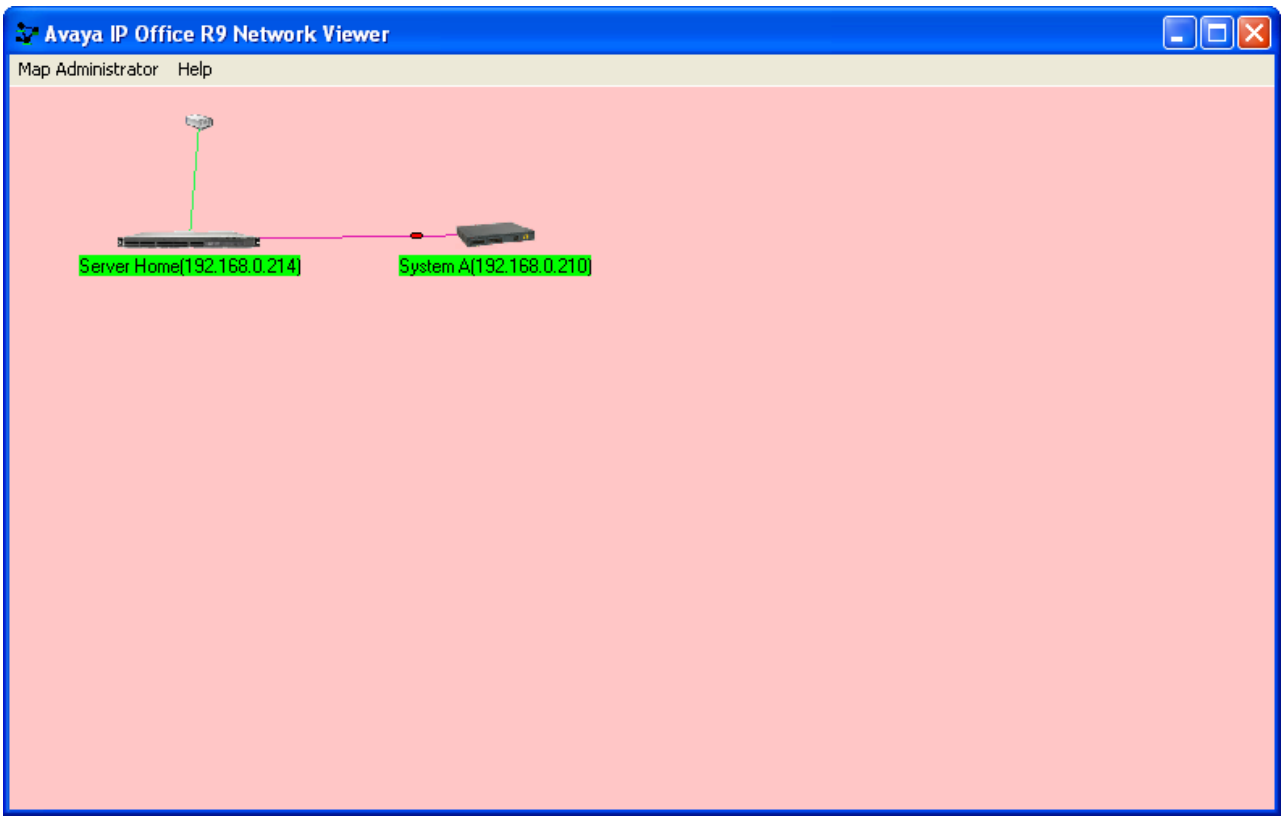


Related links

[Status Screens](#) on page 83

Network View

This menu displays a view of the multi-site network of which the system is a part. It displays calls between the sites. This menu is not supported when using TCP, HTTP or HTTPS to connect.

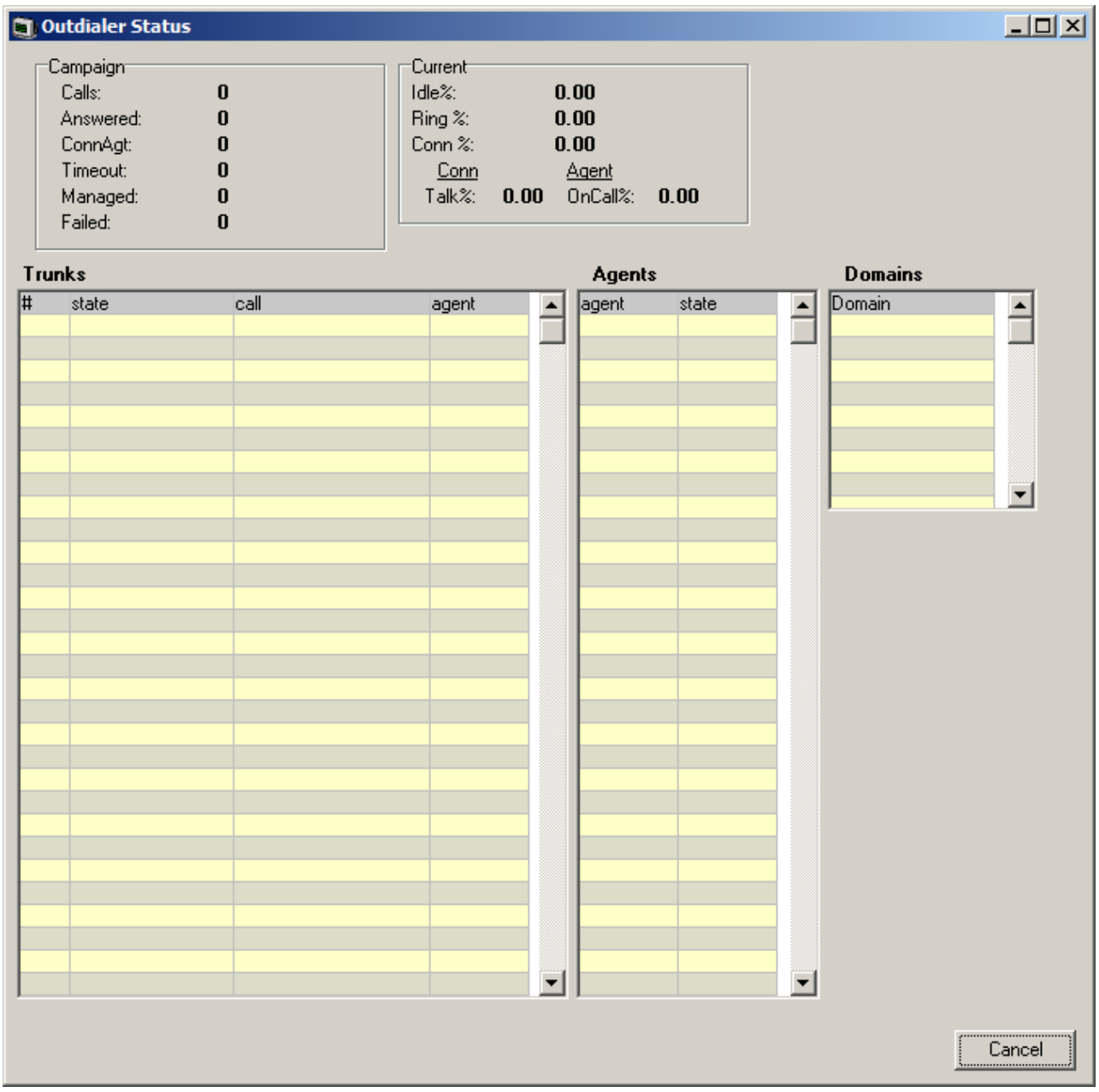


Related links

Status Screens on page 83

Outdialer Status

This menu shows a summary of the activity of the outdialing server supported by the system.

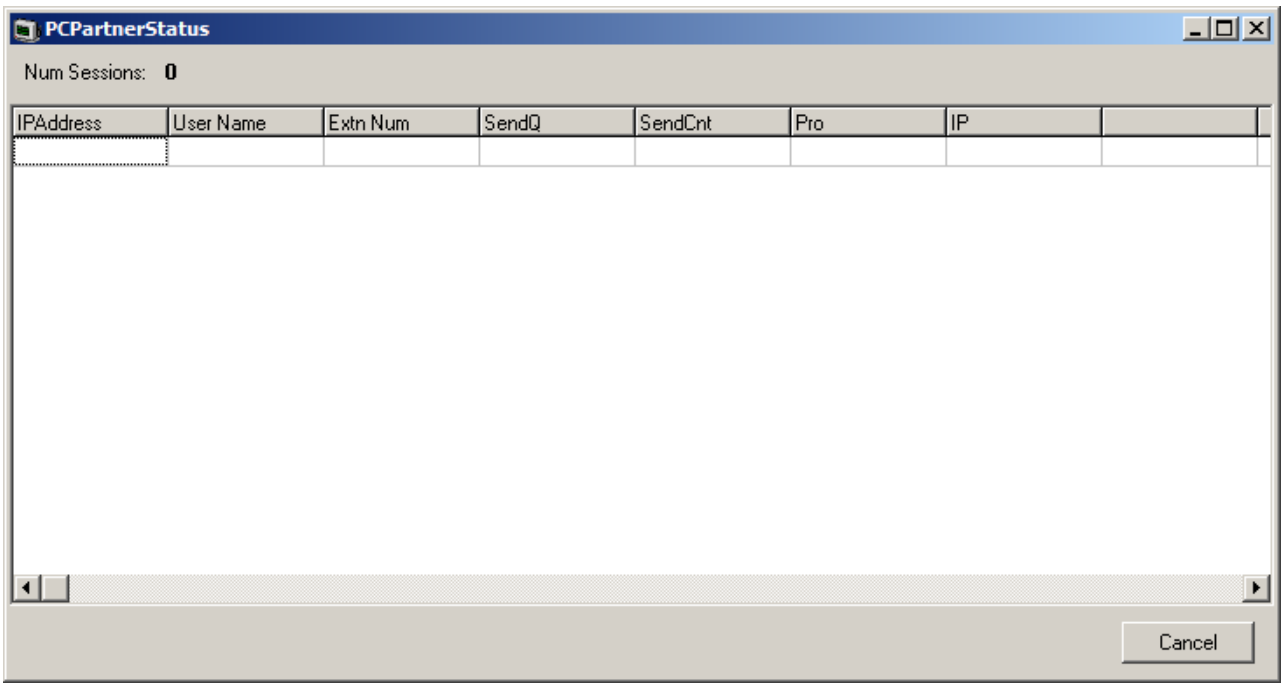


Related links

[Status Screens](#) on page 83

Partner Sessions

This menu displays details of the connections for IP Office PCPartner applications (SoftConsole) to the system.



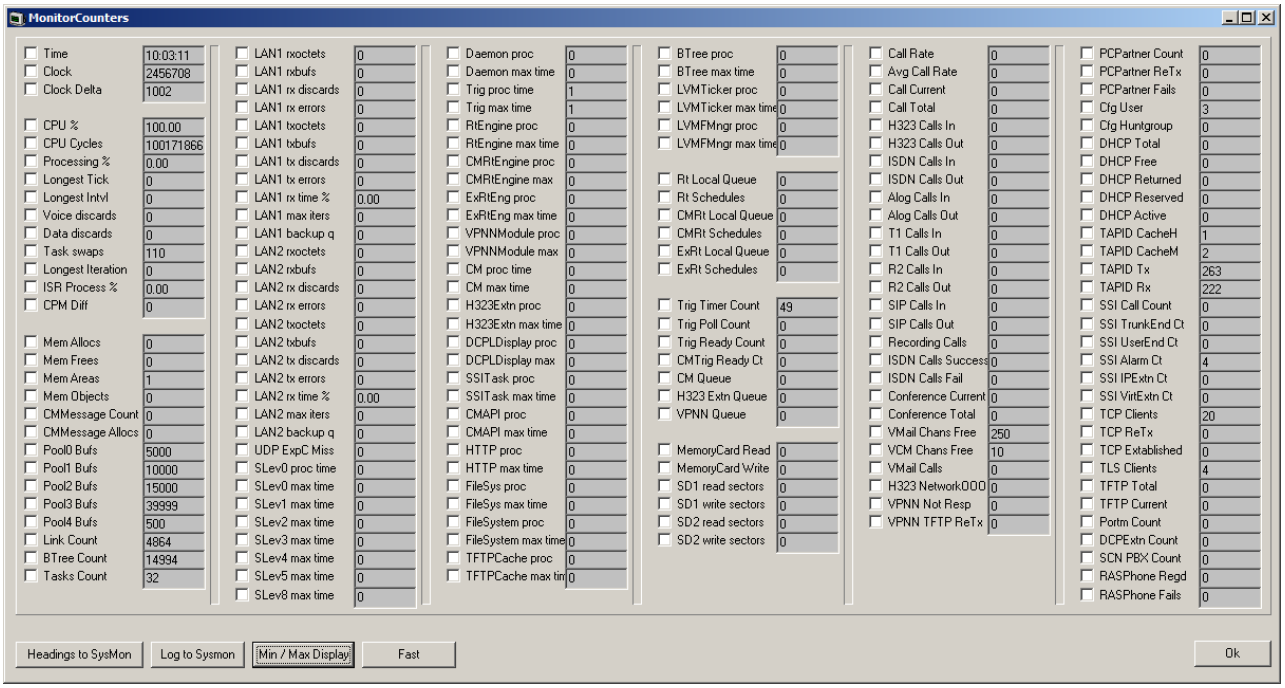
Related links

Status Screens on page 83

Performance Data

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.



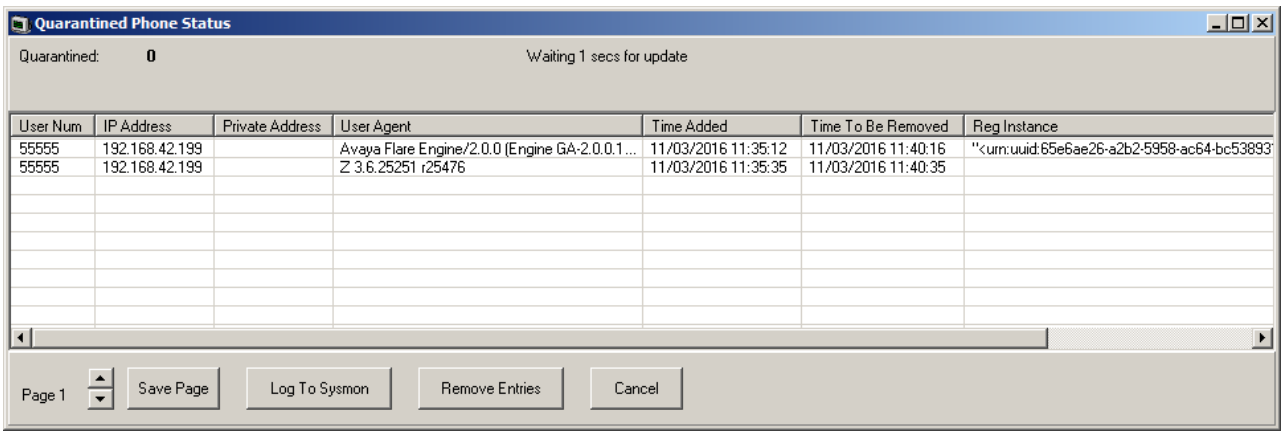
Related links

[Status Screens](#) on page 83

Quarantined Phone Status

This menu displays phones that have previously been registered but are now blocked from re-registering because another phone has subsequently registered using the same registration parameters. This blocked state is called quarantined.

- For example: When a user who has an already registered on one phone then registers on another phone using the same parameters, the previous phone may automatically attempt to reregister itself. In that case, even though the previous phone is presenting correct registration details, its registration is blocked and it is quarantined.



- The default quarantine time is five minutes. However, if the phone keeps on trying to reregister, its quarantine time is extended. Most phones eventually cease attempting to automatically re-register.
- Quarantining is treated separately from blacklisting since the phone has been previously registered with correct authentication parameters.
- Quarantining honors the restrictions for simultaneous telephony device use by users. For example, such users can simultaneously register one physical deskphone (including SIP, H.323 and DECT), one desktop PC VoIP client, one mobile VoIP client and one WebRTC client.

Columns

User Num	The extension number.
IP Address	The phone's public IP address.
Private Address	The phone's private IP address.
User Agent	The device type string. This can help identify the phone type.
Time Added	The date and time when phone was added to the quarantined phones list.
Time To Be Removed	The current date and time when the phone will be removed from the quarantined phones list. This will extend if the phone attempts to re-register again before this time.
Reg Instance	For SIP phones, the protocol parameter used during registration. This can be useful to distinguish between simultaneous phones where whilst 'roaming' and changing the IP address the instance remains fixed.
Reg ID	N.A

Buttons

Save Page	Save the current status menu data to a text file in comma separated format.

Table continues…

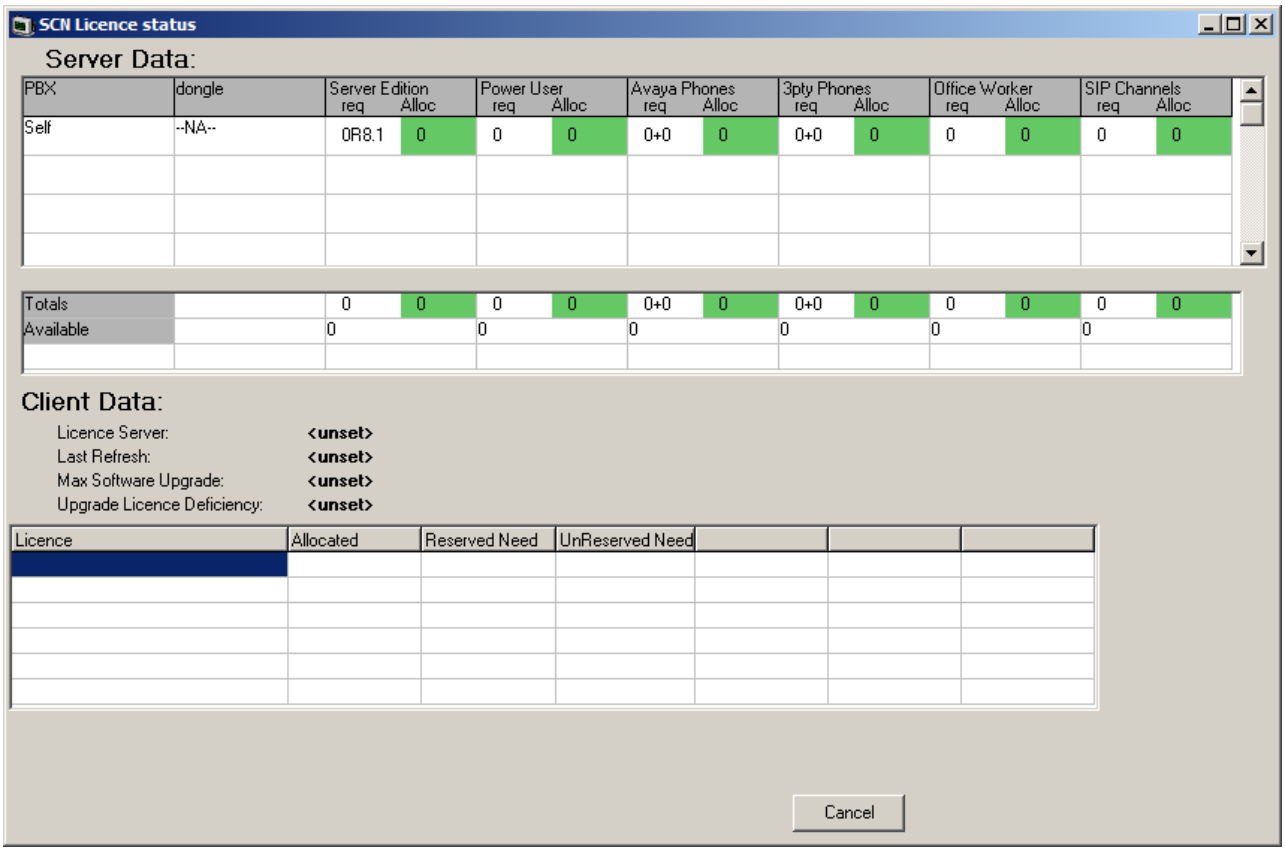
Log To Sysmon	When selected, the information is added to the Syslog tracing on page 75. A comma separated row is added to the log output for each current entry.
Remove Entries	Remove the current quarantined entries. This allows them to attempt to reregister again.
Cancel	Close the status menu.

Related links

Status Screens on page 83

SCN Licence

The menu displays details of the available and those used in a Server Edition network.

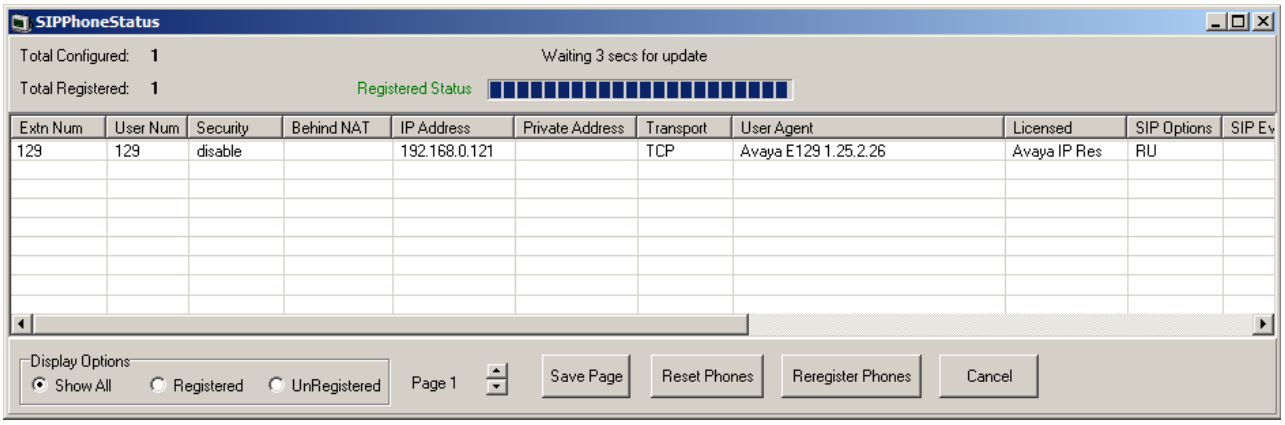


Related links

Status Screens on page 83

SIP Phone Status

This menu displays the status of the SIP end points known by the system.



For IP OfficeRelease 10, for phones using Network Address Translator (NAT) traversal, the private IP address is shown in the **Private Address** field. The **IP Address** field displays either the private IP address or if not NAT traversal is being used it displays public IP address.

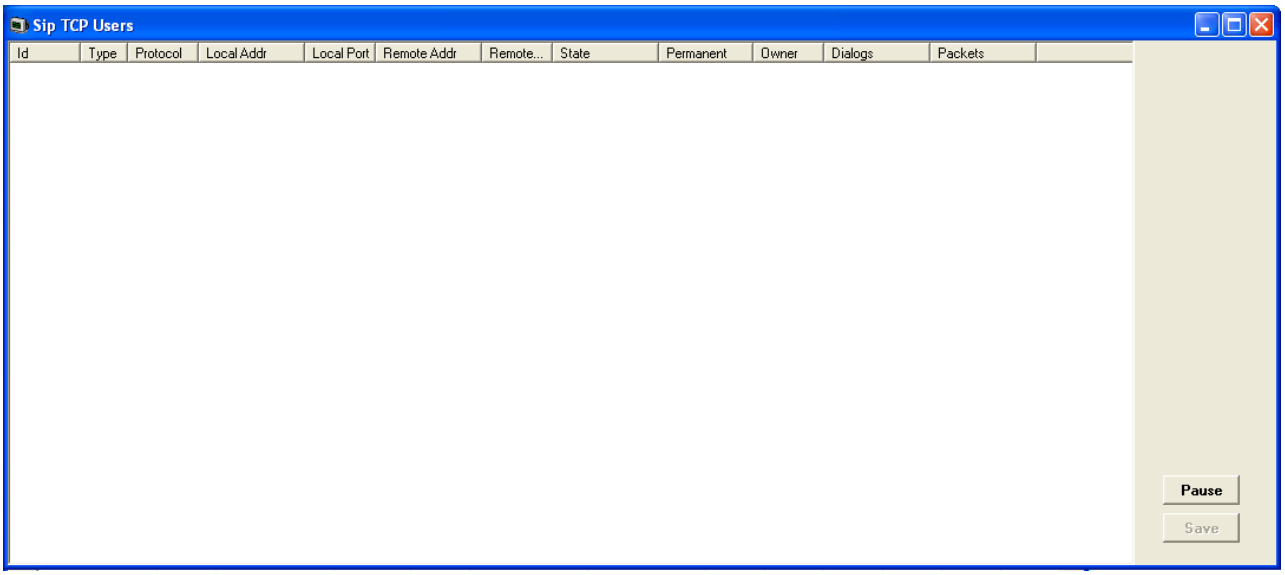
Whether the phone requires Dual-tone Multi Frequency (DTMF) signalling is shown in the **ReqDTMF** field.

Save Page	Save the current status menu data to a text file in comma separated format.
Reset Phones	Cause the registered SIP phones to restart and subsequently re-register. Only supported with Avaya SIP phones.
Reregister Phones	De-register all SIP phones from the system. Those phones that support the *REGISTER* event are informed, which causes them to re-register with the system. This action also clears the list of Quarantined phones status on page 102 and allows them to reregister if present.

Related links

Status Screens on page 83

SIP TCP User Data

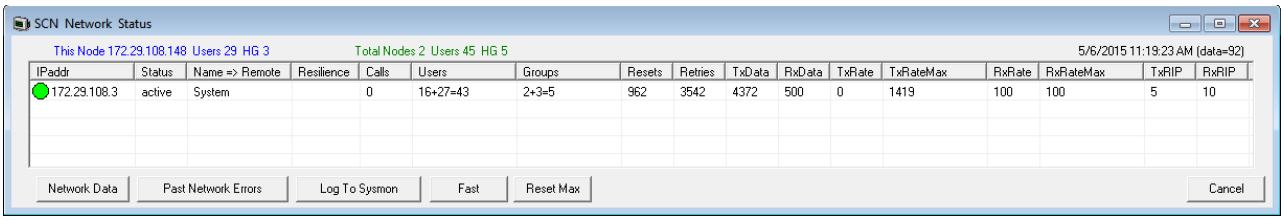


Related links

Status Screens on page 83

Small Community Networking

This menu displays the status of the system's multi-site network connections.



Network Data	Display a summary of the known details of the other network nodes.
Past Network Errors	
Log To Sysmon	When selected, the menu information is added to the **Syslog Monitor** output every 5 seconds. The button changes to **Stop Log** and is used to stop the logging output. A comma separated row is added to the log output for each SCN link.
Fast	When selected, it changes the menu update rate from every 8 seconds to every second.

Table continues…

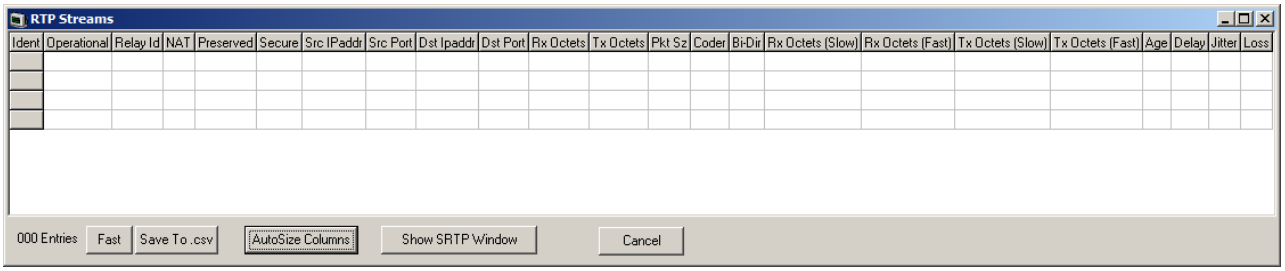
Slow	When selected, it changes the menu update rate from every second to every 8 seconds
Reset Max	The **TxRateMax** and **RxRateMax** columns show the maximum values whilst the menu is running. This button resets the values.

Related links

[Status Screens](#) on page 83

[S]RTP Sessions

This status menu displays details of the Real-Time Transport Protocol (RTP) and Secure Real-time Transport Protocol (SRTP) sessions being supported by the system.

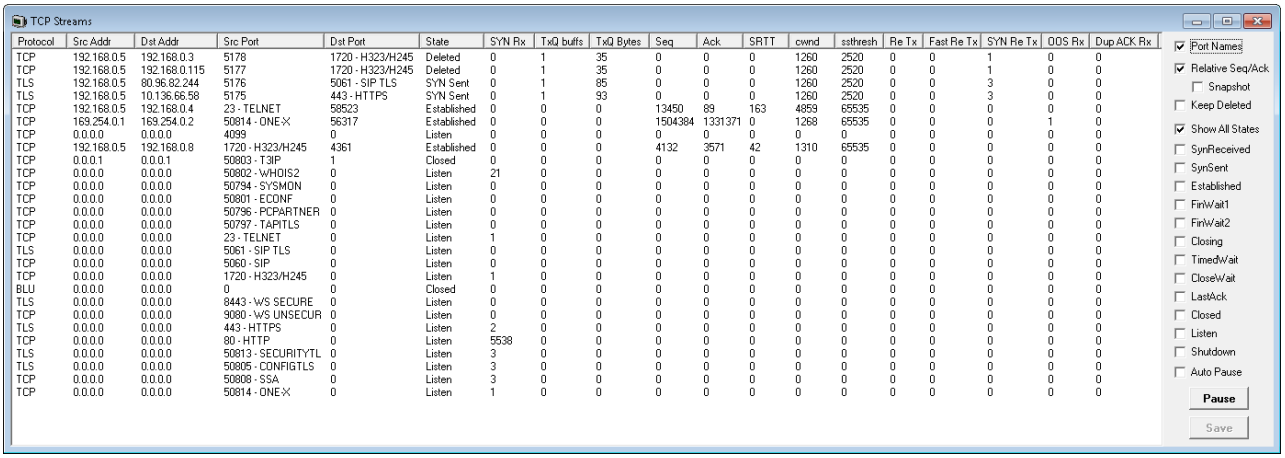


- **Fast** - Changes the menu update rate from every eight seconds to every second.
- **Slow** - Changes the menu update rate from every second to every eight seconds.

Related links

[Status Screens](#) on page 83

TCP Streams Data



Related links

Status Screens on page 83

US PRI Trunks

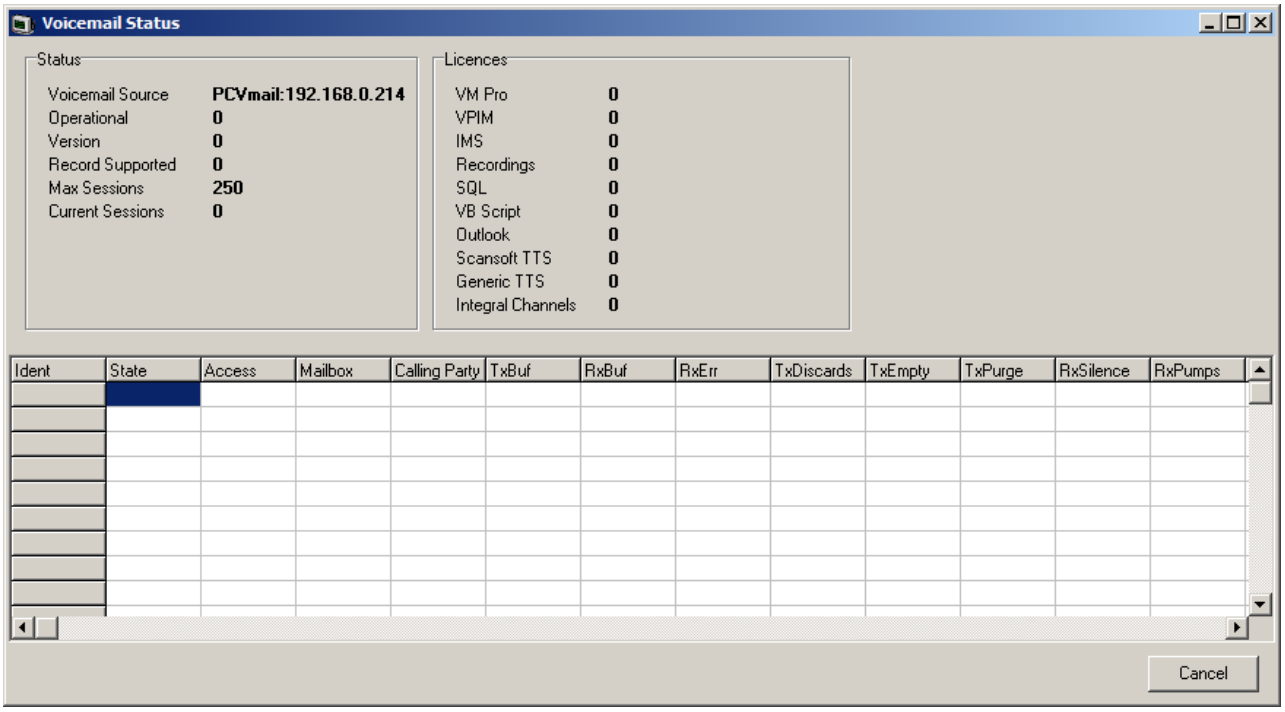
This menu displays the status of the system's US PRI trunk channels.

Related links

Status Screens on page 83

Voicemail Sessions

The status screen displays a summary of the voicemail service connections.



Related links

Status Screens on page 83

Voice Compression

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.

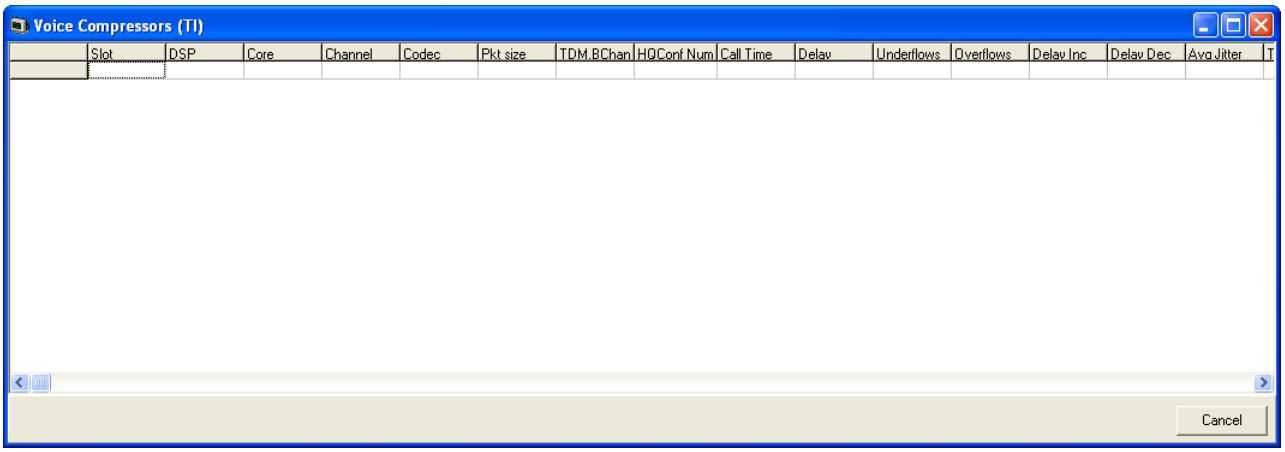
Related links

Status Screens on page 83

Voice Compression (TI)

These options are only available when the **Development Tracing** option is selected in the **Filters** > **Trace Options** > **System** menu, see System Trace Options on page 69. They are not covered by this document as they are used by Avaya for product trials and are subject to frequent changes.

These options should only be used under the guidance of an authorized Avaya development engineer.



Related links

Status Screens on page 83

Chapter 10: Example Monitor Settings

The typical monitor settings to provide useable traces in different test and diagnosis scenarios is explained. With depth data and telecoms experience the interpretation of the resulting traces can be explained.

Related links

J100 Phone Troubleshooting on page 110
Analog Trunk Caller ID on page 111
ISDN Trunk Caller ID on page 112
ISDN Calls Disconnecting on page 113
System Rebooting on page 115
ISDN Problems (T1 or E1 PRI Connections) on page 116
ISP & Dial-Up Data Connection Problems on page 116
Remote Site Data Connection over Leased (WAN) Lines on page 117
Frame Relay Links on page 117
Problems Involving Non-IP Phones on page 118
Problems Involving IP Phones on page 118
Locating a Specific PC Making Calls to the Internet on page 118
Firewall Not Working Correctly on page 119
Calls Answered/Generated by IP Office Applications on page 120
Message Waiting Indication on page 120
Speech Calls Dropping on page 121

J100 Phone Troubleshooting

IP Office

- SysMonitor
  - Enable the default tracing: **Filters** > **Trace Options** > **Default All**.
  - **SysMonitor** > **Filters** > **Trace Options** > **H.323** > **CCMS Send/CCMS Receive**.
  - **SysMonitor** > **Filters** > **Trace Options** > **SIP** > **Verbose, SIP Stim Rx, SIP Stim Tx, SIP Rx, SIP Tx**.
- IP Office configuration file

- Wireshark traces

Phone

- Phone Log level set to Debug, Log categories : ALSIP, CCMS, IPODATA, SIP, MEDIA, SECURITY, CERTMGMT, HTTP.
- Remote Syslog server
- When log categories are checked, phone performance may be degraded due to hardware limitation. After capturing logs clear the log categories

Related links

Example Monitor Settings on page 110

Analog Trunk Caller ID

The following is an example trace from an analogue trunk that supports Incoming Call Line Identification (ICLID) or Calling Line Identification (CLI).

```
108691mS PRN: AtmTrunk1: StateChange CLIPossibleIncoming->Idle
108692mS PRN: AtmIO1: Block Forward OFF
108692mS PRN: AtmIO1: CLI Detection ON Equaliser ON
109703mS PRN: AtmTrunk1: CLI Message Rx'd:
109703mS PRN: 0x4500
109704mS PRN: 0x3031
109704mS PRN: 0x3134
109704mS PRN: 0x3136
109704mS PRN: 0x3035
109705mS PRN: AtmTrunk1: CLI Message Rx'd:
109705mS PRN: 0x4980
109706mS PRN: 0x3031
109706mS PRN: 0x3730
109706mS PRN: 0x372d
109706mS PRN: 0x3339
109706mS PRN: 0x3033
109707mS PRN: 0x3931
109707mS PRN: AtmTrunk1: CLI Message Rx'd:
109707mS PRN: 0x5800
09708mS PRN: AtmIO1: CLI Detection OFF Equaliser OFF
109708mS PRN: AtmTrunk1: StateChange CLIAwaitData->CLIDataSettle
109911mS PRN: AtmTrunk1: StateChange CLIDataSettle->CLIAwaitSecondRing
110191mS PRN: AtmTrunk1: StateChange CLIAwaitSecondRing->PossibleIncoming
```

Explanation:

`108691mS PRN: AtmTrunk1: StateChange CLIPossibleIncoming->Idle`	The Line interface is primed ready for the possibility of an incoming ICLID/CLI message.
`108692mS PRN: AtmIO1: Block Forward OFF`	AtmIO1 = Line Number 1.
`108692mS PRN: AtmIO1: CLI Detection ON Equaliser ON`	CLI detection is enabled for trunk 1.
`109703mS PRN: AtmTrunk1: CLI Message Rx'd:`	The first part of a ICLID message on trunk 1 is detected.

Table continues…

`109703mS PRN: 0x4500`	4500 = Date and time information. The info then follows in the 4 byte words.

`109704mS PRN: 0x3031`
`109704mS PRN: 0x3134`
`109704mS PRN: 0x3136`
`109704mS PRN: 0x3035`
	The call date and time is 16:05 on 14th January.
	• Month: 30 (hex) = 0 (ASCII), 31 (hex) = 1 (ASCII) > 01 (January)
	• Day: 31 (hex) = 1 (ASCII), 34 (hex) = 4 (ASCII) > 14th.
	• Hours: 31 (hex) = 1 (ASCII), 36 (hex) = 6 (ASCII) > 16:00.
	• Minutes: 30 (hex) = 0 (ASCII), 35 (hex) = 5 (ASCII) > 00:05.

`109705mS PRN: AtmTrunk1: CLI Message Rx'd:`	The second part of the ICLID message on trunk 1 is detected.
`109705mS PRN: 0x4980`	4980 = Calling Party Number information.

`109706mS PRN: 0x3031`
`109706mS PRN: 0x3730`
`109706mS PRN: 0x372d`
`109706mS PRN: 0x3339`
`109706mS PRN: 0x3033`
`109707mS PRN: 0x3931`
	The Calling Party Number is 01707-390391
	• 30 (hex) = 0 (ASCII), 31 (hex) = 1 (ASCII) > 01
	• 37 (hex) = 7 (ASCII), 30 (hex) = 0 (ASCII) > 70
	• 37 (hex) = 7 (ASCII), 2d (hex) = - (ASCII) > 7-
	• 33 (hex) = 3 (ASCII), 39 (hex) = 9 (ASCII) > 39
	• 30 (hex) = 0 (ASCII), 33 (hex) = 3 (ASCII) > 03
	• 39 (hex) = 9 (ASCII), 31 (hex) = 1 (ASCII) > 91

`109707mS PRN: AtmTrunk1: CLI Message Rx'd:`	The third part of the ICLID message on trunk 1 is detected.
`109707mS PRN: 0x5800`	5800 = End of ICLID.
`09708mS PRN: AtmIO1: CLI Detection OFF Equaliser OFF`	ICLID dectection is disabled.

`109708mS PRN: AtmTrunk1: StateChange CLIAwaitData->CLIDataSettle`
`109911mS PRN: AtmTrunk1: StateChange CLIDataSettle->CLIAwaitSecondRing`
`110191mS PRN: AtmTrunk1: StateChange CLIAwaitSecondRing->PossibleIncoming`
	Line state changes from receiving ICLID to awaiting the incoming audio call.

Related links

Example Monitor Settings on page 110

ISDN Trunk Caller ID

Procedure

1. Go to **Start** > **Programs** > **IP Office** > **Monitor**.

2. On the **System Monitor**, click **Trace Options** to select the trace settings.
3. In **Call** tab, select **Line Receive** check box.
4. Click **OK**.

   In the System Monitor window, look for trace codes similar to the following:

```
22984658mS ISDNL3Rx: v=5 peb=5
ISDN Layer3 Pcol=08(Q931) Reflen=2 ref=272F(Remote)
Message Type = Setup
InformationElement = BearerCapability
0000 04 03 80 90 a2 .....
InformationElement = CHI
0000 18 03 a1 83 95 .....
InformationElement = CallingPartyNumber
0000 6c 0c 21 83 36 31 38 37 30 39 33 39 39 31 l.!.6187093991
InformationElement = CalledPartyNumber
0000 70 08 c1 36 34 36 37 31 33 31 p..6467131
InformationElement = HigherLayerCompat
0000 7d 02 91 81 }...
```

   - The Calling Party Number is (6187093991)
   - The Called Party Number is (6467131)

Related links

[Example Monitor Settings](#) on page 110

ISDN Calls Disconnecting

Enable the following trace option settings:

Tab	Trace Options
ISDN	Layer 1, Layer 2, Layer 3, Layer 1 Send, Layer 1 Receive, Layer 2 Send, Layer 2 Receive, Layer 3 Send and Layer 3 Receive.
Call	Extension Send, Extension Receive, Extension TxP, Extension RxP, Line Send, Line Receive, Targetting and Call Logging.
System	Error, Print and Resource Status Prints.

This following is a sample trace of an Primary Rate Interface (PRI) line going down, cutting off the calls in progress and then the line coming back up:

```
1072151mS ISDNL1Evt: v=0 peb=5,F2 F1
1072651mS ISDNL1Evt: v=0 peb=5,PHDI ?
1072651mS ISDNL3Evt: v=0 p1=0,p2=1001,p3=5,p4=127,s1=
1072651mS ISDNL3Evt: v=0 stacknum=0 State, new=NullState, old=Active id=4
1072652mS ISDNL3Evt: v=0 stacknum=0 State, new=NullState, old=Active id=24
1072653mS ISDNL3Evt: v=0 p1=0,p2=1001,p3=5,p4=0,s1=
1072656mS CMLineRx: v=5
CMReleaseComp
Line: type=Q931Line 5 Call: lid=5 id=4 in=1
Cause=38, NetworkOOO
1072658mS CALL:2000/11/2408:40,00:00:17,033,01732464420,I,300,027624,,,,0
1072682mS CMLineRx: v=5
CMReleaseComp
```

```
Line: type=Q931Line 5 Call: lid=5 id=24 in=1
Cause=38, NetworkOOO
1072684mS CALL:2000/11/2408:36,00:04:12,004,01689839919,I,300,027624,,,,0
1075545mS ISDNL1Evt: v=0 peb=5,F1 F2
1075595mS ISDNL1Evt: v=0 peb=5,PHAI ?
```

Explanation:

`1072151mS ISDNL1Evt: v=0 peb=5,F2 F1`	PRI Line 5 (peb is 5) has gone from the F1 state (normal Operational state) to the F2 state (Fault condition 1 state - receiving RAI or receiving CRC errors).
`1072651mS ISDNL1Evt: v=0 peb=5,PHDI ?`	Line 5 (peb is 5) is now in the Disconnected state (PHDI – Physical Deactivate Indication).
`1072651mS ISDNL3Evt: v=0 p1=0,p2=1001,p3=5,p4=127,s1=`	ISDN Layer 3 event which gives current status of line 5 (p3 is 5) • P1 is 0: ISDN Stacknum is 0. • P2 is 1001: Line Disconnecting. • P3 is 5: Internal reference number. • P4 is 127: TEI is 127 and S1 is not used.
`1072651mS ISDNL3Evt: v=0 stacknum=0 State, new=NullState, old=Active id=4`	ISDN Layer 3 event which indicates that call with id 4 (id is 4) on the first ISDN stack (stacknum is 0) has changed from being Active (old is Active) to No Call exists (new is NullState).
`1072652mS ISDNL3Evt: v=0 stacknum=0 State, new=NullState, old=Active id=24`	ISDN Layer 3 event which indicates that call with id 24 (id is 24) on the first ISDN stack (stacknum is 0) has changed from being Active (old is Active) to No Call exists (new is NullState).
`1072653mS ISDNL3Evt: v=0 p1=0,p2=1001,p3=5,p4=0,s1=`	ISDN Layer 3 event which gives current status of line 5 (p3 is 5) • P1 is 0: ISDN Stack number is 0. • P2 is 1001: Line Disconnecting. • P3 is 5: Internal reference number. • P4 is 0: TEI is 0. • S1 is not used.

`1072656mS CMLineRx: v=5 CMReleaseComp`
`Line: type=Q931Line 5 Call: lid=5 id=4 in=1`
`Cause=38, NetworkOOO`
	The incoming call (in is 1) on line 5 (lid is 5), with an internal call id of 4 (id is 4) has been dropped. Clear code is 38 – Network Out Of Order (refer to ISDN Clear codes on our web site). There is no ISDNL3RX trace information as the call is dropped by the PBX NOT by the local exchange (due to the fact that we are no longer in communication with the Local Exchange!).

`1072658mS CALL:2000/11/2408:40,00:00:17,033,01732464420,I,300,027624,,,,0`	The Incoming call from 01732464420 to [02083]027624 (Extn 300) has been disconnected.

Table continues…

`1072682mS CMLineRx: v=5 CMReleaseComp Line: type=Q931Line 5 Call: lid=5 id=24 in=1 Cause=38, NetworkOOO`	The incoming call (in is 1) on line 5 (lid is 5), with an internal call id of 24 (id is 24) has been dropped. Clear code is 38 – Network Out Of Order (refer to ISDN Clear codes on our web site). Again there is no ISDNL3RX trace information as the call is dropped by the PBX NOT by the local exchange (due to the fact that we are no longer in communication with the Local Exchange!).
`1072684mS CALL:2000/11/2408:36,00:04:12,004,016 89839919,I,300,027624,,,,0`	The incoming call from 01689839919 to [02083]027624 (Extn300) has been disconnected.
`1075545mS ISDNL1Evt: v=0 peb=5,F1 F2`	Line 5 (peb is 5) has gone from the F2 state (Fault condition 1 state i.e. receiving RAI or receiving CRC errors) to the F1 state (normal Operational state).
`1075595mS ISDNL1Evt: v=0 peb=5,PHAI ?`	Line 5 (peb is 5) has now fully recovered and is in the Connected state (PHAI – Physical Activate Indication).

Related links

Example Monitor Settings on page 110

System Rebooting

Enable the following trace option settings:

Tab	Trace Options
Call	Line Send, Line Receive, Extension Send, Extension Receive, Extension RxP, Extension TxP, Call Delta, Map, Targeting and Call Logging
System	Error, Print and Resource Status Prints.

It is necessary to capture the data that is output of the Data Terminal Equipment (DTE) port placed on the back of the system control unit. The unit sends information to the DTE port during a reboot that is not seen by **System Monitor** as it cannot make contact with the unit via the LAN until the reboot is completed.

If you are experiencing a rebooting problem then it is very important that both traces are provided in order to make an effective investigation into the problem. Both traces should cover the period before and after the reboot occurs.

A reboot can be easily seen in the System Monitor application by the following:

```
== 25/4/2000 14:27 contact lost - reselect = 1
************************************************************
******************** From: 192.168.27.1 (13597) ********************
== 25/4/2000 14:27 contact made
```

The **System Reboot** can be easily located, search for the trace (contact lost).

Related links

Example Monitor Settings on page 110

ISDN Problems (T1 or E1 PRI Connections)

Enable the following trace option settings. These provide information about the ISDN line itself and any calls in progress.

Tab	Trace Options
ISDN	Layer 1, Layer 2, Layer 3, Layer 1 Send, Layer 1 Receive, Layer 2 Send, Layer 2 Receive, Layer 3 Send and Layer 3 Receive.
Call	Extension Send, Extension Receive, Extension TxP, Extension RxP, Line Send, Line Receive, Targetting and Call Logging.
System	Error, Print and Resource Status Prints.

If the problem is with a specific ISDN line then the System Monitor can record info for a specific line by entering an ISDN line number in the **Port Number** field. ISDN line numbers range from 0 to 8. The line number is displayed in the **Configuration Lines List**. A blank entry indicates that all ISDN lines are monitored.

Related links

Example Monitor Settings on page 110

ISP & Dial-Up Data Connection Problems

Enable the following trace option settings:

Tab	Trace Options
ISDN	Later3 Tx and Layer3 Rx.
Call	Line Send, Line Receive, Targetting and Call Logging
Interface	Interface/Interface Queue
PPP	LCP Tx, LCP Rx, Security Tx, Security Rx, IPCP Tx and IPCP Rx.
System	Error, Print and Resource Status Prints.

If the problem is to a specific destination then **System Monitor** can record information pertinent to that connection only. This is done by entering the appropriate service name in the **Interface Name** field in the **PPP** trace option settings. A blank entry means monitor all data connections.

You should also look for things like Password Authentication Protocol (PAP) or Challenge Handshake Authentication Protocol (CHAP) password failure. This indicates that the *Service* configuration is not correct.

Note that the WAN Tx and WAN Rx information is in raw hex format only. An in-depth knowledge of the IP Packet make-up is required to manually decode these messages and it is not done automatically.

Related links

Example Monitor Settings on page 110

Remote Site Data Connection over Leased (WAN) Lines

Enable the following trace option settings:

Tab	Trace Options
WAN	WAN Tx, WAN Rx and Events.
PPP	LCP Tx, LCP Rx, Security Tx, Security Rx, IPCP Tx, IPCP Rx, IP Tx and IP Rx.
System	Error, Print and Resource Status Prints.

- If the line is connected via the WAN port on the system's control unit, **System Monitor** should be configured to monitor the IP address of the system.
- If the line is connected via a WAN port on a WAN3 module, **System Monitor** should be configured to monitor the IP address of the WAN3 unit.

If the leased line problem is to a specific destination, then **System Monitor** can record information pertinent to that connection only. By entering the appropriate service name in the **PPP** trace option settings **Interface Name** field. A blank entry means all the data connections (Services) are monitored.

Check for any PAP/CHAP password failure. This indicates that the `Service` configuration is not correct.

Note that the WAN Tx and WAN Rx information is in raw hex format only. An in-depth knowledge of the IP Packet make-up is required to manually decode these messages which is not done automatically.

Related links

Example Monitor Settings on page 110

Frame Relay Links

Enable the following trace option settings:

Tab	Trace Options
Frame Relay	Events, Tx Data, Tx Data Decode, Rx Data, Rx Data Decode, Tx Data and Mgmt Events (if Management enabled on link)

Please note that the following Point-to-Point Protocol (PPP) options may also be required if using PPP over Frame Relay as the connection method:

Tab	Trace Options
PPP	LCP Tx, LCP Rx, Security Tx, Security Rx, IPCP Tx, IPCP Rx, IP Tx and IP Rx

Related links

Example Monitor Settings on page 110

Problems Involving Non-IP Phones

Enable the following trace option settings:

Tab	Trace Options
Call	Line Send, Line Receive, Extension Send, Extension Receive, Extension RxP, Extension TxP, Short Code Msgs, Call Delta, Targetting and Call Logging.

The **Call** tab provides details on Call Setup, Call Proceeding, Alerting, Call Connected, and Call Disconnected is provided. A step by step trace of the process that the call has gone through and all information relating directly to the setup of the call is displayed in the **Call** tab.

Related links

Example Monitor Settings on page 110

Problems Involving IP Phones

Enable the following trace option settings:

Tab	Trace Options
H.323	H.323, H.323 Send, H.323 Receive, H.323 Fast Start, H.245 Send, H.245 Receive, RAS Send, RAS Receive and View Whole Packet.

The **H.323** tab provides details on Call Setup, Call Proceeding, Alerting, Call Connected, and Call Disconnected is provided. A step by step trace of the process that the call has gone through and all information relating directly to the setup of the call is displayed in the **H.323** tab.

Related links

Example Monitor Settings on page 110

Locating a Specific PC Making Calls to the Internet

Enable the following trace option settings:

Tab	Trace Options
ISDN	Layer3 Tx and Layer3 Rx.
Interface	Interface Queue
Call	Line Send, Line Receive, Targeting and Call Logging
System	Error, Print and Resource Status Prints.

If Network address translation (NAT) is not being used on the connection this produces:

```
Interface Queue: v=UKIP WAN 1 1
IP Dst=194.217.94.100 Src=212.46.130.32 len=48 id=043e ttl=127 off=4000 pcol=6 sum=017c
TCP Dst=80 (0050) Src=4105 (1009) Seq=338648156 Ack=0 Code=02 (SYN )
```

```
Off=112 Window=8192 Sum=6aae Urg=0
0000 02 04 05 b4 01 01 04 02
```

- The source (Src) of this packet is 212.46.130.32.
- The destination (IP Dst) is 194.217.94.100,
- The protocol is TCP (pcol is 6)
- The destination socket is 80 (80 is World Wide Web HTTP is, a PC is trying to access a web page)
- The source socket is 4105 (unassigned means it is free to be used by any program)
- The packet is a TCP SYN.

You need to locate the PC with address 212.46.130.32. To locate, type the IP Dst in the address bar of the web browser and it takes the specific page.

If NAT is being used, you can trace by observing in System Monitor traces, example:

```
PRN: ~NATranslator d40190dc 00000000
PRN: ~UDPNATSession in=c0a84d01 out=d40190dc rem=d401809c in_port=0035 out_port=1000
rem_port=0035
PRN: ~TCPNATSession in=c0a84d02 out=d40190dc rem=c2ed6d49 in_port=0423 out_port=1005
rem_port=0050
```

The Interface Queue trace is preceded by the following System Monitor output :

```
PRN: TCPNATSession in=c0a84d02 out=d40190dc rem=c2ed6d49 in_port=0423 out_port=1005
rem_port=0050
```

Where:

in	Is the IP address (in hex format) of the device on the LAN that is initiating the request.
out	Is the IP address of the PBX (i.e. the local IP address of the link) as allocated by the ISP/Remote Routing device.
rem	Is the requested destination IP address.
in_port	Is the port (socket) number used by the initiating device on the LAN
out_port	Is the outgoing port we use on the link (due to the NAT)
rem_port	Is the requested destination port (socket) number.

Related links

Example Monitor Settings on page 110

Firewall Not Working Correctly

Enable the following trace option settings:

Tab	Trace Options
Interface	Interface Queue, Firewall Fail In and Firewall Fail Out.
System	Error, Print and Resource Status Prints.

When monitoring starts, if you do not see any specified failing in the trace, then enable the following additional settings:

Tab	Trace Options
Interface	Interface Queue, Firewall Fail In and Firewall Fail Out.
System	Error, Print and Resource Status Prints.

This traces all the packets that are allowed in and out of the Private Branch Exchange (PBX) via the firewall.

Note:

Use the **Interface Name** field available in the **Interface** trace option setting menu to enter the name of a particular service that you want to monitor.

Related links

Example Monitor Settings on page 110

Calls Answered/Generated by IP Office Applications

Enable the following trace option settings:

Tab	Trace Options
Call	Line Send, Line Receive, Extension Send, Extension Receive, Extension TxP, Extension RxP, Short Code Msgs, Call Delta, Targetting and Call Logging.
System	Error, Print and Resource Status Prints.

Related links

Example Monitor Settings on page 110

Message Waiting Indication

To determine if Voicemail Pro is transmitting message waiting indication Message Waiting Indication (MWI) information.

Enable the following trace option settings:

Tab	Table
Call	Extension Send, MonIVR and Targetting
System	Print

Whenever voicemail is accessed for a mailbox (message leaving or retrieval) voicemail sends a voicemail status update for that mailbox to the PBX. This is traced out within **System Monitor** with the **MonIVR** option and is an IVR Event type message.

The following is a trace example received with leaving a message to mailbox 206:

- **IVR Events** indicate the number of new, read, saved messages. If the new message count is zero then the PBX should extinguish the message waiting light, otherwise the message waiting light should be activated.

When the MWL indication is sent to the phone, the CMExtnTx event should indicate the transmission of the message **CMVoiceMailStatus** with the number of new messages being in the display field (may also be in the calling party field). The **UUI** field may also contain the information format (length of UUI, number of messages, unread messages, extension state).

```
7201633mS CMExtnTx: v=203, p1=1
CMVoiceMailStatus
Line: type=DigitalExtn 3 Call: lid=0 id=-1 in=0
Calling[00000001] Type=Default (100)
UUI type=Local [....] [0x03 0x01 0x01 0x00 ]
Display [Extn203 Msgs=1]
Timed: 06/05/05 12:26
7201634mS IVR Event: Voicemail message update for [Extn203]:- New=1,Read=1,Saved=0
```

Related links

Example Monitor Settings on page 110

Speech Calls Dropping

ISDN or QSIG line

Enable the following trace option settings:

Tab	Trace Options
ISDN	Layer 1, Layer 3, Layer 1 Send, Layer 1 Receive, Layer 3 Send and Layer 3 Receive
Call	Line Send, Line Receive, Extension Send, Extension Receive, Extension RxP, Extension TxP, Short Code Msgs, Call Delta, Targeting and Call Logging
System	Error, Print and Resource Status Prints

Analogue Line

Enable the following trace option settings:

Tab	Trace Options
ATM	Channel, I-O and CM Line
Call	Line Send, Line Receive, Extension Send, Extension Receive, Extension RxP, Extension TxP, Short Code Msgs, Call Delta, Targeting and Call Logging
System	Error, Print and Resource Status Prints

VoIP Line

Enable the following System Monitor settings:

Tab	Trace options
ISDN[1]	Layer 3 Send[1] and Layer 3 Receive.
ATM[2]	Channel[2], I-O2 and CM Line.
T1[3]	Line, Channel, Dialler, DSP and CAS.
H.323	H.323, H.323 Send, H.323 Receive, H.323 Fast Start[4], H.245 Send, H.245 Receive and View Whole Packet.
Call	Line Send, Line Receive, Extension Send, Extension Receive, Extension RxP, Extension TxP, Short Code Msgs, Call Delta, Targeting and Call Logging.
System	Error, Print and Resource Status Prints

Note:

1. If VoIP call traverses a T1 ISDN, E1 ISDN, BRI ISDN or QSig line to get to its final destination.
2. If VoIP call traverses out over an Analogue Line to get to its final destination.
3. If VoIP call traverses out over a Channelized T1 Line to get to its final destination.
4. If in use by VPN Line or VoIP Extension.

Channelized T1 Line

Enable the following System Monitor settings:

Tab	Trace Options
T1	Line, Channel, Dialler, DSP and CAS.
Call	Line Send, Line Receive, Extension Send, Extension Receive, Extension RxP, Extension TxP, Short Code Msgs, Call Delta, Targeting and Call Logging.
System	Error, Print and Resource Status Prints

Related links

Example Monitor Settings on page 110

Chapter 11: IP Office Ports

Full details of the range of ports used by different releases of IP Office and IP Office applications are found in the Port Matrix documents at https://ipofficekb.avaya.com/businesspartner/ipoffice/mergedProjects/general/port_matrix/index.htm.

Related links

Ports on page 123
Protocols on page 125
IP Office System Ports on page 125
Voicemail Pro Ports on page 136
one-X Portal Server and Client Ports on page 138
Media Manager Ports on page 140
Customer Operations Manager (COM) on page 141
Port Changes Between Releases on page 142

Ports

The port being used by a data packet is displayed as `src=` followed by a port number.

For the following ports, SysMonitor also adds the protocol name taken from http://www.iana.org/assignments/port-numbers. For example `src=23` is displayed as `src=23 (Telnet)`.

Number	Protocol
20	File Transfer [Default Data]
21	File Transfer [Control]
23	Telnet
25	Simple Mail Transfer
37	Time
43	Who Is
53	Domain Name Server
67	Bootstrap Protocol Server
68	Bootstrap Protocol Client
69	Trivial File Transfer

Table continues…

Number	Protocol
70	Gopher
79	Finger
80	World Wide Web-HTTP
115	Simple File Transfer Protocol
123	Network Time Protocol
137	NETBIOS Name Service
138	NETBIOS Datagram Service
139	NETBIOS Session Service
156	SQL Service
161	SNMP
162	SNMPTRAP
179	Border Gateway Protocol
1719	H.323Ras
1720	H.323/H.245
1764	NA Monitor
1765	NA BLF/TAPI
1766	NA PCPartner
1755	NA Who-Is response
3851	NA Voicemail
3852	NA Network DTE
3867	NA SoloMail
50791	IPO Voicemail
50792	IPO Network DTE
50793	IPO Solo Voicemail
50794	IPO Monitor
50795	IPO Voice Networking
50796	IPO PCPartner
50797	IPO TAPI
50798	IPO Who-Is response
50799	IPO BLF
50800	IPO License Dongle
54050	BT Fusion

Related links

IP Office Ports on page 123

Protocols

The protocol being used by a data packet is shown as `pcol=` followed by a protocol number.

For the following common protocols, SysMonitor also adds the protocol name taken from http://www.iana.org/assignments/protocol-numbers. For example `pcol=1` is displayed as `pcol=1 (ICMP)`.

Number	Protocol	Monitor shows
1	Internet Control Message	ICMP
2	Internet Group Management	IGMP
6	Transmission Control	TCP
8	Exterior Gateway Protocol	EGP
9	Interior Gateway Protocol	IGP
17	User Datagram	UDP
41	Ipv6	IPV6
46	Reservation Protocol	PRSVP
47	General Routing Encapsulation	GRE
58	ICMP for IPv6	IPV6–ICMP
111	IPX in IP	IPX-In-IP
115	Layer Two Tunneling Protocol	L2TP
121	Simple Message Protocol	SMP

Related links

IP Office Ports on page 123

IP Office System Ports

The tables lists the ports required for IP Office services and applications such as IP Office Manager, System Status Application, SysMonitor.

Table 2: Ingress

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
22	TCP/SSH	No • Open	Admin terminal or SAL Gateway	Remote maintenance connection • Username + password

Table continues…

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
52	DNS	No • Open	DNS Client	IP Office acts as a DNS relay • None
67	UDP/DHCP	Yes • Open	DHCP clients such as IP Phones	IP Office DHCP service • None
67	UDP/BOOTP	Yes • Open	Manager	Manager BOOTP server for IP address and firmware for IP Office • None
69	UDP/TFTP	No • Open	Legacy Manager, Upgrade Wizard.	IP Office status, program data, UDP Whois. The information that is obtained can be controlled with security settings • Obfuscated password
80* (1-100)	TCP/HTTP	Yes • Open	File transfer Manager and phones, Web client, DECT R4 Provisioning, SoftConsole, WebSocket SCN, Voicemail Pro.	General purpose HTTP file and WebSocket server. Phone backup/restore and firmware download. • Some URIs RFC2617 Authenticated
123	NTP	No • Open	DECT R4, IP Office	NTP (RFC4330) Service - SNTP subset • None
161* (161, 1024-65535)	UDP/SNMP	Yes • Open	SNMP Agent	Read-only access to MIB entries • Community string
411	TCP/HTTPS	Yes • Open	H.232 phone	Phone settings files • None

Table continues…

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
443* (1-65535)	TCP/HTTPS	Yes • Open	Manager and phones, Web client, DECT R4 Provisioning, SoftConsole, WebSocket SCN, Voicemail Pro. SIP, H.323 phones	General purpose HTTPS file and WebSocket server. Secure phone backup/restore • Shared secret (Softphone) X.509 certificate (IP Office)
520	UDP/RIP	Yes • Open	Router	Exchange routing information with adjacent IP routers or receive information • None
546	UDP/DHCPv6	Yes • Closed	DHCPv6 clients	IP Office DHCPv6 service.
1300	TLS/H.323 signaling	Yes • Closed	H.323 Phone	Secure H.323 signaling from IP phones • None
1701	UDP/L2TP	Yes • Closed	Remote Network devices	From layer 2 tunnels to remote network devices • CHAP
1718	UDP/H.323 discovery	Yes • Filtered	H.323 phone	H.323 service to IP Phones • Shared secret (password) HMAC-SHA1-96
1719	UDP/H.323 status	Yes • Filtered	H.323 phone	H.323 service to IP Phones • Shared secret (password) HMAC-SHA1-96
1720	TCP/H.323 signaling	Yes • Filtered	H.323 phone	H.323 service to IP Phones • Shared secret (password) HMAC-SHA1-96
4097	TCP	No • Filtered	N/A	Debug (disabled) • None
5056* (1024- 64510)	UDP+TCP/SIP	Yes • Closed	SIP endpoint, SIP trunk, SIP Proxy	SIP extensions. • MD5 CHAP
5060* (1024-64510)	TCP+UDP/SIP	Yes • Closed	SIP endpoint, SIP trunk, SIP Proxy	SIP extensions • MD5 CHAP
5061* (1024-64510)	TLS/SIP	Yes • Closed	SIP endpoint, SIP trunk, SIP Proxy	SIP extensions • MD5 CHAP

Table continues…

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
5443	TCP/HTTPS	Yes • Open	Backup/ Restore client, UC client upgrade.	Secure server for solution backup/restore. Secure URI for VM listen for UC client. Upgrade for Hosted Deployment. Applies only to IP Office Linux and Application Server • None
5480	TCP/HTTPS	Yes • Open	Web interface for Virtual Appliance Management Infrastructure (VAMI)	Virtual Linux-based IP Office severs. No firewall configuration needed • Authenticated
5488	TCP	Yes • Open	CIM client for VAMI	Linux-based IP Office severs. No firewall configuration needed. • Authenticated
5489	Yes • Closed	Yes • Open	CIM client for VAMI	Linux-based IP Office severs. No firewall configuration needed. • Authenticated
7070	TCP/HTTPS	Yes • Open	Web Management client	Linux-based IP Office severs. • Username + password
7071	TCP/HTTPS	Yes • Open	Web Management client	Linux-based IP Office severs. • Username + password
7147	TCP/HTTPS	No • Open	Collaboration Services/SMA	IP Office Application Server and UCM. • Internal. Token based authentication.
7444	TCP/HTTPS	No • Open	IP Office User Portal	IP Office Application Server and UCM. • Username + password
8000	TCP/HTTP	No • Closed	Web Management client, Upgrade.	Upgrade web service. Log download • Username + password
8411	TCP/HTTP	Yes • Closed	H.323 phone	Phone settings files. Firmware download • None
8443* (1-65535)	TCP/HTTPS	Yes • Closed	Web Management client	- • None
9080	TCP/HTTP	No • Closed	Web Management client	- • Username + password

Table continues…

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
40750-50750	UDP/RTP UDP/RTCP	Yes • N/A	Media end points	IP Office Linux uses the port range 32768-61000 for RTP connections. IP500 V2 default 40750-50750 • None
40750-50750	UDP/SRTP UDP/SRTCP	Yes • N/A	Media end points	IP Office Linux uses the port range 32768-61000 for RTP connections. IP500 V2 default 40750-50750 • None
50780	UDP/ Proprietary	Yes • Open	Dongle application	Not used • None
50792	UDP/ Voicemail	Yes • Open	Voicemail server	Voicemail Pro media • None
50793	TCP/ Proprietary	Yes • Open	Solo Server	TAPI Wave Driver – audio stream interface for TAPI based applications • None
50794	UDP+TCP,SysMonitor	Yes • Open	System Monitor, DevLink.	Event, trace and diagnostics outputs • Password
50795	UDP, Voicenet	Yes • Open	SCN Trunks	Small Community Network peer to peer trunk signaling • None
50796	TCP/TLS	Yes • Open	IPOCC/ACCS	CTI link for Contact Center application • Password
50797	TCP/TAPI	Yes • Open	TAPI clients: CPA, PC Dialer, Web Agent	TAPI • None
50801	TCP/ Proprietary	Yes • Open	Voice Conferencing application	- • None
50802	TCP/ Proprietary	Yes • Open	IP Office Manager, Web Management	Whois #2 and Whois #3, TCP discovery • -
50804* (49152-65280)	TCP/ Proprietary	Yes • Open	IP Office Manager	IP Office configuration interface • HMAC SHA-1 challenge sequence

Table continues…

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
50805* (49152-65280)	TCP/TLS	Yes • Open	IP Office Manager	IP Office configuration interface secure (encrypted) • HMAC SHA-1 challenge sequence X.509 Certificate
50808* (49152-65280)	TCP/ Proprietary	Yes • Open	System Status Application	IP Office status information • HMAC SHA-1 challenge sequence
50809* (49152-65280)	TCP/TLS	Yes • Open	System Status Application	IP Office status information secure (encrypted) • HMAC SHA-1 challenge sequence
50812* (49152-65280)	TCP/ Proprietary	Yes • Open	IP Office Manager	IP Office security settings • HMAC SHA-1 challenge sequence
50813* (49152-65280)	TCP/TLS	Yes • Open	IP Office Manager	IP Office security settings secure (encrypted) • HMAC SHA-1 challenge sequence X.509 Certificate
50814* (49152-65280)	TCP/ Proprietary	Yes • Open	one-X server	IP Office CTI control for one-X • HMAC SHA-1 challenge sequence
50823	TCP	No • Closed	N/A	Debug IP Office Linux (disabled) • None
52233	TCP/HTTPS	Yes • Closed	WebLM client	WebLM server for licensing • X.509 certificate
56000-58000	UDP/RTP	No • Open	WebRTC Media gateway	Media endpoints • None

Egress

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
25	TCP/SMTP	Yes • N/A	SMTP email server	Email transmission from IP Office (TLS enforced) • None
37	UDP/TIME	Yes • N/A	Manager and VMPro	TIME (RFC868) Service • None

Table continues…

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
53	UDP/DNS	Yes • N/A	DNS server	Name Service • None
68	UDP/DHCP	Yes • N/A	DHCP server	IP Office obtaining DHCP address from a server • None
68	UDP/BOOTP	Yes • N/A	Manager	IP Office obtaining IP address and firmware • None
69	UDP/TFTP	Yes • N/A	Manager	IP Office obtaining firmware on behalf of phones • None
123	UDP/NTP	Yes • N/A	NTP server	NTP (RFC 4330) Service - SNTP • None
162*	UDP/SNMP	Yes • N/A	SNMP Receiver	Trap generation from IP Office • Community string
389	TCP/LDAP	Yes • N/A	LDAP service	Import of directory information from LDAP database • Kerberos 4 or simple password
443	TCP/HTTPS	Yes • N/A	SCEP server	SCEP to System Manager • Password
443	HTTPS	Yes • -	Google Cloud Storage	Subscription system backup, restore, and upgrade.
500	UDP/IKE	Yes • N/A	Remote device	Form IPSec association with remote security devices • Shared secret MD5 or SHA
514*	UDP+TCP/ Syslog	Yes • N/A	Syslog server	- • None
520	UDP/RIP	Yes • Open	Router	Exchange routing information with adjacent IP routers or receive information • None
547	UDP/DHCPv6	Yes • Closed	DHCPv6 Server	IP Office DHCPv6 IP address request.
3478*	UDP	Yes • N/A	STUN Server	- • None

Table continues…

Port (Range)	Protocol	Switchable • Default	External Device	Description • Authenticated
5060	UDP+TCP/SIP	Yes • N/A	c	- • MD5 CHAP
5061	TLS/SIP	Yes • N/A	SIP trunk	- • MD5 CHAP
5443	TCP/HTTPS	Yes • N/A	HTTPS server	Solution backup/restore using HTTPS • Username + password
6514	TLS/Syslog	Yes • N/A	Syslog server	- • None
10162	UDP/SNMP	Yes • N/A	SNMP trap	SNMP trap to System Manager • None
40750-50750*	UDP/RTP-RTCP UDP/SRTPSRTCP	Yes • N/A	Media end points	IP Office Linux uses the port range of 32768-61000 for RTP connections with the media server. IP500 V2 default 46750-50750 • None
50791	UDP/ Voicemail	Yes • N/A	Voicemail server	Voicemail Pro signaling/media • None
50795	UDP/Voicenet	Yes • N/A	SCN trunks	SCN peer to peer trunk signaling Legacy trunks only, WebSocket SCN uses 80/443 • None
50815	TCP/TLS	No • Open	one-X Portal	IP Office CTI control for one-X Portal • HMAC SHA-1 challenge sequence
52233	TCP/HTTPS	Yes • N/A	WebLM server	Used for WebLM licensing • X.509 certificate

Intra-Device

Port (Range)	Protocol	Switchable • Default	External Device	Description • Authenticated
4096	TCP	Yes • Open	IP Office SNMP Agent	- • Internal.
4444	TCP/JMX	Yes • Open	WebRTC signaling gateway	Management port used by WebRTC signal gateway to communicate with media gateway • Internal.

Table continues…

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
4445	TCP/JMX	Yes • Open		Messaging port used by WebRTC signal gateway to communicate with media gateway • Internal.
5005*	TCP	Yes • Open	RTCP monitoring	- • Internal.
5555	TCP	Yes • Open	WebRTC signaling gateway	Messaging port used by WebRTC signal gateway to communicate with media gateway • Internal.
5556	TCP/JMX	Yes • Open		Messaging port used by WebRTC signal gateway to communicate with media gateway • Internal.
6006	TCP	Yes • Open	QoS	- • Internal.
17777	TCP	Yes • Open	IP Office and Jade	Communication between IP Office and JADE • Internal.
42004*	TCP/SIP	Yes • Open	WebRTC signaling gateway	SIP client connections from IP Office • Internal.
42008*	TCP/SIP	Yes • Open		SIP trunk connections from IP Office • Internal.

* Configurable.

Schematic

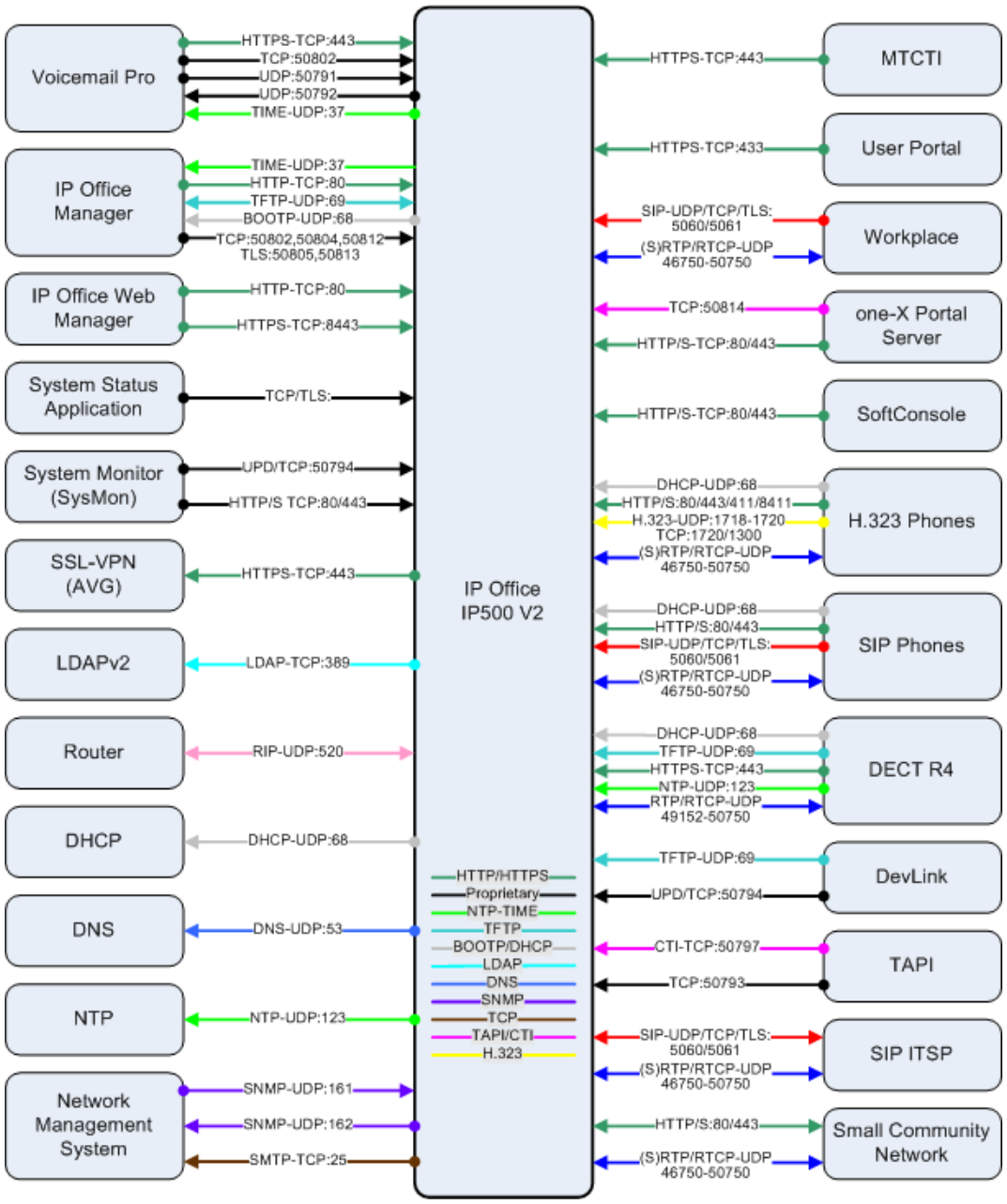


Figure 1: IP500 V2 connections

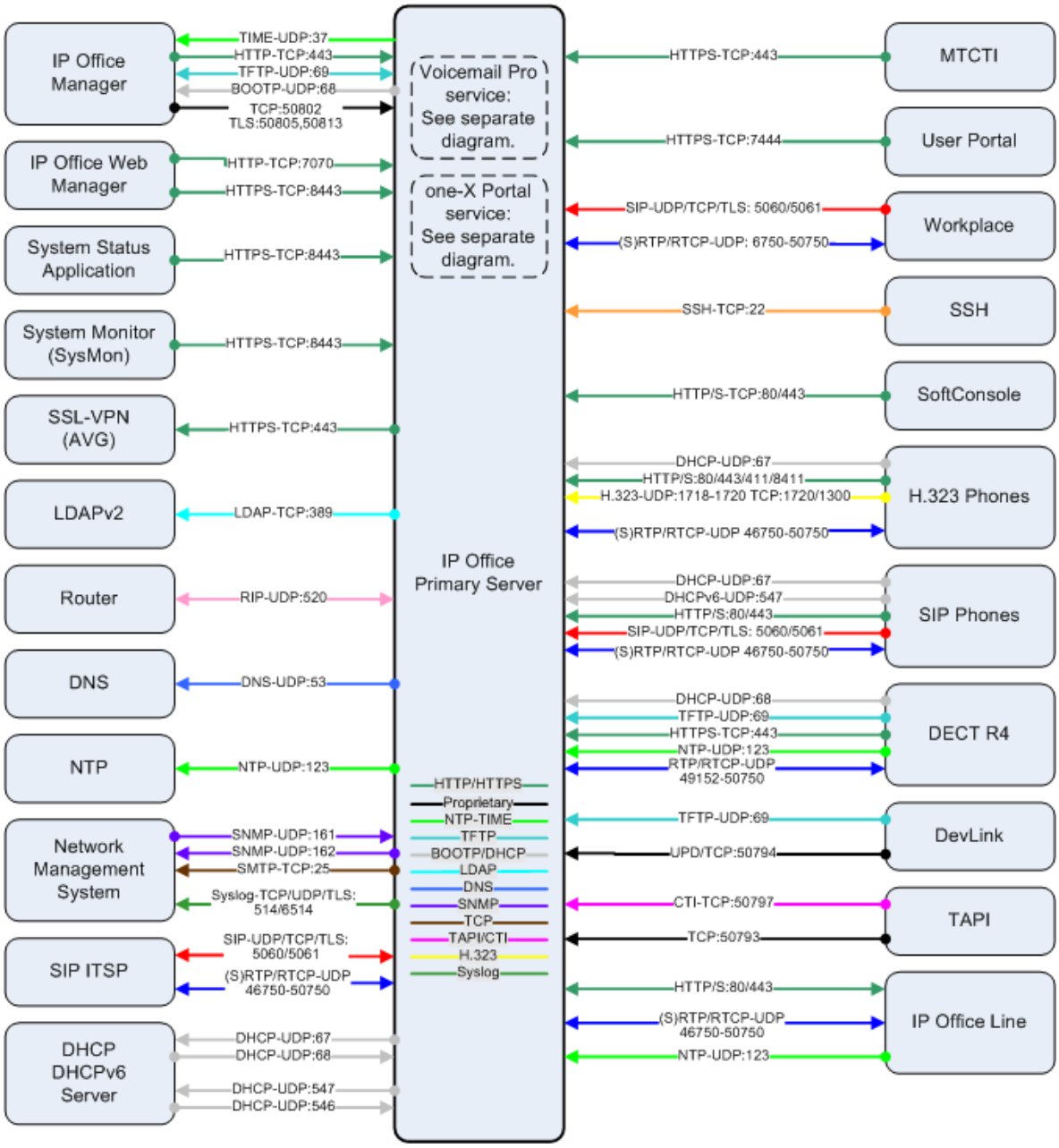


Figure 2: IP Office Server Edition primary connections

Related links

IP Office Ports on page 123

Voicemail Pro Ports

Ingress

Port (Range)	Protocol	Switchable • **Default**	Default State	External Device	Description • **Authenticated**
25	TCP/ SMTP/TLS	Yes	Open	SMTP	Voicemail Pro client for SMTP operations - TLS enforced. • None
37	UDP/TIME	Yes	Open	IP Office	TIME (RFC868) Service for IP Office • None
143	TCP/IMAP4	Yes	Open	IMAP4 client	Access to voicemails using IMAP4 over non-secure connection • None
993	IMAP4 – SSL	Yes	Open	IMAP4 client – SSL	Access to voicemails using IMAP4 over SSL connection • None
5443	TCP/HTTPS	No	Open	UC client, one-X Portal server	Secured share access to Voicemail Pro media files with one-X Portal server and UC clients. • None
50791	UDP/TCP/ Voicemail	Yes	Open	Voicemail Pro client	Communication with IP Office and one-X Portal • None

Egress

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
22	TCP/FTP	Yes • N/A	Media Manager Backup file server	FTP or SFTP • None
25	TCP/ SMTP/TLS	Yes • N/A	SMTP	Voicemail email integration - TLS enforced • None
443	TCP/HTTPS	Yes • N/A	Exchange server	Web service API client for Exchange integration • None

Table continues…

Port (Range)	Protocol	Switchable • Default	External Device	Description • Authenticated
50792	UDP/ Voicemail	Yes • N/A	IP Office	Voicemail Pro media • None
50792	SSL/ Voicemail	Yes • N/A	Exchange MAPI proxy	Exchange MAPI proxy connector • None
50793	SSL/ Voicemail	Yes • N/A	Exchange MAPI proxy	Exchange MAPI proxy connector • None
50802	TCP/ Proprietary	No • N/A	IP Office	Whois • None

Intra-Device

Port (Range)	Protocol	Switchable • Default	External Device	Description • Authenticated
25	TCP/ SMTP/TLS	Yes • Open	SMTP	Messaging and configuration updates between Voicemail Pro servers - TLS enforced • None

Schematic

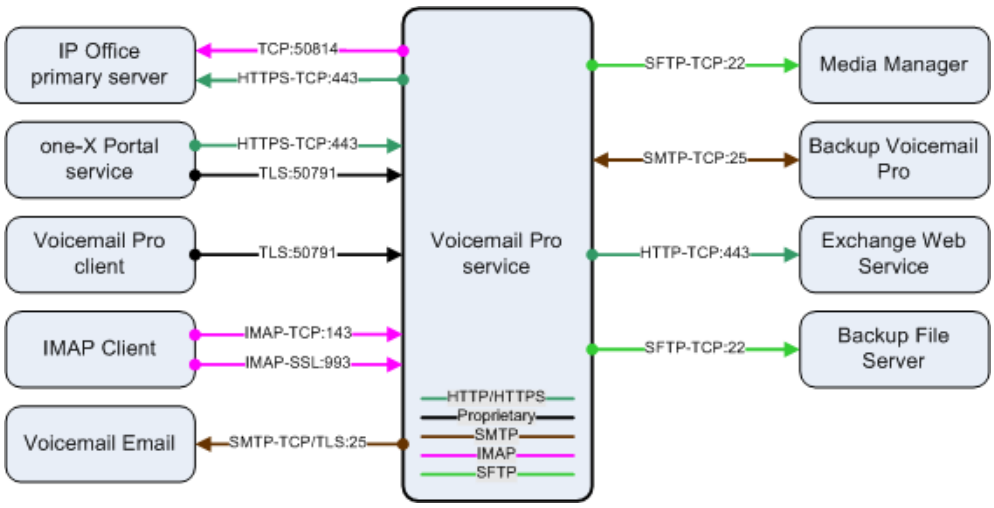


Figure 3: Voicemail Pro connections

Related links

IP Office Ports on page 123

one-X Portal Server and Client Ports

Ingress

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
4560	TCP/Log4j	No • Open	Log4j appender	-
5222	TCP/XMPP	Yes • Open	XMPP client	Instant message clients • Username + password
5269	TCP/XMPP	Yes • Open	XMPP federation	Instant message federation • Username + password
7171	TCP/BOSH	Yes • Open	OpenFire for BOSH	- • Username + password
7443	TCP/BOSH	Yes • Filtered	OpenFire for BOSH	- • Username + password
8005	TCP/Tomcat shutdown	No • Closed	Tomcat shutdown listener	- • -
8080	TCP/HTTP	Yes • Open	Web Client	one-X Portal • Username + password
8666	TCP/JMX	Yes • Open	Java extension	- • Username + password
9092	TCP/JDBC	No • Open	Database client listener	- • Username + password
9443	TCP/HTTPS	Yes • Open	Web Client, Media Manager client, WebRTC client	one-X Portal secure/ Media Manager/ WebRTC Gateway • Username + password X.509 Certificate
5433	TCP/JDBC	No • Open	one-X Portal	Geo-redundant one-X Portal server database sync. • Username + password
61615	TCP/ Proprietary	No • Open	one-X Portal	Geo-redundant one-X Portal server database sync. • Username + password

Egress

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
80/8000	TCP/HTTP	Yes • N/A	Voicemail Pro	Voicemail Pro communication with one-X Portal • None
50791	TCP/ Voicemail	yes • N/A	Voicemail Pro	Voicemail Pro communication with one-X Portal • None
50814 (49152-65280)	TCP/ Proprietary	Yes • N/A	IP Office	IP Office CTI control for one-X Portal • HMAC SHA-1 challenge sequence
50815	TCP/TLS	No • Open	IP Office	
5433	TCP/JDBC	No • Open	one-X Portal	Geo-redundant one-X Portal server database sync. • Username + password
61615	TCP/ Proprietary	No • Open	one-X Portal	Geo-redundant portal server status sync. • Username + password

Intra-Device

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
8086	TCP/HTTP	No • Open	XMPP	Internal REST interface • Internal, no firewall configuration required.
8667	TCP	Yes • Open	one-X Portal (Openfire)	Used by XMPP service for JMX connection. • Accessed by manual script from same host to take Openfire heap and thread.

Schematic

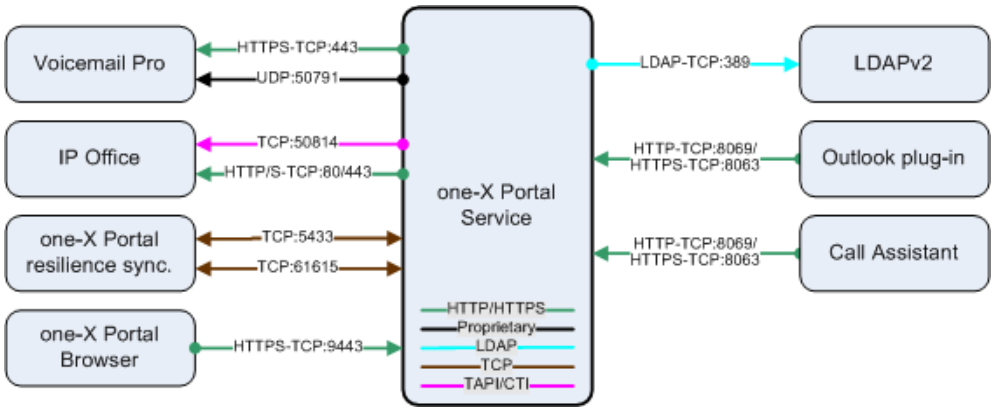


Figure 4: one-X Portal connections

Related links

IP Office Ports on page 123

Media Manager Ports

Ingress

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
49001	TCP/HTTP	Yes • Closed	Web client	HTTP Listener port. Used only during the one time Google authorization process. • None

Egress

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
49001	TCP/HTTP	Yes • Closed	Web client	HTTP Listener port. Used only during the one time Google authorization process. • None

Related links

IP Office Ports on page 123

Customer Operations Manager (COM)

Ingress

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
7080	HTTPS	No • Open	Web client	HTTP Listener port for COM admin client • Service User

Egress

Port (Range)	Protocol	Switchable • **Default**	External Device	Description • **Authenticated**
7070	HTTPS	No • Open	IP Office Primary, IP Office Secondary	Status and management traffic between COM and IP OfficeServer Edition. • None

Schematic

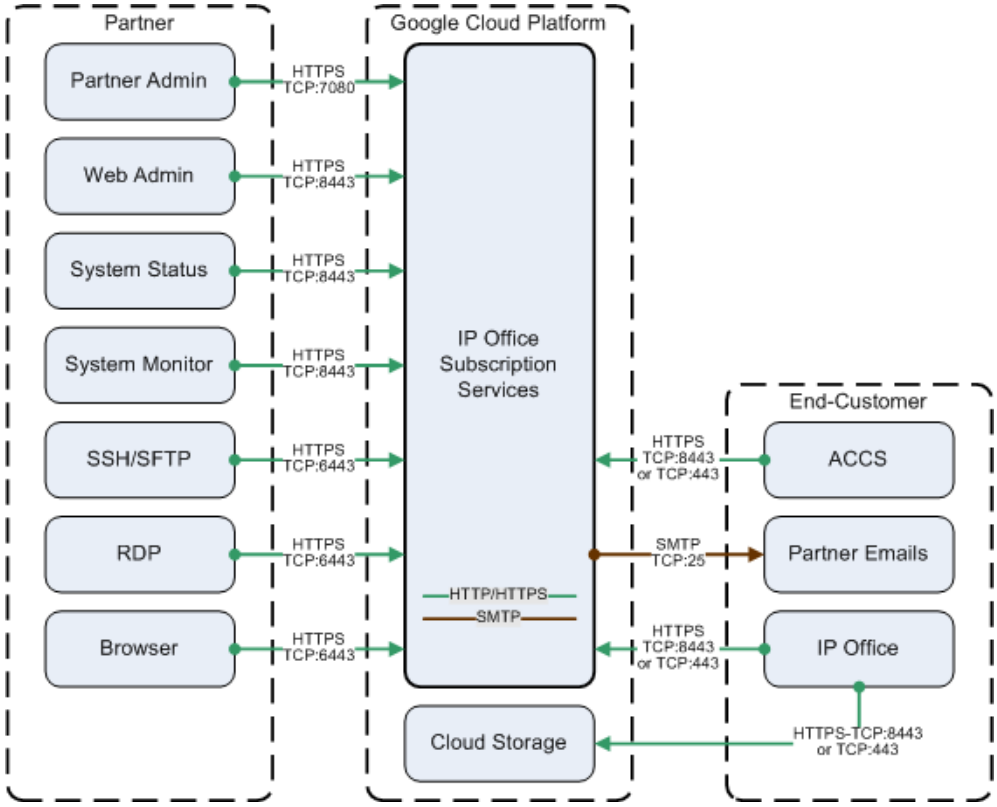


Figure 5: Subscription IP Office connections

Related links

IP Office Ports on page 123

Port Changes Between Releases

The following sections summarize the port changes that have occurred between different releases.

Related links

IP Office Ports on page 123
Port Changes from 8.1 FP1 to 9.0 on page 142
Port Changes from 9.0 to 9.0.3 on page 143
Port Changes from 9.0.3 to 9.1 on page 143
Port Changes from 9.1 to 10.0 on page 145
Port Changes from 10.0 to 10.1 on page 145
Port Changes from 10.1 to 11.0 on page 146
Port Changes from 11.0.0 to 11.1.0 on page 147
Port Changes from 11.1.0 to 11.1.1 on page 147
Port Changes from 11.1.1 to 11.1.2 on page 147
Port Changes from 12.0.0 to 12.1.0 on page 148

Port Changes from 8.1 FP1 to 9.0

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
21	TCP	Yes	Open	FTP	This port is used by FTP server for transferring VMPro recordings to Contact Store/ Contact Recorder.
22	TCP	Yes	Open	SFTP	This port is used by SFTP server for transferring VMPro recordings to Contact Store/ Contact Recorder.
7071	TCP/HTTPS	No	Open	Web Management client	Web control access IP Office Linux
8805	TCP/Tomcat shutdown	No	Open	Tomcat shutdown listener	This port is used by Contact Store/ Contact Recorder for internal activities.
9444	TCP/HTTPS	No	Open	Web client	This is the HTTP listener port.

Table continues…

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
9888	TCP/HTTP	No	Open	Web client	This is the HTTP listener port.
52233	TCP/HTTPS	Yes	N/A	Web LM server	WebLM licensing IP Office

Related links

Port Changes Between Releases on page 142

Port Changes from 9.0 to 9.0.3

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
Changed					
47000-54000 (Min start 1024, min end 2048)	UDP/RTP-RTCP	Yes	N/A	Media end points	IP Office Linux uses the port range 32768-61000 for RTP connections with the media server. Default range updated.

Related links

Port Changes Between Releases on page 142

Port Changes from 9.0.3 to 9.1

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
Added					
441	TCP/ HTTPS	Yes	Open	H.323 phone	Phone settings, backup/restore
4443	TCP/JMX	yes	Open	WebRTC signaling gateway	Management port user by WebRTC signaling gateway to communicate with Media gateway
4444	TCP/JMX	Yes	Open	WebRTC signaling gateway	Messaging port user by WebRTC signaling gateway to communicate with Media gateway

Table continues…

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
Added					
7171	TCP/BOSH	Yes	Open	OpenFire for BOSH	-
8086	TCP/HTTP	No	Open	XMPP	Internal REST interface
52233	TCP/ HTTPS	Yes	Closed	WebLM client	WebLM server for licensing
56000-58000 (Configurable)	UDP/SRTP	No	Open	WebRTC media gateway	Media endpoints
Changed					
40750-50750 (Min start 1024, min end 2048)	UDP/RTP-RTCP	Yes	N/A	Media end points	IP Office Linux uses the port range 32768-61000 for RTP connections with the media server. Default range updated.
Removed					
CCR Ingress					
80	TCP/HTTP	No	Open	Web client	
443	TCP/ HTTPS	No	Open	Web client	
1433	TCP/ MSSQL	No	Open	MSSQL	MSSQL server
1434	TCP/ MSSQL	No	Open	MSSQL	MSSQL monitor
8135	TCP/ Proprietary	No	Open	Wallboard	
8080	TCP/SOAP	No	Open	one-X Portal server	Communication with portal server
Removed					
CCR Egress					
25	TCP/SMTP	Yes	N/A	SMTP email server	Email transmission
50804	TCP/ Proprietary	No	N/A	IP Office	SSI client (system status information

Related links

Port Changes Between Releases on page 142

Port Changes from 9.1 to 10.0

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
Added					
IP Office Ingress					
1300	TCP/TLS	Yes	Closed	H.323 phone	Secure H.323 signalling to IP phones.
3478	UDP	Yes	N/A	STUN Server	Stun client in previous IP Office releases.
Portal Ingress					
9843	TCP/TLS	No	Open	Web Collaboration	Policy file check
Portal Intra					
5433	TCP/JDBC	No	Open	one-X Portal	Geo-redundant portal database sync.
61615	TCP/ Proprietary	No	Open	one-X Portal	Geo-redundant portal status sync.
Removed					
8063	TCP/ HTTPS	No	Open	Communication and portal plug-ins access to one-X Portal	-
8069	TCP/HTTP	No	Open	Communication and portal plug-ins access to one-X Portal	-
8444	TCP/ Proprietary	Yes	Open	Mobility client	Mobility client authentication
9094	TCP/XMP RPC	No	Open	-	OpenFire XML Remote Procedure Call and Admin console
9095	TCP/ HTTPS	No	Open	Administration console	OpenFire Admin Console

Related links

Port Changes Between Releases on page 142

Port Changes from 10.0 to 10.1

None

Related links

Port Changes Between Releases on page 142

Port Changes from 10.1 to 11.0

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
Added					
COM Ingress					
7080	HTTPS	No	Open	Web client	HTTP Listener for COM admin client browser.
COM Egress					
7070	HTTPS	No	Open	IP Office Primary, IP Office Secondary	Status and management traffic between COM and IP Office Server Edition.
Removed					
IP Office Ingress					
5807 (5800-5899)	TCP	Yes	Open	VNC Server	Used for VNC viewer
Contact Recorder Ingress					
8805	TCP/Tomcat shutdown	No	Open	Tomcat shutdown listener	
9444	TCP/HTTPS	No	Open	Web client	HTTP Listener port
98888	TCP/HTTP	No	Open	Web client	HTTP Listener port
Contact Recorder Egress					
21	TCP	Yes	Open	FTP	FTP server for transferring Voicemail Pro recordings to Contact Recorder.

Related links

Port Changes Between Releases on page 142

Port Changes from 11.0.0 to 11.1.0

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
Added					
8667	TCP	Enabled	Open	one-X Portal	Used for XMPP server for JMX connection.
Changed					
443	TCP/HTTPS	Yes	N/A	Avaya Space	OAuth 2.0
443	TCP/HTTPS	Yes	N/A	Subscription license server WebSocket	Authenticated username/ password + SHA256 CHAP
8443	TCP/HTTPS	Yes	N/A		

Related links

Port Changes Between Releases on page 142

Port Changes from 11.1.0 to 11.1.1

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
Added					
50815	TCP/TLS	No	Open	one-X Portal	IP Office CTI control for one-X Portal.
443	HTTPS	Yes	-	Google Cloud Storage	Subscription system backup, restore, upgrade, etc.
50815	TCP/TLS	No	Open	IP Office	IP Office CTI control for one-X Portal.

Related links

Port Changes Between Releases on page 142

Port Changes from 11.1.1 to 11.1.2

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
Ports Added					

Table continues…

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
7444	TCP/HTTPS	No	Open	User Portal	IP Office Application Server and UCM
7147	TCP/HTTPS	No	Open	Collaboration Services/SMA	
Ports Changed					
8000	TCP/HTTP	Yes	Now Closed by default.	Web Management client upgrade	Upgrade web service. Log download.
8411	TCP/HTTP	Yes		SIP/H323 Phone	Phone settings files, firmware download, backup/restore.
9080	TCP/HTTP	Yes		Web Management client	

Related links

Port Changes Between Releases on page 142

Port Changes from 12.0.0 to 12.1.0

Port: Default (Range)	Protocol	Switch On/Off	Default State	External Device	Description
Ports Added					
546	UDP/DHCPv6	Yes	Closed	DHCPv6 client	–
547	UDP/DHCPv6	Yes	Closed	DHCPv6 Server	

Related links

Port Changes Between Releases on page 142

Chapter 12: Addendum

This section covers additional information.

Related links

[Decoding FEC Errors](#) on page 152
[Miscellaneous](#) on page 154

Cause Codes (ISDN)

When a call is ended, a cause code may be shown in the system monitor trace. The cause code is not an error as cause codes are shown at the end of normal calls.

- Cause codes 0 to 102 are standard Integrated Services Digital Network (ISDN) cause codes. Causes codes 103 upwards are system specific codes.

To display cause codes, ensure that the **System Monitor** > **Call** > **Extension** > **Send** option is enabled. The cause code is displayed as part of `CMExtnTx:` events within the monitor trace. For example:

```
10185mS CMExtnTx: v=100, p1=1
CMReleaseComp
Line: type=DigitalExtn 3 Call: lid=0 id=-1 in=0
UUI type=Local [....] [0x03 0x00 0x00 0x00 ]
Cause=16, Normal call clearing
Timed: 12/07/05 11:00
```

Cause codes and definition

Cause Code	Definition
0	Unknown.
1	Unallocated (unassigned) number.
2	No route to specific transit network/(5ESS)Calling party off hold.
3	No route to destination / (5ESS) Calling party dropped while on hold.
4	Send special information tone / (NI-2) Vacant Code..
5	Misdialed trunk prefix.
6	Channel unacceptable.

Table continues…

Cause Code	Definition
7	Call awarded and being delivered.
8	Preemption/(NI-2)Prefix 0 dialed in error.
9	Preemption, cct reserved / (NI-2) Prefix 1 dialed in error.
10	(NI-2) Prefix 1 not dialed.
11	(NI-2) Excessive digits received call proceeding.
16	Normal call clearing.
17	User busy.
18	No user responding / No response from remote device.
19	No answer from user.
20	Subscriber absent (wireless networks).
21	Call rejected.
22	Number changed.
23	Redirection to new destination.
25	Exchange routing error.
26	Non-selected user clearing.
27	Destination Out Of Order.
28	Invalid number format.
29	Facility rejected.
30	Response to STATUS ENQUIRY.
31	Normal, unspecified.
34	No cct / channel available.
38	Network out of order.
39	Permanent frame mode connection out of service.
40	Permanent frame mode connection is operational.
41	Temporary failure.
42	Switching equipment congestion.
43	Access information discarded
44	Requested cct / channel not available
45	Pre-empted
46	Precedence blocked call
47	Resources unavailable/(5ESS)New destination
49	Quality of service unavailable
50	Requested facility not subscribed
52	Outgoing calls barred.

Table continues…

Cause Code	Definition
54	Incoming calls barred
57	Bearer capability not authorised.
58	Bearer capability not presently available.
63	Service or option not available, unspecified.
65	Bearer capability not implemented.
66	Channel type not implemented.
69	Requested facility not implemented.
70	Only restricted digital bearer capability is available.
79	Service or option not implemented, unspecified.
81	Invalid call reference.
82	Identified channel does not exist.
83	A suspended call exists, but this id does not.
84	Call id in use.
85	No call suspended.
86	Call having the requested id has been cleared.
87	User not a member of Closed User Group.
88	Incompatible destination.
90	Non-existent Closed User Group.
91	Invalid transit network selection.
95	Invalid message, unspecified.
96	Mandatory information element missing.
97	Message type non-existent/not implemented.
98	Message not compatible with call state, non-existent or not implemented.
99	Information element non-existent or not implemented.
100	Invalid information element contents.
101	Message not compatible with call state / (NI-2) Protocol threshold exceeded.
102	Recovery on timer expiry.
IP Office Specific Cause Codes	
103	Parameter not implemented.
110	Message with unrecognised parameter
111	Protocol error, unspecified
117	Parked (Internal system code).
118	UnParked (Internal system code).
119	Pickup (Internal system code).

Table continues…

Cause Code	Definition
120	Reminder (Internal system code).
121	Redirect (Internal system code).
122	Call Barred (Internal system code).
123	Forward To Voicemail (Internal system code).
124	Answered By Other (Internal system code).
125	No Account Code (Internal system code).
126	Transfer (Internal system code).
129	Held Call (Internal system code).*
130	Ring Back Check (Internal system code).*
131	Appearance Call Steal (Internal system code).*
132	Appearance Bridge Into (Internal system code).*
133	Bumped Call (Internal system code).*
134	Line Appearance Call (Internal system code).+
135	Unheld Call (Internal system code).+
136	Replace Current Call (Internal system code).+
137	Glare (Internal system code).+
138	R21 Compatible Conf Move (Internal system code).+
139	RingBack Answered (Internal system code).+
140	Transfer Request Failed (Internal system code).+
141	HuntGroup Drop (Internal system code).+

Decoding FEC Errors

This section describes about decoding the Fast Ethernet Controller (FEC) receiver error (`PRN`) statements that appear in the log. These `Fast Ethernet Controller` error messages are shown when the **System/Print** option is enabled.

For example: `PRN: IP403_FEC::ReceiverError 844`

The message format is: `PRN: PLATFORM_FEC::ReceiverError ABCD`

Where:

- PRN: Indicates that message was output as the result of having the **System/Print** option enabled.
- PLATFORM: Indicates the type of system control unit reporting the error. The possible values are IP401NG (Small Office Edition), IP403, IP406, IP406V2 (shows as IP405 in Version 2.1(27)) and IP412.

- ABCD: This is the actual error code. It is a decode of the *Ethernet Receive Buffer Descriptor* packet. Note that if the most significant byte (A) is 0 (zero) it is not printed and the error code is only three characters long (BCD).

FEC: *ReceiverError Codes* are derived from the *Ethernet Receive Buffer Descriptor (RxBD)*. The table shows the bits within the RxBD that are used to generate the error codes. The **N/U** labeled options are not used in the FEC error decoding mechanism although they may be non zero.

Byte	Bit	Value	Option	Description
A	0	8	N/U	May be non-zero but not used for FEC decode.
	1	4	N/U	
	2	2	N/U	
	3	1	N/U	
B	4	8	L	Last in frame. • 0: The buffer is not the last in the frame. • 1: The buffer is the last in the frame.
	5	4	0	Always zero
	6	2	0	Always zero
	7	1	N/U	May be non-zero but not used for FEC decode.
C	8	8	N/U	May be non-zero but not used for FEC decode.
	9	4	N/U	
	10	2	LG	Length Error: Rx frame length violation. The frame length exceeds the value of `MAX_FRAME_LENGTH` in the bytes. The hardware truncates frames exceeding 2047 bytes so as not to overflow receive buffers This bit is valid only if the **L** bit is set to **1**.
	11	1	NO	Non-Octet: A frame that contained a number of bits not divisible by 8 was received and the CRC check that occurred at the preceding byte boundary generated an error. **NO** is valid only if the **L** bit is set and **CR** bit is not set.
D	12	8	SH	Short Frame: A frame length that was less than the minimum defined for this channel was recognized.
	13	4	CR	CRC Error: This frame contains a CRC error and is an integral number of octets in length. This bit is valid only if the **L** bit is set.
	14	2	OV	Overrun Error: A receive FIFO overrun occurred during frame reception. If **OV** is set to **1**, the other status bits, **LG**, **NO**, **SH**, **CR**, and **CL** lose their normal meaning and are cleared. This bit is valid only if the L bit is set.
	15	1	TR	Truncate Error: Set if the receive frame is truncated (≥ 2 Kilobytes)

```
PRN: IP403_FEC::ReceiverError 844
```

The error code in the above example is 844. You can decode the message produced using information given in table.

- Byte A is 0 and so was not shown.
- Byte B is 8, which is 1000 in binary, so bit 4 (L) is set.
- Byte C is 4, which is 0100 in binary, so bit 9 (N/U) is set.
- Byte D is 4, which is 0100 in binary, so bit 13 (CR) is set.

Related links

Addendum on page 149

Miscellaneous

- What does the message *PRN: FEC::ReceiverError* mean?

  FEC stands for Fast Ethernet Controller (100mb LAN). The **ReceiverError** line is followed by a number that denotes the exact problem.

  Basically it is stating that the system received a packet that it considers wrong or corrupt in some way or perhaps there was a collision so it threw it away, the packet would then have been re-sent. This is does not normally indicate a problem and is nothing to worry about unless the error's are streaming in the trace. See Decoding FEC errors on page 152.

- What does the message *PRN: UDP: Sending from indeterminate address to 0a000003 3851* mean?

  The port number 3851 at the end indicates that the system is looking for an IP Office Voicemail Server.

  If your system is not using voicemail, remove the entry in the **Voicemail IP Address** field, found on the **Voicemail** tab of the **System** form in the system configuration.

Related links

Addendum on page 149

Chapter 13: Additional Help and Documentation

The following pages provide sources for additional help.

Related links

Additional Manuals and User Guides on page 155
Getting Help on page 155
Finding an Avaya Business Partner on page 156
Additional IP Office resources on page 156
Training on page 157

Additional Manuals and User Guides

The Avaya Documentation Center website contains user guides and manuals for Avaya products including IP Office.

- For a listing of the current IP Office manuals and user guides, look at the Avaya IP Office™ Platform Manuals and User Guides document.
- The Avaya IP Office Knowledgebase and Avaya Support websites also provide access to the IP Office technical manuals and users guides.
  - Note that where possible these sites redirect users to the version of the document hosted by the Avaya Documentation Center.

For other types of documents and other resources, visit the various Avaya websites (see Additional IP Office resources on page 156).

Related links

Additional Help and Documentation on page 155

Getting Help

Avaya sells IP Office through accredited business partners. Those business partners provide direct support to their customers and can escalate issues to Avaya when necessary.

If your IP Office system currently does not have an Avaya business partner providing support and maintenance for it, you can use the Avaya Partner Locator tool to find a business partner. See Finding an Avaya Business Partner on page 156.

Related links

Additional Help and Documentation on page 155

Finding an Avaya Business Partner

If your IP Office system currently does not have an Avaya business partner providing support and maintenance for it, you can use the Avaya Partner Locator tool to find a business partner.

Procedure

1. Using a browser, go to the Avaya Website at https://www.avaya.com
2. Select **Partners** and then **Find a Partner**.
3. Enter your location information.
4. For IP Office business partners, using the **Filter**, select **Small/Medium Business**.

Related links

Additional Help and Documentation on page 155

Additional IP Office resources

In addition to the documentation website (see Additional Manuals and User Guides on page 155), there are a range of website that provide information about Avaya products and services including IP Office.

- Avaya Website (https://www.avaya.com)

  This is the official Avaya website. The front page also provides access to individual Avaya websites for different regions and countries.

- **Avaya Sales & Partner Portal** *(*https://sales.avaya.com*)*

  This is the official website for all Avaya business partners. The site requires registration for a user name and password. Once accessed, you can customize the portal to show specific products and information type that you want to see.

- **Avaya IP Office Knowledgebase** *(*https://ipofficekb.avaya.com*)*

  This site provides access to an online, regularly updated version of IP Office user guides and technical manual.

- **Avaya Support** *(*https://support.avaya.com*)*

This site provide access to Avaya product software, documentation and other services for Avaya product installers and maintainers.

- **Avaya Support Forums** *(*https://support.avaya.com/forums/index.php*)*

  This site provides forums for discussing product issues.

- **International Avaya User Group** *(*https://www.iuag.org*)*

  This is the organization for Avaya customers. It provides discussion groups and forums.

- **Avaya DevConnect** *(*https://www.devconnectprogram.com/*)*

  This site provides details on APIs and SDKs for Avaya products, including IP Office. The site also provides application notes for third-party non-Avaya products that interoperate with IP Office using those APIs and SDKs.

- **Avaya Learning** *(*https://www.avaya-learning.com/*)*

  This site provides access to training courses and accreditation programs for Avaya products.

Related links

Additional Help and Documentation on page 155

Training

Avaya training and credentials ensure our Business Partners have the capabilities and skills to successfully sell, implement, and support Avaya solutions and exceed customer expectations. The following credentials are available:

- Avaya Certified Sales Specialist (APSS)
- Avaya Implementation Professional Specialist (AIPS)
- Avaya Certified Support Specialist (ACSS)

Credential maps are available on the Avaya Learning website.

Related links

Additional Help and Documentation on page 155

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