Avaya IP Office™ Platform Server Edition Reference Configuration

Release 12.0
Issue 23
November 2024

© 2020-2024, Avaya LLC
All Rights Reserved.

Notice

While reasonable efforts have been made to ensure that the information in this document is complete and accurate at the time of printing, Avaya assumes no liability for any errors. Avaya reserves the right to make changes and corrections to the information in this document without the obligation to notify any person or organization of such changes.

Documentation disclaimer

“Documentation” means information published in varying media which may include product information, subscription or service descriptions, operating instructions and performance specifications that are generally made available to users of products. Documentation does not include marketing materials. Avaya shall not be responsible for any modifications, additions, or deletions to the original published version of Documentation unless such modifications, additions, or deletions were performed by or on the express behalf of Avaya. End user agrees to indemnify and hold harmless Avaya, Avaya's agents, servants and employees against all claims, lawsuits, demands and judgments arising out of, or in connection with, subsequent modifications, additions or deletions to this documentation, to the extent made by End user.

Link disclaimer

Avaya is not responsible for the contents or reliability of any linked websites referenced within this site or Documentation provided by Avaya. Avaya is not responsible for the accuracy of any information, statement or content provided on these sites and does not necessarily endorse the products, services, or information described or offered within them. Avaya does not guarantee that these links will work all the time and has no control over the availability of the linked pages.

Warranty

Avaya provides a limited warranty on Avaya hardware and software. Please refer to your agreement with Avaya to establish the terms of the limited warranty. In addition, Avaya’s standard warranty language as well as information regarding support for this product while under warranty is available to Avaya customers and other parties through the Avaya Support website: https://support.avaya.com/helpcenter/getGenericDetails?detailId=C20091120112456651010 under the link “Warranty & Product Lifecycle” or such successor site as designated by Avaya. Please note that if the product(s) was purchased from an authorized Avaya channel partner outside of the United States and Canada, the warranty is provided by said Avaya Channel Partner and not by Avaya.

“**Hosted Service**” means an Avaya hosted service subscription that You acquire from either Avaya or an authorized Avaya Channel Partner (as applicable) and which is described further in Hosted SAS or other service description documentation regarding the applicable hosted service. If You purchase a Hosted Service subscription, the foregoing limited warranty may not apply but You may be entitled to support services in connection with the Hosted Service as described further in your service description documents for the applicable Hosted Service. Contact Avaya or Avaya Channel Partner (as applicable) for more information.

Hosted Service

THE FOLLOWING APPLIES ONLY IF YOU PURCHASE AN AVAYA HOSTED SERVICE SUBSCRIPTION FROM AVAYA OR AN AVAYA CHANNEL PARTNER (AS APPLICABLE), THE TERMS OF USE FOR HOSTED SERVICES ARE AVAILABLE ON THE AVAYA WEBSITE, HTTPS://SUPPORT.AVAYA.COM/LICENSEINFO UNDER THE LINK “Avaya Terms of Use for Hosted Services” OR SUCH SUCCESSOR SITE AS DESIGNATED BY AVAYA, AND ARE APPLICABLE TO ANYONE WHO ACCESSES OR USES THE HOSTED SERVICE. BY ACCESSING OR USING THE HOSTED SERVICE, OR AUTHORIZING OTHERS TO DO SO, YOU, ON BEHALF OF YOURSELF AND THE ENTITY FOR WHOM YOU ARE DOING SO (HEREINAFTER REFERRED TO INTERCHANGEABLY AS “YOU” AND “END USER”), AGREE TO THE TERMS OF USE. IF YOU ARE ACCEPTING THE TERMS OF USE ON BEHALF A COMPANY OR OTHER LEGAL ENTITY, YOU REPRESENT THAT YOU HAVE THE AUTHORITY TO BIND SUCH ENTITY TO THESE TERMS OF USE. IF YOU DO NOT HAVE SUCH AUTHORITY, OR IF YOU DO NOT WISH TO ACCEPT THESE TERMS OF USE, YOU MUST NOT ACCESS OR USE THE HOSTED SERVICE OR AUTHORIZE ANYONE TO ACCESS OR USE THE HOSTED SERVICE.

Licenses

The Global Software License Terms (“Software License Terms”) are available on the following website https://www.avaya.com/en/legal-license-terms/ or any successor site as designated by Avaya. These Software License Terms are applicable to anyone who installs, downloads, and/or uses Software and/or Documentation. By installing, downloading or using the Software, or authorizing others to do so, the end user agrees that the Software License Terms create a binding contract between them and Avaya. In case the end user is accepting these Software License Terms on behalf of a company or other legal entity, the end user represents that it has the authority to bind such entity to these Software License Terms.

Copyright

Except where expressly stated otherwise, no use should be made of materials on this site, the Documentation, Software, Hosted Service, or hardware provided by Avaya. All content on this site, the documentation, Hosted Service, and the product provided by Avaya including the selection, arrangement and design of the content is owned either by Avaya or its licensors and is protected by copyright and other intellectual property laws including the sui generis rights relating to the protection of databases. You may not modify, copy, reproduce, republish, upload, post, transmit or distribute in any way any content, in whole or in part, including any code and software unless expressly authorized by Avaya. Unauthorized reproduction, transmission, dissemination, storage, or use without the express written consent of Avaya can be a criminal, as well as a civil offense under the applicable law.

Virtualization

The following applies if the product is deployed on a virtual machine. Each product has its own ordering code and license types. Unless otherwise stated, each Instance of a product must be separately licensed and ordered. For example, if the end user customer or Avaya Channel Partner would like to install two Instances of the same type of products, then two products of that type must be ordered.

Third Party Components

The following applies only if the H.264 (AVC) codec is distributed with the product. THIS PRODUCT IS LICENSED UNDER THE AVC PATENT PORTFOLIO LICENSE FOR THE PERSONAL USE OF A CONSUMER OR OTHER USES IN WHICH IT DOES NOT RECEIVE REMUNERATION TO (i) ENCODE VIDEO IN COMPLIANCE WITH THE AVC STANDARD (“AVC VIDEO”) AND/OR (ii) DECODE AVC VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED TO PROVIDE AVC VIDEO. NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE. ADDITIONAL INFORMATION MAY BE OBTAINED FROM MPEG LA, L.L.C. SEE HTTP://WWW.MPEGLA.COM.

Service Provider

WITH RESPECT TO CODECS, IF THE AVAYA CHANNEL PARTNER IS HOSTING ANY PRODUCTS THAT USE OR EMBED THE H.264 CODEC OR H.265 CODEC, THE AVAYA CHANNEL PARTNER ACKNOWLEDGES AND AGREES THE AVAYA CHANNEL PARTNER IS RESPONSIBLE FOR ANY AND ALL RELATED FEES AND/OR ROYALTIES. THE H.264 (AVC) CODEC IS LICENSED UNDER THE AVC PATENT PORTFOLIO LICENSE FOR THE PERSONAL USE OF A CONSUMER OR OTHER USES IN WHICH IT DOES NOT RECEIVE REMUNERATION TO: (i) ENCODE VIDEO IN COMPLIANCE WITH THE AVC STANDARD (“AVC VIDEO”) AND/OR (ii) DECODE AVC VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED TO PROVIDE AVC VIDEO. NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE. ADDITIONAL INFORMATION FOR H.264 (AVC) AND H.265 (HEVC) CODECS MAY BE OBTAINED FROM MPEG LA, L.L.C. SEE HTTP://WWW.MPEGLA.COM.

Compliance with Laws

You acknowledge and agree that it is Your responsibility to comply with any applicable laws and regulations, including, but not limited to laws and regulations related to call recording, data privacy, intellectual property, trade secret, fraud, and music performance rights, in the country or territory where the Avaya product is used.

Preventing Toll Fraud

“Toll Fraud” is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf). Be aware that there can be a risk of Toll Fraud associated with your system and that, if Toll Fraud occurs, it can result in substantial additional charges for your telecommunications services.

Avaya Toll Fraud intervention

If You suspect that You are being victimized by Toll Fraud and You need technical assistance or support, please contact your Avaya Sales Representative.

Security Vulnerabilities

Information about Avaya’s security support policies can be found in the Security Policies and Support section of https://support.avaya.com/security.

Suspected Avaya product security vulnerabilities are handled per the Avaya Product Security Support Flow (https://support.avaya.com/css/P8/documents/100161515).

Trademarks

The trademarks, logos and service marks (“Marks”) displayed in this site, the Documentation, Hosted Service(s), and product(s) provided by Avaya are the registered or unregistered Marks of Avaya, its affiliates, its licensors, its suppliers, or other third parties. Users are not permitted to use such Marks without prior written consent from Avaya or such third party which may own the Mark. Nothing contained in this site, the Documentation, Hosted Service(s) and product(s) should be construed as granting, by implication, estoppel, or otherwise, any license or right in and to the Marks without the express written permission of Avaya or the applicable third party.

Avaya is a registered trademark of Avaya LLC.

All non-Avaya trademarks are the property of their respective owners.

Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.

Downloading Documentation

For the most current versions of Documentation, see the Avaya Support website: https://support.avaya.com, or such successor site as designated by Avaya.

Contact Avaya Support

See the Avaya Support website: https://support.avaya.com for Product or Cloud Service notices and articles, or to report a problem with your Avaya Product or Cloud Service. For a list of support telephone numbers and contact addresses, go to the Avaya Support website: https://support.avaya.com (or such successor site as designated by Avaya), scroll to the bottom of the page, and select Contact Avaya Support.

Contents

Part 1: Introduction 6
- **Chapter 1: Purpose** 7
  - Support 7
- **Chapter 2: IP Office Server Edition** 8
  - Topology 8
  - Test strategy summary 9
- **Chapter 3: Customer requirements** 11
  - Business continuity 11
  - Remote access 11
  - Resilience 12
    - Topology of voicemail resilience 15
    - Topology of portal resiliency 16
    - Phone Resilience 18
  - Backup and restore 19

Part 2: Components 21
- **Chapter 4: Server Edition Components** 22
- **Chapter 5: IP500 V2 Systems** 23
  - IP Office IP500 V2 control unit 23
  - Feature key 25
  - Base cards 25
  - Trunk cards 27
  - External expansion modules 28
- **Chapter 6: Administration applications** 30
  - IP Office Manager 30
  - Server Edition Manager 31
  - Web Manager 33
  - System Status Application (SSA) 33
  - SysMonitor 34
  - Customer Operations Manager 35
  - SNMP Management Console 35
- **Chapter 7: User applications** 37
  - IP Office User Portal 37
  - Avaya Workplace Client 37
  - Avaya one-X® Portal for IP Office 40
  - SoftConsole 41
- **Chapter 8: IP Office Conferencing** 44
  - Conferencing 44
  - Ad hoc conference 46

Meet-Me conferencing 46
Chapter 9: Voicemail Services 48
Embedded Voicemail 48
Voicemail Pro 48
IP Office Media Manager 49
Part 3: Design 51
Chapter 10: Design Considerations 52
Caveats and limitations 52
Platform and application security details 52
IP Office Server Edition versus Preferred Edition 55
Part 4: Configuration 58
Chapter 11: Network Configuration 59
Server Edition single server reference configuration 59
Server Edition dual servers reference configuration 59
Server Edition multiple servers reference configuration 60
Server Combinations and Usage 60
Chapter 12: Configuration Details 61
Port assignments 61
Traffic and quality of service 62
Part 5: Further Help 63
Chapter 13: Additional Help and Documentation 64
Additional Manuals and User Guides 64
Getting Help 64
Finding an Avaya Business Partner 65
Additional IP Office resources 65
Training 66
Glossary 67

Part 1: Introduction

Chapter 1: Purpose

This document describes IP Office network, architecture, suggested deployment topologies, system capacities and product interoperability. This document also describes the functional limitations of specific configurations. With this information, sales design specialists can make decisions about designs that meet the business needs of a customer.

This document is intended for people who determine the best design to meet a customer's business needs.

Support

Go to the Avaya Support website at https://support.avaya.com for the most up-to-date documentation, product notices, and knowledge articles. You can also search for release notes, downloads, and resolutions to issues. Use the online service request system to create a service request. Chat with live agents to get answers to questions, or request an agent to connect you to a support team if an issue requires additional expertise.

Chapter 2: IP Office Server Edition

IP Office Server Edition provides IP Office telephony capabilities, unified communications, mobility, and collaboration. It also provides high availability, ease of use, and low total cost of ownership (TCO). Targeted at the midsize enterprise, IP Office Server Edition supports up to 150 sites, 3000 users, and comprehensive resilience.

IP Office Server Edition Solution provides the following:

- A single Server Edition Primary server provides IP Office, Voicemail Pro, and Avaya one-X Portal for IP Office.
- A Server Edition Secondary server increases the capacity and provide resilience.
- Expansion systems, which provide additional capacity, support analog or digital interfaces, and remote locations.
- A Select IP Office Server Edition Solution provides additional capacity.
- Support for an existing IP500 V2 control unit optimized for a hybrid of analog/TDM and IP deployments, or a Linux server optimized for IP only deployments.
- Users and extensions can be configured on the IP Office Server Edition server or the Server Edition Expansion System.
- Software distribution includes the various user and administration applications such as IP Office Manager, SSA, Voicemail Pro, and IP Office SoftConsole.
- Components can be in the same location or in different locations.
- Optionally configure a separate application server dedicated to Avaya one-X Portal to provide more user capacity than the Server Edition Primary supports.
- Add additional servers and expansion systems any time.

.

Topology

IP Office Server Edition is based on a double star network topology that provides comprehensive features and their management, enables ease of use, installation, and administration. The overall solution provides a flexible and modular architecture starting with a single server and you can scale up the number of users and locations by networking multiple servers. The components automatically act as a single logical unit and you can administer the components from a single console through an integrated management system.

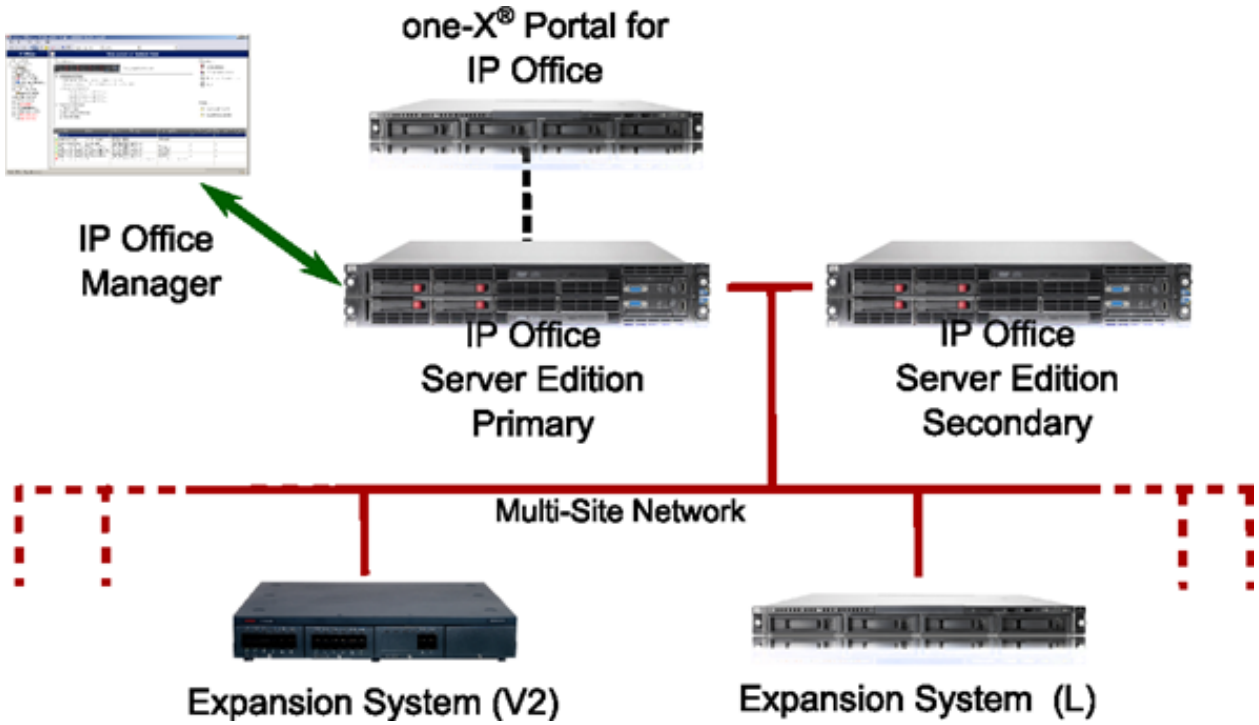


Figure 1: IP Office Server Edition topology

Deployment models

Centralized IP only	One primary server located at the customer headquarters
Centralized IP analog and digital	One primary server and one expansion server located at the customer headquarters
Distributed IP only	One primary server located at the customer headquarters and one secondary server located at a remote location
Distributed IP analog and digital	One primary server and one expansion system located at the customer headquarters and one expansion system located at each remote site
Virtualized environment	Customer-provided software and hardware VMware vSphere platform with IP Office Server Edition and application server OVA ignited as a primary, secondary, expansion or application server.

Test strategy summary

Solution level testing is important to provide a solution that meets the quality expectations of customers. The following test strategy descriptions are not exhaustive for all test run but highlight the areas of importance from a solution perspective.

Solution level testing

Testing and validation was conducted at the solution level and the component level to ensure performance and stability of the solution. In-depth regression testing was performed on new elements (web clients) and component interfaces.

Performance testing

Full capacity testing was conducted with call progress analysis (CPA), call recording, agents, supervisor activities enabled and run simultaneously. Performance testing also included standard PBX features for standard calls.

CPA accuracy

The CPA accuracy was tested under full load and against PRI and SIP trunks. The type of trunk or the conditions of a service provider SIP trunk can impact CPA accuracy.

Power up testing

Testing to determine if the system can be powered up without administrator intervention and in various sequences was performed.

Recovery after power outage

Testing to determine if the system becomes operational without administrator intervention after a power outage was performed.

Recovery after component outage

Testing to determine if the system becomes operational after a component failure and reboot was performed.

Staging implementation testing

The preconfigured (staged) system was tested to verify the preconfigured settings and interconnections.

Chapter 3: Customer requirements

IP Office Server Edition is provides telephony capabilities, unified communications, mobility and collaboration, provides high availability, ease of use, and low total cost of ownership (TCO). Targeted at the Midsize Enterprise, it supports up to 32 sites, 2000 users and comprehensive resilience. A Server Edition Select deployment supports up to 150 sites and 3000 users.

Related links

Business continuity on page 11
Remote access on page 11
Resilience on page 12
Backup and restore on page 19

Business continuity

IP Office Server Edition Solution offers business continuity features to maintain a high level of service in the event of any network or device outage to ensure normal operation.

A combination of the various remote access features, resilience, and redundancy ensures business continuity.

- Avaya one-X® Portal for IP Office
- Remote worker telephone
- Components such as IP Office, IP telephones, Voicemail Pro, and hunt groups provide resilience
- Links and trunks provide resilience through network topology and PSTN backup

Related links

Customer requirements on page 11

Remote access

You can access IP Office Server Edition Solution remotely.

Some of the components that can be accessed remotely are:

- System Status Application
  - RBAC username and password
  - Password is securely exchanged, optional TLS for security
  - SSA port can be disabled
- System Monitor
  - Role based access control (RBAC) user name and password
  - Optional HTTPS for security
- SSL VPN or IP Office Support Services
  - The system uses HTTPS and TLS channel
  - Password is securely exchanged
  - Prompts for periodic rekeying
- Mobility and Avaya one-X® Portal clients
  - User name and password is the IP Office configuration, and administered through IP Office Server Edition Manager

Related links

Customer requirements on page 11

Resilience

A single Server Edition Primary server supports redundant hard disk drives and power supply units. You can also configure Alternate Route Selection.

Add a Server Edition Secondary to provide resilience at any level. The Server Edition Secondary Server provides resilience for the Server Edition Primary Server users, H.323 and SIP extensions, hunt groups, and voicemail without any administration. The Server Edition Secondary server can provide resilience for Avaya one-X® Portal for IP Office.

A Server Edition Expansion System can be backed up to either the Server Edition Primary, Server Edition Secondary, or another Server Edition Expansion System. The dual star Multi-Site Network topology when a Server Edition Secondary Server is present supports diverse routing between all nodes.

For Server Edition Select deployments, IP Office Lines (SCN trunks) can be configured between Server Edition Expansion Systems. Hunt groups can be configured local to the Expansion system and resiliency for hunt groups and phones can be configured, with failover to the Server Edition Primary, Server Edition Secondary, or another Server Edition Expansion System.

At all times, no server hardware is forced to be idle, enabling you decide whether to provide true redundancy, or shared resource resilience.

The IP Office Server Edition Solution provides resilience for supported H.323 phones, SIP endpoints, and DECT R4 deployments. IP Office Lines between systems can be configured to

allow control to be automatically passed to a backup IP Office when the home system is not available.

Resilient components

The following components of IP Office Server Edition Solution are resilient:

- IP Office Server Edition
- Voicemail Pro server
- Avaya one-X® Portal server
- H.323 telephones
- SIP endpoints
- DECT R4
- Hunt groups
- Interdevice links
- Trunks
- Incoming Call Routes
- Management

Multisite network

A multisite network enhances resilience by providing the following capabilities:

- Transparency for most of the features
- Resilience of users and hunt groups
- Back up system for Voicemail Pro
- Network topology provides resilience
- None of the hardware is idle
- Simple to activate resilience

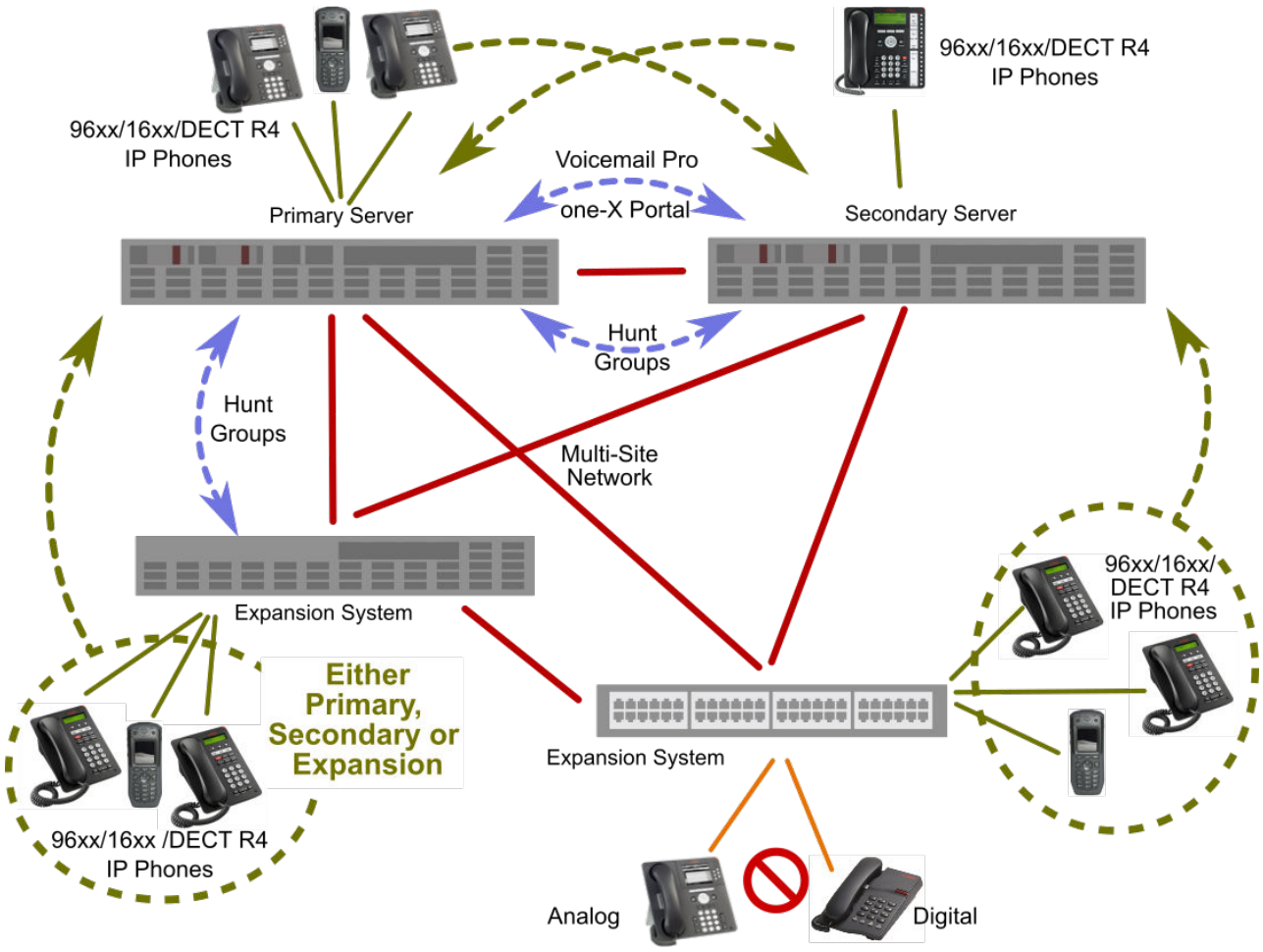


Figure 2: Resiliency Architecture

Resilient management

You can continue to administer and manage the failure of IP Office Server Edition server and devices in an IP Office Server Edition Solution network through the Server Edition Secondary Server. This provides management without the offline capability, and a facility to realign the configuration after the outages have been resolved. The resynchronization feature highlights the time and source of configuration change and enables the administrator to decide which change set to retain. In addition, you can directly manage each device and application to allow configuration whilst isolated. You can use the resynchronization capability to realign the configurations after the devices are reconnected.

Related links

Customer requirements on page 11
Topology of voicemail resilience on page 15
Topology of portal resiliency on page 16
Phone Resilience on page 18

Topology of voicemail resilience

One Active Voicemail Pro server

Server Edition supports one active Voicemail Pro server on the Server Edition Primary server. A backup Voicemail Pro server is supported on the Server Edition Secondary server for resiliency.

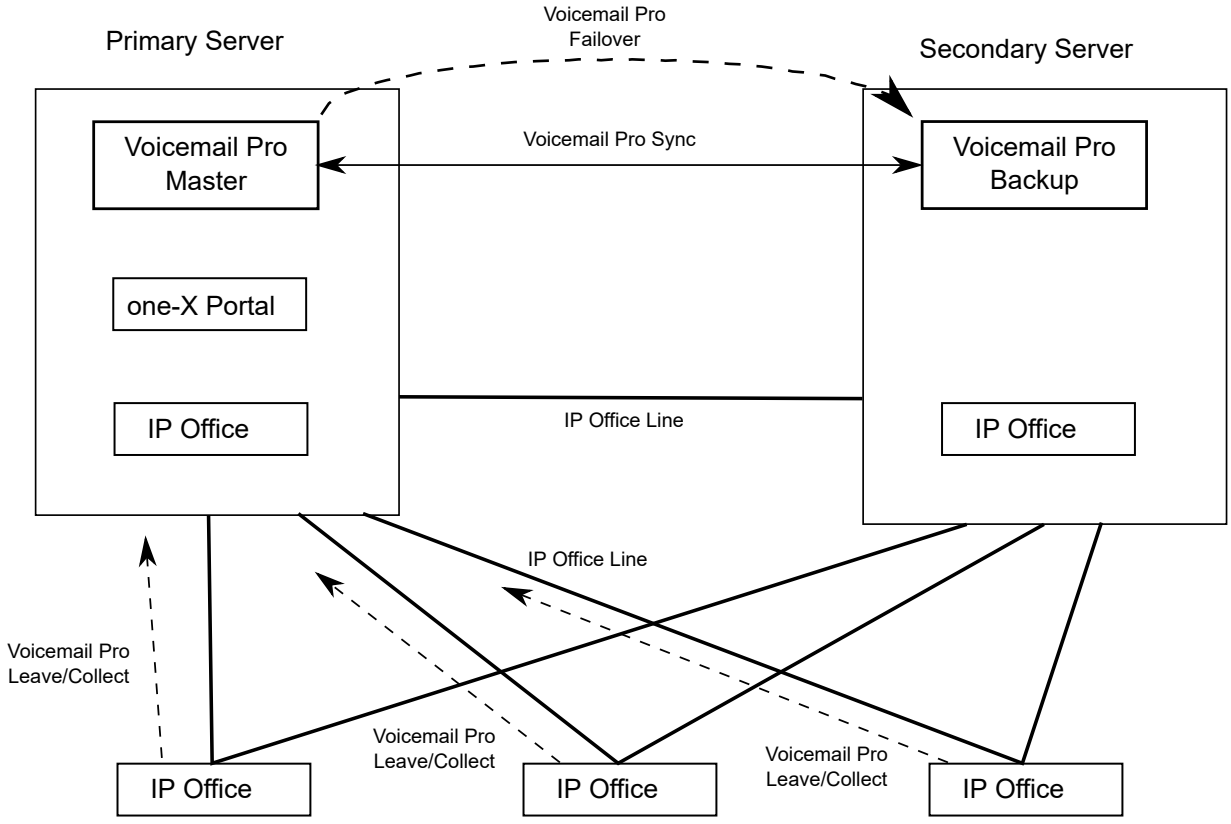


Figure 3: One active Voicemail Pro server

Dual Active Voicemail Pro servers

Server Edition Select and subscription deployments can support two active Voicemail Pro servers, doubling the maximum channel capacity and dual processing locations. Each expansion system and all contained users can be configured to use one or the other. Each Voicemail Pro server provides backup for the other. The two Voicemail Pro servers are both active for a configured subset of users. They share a common configuration and message store. Each can support all mailboxes, message waiting indicators (MWI) and call flows under failure conditions.

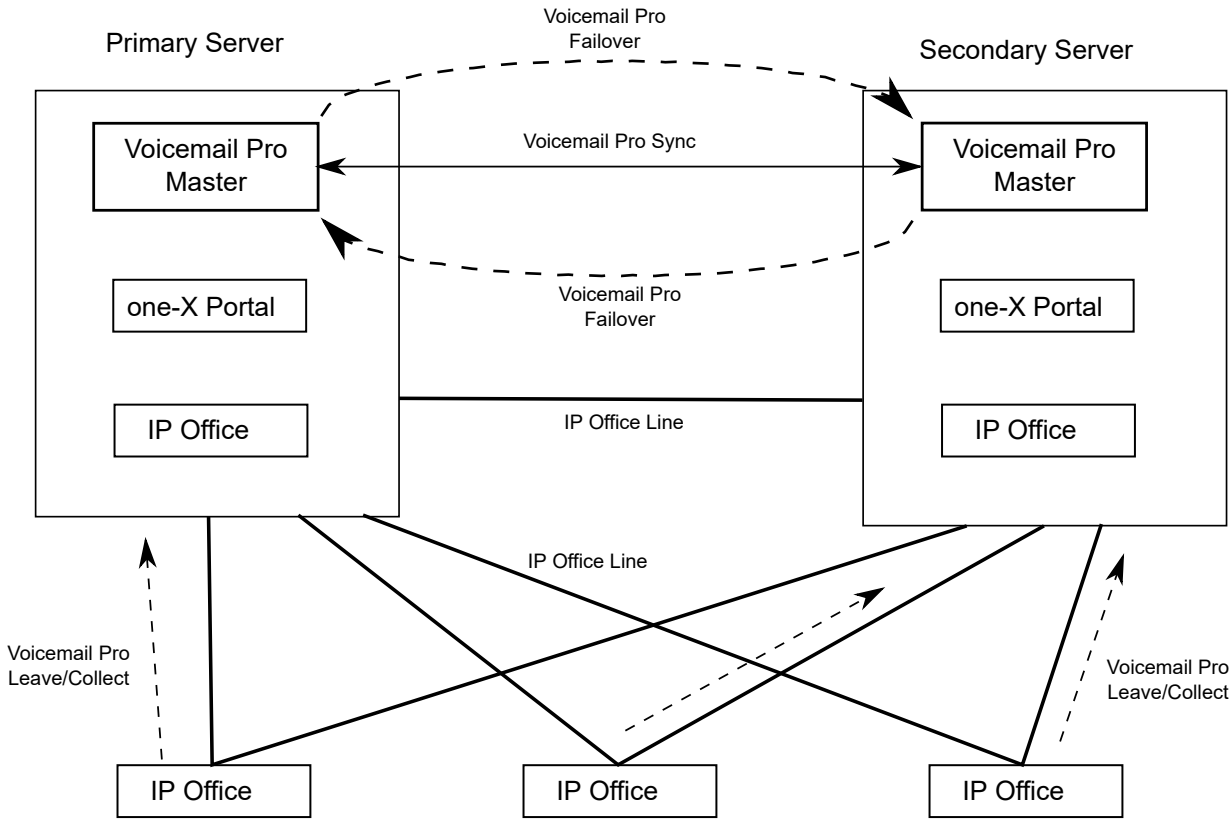


Figure 4: Dual Active Voicemail Pro servers

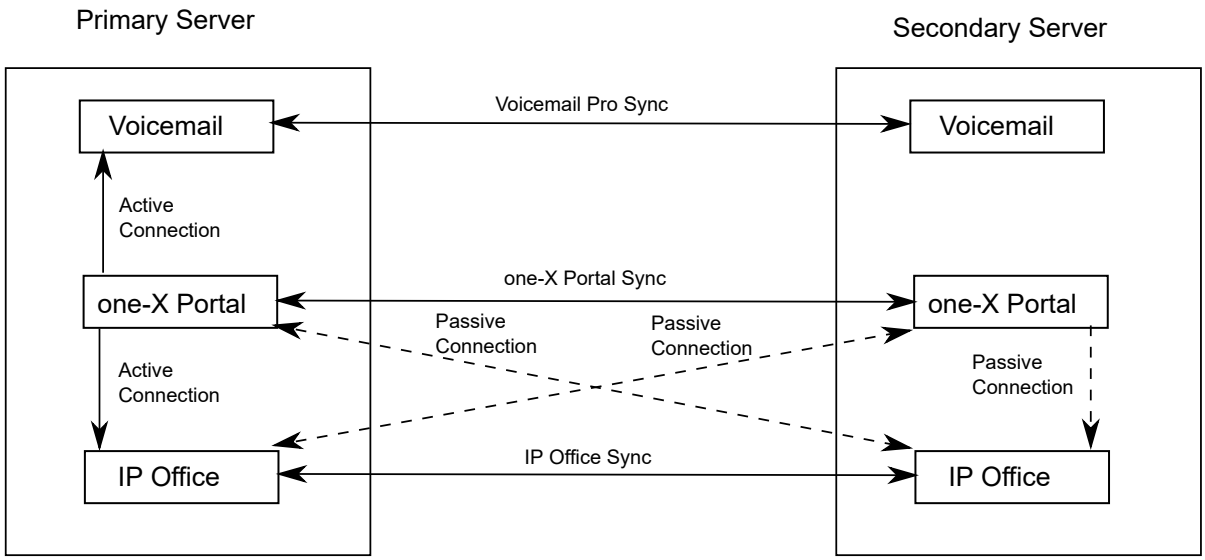
Related links

Resilience on page 12

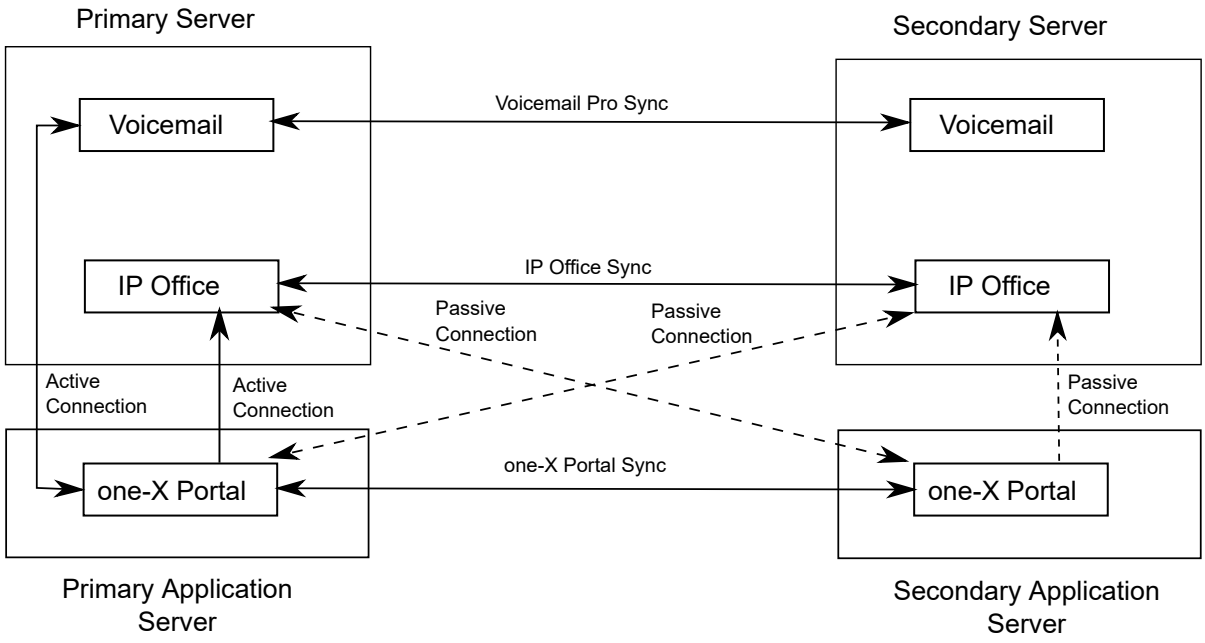
Topology of portal resiliency

Server Edition Select and subscription deployments support a backup portal server. The resilient portal server is installed by default on the secondary server though it can also be located on standalone application server associated with the secondary.

Resilient one-X Portal on the primary and secondary servers



Resilient portal on standalone application servers



Related links

Resilience on page 12

Phone Resilience

Phone Failover

When phone resilience is configured, the home system shares information about the registered phones and users on those phones with the backup system. If the home system is no longer visible to the phones, failover occurs and the phones register with the backup system.

Phone Failback

If the phone's home system has been up for more than 10 minutes, the system causes idle phones to perform a failback to the home system. If the phone is unable to connect to the home system, there is a five minute grace period, referred to as homeless prevention, where the phone can be logged in to either the home or backup system.

Automatic failback to the home system is the default mode. Failback can be configured to operate manually. This may be desired if for example, the home system will be unavailable for some time. In manual mode, failback does not occur until the phone has been logged out or rebooted.

Note:

Manual failback is not supported for SIP phones.

Notes on Phone Resiliency Behavior

- Failover handover takes a minimum of 3 minutes (longer for larger networks). This ensures that failover is not invoked when it is not required; for example, when the home system is simply being rebooted to complete a non-mergeable configuration change.
- Failover is only intended to provide basic call functionality while the cause of failover occurring is investigated and resolved. If users make changes to their settings while in failover, for example changing their DND mode, those changes will not apply after failback.
- Calls anchored on the home system lose all voice paths during failover. Direct media calls in a stable state might maintain voice paths until the next call event, but this is not guaranteed.
- If the failover system is rebooted while it is providing failover services, the failover services are lost.
- Failover features require that the phones local to each system are still able to route data to the backup system when the home system is not available. This will typically require each system site to be using a separate data router.
- When an IP phone fails over, the backup system allows it to operate indefinitely as a "guest", but only until the system resets. Licenses will never be consumed for a guest phone.
- Hot desking users are automatically logged out. When their base extension fails back to the home system, the user is automatically logged in on their base extension.
- The media security configuration should be the same on all systems. For example, if an extensions home system is set to **Best Effort**, the failover system should also be set to **Best Effort**.
- For secure communication using TLS/SRTP, all IP Office systems must have an identity certificate that has been signed by the same trusted root CA.
- Failover provides only basic call functionality for Avaya Workplace Client and call logs generated while connected to the backup server will not be available after failback.

- The primary and secondary servers should have the same configurations of Avaya cloud account authorization. If Avaya cloud account authorization is enabled on primary server and you have logged in with Avaya cloud account authorization, use the same login in secondary server during failover.

Supported Network Configurations

Phone resiliency is supported between any IP Office systems linked through an IP Office Line with **Networking Level** set to **SCN**. This includes failover from an IP500 V2 system to another IP500 V2 system.

For Server Edition deployments, failover from one node to any other node in the solution is supported.

Resiliency can be configured by specifying a **Location** with a unique IP address for the backup system.

Related links

Resilience on page 12

Backup and restore

IP Office Server Edition supports a variety of backup and restore features to preserve and optionally reinstate both configuration and data in the event of an equipment failure. The Server Edition Primary offers a flexible and secure, manual or scheduled solution backup to an external server (which can optionally be the Server Edition Secondary). Each server and expansion system including Application Server with Avaya one-X® Portal for IP Office can be configured to copy configuration, mailbox, and call recordings data. In addition local daily backups are supported.

Manager

- Saves all IP Office device configuration and templates on Server Edition Primary.
- Save IP Office device configuration and templates to a local drive of a computer.
- Restore IP Office device configuration from a local drive of the computer or the Server Edition Primary.

Web Manager

- Centralized back up and restore of all Server Edition components.
- Back up and restore individual Voicemail Pro mailboxes.
- Provides scheduling options for automated backup.

Server Edition Primary

- Backup or restore using solution administration web portal for each service or for the whole solution. You can take a backup of up to 15 sets on a local drive or another Linux—based IP Office server.
- Recover a corrupted or failed server configuration, application and user data.
- Configure each local application backup to the local drive, and use default or predefined directories.

Server Edition Expansion System (V2)

- Back up to the local SD card.
- Back up manually through phone, Manager. Also a fixed automatic backup every 24-hours.
- Back up configuration, security, and binary files as a single file set.
- Restore through Manager or phone command or automatically as a result of boot failure.

Server Edition Expansion System(L)

- Back up to the local hard drive.
- Back up manually through Phone, Manager. Also a fixed automatic backup every 24-hours.
- Back up configuration, security, and binary files as a single file set.
- Restore through a Manager or phone command, or as a result of boot failure.

Voicemail Pro

- Back up to a local drive of Server Edition Primary server.
- Back up manually or periodically (daily, weekly, monthly) through Voicemail Pro Client.
- Options to backup content which can include configuration and messages
- Back up multiple backup file sets up to a maximum of 4 file sets.
- Restore through the Web Control Panel. The restore is a complete backup data set.

Avaya one-X® Portal for IP Office

- Back up the Avaya one-X® Portal for IP Office database, Presence and Mobility settings to a local drive or an FTP server.
- Back up manually using Avaya one-X® Portal for IP Office by logging in as a *Superuser*.
- Back up multiple backup file sets (unlimited).
- Restore using Avaya one-X® Portal for IP Office by logging in as a *Superuser*.

Related links

Customer requirements on page 11

Part 2: Components

Chapter 4: Server Edition Components

Component	Server options	Description
Server Edition Primary	Dell R640 Dell R240	Software distribution includes: • IP Office Server Edition • Voicemail Pro • Avaya one-X® Portal for IP Office
Server Edition Secondary		Optional component to support resilience either centrally or at a remote site.
Server Edition Expansion System		Optional component to support remote locations. Up to 148 expansion systems provide additional capacity, support analog or digital interfaces, and local trunks at remote sites. Can be set up either centrally or at a remote site.
Application server		You can optionally configure a separate application server dedicated to Avaya one-X® Portal to provide more Power User capacity above the maximum that the Server Edition Primary supports.
Server Edition Expansion System	IP500 V2	Optional component to support remote locations and as a gateway. Can be an existing IP500 V2 or IP Office Server Edition server. Can be set up either centrally or at a remote site.

Virtualized environment components

Avaya provides a virtualized equivalent to the IP Office Server Edition and applications server packaged as a single OVA ready for installation on vSphere supported host hardware from a PC.

The OVA is available as a download from Avaya or on an orderable DVD. Once deployed, it can be ignited as a primary, secondary, expansion or applications server.

Chapter 5: IP500 V2 Systems

IP Office IP500 V2 is a set of stackable hardware units that can be optionally 19" rack mounted or wall mounted.

The core of IP500 V2 systems is the IP500 V2 control unit. Various trunk and base cards can be added to tto connect non-IP trunks and extensions. The system can be further expanded by adding IP500 expansion modules with provide additional ports for non-IP trunks and extensions. The IP500 V2 also support connection of IP trunks and phones.

- IP500 V2 systems can run in all the supported IP Office modes. In IP Office Server Edition or Select systems, they can be added as IP Office Server Edition expansion systems, allowing non-IP phones and trunks to be incorporated into those systems.
- The newer IP500 V2A control unit has replaced the IP500 V2 control unit. They are physically and functionally the same, except where specifically stated otherwise.

Related links

IP Office IP500 V2 control unit on page 23
Feature key on page 25
Base cards on page 25
Trunk cards on page 27
External expansion modules on page 28

IP Office IP500 V2 control unit

The IP Office IP500 V2 control unit is a stackable unit with an optional 19" rack mounting kit and wall mounting kits.

The IP500 V2 control unit has 4 slots for the insertion of IP500 base cards. The slots are numbered 1 to 4 from left to right. Normally they can be used in any order, however if the capacity for a particular type of card is exceeded, the card in the rightmost slot will be disabled.

Each base card includes an integral front panel with ports for cable connections. Typically the first 8 ports on the left are for connection of extension devices. The 4 ports on the left are used for connection of trunks if a trunk daughter card is added to the base card.

The control unit provides the following functionality:

Maximum extensions	Up to 384 extensions.
Conference parties	128 as standard but maximum 64 in any individual conference. Silence suppression is applied to conferences with more than 10 parties.
Trunk cards	Up to 4.
Voice compression channels	Up to 148 channels using up to VCM and combination cards.
Voicemail channels	Up to 250 voicemail/recording channels supported on the Primary server. For Select deployments, the Secondary server can also support up to 250 voicemail/recording channels.
Locales	Supported in the following countries: Argentina, Australia, Bahrain, Belgium, Brazil, Canada, Chile, China, Colombia, Customize, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, India, Ireland, Italy, Japan, Korea, Kuwait, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Norway, Oman, Pakistan, Peru, Poland, Portugal, Qatar, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Turkey, United Arab Emirates, United Kingdom, United States, Venezuela.
Power supply	Internal power supply unit.
Mounting	Free-standing, rack mounted or wall mounted (requires mounting kits).
Memory	Maximum configuration file size: 2048 KB.

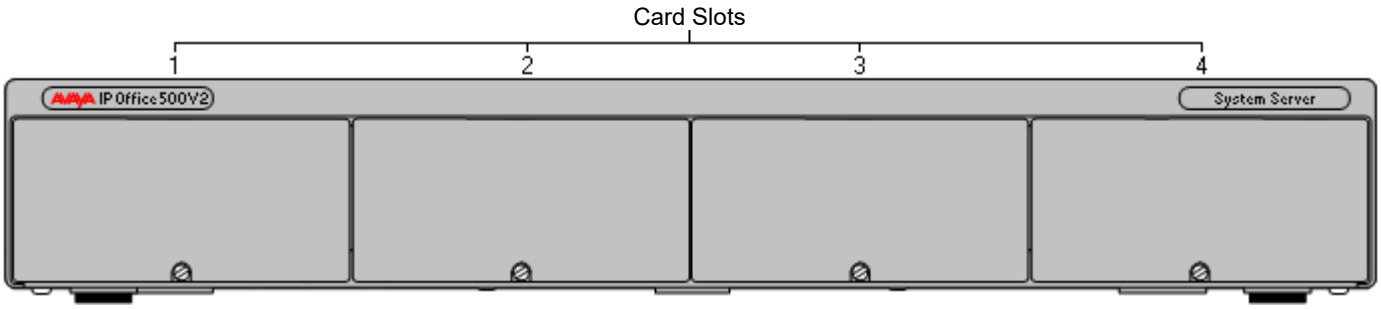


Figure 5: IP500 V2 front view

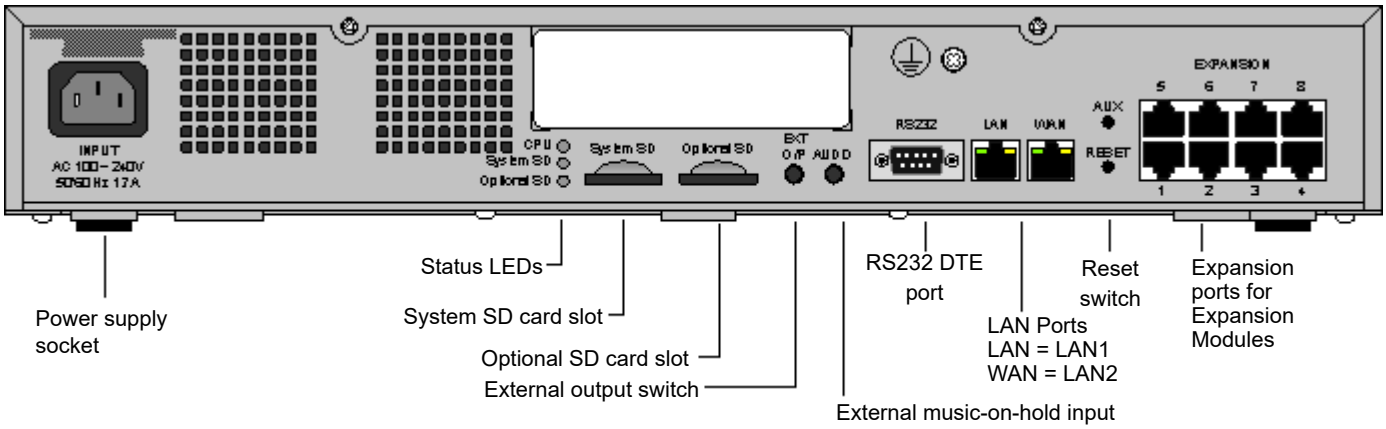


Figure 6: IP500V2 rear view

Related links

IP500 V2 Systems on page 23

Feature key

The serial number of the feature key SD card fitted to the IP Office control unit is used as the basis for all licenses issued for that IP Office system and is used to regularly validate the licenses. If the feature key SD card is removed, over the next few hours licensed features will stop operating.

The serial number is also used for the subscriptions in subscription mode IP Office systems.

Related links

IP500 V2 Systems on page 23

Base cards

The following base cards are available:

Table 1: IP500V2 base cards

Base card	Per system	Notes
Digital Station (DS8)	3	Not supported by IP500 V2A control units. • Ports 1–8: Digital stations • Ports 9–12: Trunk connections

Table continues…

Base card	Per system	Notes
Digital Station (DS8A)	4	• Ports 1–8: Digital stations • Ports 9–12: Trunk connections
Analog Phone 2	4	• Ports 1–8: Analog phones • Ports 9–12: Trunk connections
Analog Phone 8	4	• Ports 1–2: Analog phones • Ports 9–12: Trunk connections
Voice Compression Module	2	VoIP calls including IP extensions or IP trunks. • Ports 1–8: Not present • Ports 9–12: Trunk connections • Up to 128 voice compression channels depending on the codec used. The IP500V2 control unit supports up to 148 voice compression channels, using the card plus voice compression ports on Combination cards.
ATM Combination	2	• Ports 1–6: Digital stations • Ports 7–8: Analog phones • Ports 9–10: 4 analog trunk ports. • 10 voice compression channels. Codec support is G.711, G722, G729a and G.723 with 64ms echo cancellation.
BRI Combination	2	• Ports 1–6: Digital stations • Ports 7–8: Analog phones • Ports 9–10: 2 BRI trunk ports (4 BRI channels) • 10 voice compression channels. Codec support is G.711, G722, G729a and G.723 with 64ms echo cancellation.
Unified Communications Module (UCM V2)	1	Supported in control units with a Preferred Edition license. • More than 200 users when running Voicemail Pro only. • Up to 200 users when running Voicemail Pro and Avaya one-X® Portal for IP Office. • 50 simultaneous Avaya one-X® Portal for IP Office users. • No trunk cards

Related links

IP500 V2 Systems on page 23

Trunk cards

Trunk cards can be fitted to existing base cards to provide support for trunk ports. The trunk card uses the ports provided on the base card for cable connection. Each trunk card comes with spacer pegs for installation and port identification labels.

Tip:

In systems with both Analog Phone 8 base cards and analog trunk cards, combining the two types are recommended because it provides analog power failure support for one trunk per extension (not applicable to the Analog Phone 2 base card).

Table 2: IP500 V2 trunk cards

Trunk card	Maximum per system	Description
Analog (V2)	4	4 analog loop start trunks V.32 modem for remote access 1 power failure extension to trunk connection on Phone 8 cards Not supported with VCM cards.
Universal PRI (PRI-U)	4	Up to 2 PRI trunk connections. The card is available in single and dual port variants. The card can be configured for E1 PRI, T1 robbed bit, T1 PRI or E1R2 PRI trunks. Supports primary rate digital trunks. On each card, 8 channels per interface are enabled by default. This means that the single PRI has 8 channels enabled, while the dual PRI has 8 channels enabled on each of the two circuits. Further channels may be enabled by the purchase of additional licenses in 2-channel or 8-channel increments. Available in single and dual version. The single variant can support up to 24 T1 channels or up to 30 E1 channels. The dual variant can support up to 48 T1 channels or 60 E1 channels. Configurable for T1, E1, E1R2 MFC use, depending on territory. Includes an integrated CSU/DSU: • CSU allows trunks to be put into loop-back mode for testing purposes. This can be set manually, using the monitor application, or automatically from a Central Office sending a Line Loop Back (LLB) pattern. • DSU allows the T1 trunk to be shared between data and voice services. Includes diagnostics capabilities: visual indicators to show service state and physical test points to monitor traffic.
BRI (Euro ISDN)	4	Up to 4 BRI trunk connections, each trunk providing 2B+D digital channels. Available in 2 (4 channels) and 4 (8 channels) options.

Related links

IP500 V2 Systems on page 23

External expansion modules

External expansion modules can be used with the IP500 V2 control unit.

Analog phone expansion modules

On analog ports, call information is sent while the phone is ringing, and cannot be updated during a call or set on an outbound call (the phone may do a local match but this is not controlled by IP Office). The primary purpose of displays is to give information about incoming calls. Where the caller display standard chosen supports the delivery of text (extension name) as well as the number, both are delivered.

An analog extension port can be set for external paging operation. It does not operate like a normal extension and is connected to external equipment through an isolation device (can also be used as an MoH source). The port will always be busy so it cannot be called directly and can only be accessed by using a paging feature. When not receiving a page, the port will remain silent. When being paged, the page tone is sent before the speech path is opened.

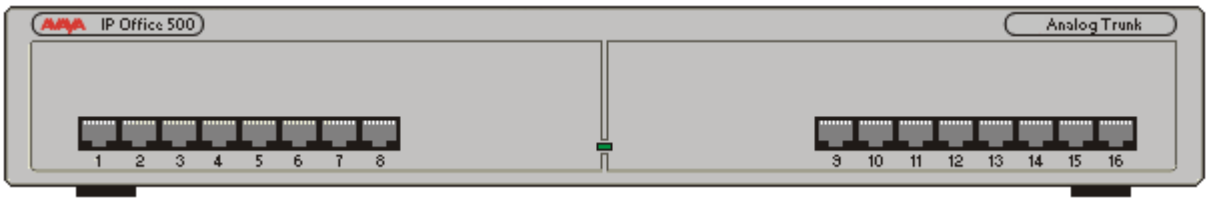
For installations in a rack, this module requires an IP500 V2 Rack Mounting Kit.

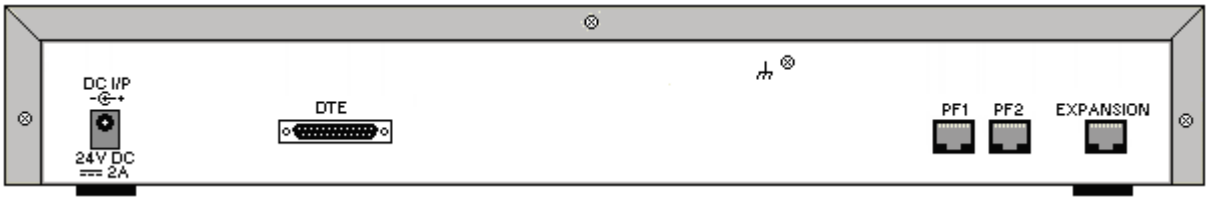
Expansion module	Telephones supported	Interfaces supported
Analog Phone 16	16 analog stations with calling line presentation	DTMF signaling (No rotary or Loop Disconnect) Time Break Recall (No Earth Recall) Message Waiting Indication (MWI): 51V Stepped, 81V, 101V and Line Reversal and Bellcore FSK
Analog Phone 30	30 analog stations with calling line presentation	

Analog trunk modules

This type of module can be used to add 16 additional analog trunks to an IP500 V2 system. The module supports both loop-start and ground-start trunks. The module also provides two powerfail ports for direct connection of analog phones to the first two analog trunks.

Basic Edition systems only support a single ATM16 expansion module. For installations in a rack, this module requires the IP500 V2 Rack Mounting Kit.

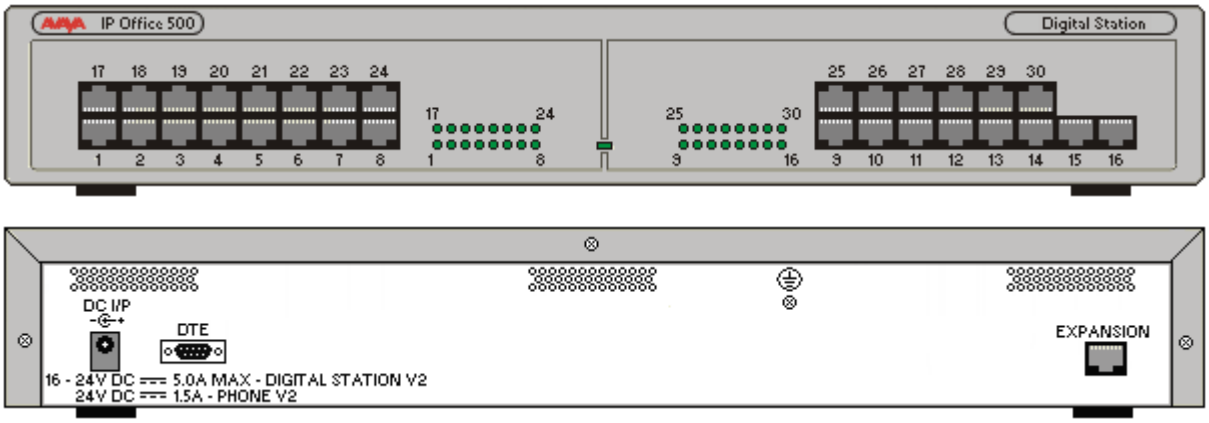




Expansion module	Description	Interfaces supported
ATM16	16 analog trunks	• Loop-start • Ground start

Digital station expansion modules

For installations in a rack, this module requires the IP500 V2 Rack Mounting Kit.



Expansion module	Telephones supported	Description
DS16B, DS16B2	Avaya telephones Either DS or TCM mode.	• 16 digital station ports
DS30B, DS30B2		• 30 digital station ports. Supported on 10.1, 9.1 SP 12, and 10.0 SP5 onwards.

Related links

IP500 V2 Systems on page 23

Chapter 6: Administration applications

The following sections provide an overview of the installation and administration related applications.

Related links

IP Office Manager on page 30
Server Edition Manager on page 31
Web Manager on page 33
System Status Application (SSA) on page 33
SysMonitor on page 34
Customer Operations Manager on page 35
SNMP Management Console on page 35

IP Office Manager

Use the Manager to manage IP Office standalone systems or systems in a small community network (SCN). Manager tracks system configuration changes, manages upgrades, and configuration imports and exports.

IP Office has a built-in audit trail that tracks changes to the system configuration, and who has made them. Manager can display the audit trail to assist with problem resolution. The audit trail records the last 15 changes in the configuration and records the following elements:

- Configuration Changed - For configuration changes, the log will report at a high level on all configuration categories (users, hunt group...) that have been changed.
- Configuration Erased
- Configuration merged
- Reboot - user instigated reboot
- Upgrade
- Cold Start
- Warm Start
- Write at HH:MM - This is when the administrator saved the configuration via the schedule option

- Write with Immediate Reboot
- Write with Reboot When Free

IP Office Manager is also used for maintenance functions such as:

- Upgrade to the IP Office system software
- Ability to send software over an IP network link to a system and have it validated before committing to the upgrade
- Backwards compatibility with systems from Release 2.1 onwards to allow a single management application
- Importing and Exporting IP Office configuration information in ACSII-CSV files.

Related links

Administration applications on page 30

Server Edition Manager

Server Edition Manager supports complete centralized administration for Server Edition Primary, Server Edition Secondary, and Server Edition Expansion Systems. Manager also provides IP Office telephony and Unified Communications features.

Manager enables management of all the components within the solution for activities such as:

- Single point of configuration for IP Office and voicemail
- Simple initial installation wizard
- Overview of the system with inventory and status
- Common settings consolidated to the Server Edition Primary
- Integrated Voicemail Proclient, System Status Application, and Linux Platform settings access
- Supports online, offline administration, and configuring a complete solution
- Template operations
- Centralized configuration and template storage
- Administrator account management utility
- Retains existing IP Office expertise
- Context sensitive help

Even though Manager is a Windows application, Manager can be installed directly from the Web administration portal of Server Edition Primary server. This enables you to use any Windows personal computer that has any IP Office Manager that is pre-installed immediately.

The configuration of an existing non-Server Edition system can be converted to a Server Edition configuration, and inturn for Server Edition (Non Select) or (Select) mode the conversion to Subscription mode can be achieved by rerunning **Initial Configuration** menu.

Using Manager, the administrator can create templates for many management items such as users, extensions, Hunt Groups, and Lines. The administrator can then create any new item using

the default settings or the template. You can create multiple users and extensions using one template.

Call Routing Support:

- Full IP Office ARS and dial plan support
- Default routing simplifies configuration
- Solution wide auto line group numbering
- Common incoming call routes provide resilience
- Resilient Hunt Groups

Offline Operation:

- Complete solution can be created and/or managed offline if required
- Can still manage when some deices offline
- On/offline configuration sync options to harmonize as required

Solution Management:

- Complete solution view with status and inventory
- Users and Hunt Groups are solution wide
- Centralized User Rights, feature short codes, Time Profiles, Incoming Call Routes, and Account Codes
- Permits advanced per-device configuration if desired
- All configurations stored on primary server
- Solution wide system directory
- Easy management of central and per-device licenses

Resilience management:

- You can manage every device locally for ‘rainy day’ events
- You can manage the solution through a secondary server when the primary server fails or in a split WAN setup
- On/Offline configuration sync options to harmonize as required

Add or Remove Devices:

- Single process for addition or removal of device
- Built-in Initial Configuration Utility (ICU) to simplify adding a new device
- Common configuration items from primary server is auto populated
- Can configure before you install a new device

Validation :

- Configuration validation on read and any change.
- Solution wide validations

Template:

- Create a local and centralized template from an existing Line, Extension, User, Hunt Group, Time Profile, Firewall Profile, IP Route and Service entries
- Recreate multiple Extension and Users from one template

Remote access:

- Supports access from service through SSL VPN

Security:

- Single Sign On to all except one-X Portal administration

Related links

Administration applications on page 30

Web Manager

Web Manager is a browser-based management tool designed to simplify the installation and maintenance process and provides access to most, but not all, IP Office configuration settings. Web Manager eliminates the need to have Windows PC for administration.

Granular access:

Web Manager provides service users with access to entire configuration objects if the service user has the configuration access. However, large customers who have multiple service users roles or customers having deployments in the cloud environment need to have granular configuration access for different service users. Hosting partners will be able to build an account for customer or re-seller with limited permissions. These permissions shall restrict the customer or re-seller from performing activities that affects service of the system.

Configuration dashboard:

The Dashboard is a simplified version of the existing IP Office Web Manager and is presented to the administrators when a fresh single-node IP Office system is installed. The Dashboard consists of minimum required set of configuration fields to set up the system. The full setup can be performed anytime afterwards.

Related links

Administration applications on page 30

System Status Application (SSA)

The System Status Application (SSA) is a diagnostic tool for system managers and administrators to monitor and check the status of IP Office systems locally or remotely. SSA shows both the

current state of an IP Office system and details of any problems that have occurred. SSA is not a configuration tool for IP Office systems.

The information reported is a combination of real-time events, historical events, status and configuration data to assist fault finding and diagnosis. SSA provides real-time status, historic utilization and alarm information for ports, modules and expansion cards on the system.

There can be up to two (2) SSA clients connected to an IP Office unit at one time.

SSA provides information on the following:

Item	Description
Alarms	SSA displays all alarms which are recorded within IP Office for each device in error. The number, date and time of the occurrence is recorded. The last 50 alarms are stored within IP Office to avoid need for local PC.
Call Details	Information on incoming and outgoing calls, including call length, call ID and routing information.
Extensions	SSA details all extensions (including device type and port location) on the IP Office system. Information on the current status of a device is also displayed. SSA shows IP Extensions that were registered but no longer available and IP extensions that are configured but have not been registered after last re-boot. This helps to spot phones that are Idle, disconnected, or are misconfigured. SSA also shows quarantined phones and blacklisted extensions and IP addresses.
Trunks	IP Office trunks and connections (VoIP, analog and digital) and their current status are displayed. For VoIP trunks, QoS information is also displayed (for example roundtrip delay, jitter and packet loss).
System Resources	IP Office includes central resources that are utilized to perform various functions. Diagnosing these resources is often critical to the successful operation of the system. This includes details on resources for VCM, Voicemail and conferencing.
QoS Monitoring	QoS Parameters from connected calls, such as jitter and roundtrip delay, are monitored.

Related links

Administration applications on page 30

SysMonitor

Use SysMonitor to troubleshoot IP Office from both local (LAN) and remote locations (WAN).

Select the protocols and interfaces to monitor and diagnose through a graphical interface. Capture traces directly to the screen or as a log file for later analysis. Color code different traces to improve the clarity in large files. The utility also captures system alarms and displays the activity log of the last 20 alarms that have occurred.

Related links

Administration applications on page 30

Customer Operations Manager

Customer Operations Manger is an administration tool that allows multi-customer management of subscription mode IP Office systems. It is accessed by browser from the same cloud-based servers that are providing the subscriptions for systems.

The tool enables management of IP Office Server Edition systems and provides the following capabilities:

- Dashboard that displays error conditions, ongoing system activities, and system health
- Grouping of systems based on versions and tags for accessing similar systems at the click of a button
- Displays all connected systems such as Primary, Secondary, Expansions, and open applications
- Ability to centrally manage IP Office software backup, restore and upgrade actions.
- Role-based administration. Customer Operations Manager has its own service users with access to complete or selective customers IP Office.
- Provides facility to launch Native IP Office Management applications. Uses need to log in to the applications separately after the application is launched.
- Alarms for Configuration, Services, Trunks, Link, and Security by Severity type
- Alarms for status of IP Office systems indicating whether they are online of offline
- Alarms indicating status of various applications

Related links

Administration applications on page 30

SNMP Management Console

Simple Network Management Protocol (SNMP) is an industry standard designed to allow the management of data equipment from different vendors using a single Network Manager application. The Network Manager periodically polls equipment to solicit a response, if no response is received an alarm is raised. In addition to responding to polls, IP Office monitors the state of its Extensions, Trunk cards, Expansion Modules and Media cards so that if an error is detected IP Office will notify the Network Manager.

As the IP Office platform comprises many applications, the core software notifies SNMP events from both Voicemail Pro and Embedded Voicemail to warn of approaching storage capacity limits.

IP Office sends email notifications directly to the email server; no additional PC client is needed.

On customer sites where SNMP management is not available, IP Office can email events using up to 3 email addresses each containing a different set of alarms.

The following system event categories can be chosen for email notification, if installed on the system:

- Generic
- Trunk lines
- Embedded Voicemail Card
- VCM
- Expansion modules
- Applications
- License
- Phone change
- CSU Loop-Back

IP Office has been tested against CastleRock's SNMPc-EE™ and HP's Network Node Manager (part of the OpenView application suite).

Related links

Administration applications on page 30

Chapter 7: User applications

The following sections provide an overview of the applications intended for end users.

Related links

IP Office User Portal on page 37
Avaya Workplace Client on page 37
Avaya one-X Portal for IP Office on page 40
SoftConsole on page 41

IP Office User Portal

The IP Office user portal is a browser based application that allows users to view and change their settings and to make and answer calls. It is supported in all IP Office modes except Basic Edition.

The system administrator is able to configure which users can access the portal and which portal features they can use.

- Access various different settings such as forwarding numbers and personal contacts.
- Access voicemail messages and call recordings.
- Make and answer calls. This can be done in several ways:
  - Control of the users desk phone.
  - On systems that have been configured with a WebRTC gateway, make and answer calls using through the browser.

Related links

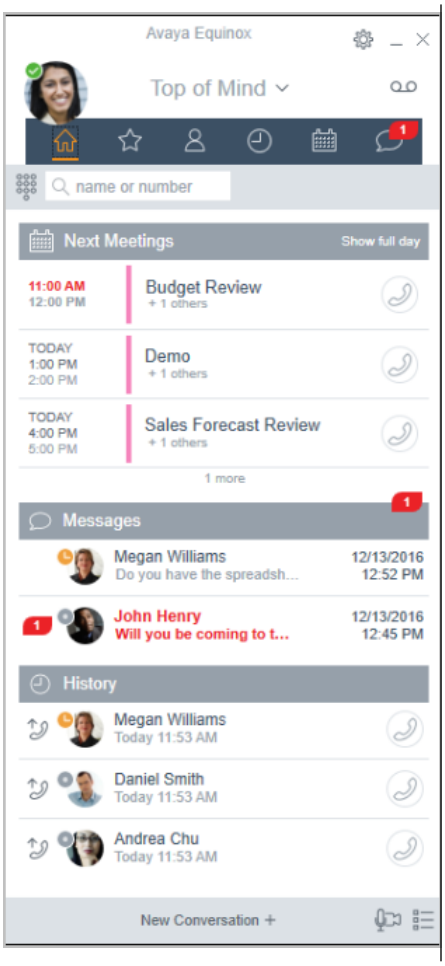
User applications on page 37

Avaya Workplace Client

Avaya Workplace Client is a SIP-based client that provides users with real time collaboration capabilities and enables business users to easily manage their day-to-day communications from a single interface. IP Office supports the following operating systems:

Device	Supported
Desktop PC	Windows and macOS
Mobile phone	Android and iOS. • IP Office iOS support is for iPhone and iPad devices only.
Avaya Vantage™	Yes

Avaya Workplace Client is a common cross-platform client. The client capabilities vary depending on the platform it is registered with. The supported features in Avaya Workplace Client for IP Office are:



- Top of Mind Home Screen
  - Next meetings showing local calendar schedule or Exchange Web Service/Office 365
  - Local Call History
  - Messages
  - Start Meetings/Launch Spaces dashboard
- IP Office directory and local contacts
- Instant messaging
- Presence
- Centralized call log.
- Dialpad with Redial
- Desktop integration with Microsoft Outlook and browsers
- Softphone client audio and video calls
- Shared control of an associated IP Office deskphone.

Avaya Workplace Client registers with IP Office server as a SIP softphone for audio and video calling, and telephony features. The following features are supported:

- Point to point audio and video calls (make, receive, and end)
- Multiple call handling (incoming and outgoing)
- Hold and retrieve (audio and video calls)
- Transfer (blind and consultative)
- Consult conferencing

- Escalate audio to video call
- Share control with supported desk phones in the Avaya Workplace Client desktop.
- CTI Control - Avaya Workplace Client for IP Office can be controlled through other applications such as Avaya Contact Center Select, IP Office Contact Center, IP Office SoftConsole, one-X Portal, Call assistance or Outlook plugin.

  CTI is supported with Avaya Workplace Client for Windows only.
- Apple push notification service- platform notification service created by Apple Inc. With this service, third-party application developers can send notification events to applications installed on Apple devices when the application is idle in the background or is in quit state.
- Avaya Workplace Client on Avaya Vantage™
- Presence and directory integration with Avaya Workplace Client on Avaya Vantage™
- Enter DTMFs during a call

Avaya Workplace Client on Avaya Vantage™ supports the following features:

- Making outgoing calls.
- Handling incoming calls.
- Putting call on hold and resuming the call.
- Muting and unmuting a call.
- Transferring a call.
- Escalating an audio call to video call and de-escalating video call to audio call.
- Entering DTMF digits using the keypad.
- Access your local contacts
- Access your IP Office contacts by using IP Office directory.
- Manage your presence status and presence status messages.

Avaya Workplace Client for IP Office limitations

- Branch worker - Avaya Workplace Client for IP Office does not support failover between Avaya Aura® core and IP Office Branch.
- For instant messaging, Avaya Workplace Client requires either one-X Portal or Avaya cloud services.
- CTI control - Avaya IP Office CTI applications supports mute/unmute control, however it will not visually appear in Avaya Workplace Client.

  IP Office does not support video call controls over CTI.
- The Avaya Workplace Client accesses Workplace Meetings Online using HTTPS, from within the Workplace Meetings tab of the client. The Avaya Workplace Client can access local on-premise Equinox Conferencing in the same way using HTTPS, that is, if the access URL is configured under Workplace Meetings. However, if the Avaya Workplace Client accesses local on-premise Equinox Conferencing through SIP trunks, audio and video will be available but not sharing or conference roster. The same applies for accessing Scopia over SIP trunks too. Even when Avaya Workplace Client accesses local on-premise IP Office Meet Me Conferencing, audio will be available but not sharing or conference roster.

- Apple Push Notification service (APNs) is a platform notification service created by Apple Inc. This service allows iOS users of Avaya Workplace Client to receive notification of new calls, voicemail messages, and other events. They receive these notifications regardless when the Avaya Workplace Client is idle in the background or is in quit state. However, if Avaya Workplace Client is on suspension, then Avaya Workplace Client automatically starts when a new call or instant message notification arrives.

  Unlike the rest of the world, due to the restriction of CallKit in Chinese applications, Avaya Workplace Client does not display incoming call screen using CallKit. However, an incoming call notification is displayed.

Related links

User applications on page 37

Avaya one-X® Portal for IP Office

Avaya one-X® Portal for IP Office provides users control of their telephone from a networked PC. Use this application with any extension; analog, digital or any IP telephone, wired or wireless, that is available as part of the Office Worker, Power User or Teleworker user licenses.

Avaya one-X® Portal for IP Office is a server-based application that the user accesses via web browser.

For Telecommuter mode, One-X applications require answer supervision and disconnect detection for proper functioning. As a result, the one-X applications will not work with trunks that do not support answer supervision and disconnect detection.

Note:

one-X applications function on trunk types such as PRI, BRI, and SIP, however, they will not function on E1R2, T1 RBS and analog loop start trunks.

System administrators can control if Avaya one-X® Portal for IP Office can be accessed over a secure protocol only, recommended for hosted deployments to provide “secure only” access. The other option is to allow users to access the client over a secure and unsecure protocol (HTTP/HTTPS). The client application forces users to change their passwords and voicemail passcodes to meet the complexity settings configured by the administrator.

Through gadgets, Avaya one-X® Portal for IP Office provides the following features:

- Call information
- Call and conference control
- Presence and instant messaging notifications, monitoring and archiving
- Contact import and export
- XMPP groups displayed in the **System Directory** tab
- Support for User Avatar on Avaya one-X® Portal web client **System Directory** tab

- Dial to user's own bridge and invite other users to join
- Conference call and other meeting scheduling including port reservations, email support and automatic report creation — available within the Outlook interface
- One-click web conferencing hosting and single sign-on joining web conferences as a participant
- Display number of **Logged in Sessions** on Avaya one-X® Portal administrator dashboard under User Details section. This shows the number of clients a user is currently logged in. Detailed information on the Logged in sessions is displayed on the Avaya one-X® Portal under Health/Active sessions tab.
- Option to block client versions under configuration.
- Option to clear all sessions for a user.
- Option to track repeated failed login attempts.

Related links

User applications on page 37

SoftConsole

SoftConsole is the PC-based Windows receptionist application for IP Office. It can be purchased with the Receptionist user license.

SoftConsole provides enterprise receptionists and operators with call information and call actions to simplify call handling and instant messaging. With SoftConsole, users see the status of other users and adjust basic telephony settings of other users, such as forwarding numbers. Avaya recommends using phones that support Auto Answer. Users can use instant messaging features provided by Avaya one-X® Portal, if available.

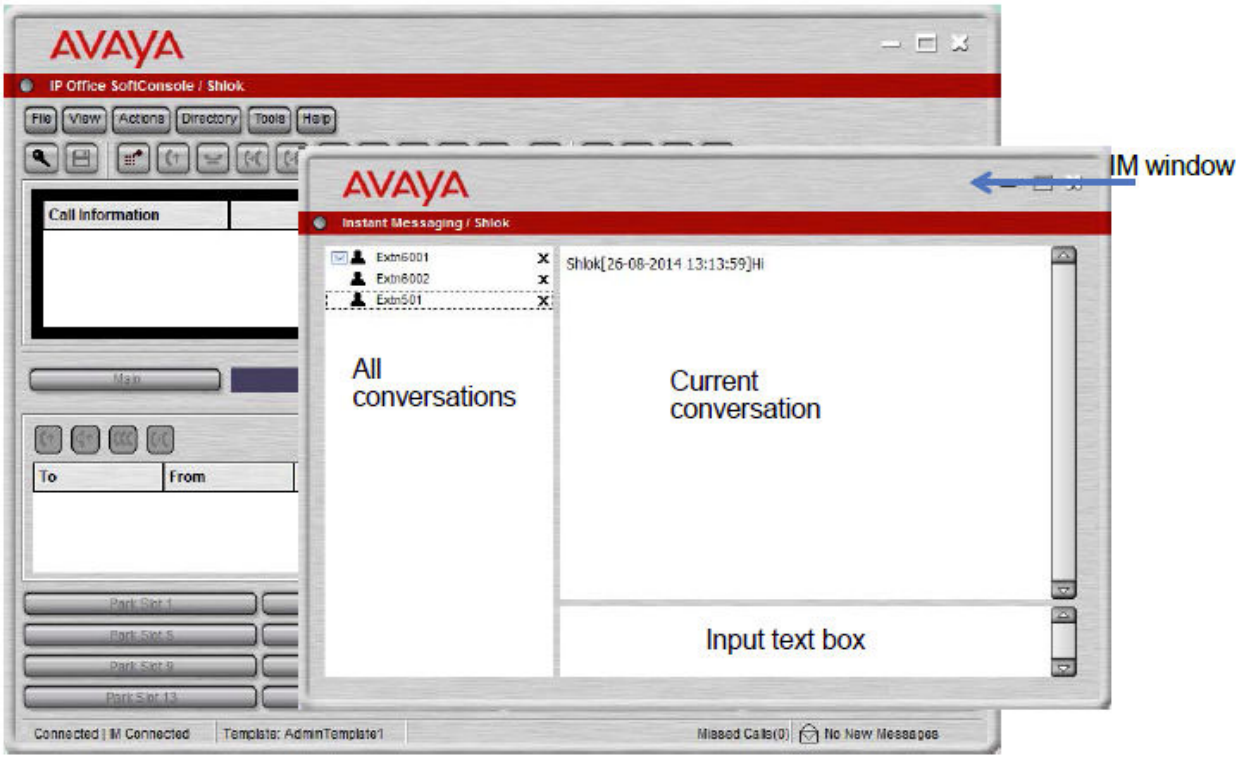


Figure 7: SoftConsole instant messaging window

WebSocket communication allows SoftConsole clients to communicate with IP Office and Avaya one-X® Portal. The WebSocket protocol is bidirectional between the client and the server. As the communication is done over port 80 or 443 (same port used for HTTP), there are no issues with firewall traversal. In a hosted environment, WebSocket communication provides security.

SoftConsole can be minimized in the Windows system tray when not in use, but will pop up on the screen when a call is received. Sound and media files can be associated with calls. If this feature is used, the PC requires a sound card and speakers.

SoftConsole supports the following features:

- Answering calls
- Making outgoing calls
- Supervised and unsupervised transfers
- Transfer calls to voicemail
- Hold and park calls
- Monitoring queues and answering queue calls
- Using and viewing conference rooms
- Conferencing held calls
- Adding users to a conference

- Adding text to a call
- Door release
- Intrude
- Sending text messages
- Paging
- Recording calls
- Sending email
- Using dial pad
- Multiple language support, users can select language

Related links

User applications on page 37

Chapter 8: IP Office Conferencing

Related links

Conferencing on page 44
Ad hoc conference on page 46
Meet-Me conferencing on page 46

Conferencing

Users can place calls on hold and a create a conference using either the telephone or desktop applications. Additional conference members may be added.

For ad-hoc conferencing, the system requires as many digital trunks/VoIP channels as external participants (as well as Preferred Edition for Meet-Me conferences).

Meet-Me capabilities require Preferred Edition for direct dial into a conference bridge with PIN code security. In an SCN network, only one centralized Preferred Edition license is required to host Meet-Me conferences at any of the sites. Conference IDs are also shared across the SCN sites.

Primary/Secondary Server

Each Primary and Secondary supports a local audio conference capability with the following capacities:

System Mode	Primary/Secondary server	Total Conference Channels	Maximum conference size	Total Conference Channels with ACCS
IP Office Server Edition	**Dell R240**	128	128	414
	HP DL360	256	256	825
	Dell R640	256	256	1650
	OVA	256	256	1650
IP Office Select	**Dell R640**	512	256	1650
IP Office Subscription	**OVA**	512	256	1650

IP500 V2 and Linux Expansion System

Each IP500 V2 and Linux Expansion System supports a local audio conference capability with the following capacities:

Expansion Platform	Total Conference Channels	Maximum conference size	Total Conference Channels with ACCS
Linux/OVA	128	128	128
IP500 V2	128	64	128

To initiate a conference, users dial the direct number allocated to the conference bridge, type in the PIN (require Preferred Edition and Voicemail Pro) if required. For ad-hoc conferences with a few participants, users can easily set up immediate conferences by calling all parties and bringing them to the conference bridge. With Avaya one-X® Portal for IP Office, the originator of the conference can keep control: the Caller ID number (and the associated name if recognized) of each participant is displayed. If required, they can selectively hang-up a specific participant. The system plays a single beep on entry and a double beep on exit. The owner of the conference may use their extension number as the conference ID. The owner of the conference has control of the conference with the ability to mute and drop calls of participants. All participants will hear the system Music on Hold (MOH) until the owner joins, and will hear MOH when the owner drops. Note that any internal party has the option to view and drop participants (not just the conference originator).

Users can record a personalized greeting for a conference (requires Preferred Edition and Voicemail Pro).

Users can record the conference using Avaya one-X® Portal for IP Office, digital or IP display phone or a short code (requires Preferred Edition and Voicemail Pro). To prevent unauthorized access to the conference bridge, PIN codes, Caller ID number screening as well as time and date profiles can be set-up using Voicemail Pro. One user can manage the conferencing bridge facility from any location.

Conference Restrictions

Conferencing has the following restrictions:

- Only two calls connecting through analog trunks are permitted in any single conference.
- Each external caller requires a digital trunk/VoIP channel (for example 1 T1 allows 23/24 external parties, 1 E1 allows 30 parties and a fully licensed VCM-64 allows 64 parties).
- There are no limits on the mix of internal and external calls in conference, but if all internal participants disconnect from the conference bridge, the external participants can be disconnected automatically by the system for added security (configurable system setting).
- System features such as call intrusion, call recording and silent monitoring all use conference resources, as does automatic recording if enabled. When any of these features are active the number of slots available for conference parties is reduced. For example, a conference call between 3 parties and being recorded will use 4 conference slots.

Related links

IP Office Conferencing on page 44

Ad hoc conference

In an ad hoc conference, a user calls the different participants and then sets the call on a conference mode. The initiator of the ad hoc conference call is the conference host.

In desktop clients, in an ad hoc conference for Avaya Workplace Client you can do the following:

- Drag and drop multiple contacts to a new conversation and start an audio ad hoc conference.
- Add another contact to an ongoing call or conference by dragging the contact and dropping or by using **Add someone to call** option.

In mobile clients, in an ad hoc conference for Avaya Workplace Client you can add another contact with an ongoing call or meeting by using **Add contact** icon.

Note:

The conference controls are disabled in ad hoc conferences.

As a participant, when you ignore the first ad hoc conference call request and join the second call request, you will be hard muted. Since there are no conference controls, neither you nor the moderator can unmute.

Related links

IP Office Conferencing on page 44

Meet-Me conferencing

Meet-Me conferencing enables multiple callers to talk in an audio conference. Callers can be on-site personnel as well as external parties whether field-based engineers, sales staff on the road, customers or suppliers. Conference calls can be planned in advance or established ad-hoc as and when required.

Meet-Me conferencing has moderator and participant controls.

As a moderator, you have the following controls as soon as you enter the Meet Me conference.

- View list of participants.
- Mute or unmute all participants.
- Mute or unmute a single participant.
- Add or drop a single participant.
- End meeting for everyone
- Enable/disable Lecture mode
- Enable/disable Entry Tones
- Enable/disable Continuation

- Enable/disable Lock Meeting

As a participant, you have the following controls as soon as you enter the Meet me conference.

- View list of participants
- Leave the conference

Related links

IP Office Conferencing on page 44

Chapter 9: Voicemail Services

Voicemail is a standard part of all IP Office solutions. It can be provided by a number of methods, depending on the mode of operation being used by the system.

Related links

Embedded Voicemail on page 48
Voicemail Pro on page 48
IP Office Media Manager on page 49

Embedded Voicemail

Embedded Voicemail is supported for IP500 V2 controls units as a standard option without requiring a voicemail service running on another server.

Embedded Voicemail is intended for small customer sites with only basic voicemail requirements. It is suitable for environments like retail or home office, where space, noise or cost considerations rule out using a PC for voicemail.

Embedded Voicemail is supported by all IP Office modes except where the system is being used as an expansion system for a primary server (in which scenario the primary provides voicemail support).

Embedded Voicemail does not require any licenses for operation, though licenses can be used to increase the number of simultaneous voicemail connections and the amount of message storage available.

Whilst Embedded Voicemail supports recording caller messages for unanswered calls, it does not support call recording of connect calls.

Related links

Voicemail Services on page 48

Voicemail Pro

Voicemail Pro is a voicemail server that provides both basic voicemail features by default but is highly customizable to match customer requirements.

Voicemail Pro runs as a separate service from the IP Office telephony service.

- For IP500 V2 systems it is supported in IP Office Preferred Edition and IP Office Subscription modes when run on a separate server. That server can be an IP Office Application server or a UCM module installed into the IP500 V2 control unit.
- For IP Office PC-based servers, Voicemail Pro runs as a service on the primary IP Office server. If a secondary server is also present, that can also run a second Voicemail Pro service to support voicemail resilience.

Related links

Voicemail Services on page 48

IP Office Media Manager

Voicemail Pro supports call recording, either triggered automatically by IP Office configuration settings or triggered manually by a user. By default, it places those recordings into the same mailboxes as used for voicemail messages. However, with Media Manager, recordings made by Voicemail Pro can be transferred to a separate archive for longer storage and where they can be searched and played.

Local Media Manager

This version of Media Manager is supported by all IP Office systems with Voicemail Pro. It runs as a service on the same server as Voicemail Pro. However, that server requires additional storage for the call recordings. The additional storage can be:

- An additional hard-disk. The recommendation is a pair of disks configured to use Raid.
- Cloud-based storage provided by the customer.

Administrator access to Media Manager configuration and recordings is done through IP Office Web Manager. User access to recordings is through the user portal application if allowed by an administrator. The administrator also configures which recording a user is able to access whereas administrators are able to access all recordings.

In addition to using the primary storage for recordings, the application can also be configured to further archive copies of recording to a separate DVD drive, NAS drive or cloud base storage provided by the customer.

Media Manager requires a license or subscription for full operation. It allows a 90–day trial period before licensing is enforced.

Administrators are able to access a Media Manager audit trail that allows them to see who has searched, replayed and downloaded recordings. They can also delete recordings, which again is included in the audit trail. By default the Audit trail data is available for the previous 180 days.

Centralized Media Manager

Subscription mode IP Office systems can use either local Media Manager as above or centralized Media Manager. The centralized Media Manager service, and its associated storage for recordings, are provided by the same Avaya cloud-based servers that provide the IP Office system's subscriptions.

Centralized Media Manager supports the storage of recordings for up to 365 days. However, administrators can moves copies of recordings to the customer's own cloud storage when required.

Related links

Voicemail Services on page 48

Part 3: Design

Chapter 10: Design Considerations

Related links

Caveats and limitations on page 52
Platform and application security details on page 52
IP Office Server Edition versus Preferred Edition on page 55

Caveats and limitations

This reference configuration functions with the following caveat and limitation:

- In a cloud environment, the IP500 V2 expansion system provides support for analog and digital endpoints.

Note:

For detailed capacity information, see Avaya IP Office™ Platform Guidelines: Capacity.

Related links

Design Considerations on page 52

Platform and application security details

For additional information on security, refer to the Avaya IP Office™ Platform Security Guidelines manual.

Platform

- The IP Office for Linux operating system is based on Red Hat Enterprise Linux that is further hardened for defaults, packages, and users.
- The operating system of Server Edition Expansion System (L) is developed for IP Office. The operating system is simple, stable, and reliable.
- The operating system of Server Edition Expansion System (V2) is developed for IP Office. The operating system is simple, stable, and reliable.
- Components that are secure:
  - Software security engine for all the components.

- Hardware security engine for Office Server Edition Expansion System (V2).
- Internal Access Control Engine polices for external service requests and internal applications.

Manager

- Transport Layer Security (TLS) secures the communications between IP Office Manager and IP Office and insecure ciphers are disabled.
- Provides Role based user access control (RBAC).
- Provides comprehensive user account and password controls.
- You can enable a PKI Trust domain.
- The system generates warnings messages if administrative passwords are set to default. The system sends alarms or login failure.
- The system records all the accesses in the audit trail.
- You can disable unused services and ports such as HTTP.

Administration user accounts

The administration user accounts can be controlled for:

- Password complexity
- Previous password history (administrative accounts only)
- Change password on next login
- Idle lockout and login failure lockout
- Time and date the account expires (administrative accounts only)

Single sign-on (SSO)

- Administration credentials to log in to Linux Platform settings are securely transferred to Manager, SSA,Voicemail Pro client.
- All administrative logins on all IP Office components including Voicemail Pro and Avaya one-X® Portal for IP Office use security settings of IP Office.
- Server user management feature in Web Manager synchronizes administrative user credentials with all components of IP Office including Voicemail Pro and Avaya one-X® Portal for IP Office in IP Office Server Edition Solution.

Audit trail

- Each IP Office system maintains an audit trail of access and configuration change.
- Linux Platform settings also maintains an audit trail.
- The IP Office system displays the audit trail in IP Office Server Edition Manager and SSA.

Public Key Infrastructure (PKI)

- IP Office supports X.509 certificates
- The Server Edition Primary and the Application server support an integrated Certificate Authority (CA)
- The Trusted Certificate Store can be configured and Identity certificate is available.

- The system performs a Certificate Signing Request (CSR) through Simple Certificate Enrollment Protocol (SCEP).
- The system creates a self-signed Identity certificate that can be copied to all HTTPS/TLS interfaces.
- Flexible controls to enforce Trust domain on specific services. Extended trust controls for PKI .
- Web Management Console,Voicemail Pro and Avaya one-X® Portal for IP Office on Linux support X.509 certificates, but not PKI.

LAN

- The servers and expansion systems are thoroughly tested for resistance to Denial of Service and other attacks
- Server Edition Expansion System (V2) supports a configure able Firewall
- Time profiles on Server Edition Expansion System (V2) only
- Static NAT and NAPT in Server Edition Expansion System (V2)
- ICMP Filtering
- L2TP/PPP VPN on Server Edition Expansion System (V2) only
- PAP or CHAP password exchange
- Idle or quota timeout
- IPSec VPN on Server Edition Expansion System (V2) only

Endpoints

- Username and PIN or password or login code are in the IP Office configuration, and you can administer these through IP Office Server Edition Manager
- You can use HTTP or HTTPS for settings and firmware upgrades
- You cannot make calls unless you are logged in

Call barring

- You can configure flexible call barring controls using login name or account code to allow internal, local, national or international calls on the basis of every user and system.
- You cannot use speed dials, transfers, forwarding, and conferences to bypass controls.
- You can enable trunk to trunk calls using IP Office Server Edition Manager. Trunk to trunk calls are disabled by default.
- SIP trunk configuration for incoming calls must match URIs..
- You can use SMDR (CDR) to create a record of all calls.

Voicemail Pro client

- You can enforce user login with Personal Identification Number (PIN) and configure complexity for the PIN.
- You can enforce PIN change when the user logs in for the first time.
- Idle timeout.

Related links

Design Considerations on page 52

IP Office Server Edition versus Preferred Edition

The following table compares the key features of IP Office Server Edition and Preferred Edition.

Feature	Preferred Edition	Server Edition / Server Edition Select	Server Edition Comments
Capacity	32 locations	32/150 locations	Increased capacity requires Server Edition Select.
	1000 users total	2000/3000 users total	
	7200 BHCC	18000/20000 BHCC	
SCN/Multi-Site	Free from Star, mesh, chain SCN trunks anywhere SCN trunk channels licensed	Single or double star Select allows Expansion/ Expansion links Unlimited SCN trunk channel licenses	Restricted topology allows many optimizations Other H.323 trunk types still allowed
Administration	Limited centralized (SCN Manager)	Fully centralized (IP Office Manager, IP Office Web Manager)	Consolidated mode for complete centralization. Non-consolidated mode for per device configuration
Licensing	Individual or distributed	Central pool	All common licenses centralised. Some still distributed. All administered centrally
User Profile Licenses	Telecommuter Mobile Worker Office Worker Power User	Office Worker Power User	
O/G Call Routing	Complex, no default assistance	Simplified	Manager and default routes allow simpler O/G call routing
I/C Call Routing	Complex, no default assistance	Simplified	Common ICRs allow simpler I/C call routing and resilience

Table continues…

Feature	Preferred Edition	Server Edition / Server Edition Select	Server Edition Comments
Time	Free form/complex	Simplified by default, can still be freeform	Primary Server acts as solution time server by default
System directory	Free form/complex	Simplified by default, can still be freeform	Primary Server acts as solution directory server by default
Fax transport	IP Office T.38 fax transport	G.711 fax transport	No need to configure codec sets to enforce; G.711 fax transport used automatically
SIP Trunk Direct Media to remote device across SCN	None	Direct media supported to remote IP endpoints (H.323, SIP, IP DECT)	Includes SIP Info and RFC 2833 support. No in-band DTMF support
Hunt Groups	Freeform	Hunt groups only on primary — resilient on Secondary.	Performance optimised for Voicemail Pro location (also on Primary) Automatic resilience when Secondary present.
SoftConsole	Up to 4 per IP Office	Up to 10 on Primary/ Secondary. Up to 4 on V2 Expansion. Total 32/50 per solution.	Increased solution capacity requires Server Edition Select.
Add/remove device	Manual	Integrated through Manager	Auto population of Multi-Site links and common configuration
Device Status/ connectivity	Not checked	Access and interconnects checked by Manager	Immediate indication if device offline or incorrectly networked.
IP Office Initial configuration	Manual	Automated with Initial Configuration Utility (ICU)	Remote install technician without IP Office knowledge.
Upgrades	Individual	Centralized	All expansion systems upgraded at same time.
Backup/restore	Individual per IP Office and per application	Centralized	

Table continues…

Feature	Preferred Edition	Server Edition / Server Edition Select	Server Edition Comments
Voicemail Pro ports	40	150/500	Increased capacity requires Server Edition Select.
Voicemail Pro servers	1/2	1/2	Server Edition Select allows 2 active Voicemail Pro servers
Embedded VM/AA	Supported	Not supported	Central Voicemail Pro only
Voicemail Pro VRL, database access, campaign web management	Supported	Supported	Campaigns are supported, but not the web access for management
CCR	Not supported	Not supported	
Software distribution	Admin DVD + Apps DVD	Single ISO distribution	Non English TTS separate DVDs
Software Only Solution	No	Yes (Controlled introduction at present)	
Single management portal	No	Yes – Web Control on Primary Server	Backup portal on Secondary Server
Templates	Line, Extension*, User*, Hunt Group, Time Profile, Firewall Profile, IP Route, Service, Tunnel, ARS. Locally stored.	Line, Extension*, User*, Hunt Group, Time Profile, Firewall Profile, IP Route, Service, Tunnel, ARS. Centrally stored.	*Multiple creation option
IP Office DevConenct/ SDKs	Supported	Supported as a set of individual IP Office devices.	No whole-solution SDK supported at present.
UCM	Supported	Not supported	–

Related links

Design Considerations on page 52

Part 4: Configuration

Chapter 11: Network Configuration

Related links

Server Edition single server reference configuration on page 59
Server Edition dual servers reference configuration on page 59
Server Edition multiple servers reference configuration on page 60
Server Combinations and Usage on page 60

Server Edition single server reference configuration

This reference configuration is for a customer who has only one location, IP telephony, and requires no resilience.

For specific capacity information, see Deploying IP Office Server Edition.

In this configuration, a single Server Edition Primary server supports all telephones configured as a centralized IP Office Server Edition Solution system. The Server Edition Primary server is an integrated media, feature, messaging, productivity and mobility, and license server that also provides browser based management.

Related links

Network Configuration on page 59

Server Edition dual servers reference configuration

This reference configuration is for a customer who has one or two locations, IP telephony, and may require resilience.

For specific capacity information, see Deploying IP Office Server Edition.

In this configuration two Server Edition servers are configured:

- Server Edition Primary — You can configure trunks, users, and extensions on a primary server. You can distribute and administer all hunt groups on a primary server. The primary server offers resilience for the IP Phone and users of the secondary server.
- Server Edition Secondary — You can configure trunks, users, and extensions on a secondary server. The secondary server offers resilience for IP Phone, Voicemail Pro, and hunt group of the primary server.

For an IP only telephony

In this configuration a minimum two Server Edition servers are configured in IP Office Server Edition Solution.

For an hybrid of IP/analogue/TDM telephony

In this configuration a minimum twoServer Edition servers are configured in IP Office Server Edition Solution. To add capabilities for an analogue or digital interface network you need a Server Edition Expansion System (V2).

Related links

Network Configuration on page 59

Server Edition multiple servers reference configuration

This reference configuration is for a customer who has more than three locations and may require resilience.

For specific capacity information, see Deploying IP Office Server Edition.

You can configure a Server Edition Expansion System (V2) in a location where there are analogue or digital interfaces.

You can configure a Server Edition Expansion System (V2) or a Server Edition Expansion System (L) in a location where there are only IP interfaces.

Related links

Network Configuration on page 59

Server Combinations and Usage

- The Server Edition Primary and Server Edition Secondary must be on equivalent platforms. This constraint applies equally to virtual servers. It is possible to mix native and virtual central servers, but the resources allocated to the virtual environment should match the native server.
- You cannot re-provision a Server Edition server without a complete reinstall. For example, to convert a primary server to a secondary or expansion system.
- You cannot set up a Server Edition Expansion System (L) in the Standard IP Office mode of operation in the IP Office Server Edition Solution. You cannot convert a Server Edition Expansion System (V2) to a Server Edition Primary or Server Edition Secondary server.
- The use of any external Voicemail Pro server is not supported.

Related links

Network Configuration on page 59

Chapter 12: Configuration Details

Related links

Port assignments on page 61
Traffic and quality of service on page 62

Port assignments

Details of the range of ports used by IP Office and IP Office applications are found at https://support.avaya.com/products/.

DTE port	9 way D-type D-Type female connector: V.24/V.28
Analog trunk ports	RJ45 sockets: Loop Start/Ground Start (regionally dependant)
Power fail ports	RJ45 sockets: 2x sockets for ATM16 and 1x sockets for ATM4
ISDN data rates	BRI: B-channel 64 Kbps or 56 Kbps, D-channel 16 Kbps
Analog phone ports	• RJ45 sockets • REN: 2. (External Bell via POT port: REN = 1) • Off Hook Current: 25 mA. • Ring Voltage: 40 V (nominal) RMS.
LAN	RJ45 sockets. Auto-negotiating 10/100 BaseT Ethernet (10/100 Mbps)
Audio	• 3.5 mm stereo jack socket. Input impedance 10 K/channel. • Maximum AC signal - 200 mV rms.
External output port	• 3.5 mm stereo jack socket. Switching capacity 0.7 A. • Maximum Voltage - 55V DC. On state resistance 0.7. • Short circuit current 1 A. Reverse circuit current capacity 1.4 A.
Embedded voice memory	Uses space of the System SD card installed in all IP500 V2 systems.

Related links

Configuration Details on page 61

Traffic and quality of service

Busy Hour Call Complete (BHCC) is a measure used to test the systems under a high call load. For BHCC tests, each incoming call rings for 5 seconds, is answered and stays connected for 6 seconds. The BHCC figures for the different IP Office control units are listed below. The BHCC figure achievable is limited by the number of incoming trunks supported.

System Mode	Platform	Maximum Server Call Rate, BHCC	Maximum Solution Call Rate, BHCC
IP Office Server Edition	Dell R240	7,200	7,200
	HP DL360G7	18,000/9,000	18,000/9,000
	Dell R640	18,000/9,000	18,000/9,000
	OVA	18,000/9,000	18,000/9,000
IP Office Select IP Office Subscription	Dell R640	20,000/10,000	20,000/10,000
	OVA	20,000/10,000	20,000/10,000
All	Linux	7200	-
	IP500 V2 Expansion	3600	-

Related links

Configuration Details on page 61

Part 5: Further Help

Chapter 13: Additional Help and Documentation

The following pages provide sources for additional help.

Related links

Additional Manuals and User Guides on page 64
Getting Help on page 64
Finding an Avaya Business Partner on page 65
Additional IP Office resources on page 65
Training on page 66

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 65).

Related links

Additional Help and Documentation on page 64

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 65.

Related links

Additional Help and Documentation on page 64

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 64

Additional IP Office resources

In addition to the documentation website (see Additional Manuals and User Guides on page 64), 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 64

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 64

Glossary

Automatic Route Selection	A feature of some telephone systems in which the system automatically chooses the most cost-effective way to send a toll call.
Busy Hour Call Completions	A measure of dynamic traffic calls that can be completed in an average busy hour.
Communication Manager	A key component of Avaya Aura®. It delivers rich voice and video capabilities and provides a resilient, distributed network for media gateways and analog, digital, and IP-based communication devices. It includes advanced mobility features, built-in conference calling, contact center applications and E911 capabilities.
Computer Supported Telecommunications Application (CSTA)	A standard interface for Computer Telephony Integration (CTI) applications, such as voice mail and auto-attendant, to interact with telephony equipment.
Digital Communications Protocol	A proprietary protocol that is used to transmit both digitized voice and digitized data over the same communications link. A Digital Communications Protocol (DCP) link consists of two 64-kbps information (I) channels, and one 8-kbps signaling (S) channel. The DCP protocol supports two information-bearing channels and two telephones or data modules.
Directory Enabled Management	An interface that uses Avaya Directory Server to facilitate administration of Modular Messaging from a centralized location.
Distributed Communications System	A proprietary inter-networking protocol from Avaya with which you can configure two or more Avaya-based private communication networks to operate as one, large network.
Domain Name System (DNS)	An Internet Engineering Task Force (IETF) standard for ASCII strings to represent IP addresses. The DNS is a distributed internal directory service used mostly to translate between domain names and IP addresses. Avaya 9600 Series IP Telephones can use DNS to resolve names into IP addresses. In DHCP, TFTP, and HTTP files, DNS names can be used whenever IP addresses are available as long as a valid DNS server is identified first.

Dynamic Data Exchange (DDE)	An interprocess communication (IPC) method.
Dynamic Host Configuration Protocol (DHCP)	An Internet Engineering Task Force (IETF) protocol used to automate IP address allocation and management.
Ethernet Routing Switch (ERS)	The Avaya stackable chassis system that provides high-performance, convergence-ready, secure, and resilient Ethernet switching connectivity.
Expansion Interface	A port circuit pack in a port network (PN) that provides the interface between a time-division multiplex (TDM) bus or a packet bus on the PN and a fiber-optic link. Expansion interface (EI) carries circuit-switched data, packet-switched data, network control, timing control, and digital signal-1 (DS1) control. EI in an expansion port network (EPN) also communicates with the master maintenance circuit pack to provide the environmental status and the alarm status of the EPN to the switch processing element (SPE).
Expansion port network	In Intuity Audix Server configurations, a port network (PN) that is connected to the time-division multiplex (TDM) bus and the packet bus of a processor port network (PPN). Control is achieved by indirect connection of the EPN to the PPN by way of a port network link (PNL).
Extension to Cellular access number	The phone number dialed to connect to the Avaya server that is running Communication Manager. The Extension to Cellular access number initiates the process of enabling or disabling Extension to Cellular or changing the station security code.
Federal Communications Commission (FCC)	A United States federal agency that regulates communications such as wire-line communications and the Internet.
Global Technical Services	An Avaya team that answers customer calls about products in Avaya Integrated Management.
Internet Protocol	A connectionless protocol that operates at Layer 3 of the Open Systems Interconnect (OSI) model. Internet Protocol (IP) is used for Internet addressing and routing packets over multiple networks to a final destination. IP works in conjunction with Transmission Control Protocol (TCP), and is identified as TCP/IP.
Local Survivable Processor	A configuration of the S8300 media server in which the server acts as an alternate server or gatekeeper for IP entities such as IP telephones and G700 media gateways. These IP entities use the Local Survivable Processor (LSP) when the IP entities lose connectivity with the primary server.

Media gateway	An application-enabling hardware element that is part of a family of such elements. This family includes intra-switch connectivity, control interfaces, port interfaces, and cabinets. Avaya media gateways support both bearer traffic and signaling traffic that is routed between packet-switched networks and circuit-switched networks to deliver data, voice, fax, and messaging capabilities. Media gateways provide protocol conversion, such as IP to ATM to TDM, conferencing, presence, such as on-hook or off-hook, connectivity to private networks and public networks, such as IP, ATM, TDM, and networking, such as QSIG, DCS, ISDN. Media gateways support optional form factors.
Network Address Port Translation	A network routing technique. Network Address Port Translation (NAPT) is used to access systems on the same subnet as an IP Office.
Network Routing Policy	An application for centrally managing SIP routing for Session Manager instances. A routing policy describes how a call is routed: where it comes from, where it's going, what its dial pattern is, what time of day it is routed, and its cost for a particular route.
OFCOM	The United Kingdom Office of Communication for the regulation of telecommunications.
Product Information Presentation System	The Product Information Presentation System (PIPS) reports provide data from the Product Information Expert (PIE), a data mining tool that extracts Avaya customer switch and adjunct configuration information and stores it in a database.
Product Licensing and Delivery System (PLDS)	The Avaya licensing and download website and management system. Avaya Business Partners and customers use this site to obtain ISO image files and other software downloads.
Public Switched Telephone Network (PSTN)	A telephone network that includes many communication technologies such as microwave transmission, satellites, and undersea cables.
Remote Feature Activation	A Web-based Avaya application to remotely activate features and increase capacities on the system of a customer by delivering a new license file.
System Manager	A common management framework for Avaya Aura® that provides centralized management functions for provisioning and administration to reduce management complexity. System Manager can also function as a self-signed Root Certificate Authority (CA) or as an intermediate CA. System Manager enables the Simple Certificate Enrollment Protocol (SCEP) application to sign certificates for Avaya deskphones.
System Status Application	An IP Office application that shows the status of things such as outgoing calls.

Telecommuter	The configuration where Communication Manager establishes the voice connection to a circuit-switched telephone. Requires two connections: a TCP/IP connection for signaling control and a circuit-switched connection for voice.
Telephony Application Program Interface (TAPI)	A Microsoft® Windows API that enables computers running Windows to use telephony services. TAPI is used for data, FAX, and voice communications. Applications can use TAPI to control telephony functions, such as dial, answer, and hang up.
Telephony Service Provider Interface (TSPI)	A Microsoft-defined interface to the telephony service provider (TSP). Microsoft® Windows comes with an H.323 TSP, an IP conference TSP, a kernel-mode device driver TSP, and a unimodem TSP.

Index

A

ad hoc conference 46
Administrator 64
APIs 65
Application Notes 65
architecture 8
Avaya support website 7
Avaya Workplace for IP Office 37

B

backup 19
base cards 25
BHCC 62
business continuity 11
business partner locator 65

C

caveats and limitations 52
components 22
conference calls 44
control unit 23
courses 65
customer operations manager 35

D

dual 59

E

edition 55
Embedded Voicemail 48
end user applications 37
external expansion modules 28

F

feature keys 25
forums 65

H

Help 64

I

interfaces 61
IP Office applications
IP Office applications *(continued)*
installation and administration applications 30
user applications 37
IP500 V2 23
control unit 23

M

Manager 30
Manuals 64
media manager 49
Meet-Me conferencing 46
multi 60

O

one-X Portal for IP Office 40
one-X resiliency 16

P

PCM 25
ports 61
pulse code modulation 25

Q

QoS 62
Quick Reference Guides 64

R

remote access 11
requirements 11
Reseller 64
resilience 12, 18
restore 19

S

sales 65
SD cards 25
SDKs 65
security 52
Self-administration 37
server combinations 60
Server Edition 8
Server Edition Manager 31
single 59
SNMP Management Console 35
SoftConsole 41

specifications
call capacity 62
port interfaces 61
SSA 33
support 7, 65
SysMonitor 34
System Administrator 64

T

Technical Bulletins 65
test strategy 9
topology 8
voicemail 15
training 65, 66
trunk cards 27

U

User Guides 64
user portal 37

V

Voicemail 48
Voicemail Pro 48

W

Web Manager 33
websites 65
Workplace 37