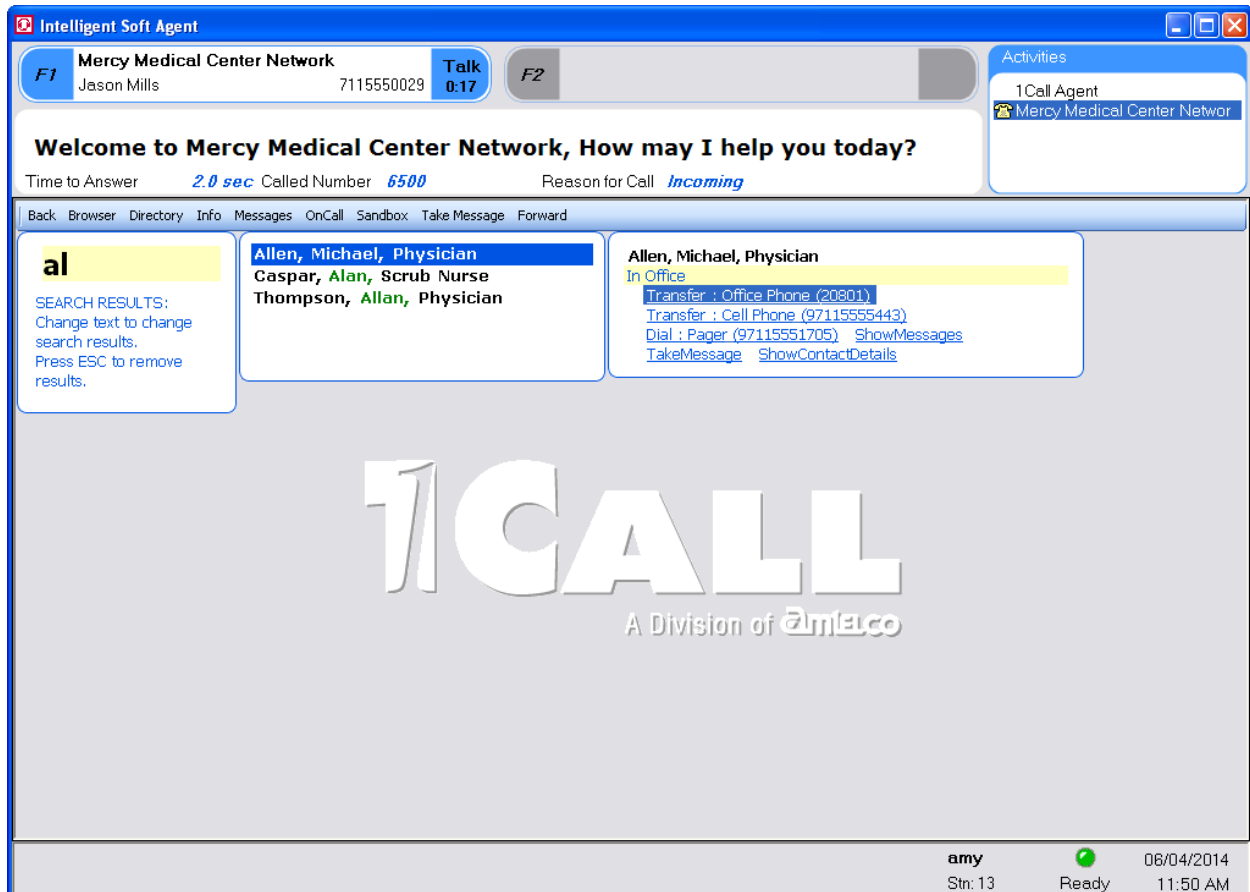# 1CALL

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Intelligent Soft Agent Technical Notes

AMTELCO's Intelligent Soft Agent is a revolutionary approach to streamlining the activities of healthcare console operators and call center agents by making any information available with just a few keystrokes. The Soft Agent solution includes a Session Initiation Protocol (SIP) based soft phone and switch-specific Computer Telephony Integration (CTI) control of the agent state during call handling. The Soft Agent application can be used with switches provided by Asterisk, Avaya, Cisco, NEC, and Nortel.

Integration of the Soft Agent with the Intelligent Series suite of applications provides the enterprise with access to AMTELCO's powerful call center solutions, including intelligent operator consoles, call center agents, agent scripting and call-flow navigation, Web scripting and workflow navigation, Sandbox directory lookup with quick answer/transfer, messaging, on-call scheduling, and encrypted mobile device paging.

Intelligent Series

The Intelligent Series is the latest advancement in AMTELCO's long line of call center innovations. The Intelligent Series is the foundation for the Intelligent Soft Agent application.

The Intelligent Series provides the server application control, database connections, reporting engine, call and message scripting engine, dispatching engine, directory engine, on-call scheduling engine, and web application engine.

Intelligent Soft Agent PBX Integration

The backbone of the Intelligent Soft Agent is the soft PBX integration that it offers. The Soft Agent acts as an agent of an existing hospital PBX and ACD. Hospitals can leverage the power and investment they have in their existing PBX with the added flexibility and ease of use of the Soft Agent.

The Intelligent Soft Agent integrates with a PBX using standards based interfaces, including SIP (Session Initiated Protocol) and TAPI (Telephone Application Programmer Interface). The Soft Agent can also integrate using PBX vendor specific proprietary interfaces such as Avaya AES (Application Enablement Services). SIP provides a VoIP based solution, while TAPI and AES provide TDM based solutions.

Intelligent Soft Agent Authentication

Each hospital using the Intelligent Series applications can choose to authenticate users via Windows domain login credentials, LDAP connection to Active Directory, or Intelligent Series application-based authentication.

Intelligent Soft Agent Software Technology

The Intelligent Soft Agent and the entire Intelligent Series platform are written in the latest Microsoft development tools. The client and server applications are written in C# (C Sharp) and run in the Microsoft .NET 3.5 Framework. The optional web applications employ AJAX technology, allowing interactive web content updating without refreshing web pages. The database is Microsoft SQL Server. The Intelligent Series Scripts are stored as XML. The reporting engine is based on Crystal Reports.

Intelligent Soft Agent Client Mode

The Intelligent Soft Agent can be run as a client application on operator desktop computers or can be run in a thin client environment running on Windows Terminal Services or Citrix.

Intelligent Soft Agent Sandbox

The Soft Agent employs a revolutionary new technology developed by AMTELCO called the Sandbox. The Sandbox is a single-point-of-entry solution that enables operators to have the most current information possible for processing calls and to bring each call to a quick resolution using that information.

In the idle screen mode, the Sandbox appears as an average text box input. When something is typed in the text box, the Sandbox recognizes the input and presents the operator with exactly the information needed to complete the call.

The Sandbox presents a list of dialing options when the Sandbox recognizes numerical input. Operators then press a single key to dial the proper number.

The Sandbox presents a menu of likely matches to that input when the Sandbox recognizes text input. The Sandbox quickly searches through and presents results from diverse information sources, be they multiple directories, or on call schedules. Operators then let the Sandbox lead them through the calls quickly, efficiently and correctly using automated procedures based on that information.

Intelligent Call and Message Scripting

The Intelligent Series messaging application guides operators through call completion and messaging steps using Intelligent Scripting. Intelligent scripts present the appropriate options for each call type an operator handles, reducing training time. Data entered is validated and can be checked for spelling errors using a traditional or medical dictionary, eliminating errors.

Intelligent Info Pages

Intelligent Info Pages make it possible to present diverse types of information to operators immediately upon connecting to calls. Client information can be presented using distinctive type faces and colors to better direct an operators attention. Information presented to operators also can contain special information such as photos, hyperlinks to client websites and dialable phone numbers.

Intelligent Contact Directory

The Intelligent Directory feature is designed to allow virtually unlimited amounts and types of information to be stored and presented to operators as needed. Directory information is categorized into Subjects and Views, to which can be assigned highly specific Search parameters that present only the most likely Listings to operators during call handling.

The Intelligent Directory feature is the contact directory for the system. It provides the foundation for advanced applications such as staff directories, patient information directories, physician referral, contact methods, dispatching, status, and on-call scheduling.

Intelligent Web Directory Searching

Web-based users have the same ability to search for information in the directory and to perform actions as do operators. The information displayed, the search, and the actions allowed can be customized by defining a special Web View for the directory in the Intelligent Series Supervisor application.
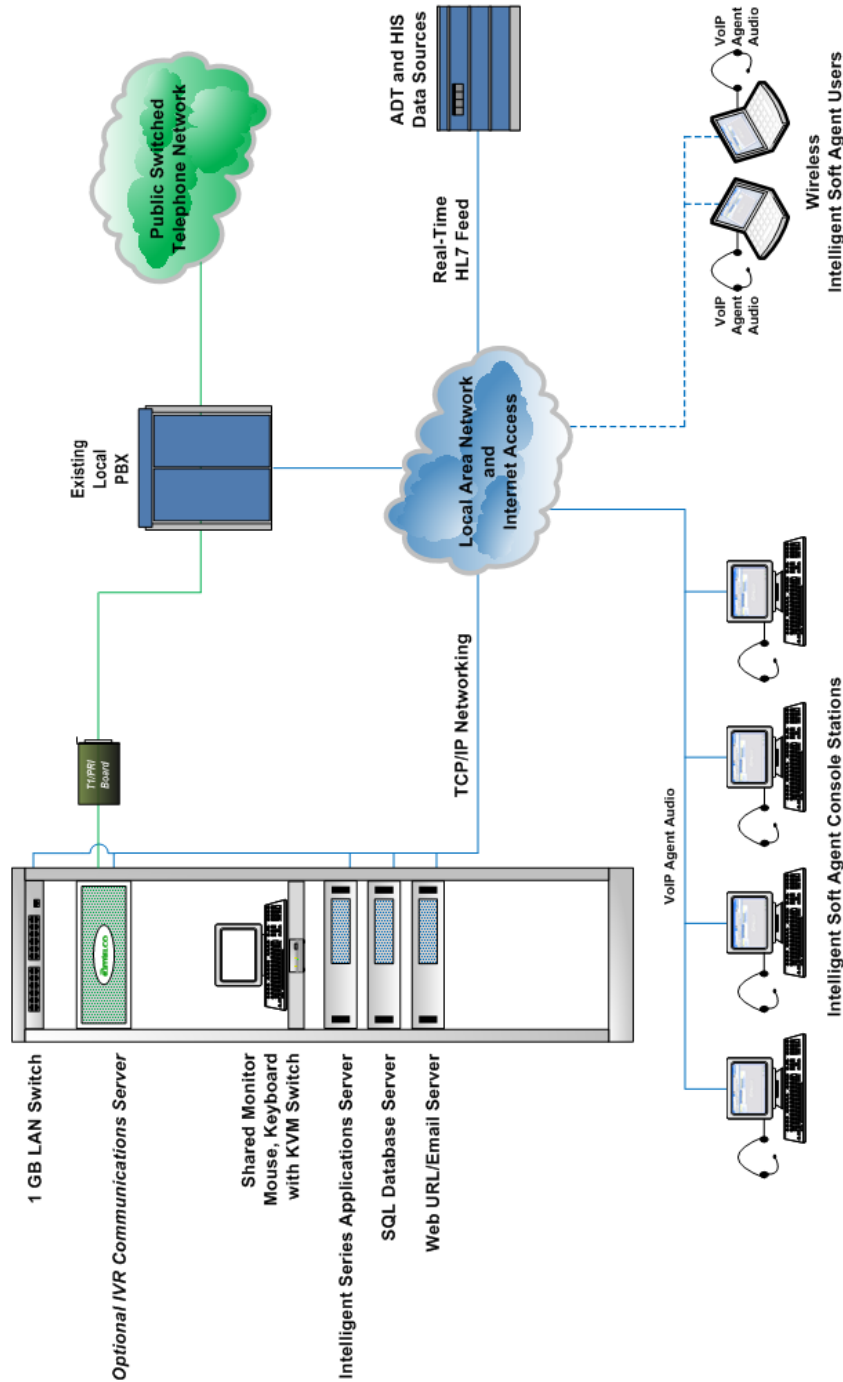
Intelligent On-Call Scheduling

The Intelligent On-Call Scheduling feature provides powerful on-call scheduling capabilities for the enterprise. An unlimited number of on-call schedules can be setup. On-call schedules can have recurring or one time shifts with required contact roles, ensuring the proper resources are available to cover each shift.

Intelligent Web On-Call Scheduling

Web-based users have the same ability to lookup on-call scheduling information and update on-call scheduling information.

Intelligent Soft Agent System Configuration

The Intelligent Series Applications Server houses the Intelligent Series directories, appointment and on-call scheduling, messaging, and dispatching features, and the Real-Time HL7 Importer application.

The Applications Server, Database Server, and Web URL/Email Server system components can be existing shared resources. They can be operated in a virtual environment, sharing underlying physical machine resources with other virtual machines, each running its own operating system.

LEGEND
Telephony path
Data path
AMTELCO provided units

Soft Agent Environment

The graphical user interface of the Intelligent Soft Agent application is segmented into a number of components, each with a specific purpose and many that present the operator with the means of performing a call handling task with a single key stroke.
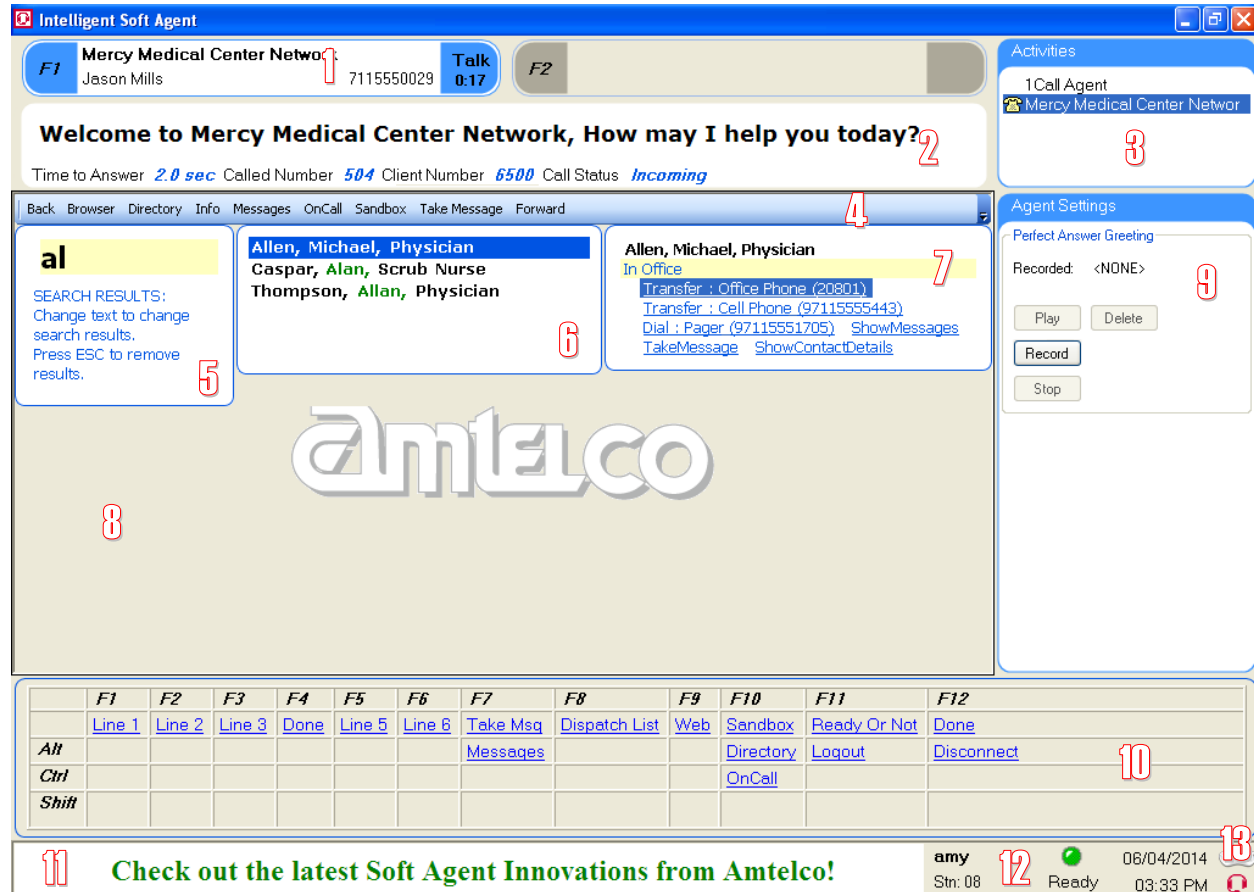
The sample screen above illustrates a simple directory lookup that was performed after answering an incoming call and that resulted in the operator transferring the call to the called party's office telephone.

Components of the Soft Agent Screen

Component	Purpose
1 Call Lines	The Call Lines, numbered 1 through 6 depending on the system configuration, display the client name and number of the called party and the call Automatic Number Identification (ANI) name and number of the calling party. A new call assigned to the operator or to the workstation causes that Call Line to blink on screen. Clicking that Call Line, or pressing the assigned Line key, answers that call. The call line of the active call displays the Call State of the call and the elapsed time, measured in seconds, that the call has spent in the current state.

Component	Purpose
2 Call Detail	The Call Detail section displays details about the current call the operator is connected to. The Call Detail section includes a Client Answer Phrase, Time to Answer displayed in seconds, Call Number, Client Number, and Call Status. The Client Answer Phrase is a unique phrase for each Intelligent Series client that helps ensure that each call is answered consistently and in the same manner.
3 Activities	The Activities pane displays the Work Items that are active in the Agent Work Area. Each entry in the Activities menu is associated with a Work Item that appears in the Work Area of the Soft Agent screen. A telephone icon appears next to an Activities menu entry when a live call is in process for that Work Item. If an operator is connected to a call and disconnects, the Work Item can remain active in the Activities pane and the Work Area, allowing the operator to complete the work for that item.
4 Toolbar	The Toolbar is a customizable menu of features and functions available to operators to help facilitate call and application handling. The contents of the Toolbar are determined by the current Intelligent Series Client. The Soft Agent is assigned a Default Client that is used when the operator is not on a call. This provides the idle Toolbar configuration. When an operator connects to a call, the Client associated with that call is used to provide the Toolbar configuration.
5 Sandbox	The Sandbox appears as an average text box input. But when something is typed in the text box, the Sandbox recognizes that input and presents the operator with exactly the information needed to process a call. The Sandbox can perform a search or can accept numeric entry for dialing, depending on what the operator types. The Sandbox can search across multiple Intelligent Directories to access almost any information an operator may need. The Sandbox performs sequential searches on the matching Intelligent Directories as the operator types, allowing the operator to refine their search without pressing the Enter key. The Sandbox recognizes numeric input from the Numeric Keypad, allowing the operator to enter a phone number to call or transfer to.
6 Initial Search Results	The Sandbox Initial Search Results menu is a multi-functional menu. When the Sandbox recognizes text input, the menu displays the matching search results from the assigned Intelligent Directories, as in the example above. When the operator enters digits on their numeric keypad, the menu displays the current Client Default Sandbox Dialing Actions. When the operator presses the Down Arrow without any text or numeric input, the menu displays the current Client Default Sandbox Actions. This can be used as a quick menu of Actions.

	Component	Purpose
7	Specific Search Results	When an operator performs a text search in the Sandbox, the Initial Search Results menu displays the matching Listings from the associated intelligent Directories. The operator can now select any of the search results using the up and down arrow keys. As the operator selects search results, a Specific Search Result is displayed for current item. The Specific Search Result displays View Actions associated with the Intelligent Directory Listing. The View Actions allow performing actions for the current Listing, such as Dial, Transfer, Take Message, View Messages, and View Details. Operators navigate the View Actions with the left and right arrow keys or the mouse.
8	Work Area	The Work Area is the anchor location for the application Work Items being handled by operators. The Work Item types include Sandbox, Client Information Pages, Intelligent Directory, On-Call Scheduler, Take Message Script, Show Messages, Dispatch List, and Browser. Each Work Item in the Work Area is associated with an item in the Activities menu.
9	Agent Settings	The Agent Settings is the anchor location for a number of tools the Soft Agent application presents to operators, including the Perfect Answer Greeting and Call Log controls. The Agent Settings pane toggles open and closed by clicking the headphones icon at the bottom of the Soft Agent screen.
10	F Key Assignments	The Function Key Assignments pane enables operators to establish and manage the task assignments for the 12 Function keys at the top of the workstation keyboard. This capability also is presented in the Setup Control Panel. The Function Key Assignments pane toggles open and closed by clicking the keyboard icon at the bottom of the Soft Agent screen.
11	Status Bar	The Status Bar displays agent information for the current operator logged into the AMTELCO Soft Agent Application. The agent information includes the Bulletin Board that is updated automatically as supervisors update it in the Intelligent Series Supervisor application, Agent Name, Agent Station Number, Ready/Not Ready status, Date, and Time. The operator can click the Ready/Not Ready status indicator to login or logout of the Private Branch Exchange (PBX) Automatic Call Distribution (ACD).

Component	Purpose
12 Agent Status	The Agent Status indicator glows red and the operator's status is displayed as Not Ready when the operator who is logged into the AMTELCO Soft Agent Application on the workstation is not accepting new assigned calls. Clicking the indicator causes the Soft Agent to login to the PBX ACD and when complete, change the indicator to glow green and the operator's status to change to Ready and prepared to accept new assigned calls. Clicking the indicator again causes the Soft Agent to logout of the PBX ACD and changes the status to Not Ready when complete.
13 Icon Toggles	The keyboard and headphone icons are used to open and close the Agent Settings and Function Key Assignments panes of the Soft Agent screen on demand.

Soft Agent Redundant Operation

The Intelligent Soft Agent application can be operated on a fully redundant hardware platform to provide business continuity and disaster recovery capabilities. A fully redundant system includes duplicate hardware components, including the SQL database server and the web server.

In the event of a loss of service involving the primary operating system, the operation of the Soft Agent application and the Intelligent Series system is transferred to the secondary system. After the primary operating system is restored, the operation of the Soft Agent application and the Intelligent Series system is transferred back to the primary system. AMTELCO recommends the use of the failover clusters capability of the Microsoft Windows Server operating system to operate a redundant system.

With failover clustering, the server components of the system are connected by physical cables and by software. This includes the real-time replication of the system's SQL Server database. If one of the servers in the cluster fails, the redundant server automatically begins to provide that service. The failover process is essentially transparent to console operators and other users of the system, beyond a momentary disruption in service.

The Soft Agent application has regularly demonstrated an uptime rate of 99.99 percent. The downtime that has been encountered has been due to scheduled upgrades to the system hardware and software.

Soft Agent Thin Client Operation

The Intelligent Soft Agent application is capable of operating in a thin client environment. The Soft Agent application is compatible with Microsoft Windows Terminal Services using the Remote Desktop Connection client application. The Soft Agent application is compatible with Citrix XenServer 3.0, or later, using the XenApp client application, with XenServer provisioned to enable Microsoft Windows to run as a guest component.

Windows Terminal Services does not support redirecting the operator audio from the terminal server to the operator console workstation, preventing the use of SIP soft phone audio. The Citrix environment handles redirection of the operator audio in a more effective manner, allowing the use of SIP soft phone audio.

Connecting operator audio by using a headset connected to a SIP-based telephone at the operator console workstation is a universal solution to the operator audio that works in both the Windows and Citrix environments.

Soft Agent Client-Server Bandwidth

The Intelligent Soft Agent acts as a client of the Intelligent Series Server. The Intelligent Soft Agent establishes an Internet Protocol (IP) connection to a configurable port on the Intelligent Series Server.

This IP socket connection is maintained as long as the Intelligent Soft Agent is logged in. When the operator logs out, the connection is released. Minimal bandwidth is required to maintain the connection between the Intelligent Soft Agent and the Intelligent Series Server. Bursts of data packets are sent when calls are presented to the operators and application functions are accessed.

Soft Agent VoIP Bandwidth

The Intelligent Soft Agent utilizes Session Initiation Protocol (SIP) based VoIP for operator audio. Minimal bandwidth is required to maintain the SIP connection while the operator is idle. Bandwidth usage increases while the operator is on an active call. VoIP bandwidth consumption during call processing depends entirely on the codec used to produce the voice components of a telephone call.

When calculating bandwidth, one cannot assume that every channel is used all the time. Normal conversation includes periods of silence, which often means no packets are sent. So even if one telephone call sets up two 64-Kbit RTP data streams using the User Datagram Protocol (UDP) component of the Internet Protocol (IP) over an Ethernet connection, the full bandwidth is not used at all times.

A codec that sends a 64-Kbit stream results in a much larger Ethernet stream. The main cause of the extra bandwidth usage is IP and UDP headers. VoIP sends small packets and the headers often are actually much larger than the data part of Ethernet packet.

The following table lists how the theoretical bandwidth usage of various codecs supported by the Soft Agent application expands due to UDP/IP headers:

Codec	Bit Rate	Ethernet Bandwidth
G.711	64 Kbps	87.2 Kbps
G.729	8 Kbps	31.2 Kbps
G.723.1	6.4 Kbps	21.9 Kbps
G.723.1	5.3 Kbps	20.8 Kbps
G.726	32 Kbps	55.2 Kbps
G.726	24 Kbps	47.2 Kbps
G.728	16 Kbps	31.5 Kbps
iLBC	15 Kbps	27.7Kbps

Soft Agent Call Log Disk Footprint

The Call Log feature of the Intelligent Soft Agent records at 16k per second. Disk space requirements for storage of recordings can be calculated using the following formula.

FORMULA	EXAMPLE
Number of calls multiplied by	30,000 calls per month
average duration of calls in seconds	X 60 seconds average duration
multiplied by 16,000	X 16,000
= storage need in bytes	28,800,000,000 bytes
(divide by 1 billion to convert to gigabytes)	/ 1,000,000,000
	28.8 gigabytes

Intelligent Soft Agent Console Station

Processor	General	No specific processor requirements beyond the minimum specifications for the operating system
RAM	Recommended	2 GB
Disk Controller	General	No specific disking requirements
Hard Disks	General	No specific disking requirements
Network Adaptor	General	100 MB or 1 GB network adaptor
CD-ROM	Optional	CD-ROM drive for application installation is not required. Most software installed via network.
Pointing Device	Minimum	Microsoft Mouse or compatible device
Monitor	Minimum	17 Inch Color VGA monitor at a minimum of 1024x768 resolution
Keyboard	Minimum	Standard 101 keyboard
Sound Board		No specific sound card requirement

Console Station Software Requirements

Operating System	Minimum	Microsoft Windows 7 Business Edition
Web Browser	Choice	Internet Explorer 8.0 with Javascript 1.5 and later Mozilla Firefox 3.6.10 with Javascript 1.8 and later Google Chrome 10.0 with Javascript 1.7 and later Apple Safari 5.0 and later
Virus Protection		Customer-provided choice of solution
System Backup	Recommended	Customer-provided choice of solution

Supervisor-only or Combined Console/Supervisor Workstation

Processor	General	No specific processor requirements beyond the minimum specifications for the operating system
RAM	Recommended	2 GB
Disk Controller	General	No specific disking requirements
Hard Disks	General	No specific disking requirements
Network Adaptor	General	100 MB or 1 GB network adaptor
CD-ROM	Optional	CD-ROM drive for application installation is not required. Most software installed via network.
Pointing Device	Minimum	Microsoft Mouse or compatible device
Monitor	Minimum	17 Inch Color VGA monitor at a minimum of 1024x768 resolution
Keyboard	Minimum	Standard 101 keyboard
Sound Board		No specific sound card requirement

Supervisor-only or Combined Console/Supervisor Station Software Requirements

Operating System	Minimum	Microsoft Windows 7 Business Edition
Web Browser	Choice	Internet Explorer 8.0 with Javascript 1.5 and later Mozilla Firefox 3.6.10 with Javascript 1.8 and later Google Chrome 10.0 with Javascript 1.7 and later Apple Safari 5.0 and later
Virus Protection		Customer-provided choice of solution
System Backup	Recommended	Customer-provided choice of solution

Intelligent Series Virtual Server (Optional)

The vast majority of components of the Intelligent Series system are capable of operating in a virtual environment, sharing underlying machine resources with other virtual machines, each running its own operating system. The only exceptions are components that may require a physical interface such as a RS-232 serial interface for an in-house paging system or a connection to an SMS modem or some other serial device. AMTELCO recommends that a virtual server that houses and operates the components of the Intelligent Series system conform to the following minimum specifications.

Processor	General	No specific processor requirements. Refer to Server Component Footprint section for application specific CPU requirements.
RAM	General	No specific memory requirements. Refer to Server Component Footprint section for application specific memory requirements.
Hard Disks	General	No specific hard disk requirements. Refer to Server Component Footprint section for application specific Storage requirements.
Disk Controller	General	No specific disk controller requirements
Network Adaptor	General	No specific network adaptor requirements. Use current virtual server recommendations as a guideline.

Virtual Server Software Requirements

Virtualization Software	Required	Customer-provided choice of solution
Operating System	Required	64-bit Windows Server 2008 R2 Datacenter Edition or later with .NET Framework 4.5
Database	Required	Microsoft SQL Server 2008 R2 Standard Edition or later with Per Processor Licensing
		Note: The Per Processor licensing method requires a separate license for each processor in the server chassis that runs the SQL Server application. This method does not require any device or user client access licenses (CALs).
Reports Engine	Minimum	Customer-provided SAP Crystal Reports 2008
Diagnostic Access	Required	The TCP/IP-based Terminal Services application is included as a component of Microsoft Windows Server. Other customer-provided third-party remote access applications such as VNC are acceptable
Virus Protection	Recommended	Customer-provided choice of solution
System Backup	Recommended	Customer-provided choice of solution

Server Component Footprints

The Intelligent Series software encompasses a number of components that must be considered when configuring a virtual environment. Some of these components cannot be housed on a virtual server due to their need for serial port connectivity. These non-virtual components will be pointed out below.

The following table lists the components of the IS system software along with the random access memory (RAM) allocation and hard disk drive footprint of each.

Component	Location	Memory	Storage	CPU
IS Server Service	Applications Server	8 GB	100 GB	2 vCPU
IS Email Interface	Applications Server	[1]	[1]	[1]
IS Event Logging	Applications Server	[1]	[1]	[1]
IS HL7 Interface	Applications Server	[1]	[1]	[1]
IS On-Call Reminder Service	Applications Server	[1]	[1]	[1]
IS SMS Modem Service and **IS TAP Paging Service**	Separate physical 64-bit Windows 2008 R2 or 2012 Server machine due to RS-232 serial interface	8 GB	100 GB	2 CPU
IS Voice Services Server	IS Voice Services Server	4 GB	100 GB [2]	2 vCPU
IS Web Service	Web Server	8 GB	100 GB	2 vCPU
MSM Notification Service	Computer in web DMZ	15 MB	1 MB	2 vCPU
MSM Web Service	Web Server in DMZ	[3]	500 KB	[3]
MSM Windows Service	Applications Server	20 MB	2 MB	2 vCPU
SAP Crystal Reports 2008	Applications Server	[1]	[1]	[1]
SQL Server 2008 or later	Database Server	8-16 GB	100 GB	4 vCPU
SQL Server Database	Database Server	[4]	[4]	[4]

[1] These components run on the IS Application Server and do not require specific additional memory, disk, or CPU allocations.

[2] The IS Voice Services Server is an optional module that provides a phone based interface to initiate pages to users and allows users to update their status. It runs on the Linux Debian platform. The memory, disk space, and CPU requirement encompasses the Linux operating system, an Asterisk-based soft switch, and a library of pre-recorded voice prompts.

[3] Runs within the Internet Information Services (IIS) component of the Windows Server operating system and does not consume additional memory.

[4] The SQL Server database resides on the SQL Server and does not require specific additional memory, disk, or CPU allocations.

Intelligent Series Applications Server

The Intelligent Series Applications Server houses many of the applications used in the Intelligent Series system. Depending on the system configuration, these applications may include:

- The Intelligent Series Applications Server houses many of the applications used in the Intelligent Series system. These applications may include:
- Amtelco Intelligent Series Server Windows Service
- Real Time Importer HL7 Windows Service
- Email Windows Service
- SMS Windows Service(also can be housed on a separate computer)
- TAP Paging Windows Service (also can be housed on a separate computer)
- IS Reports/Crystal Reports Engine

The Intelligent Series Applications Server can be operated as a dedicated server or as an instance in a virtual environment.

Processor	Minimum	One 2.6 GHz or faster multi-core 64-bit processor
RAM	Minimum	8 GB
Hard Disks	General	No specific hard drive requirements for the Application Server. The primary disk usage will be from system debugging and event logs. This should not exceed 100 GB.
Disk Controller	General	No specific disk controller requirements
Network Adaptor	Recommended	Minimum of one (1) 1 GB network connection
Serial IO	Optional	Optional Serial IO Ports or USB Ports for connection of alpha-numeric paging, fax and SMS messaging modems. Note that the interfaces requiring direct serial connections which may not be compatible with a virtual environment are purposely built as separate Windows Services, allowing them to be installed on a separate physical machine.

Intelligent Series Applications Server Software Requirements

Operating System	Required	64-bit Microsoft Windows Server 2008 R2 with .NET Framework 4.5
Reports Engine	Minimum	Customer-provided SAP Crystal Reports 2008
Diagnostic Access	Required	The TCP/IP-based Terminal Services application is included as a component of Microsoft Windows Server. Other customer-provided third-party remote access applications such as VNC are acceptable.
Virus Protection	Recommended	Customer-provided choice of solution
System Backup	Recommended	Customer-provided choice of solution

Intelligent Series SQL Database Server

AMTELCO strongly recommends that the Microsoft SQL Server application be housed on a dedicated or enterprise server chassis due to the mission-critical nature of the SQL database in the Intelligent Series system configuration. The SQL Server should not be part of the IS Application Server.

The Intelligent Series SQL Database Server can be operated as a dedicated server or as an instance in a virtual environment.

Processor	Minimum	One 2.6 GHz or faster multi-core 64-bit processor
RAM	Minimum	8 GB (16 GB may improve SQL Server performance)
Hard Disks	General	No specific hard disk drive requirements. The size of the SQL Server database should not exceed 10 GB in the first year and should not ever exceed 100 GB with routine archival and purging maintenance.
Disk Controller	General	No specific disk controller requirements
Network Adaptor	Recommended	Minimum of one (1) 1 GB network connection

SQL Server Database Software Requirements

Operating System	Required	64-bit Microsoft Windows Server 2008 R2 with .NET Framework 4.5
Database	Required	Microsoft SQL Server 2008 R2 Standard Edition or later with Per Processor Licensing
		Note: The Per Processor licensing method requires a separate license for each processor in the server chassis that runs the SQL Server application. This method does not require any device or user client access licenses (CALs).
Diagnostic Access	Required	The TCP/IP-based Terminal Services application is included as a component of Microsoft Windows Server. Other customer-provided third-party remote access applications such as VNC are acceptable
Virus Protection	Recommended	Customer-provided choice of solution
System Backup	Recommended	Customer-provided choice of solution

SQL Application Component Installation Requirements

Database Engine
Integration Services
Client Tools Connectivity
Management Tools
SQL Client Connectivity SDK

Intelligent Series Web Server (Optional)

The Intelligent Series Web Server provides the web services for the solution. The web server can be a dedicated server, or can run on an existing shared enterprise web server. The Intelligent Series Web Applications include:

- Web Enabled Intelligent Directories
- Web Enabled Intelligent On-Call Scheduling
- Web Enabled Status
- Web Enabled Message Retrieval
- Web Enabled Reporting

The Intelligent Series Web Server can be operated in a virtual environment, or it can be operated as a dedicated server.

Processor	Minimum	One 2.6 GHz or faster multi-core 64-bit processor
RAM	Minimum	8 GB
Hard Disks	General	No specific hard disk requirements. The primary disk usage will be from system debugging and event logs. This should not exceed 100 GB.
Disk Controller	General	No specific disk controller requirements
Network Adaptor	Recommended	Minimum of one (1) 1 GB network connection

IS Web Server Software Requirements

Operating System	Required	64-bit Microsoft Windows Server 2008 R2 with .NET Framework 4.5
Diagnostic Access	Required	The TCP/IP-based Terminal Services application is included as a component of Microsoft Windows Server. Other customer-provided third-party remote access applications such as VNC are acceptable.
Virus Protection	Recommended	Customer-provided choice of solution
System Backup	Recommended	Customer-provided choice of solution

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