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**776 Bennett Drive, Unit 105  
Longwood, FL 32750  
1-800-393-1106**

# **Remote Programming Access Guide for Inter-Tel and Mitel Communications Systems**

Issue 1, May 2011

## Contents

<b>PREFACE</b> .....	1
About this Manual	
Notice	
If You Need Technical Assistance or additional Technical Information	
If you would like to Purchase Equipment	
<b>1.0 GENERAL INFORMATION</b> .....	2
1.1 Introduction	
1.1 Purpose	
1.2 Systems Covered	
1.3 Logging On to the System	
1.4 Adding and Changing Passwords	
<b>2.0 CONSIDERATIONS FOR DESIGNING A REMOTE ACCESS SOLUTION</b> .....	3
<b>3.0 METHODS TO SET UP REMOTE ACCES TO AN AXCESS CPU</b> .....	3
3.1 Axxess CPU with Stand Alone Modem	
3.2 Axxess CPU with Serial to IP Server	
<b>4.0 METHODS TO SET UP REMOTE ACCESS TO AXCESS CPC</b> .....	4
4.1 Axxess CPC using Built in Modem	
4.2 Axxess CPC using Stand Alone Modem	
4.3 Axxess CPC using IP LAN Port	
<b>5.0 METHODS TO SET UP REMOTE ACCESS TO AN AXCESS CPS</b> .....	5
<b>5.0 METHODS TO SET UP REMOTE ACCESS TO CS-5000</b> .....	5
5.1 CS-5000 using Built in Modem	
5.2 CS-5000 using Stand Alone Modem	
5.3 CS-5000 using IP LAN Port	
<b>6.0 ALTERNATE METHODS TO ACCESS ANY COMMUNICATION SYSTEM REMOTELY</b>	
6.1 Methods to access any Communication System through Remote Desktop .....	6
6.2 Remotely access the communication system over the Network Through a VPN	
<b>7.0 INSTRUCTIONS TO SET UP REMOTE ACCESS</b> .....	6
7.1 Instructions to set up remote access through a Modem	
7.2 Instructions to set up remote access through a Serial to IP Server	
7.3 Instructions to set up remote access to a CPC Network Connection	
7.4 Instructions to set up remote access to a CS-5000 Network Connection	
<b>8.0 ERRORS AND TROUBLESHOOTING</b> .....	9
<b>9.0 SUMMARY AND RECOMENDATIONS</b> .....	11
<b>Appendix A – Default TCP/IP Port</b> .....	11
<b>Appendix B – Glossary of Acronyms</b> .....	11

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## **Preface:**

### **About This Manual**

This document was produced by the Office Automation Technical Support Department in an effort to support and assist our Customers and Partners with technical information. This document provides information for providing the means to implement a remote access solution to connect to an Inter-Tel or Mitel Telephone Communication System with Session Manager Database Programming Software. This manual is meant to provide information on the available methods so that the right solution may be selected for the sites unique situation.

### **Notice:**

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You can utilize the Office Automation On-Line Support Technical Resource Center (TRC) for access to additional manuals and guides as well as the TRC Knowledge Base. The On-Line Support portal is located at [www.support.offauto.com](http://www.support.offauto.com).

If you still need further assistance, you may contact the Office Automation Technical Support Department at **1-800-393-1106** during normal business hours. Access to these resources are provided free to current Office Automation Customers and Partners. If you are not a current customer, Technical Support and Subscription charges may apply. If you are contacting Office Automation Technical Support about a product you purchased, please have ready the Company or Organization name that the product was purchased under, the invoice number that the product was purchased under and the date of purchase. Office Automation provides free Technical Support during the one year warranty period on all products purchased.

Configuring network connections will require a person that is experienced with the Inter-Tel / Mitel Communications System and has knowledge in network and router/firewall installation and configuration. Configuring network connections cannot be completed by someone without prior knowledge of configuring network and Internet access on computers and network devices.

Before contacting Technical Support, please have the following information available:

System Manufacturer and Type:

System Software Version:

Model numbers of external modems or IP devices:

Properties of the Session Manager Connection: (ex: Network, Modem, Direct Cable, Speed)

Phone number or IP Address of the Remote Programming Connection:

### **If you would like to Purchase Equipment**

You may purchase equipment to implement any of these methods from the Office Automation Web site at [www.offauto.com](http://www.offauto.com) or by calling the Sales Department at **1-800-393-1106**.

## GENERAL INFORMATION

### 1.1 Introduction

This Guide contains prerequisite information, and instructions on how to setup a remote connection on a computer running Inter-Tel / Mitel Session Manager Database Programming Software at a remote location not directly connected to the Inter-Tel / Mitel Communications System. The computer may be located in the same site or a remote site from the Communication System.

Starting with version 4.0, Mitel has changed Session Manager Database Programming. The software now utilizes a new console known as “System Administration and Diagnostics”. The 5000 Session Manager is launched from the System Administration and Diagnostics console. The console needs to be installed prior to installing the version 4.0 and higher Session Manager Plugin Software. If you perform a standard installation of version 4.0 and higher, the installation software performs a search of the Windows Registry looking for references to all prior installations of CS-5000 programming software and modifies all CS-5000 programming software to utilize the System Administration and Diagnostics Console. Additional configuration is required when utilizing the System Administration and Diagnostics Console to remotely connect through an IP network.

This Guide will enable you to determine the best solution for your situation and implement that solution. This document describes the equipment required and procedures that need to be implemented to produce a consistent solution. The solutions described in this manual are the only solutions supported by Office Automation Technical Support.

This document may not contain all information required to implement the solution. Please refer to the Installation and Programming Manuals for additional information as needed.

### 1.2 Systems Covered

This document covers the formally Inter-Tel now owned by Mitel Axxess and the Communication Server (CS) 5000 systems.

### 1.3 Logging On to the System

When initiating a session with the Session Manager software, you are only prompted for a password if a password has been set on the system. There can be many users created in the system. If only one user has a password set, then you will be prompted for a password. If the selected user does not have a password set then you would leave the password field blank and click login.

The Axxess does not have a password by default. If while connecting to an Axxess system, you are prompted, then a password has been set on the system for at least one level of administration.

The CS-5000 system version 3.X and prior do not have a password by default. Starting with version 4.0, the CS-5000 has a mandatory password. The initial password is *itpassw*, but upon the first login you are forced to change it.

### 1.4 Adding and Changing Passwords

It is very important that if you are implementing remote access to the communications system that a password be set to access database programming. Without a password, anybody in possession of programming software can access the system and cause immeasurable damage. You need to document the password in your records when initially set or when changing the password. Technicians should provide password information to the customer. A lost password will block access to making programming changes on the system. If the Administrator password is lost, it usually requires defaulting the system and completely re-programming it.

## CONSIDERATIONS FOR DESIGNING A REMOTE ACCESS SOLUTION

What type of remote access will be most flexible? Modem, Network or Remote Desktop?

If I choose a network based solution, do I have a Network Technician that can implement the solution? Do I need remote access through the Internet? Does my Internet Gateway Router provide the features needed for the solution? Can my Internet Service Provider (ISP) provide me a Static Public IP Address?

If I choose a Modem based solution, do I have a dedicated phone line? What type of CO Trunks does my TelCo provide me?

If I choose a modem option, during what hours will Remote Programming be performed? If the site has incoming calls answered by employees during business hours, can calls be answered by a Voice Processing Application during non-business hours? The Remote Programmer would be able to access the modem during non-business hours through the Voice Processing Application transferring the call to the modem extension.

What additional equipment will be required to implement my solution?

## METHODS TO SET UP REMOTE ACCESS TO AN AXCESS CPU

### 3.1 Axxess CPU with Stand Alone Modem

The Axxess CPU does **not** have a built in modem. An external Modem must be connected to a dedicated POTS line. The DB25 Port on the back of the modem is connected to an Axxess CPU RS-232 Serial Port with an Inter-Tel proprietary cable. The recommended modem is a US Robotics 56K Modem. The modem requires custom configuration in order to be suitable for the Axxess system. The modem will not work correctly without the custom configuration.

You may purchase a pre-tested Modem kit including the custom cable and the correct configuration from the Office Automation Web site at [www.offauto.com](http://www.offauto.com) or by calling the Sales Department at 1-800-393-1106.

Axxess CPU Cards have two to three RS-232 Serial Ports. It is recommended that the Modem be connected to the top RS-232 Serial Port. This port may be labeled "1" or "MEM 1". You may also use Serial Port 1 for "Local" programming by temporarily unplugging the line cord in Port 1. Serial Port 1 operates at a faster baud rate and only Serial Port 1 can accept database restore operations.

The Modem Line Port should be connected to a dedicated POTS (Loop Start) Analog Telephone Line with a dedicated telephone number. The Modem will automatically connect incoming calls to the Serial RS-232 Port on the CPU Card. If a dedicated analog line is unavailable, a Line Switch Device may be employed to switch the incoming POTS line between the modem and a third party device or line connected to a Loop Start Card on the Axxess system.

On Axxess systems that have T1-PRI Trunk service from the Central Office (CO) carrier, Call Routing Tables (CRT) may be employed to provide a dedicated number for the Modem.

Although the modem can be connected to a Communication System extension through a Single Line Port it is not the optimum solution. Baud rates are limited to 9600 when connected to a SL Port. The Single Line Port may be on a Single Line Card (SLC), Single Line Adapter (SLA) or a Keypad MDDPM.

### 3.2 Axxess CPU with an IP to Serial Server

Using an IP to Serial Server requires that you have an existing TCP/IP Ethernet Network in place at the site where the Communication System is located.

The Axxess CPU Card does **not** have TCP/IP Network connection capabilities built-in.

By adding a "IP to Serial Server" to the Axxess System you will be able to access the system on the Local are Network(LAN) or from a remote network.

An IP to Serial Server converts a TCP/IP Ethernet network connection to a DB9M Serial connection. A Proprietary Axxess Programming Cable is then connected from the IP to Serial Server to an Axxess CPU RS-232 port.



The programming computer requires special software installed to virtualize a Serial Port (COM Port) to redirect the connection over the TCP/IP network that the programming computer is connected to. Session Manager software will utilize a "Local" connection to the Virtual Com Port to access the communication system.

To access the IP to Serial Server from a remote network through the Internet, your Internet Gateway Router will require special configuration.

You may purchase the Office Automation IP to Serial Server kit from the Office Automation Web site at [www.offauto.com](http://www.offauto.com) or by calling the Sales Department at 1-800-393-1106.

## METHODS TO SET UP REMOTE ACCESS TO AN AXCESS CPC

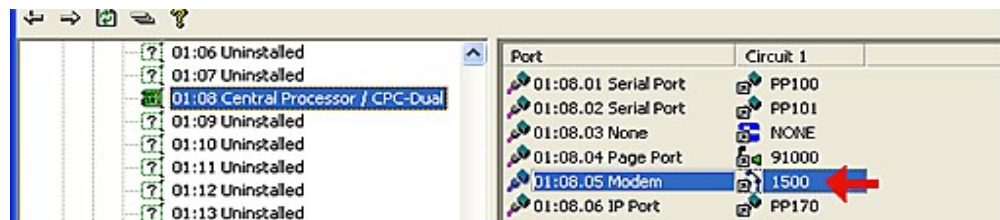
### 4.1 Axxess CPC using Built in Modem

The newer Axxess CPC (Version 8.0-11.0) have a built-in Modem. By default the modem is programmed for extension 1500, but this extension can be changed in programming.

The modem extension needs to be accessed by a direct dial telephone number provided by a dedicated analog telephone line connected to a Loop Start Card (LSC) or through a dedicated telephone number delivered on a T1-PRI circuit connected to a T1-PRI card in the system.

If the incoming CO Trunks are directly answered by a Voice Processing Application such as and Auto Attendant or Call Routing Announcement, then the modem can be accessed by dialing an extension after the Voice Processing Application answers the call.

To determine the extension of the Internal Modem, navigate to System > Cabinets. On the right pane, double left click



on Slot 8 labeled Central Processor. Look for Modem and note the extension after it. You will also need to program an "Extension ID" in Voice Processor Programming.

Note: Call Processing Servers (CPS) do not have built-in Modems. If the physical card in Slot 8 is Labeled CPU/PCM and it has a Network Connection, you are using a Call Processing Server.

### 4.2 Axxess CPC using Stand Alone Modem

Refer to the information in section 3.1 Axxess CPU with Stand Alone Modem.

### 4.3 Axxess CPC using IP LAN Port

The newer Axxess CPC (Version 8.0-11.0) have a built-in LAN Connection to connect to a Ethernet network. The CPC must be initially set with a Static IP Address that is compatible with the existing network. The Static IP Address will be programmed through a local programming direct connection. After the Static IP Address is set, the CPC can be accessed directly through the network from the programming computer.

To access the the Axxess CPC from a remote network through the Internet, your Internet Gateway Router will require special configuration.

## **METHODS TO SET UP REMOTE ACCESS TO AN AXCESS CPS**

The Axxess Call Processing Server(CPS) is a Windows Based Computer that preforms the processing for the phone system. The CPU/EAC card in the KSU cabinet has a LAN Port that connects with the CPS either directly or through a switch. The Windows CPS computer has a Local LAN Network Connection that must be connected to the initially set with a Static IP address that is compatible with the existing network and then connected to the LAN. After the Static IP Address is set, the CPS can be accessed directly through the network from the programming computer. The Network connection from Session Manager programming works for any version of Axxess system software to a CPS.

The methods in the previous section titled "METHODS TO SET UP REMOTE ACCESS TO AN AXCESS CPU" may also be employed.

## **METHODS TO SET UP REMOTE ACCESS TO A CS-5000**

### **5.1 CS-5000 using Built in Modem**

The CS-5000 has a built-in Modem. By default the modem is programmed for extension 1500, but this extension can be changed in programming.

The modem extension needs to be accessed by a direct dial telephone number provided by a dedicated analog telephone line connected to a Loop Start Module (LSM) or through a dedicated telephone number delivered on a T1-PRI circuit connected to a T1 Module (T1M)in the system.

If the incoming CO Trunks are directly answered by a Voice Processing Application such as and Auto Attendant or Call Routing Announcement, then the modem can be accessed by dialing an extension after the Voice Processing Application answers the call.

To determine the extension of the built-in Modem, Navigate to System > Devices and Feature Codes > Modems. On the right pane note the extension number. You will also need to program an "Extension ID" in Voice Processor Programming.

### **5.2 CS-5000 using a Stand Alone Modem**

A US Robotics External Modem Kit containing a USB-to-Serial cable may be connected to a the USB Port on the CS-5000 system.

You cannot have both the internal and external modem enabled simultaneously.

Once the external modem USB-to-Serial cable is plugged into the CS-5000, the internal modem is disabled. Although the modem can be connected to a Communication System extension through a Single Line Port, it is not the optimum solution. Baud rates are limited to 9600 when connected to a SL Port. The Single Line Port may be on a Single Line Module (SLM), Single Line Adapter (SLA) or a Keypad Modem Data Port Module( MDDPM).

You may purchase a pre-tested Modem kit including the special USB cable and the correct configuration from the Office Automation Web site at [www.offauto.com](http://www.offauto.com) or by calling the Sales Department at 1-800-393-1106.

### **5.3 CS-5000 using the TCP/IP LAN Port**

The CS-5000 is an IP based Communication System. It has a built-in LAN port. The CS-5000 must be initially set with a Static IP Address that is compatible with the existing network through a direct connection or through the front panel programming. After the Static IP Address is set, the CS-5000 can be accessed directly through the network from the programming computer.

To access the the CS-5000 from a remote network through the Internet, your Internet Gateway Router will require special configuration.

## ALTERNATE METHODS TO PROGRAM A COMMUNICATIONS SYSTEM REMOTELY

### 6.1 Methods to Access any Communication System through Remote Desktop

This method involves installing the Session Manager Programming Software on a dedicated computer running Windows XP Professional or newer Operating System that is directly connected to the communication system through a direct cable or network connection. The on-site programming computer is then accessed for remote programming from a Windows Remote Desktop Connection on the remote computer. Please note that Windows Home Versions does not include the Windows Remote Desktop (Terminal Server) server software.

Alternately you may use another proprietary or open source Remote Desktop Software instead of Microsoft Windows Remote Desktop. Symantec PCAnywhere is a proprietary software. RealVNC and TightVNC are open source software application that are freely available.

To access the computer running the Session Manager Programming Software from a remote network through the Internet, your Internet Gateway Router will require special configuration.

### 6.2 Remotely access the communication system over the Network through a VPN

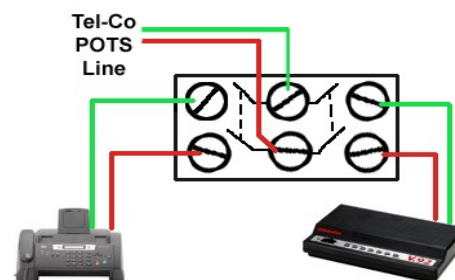
A Network equipped with an Internet Gateway Router with VPN Support can be employed to allow the off-site remote programming computer to connect to the VPN and then make a network connection to the communication system directly or through an IP to Serial Server.

## INSTRUCTIONS TO SET UP REMOTE ACCESS

### 7.1 Instructions to set up remote access through a Modem

A Stand Alone Modem should have a POTS line connected to the Line-In port on the back of the modem.

The Inter-Tel proprietary modular adapter is attached to the DB-25 port on the back of the modem to connect to an Axxess CPU or CPC. A standard 4 conductor line cord is connected from the modular adapter to a RS-232 port on the CPU or CPC. On a CS-5000 system you would connect the USB to Serial Cable to the CS-5000. If you are connecting a dedicated CO trunk to the stand alone



modem then no other consideration is needed. If you are connecting a shared CO Trunk with either another device such as a fax machine, or a trunk connected to the communication system, then a manual or automatic device will need to be employed to switch between the other device and the stand alone modem. A manual switching device could simple be a Double-Pole, Double-Throw Toggle Switch that would require manual switching before programming can take place. Refer to the image to the right. There are automatic Voice/Data Switching devices that will automatically switch the line when data modem signals are detected and/or a sequence of DTMF tones are detected on the phone line. One such device is the "The Stick" from Multi-Link, Inc. Office Automation does not sell or support phone line switching devices. Please contact the manufacturer for support. The optimum implementation would be a POTS Line with a Phone Line Switching device being shared with a device not connected to the communication system such as a Fax machine.

If the modem is connected to a Single Line Port, a dedicated CO POTS line may be separated into its own CO Trunk Group. The Ring-in Destination for both Day and Night Mode would be set to the extension of the Single Line Port that the stand alone modem is connected to or the extension of the internal modem.

A stand alone modem may be connected to a Single Line Port on a Single Line Card (SLC) or Single Line Module (SLM) and can be accessed at a specific extension number. The Single Line Port will require special configuration through local programming before it can be utilized for remote programming use.

You may utilize the internal modem on a CPC or CS-5000 system for remote programming. To connect to the modem from a computer running Session Manager Programming software, a direct connection from a dedicated phone number or extension will be required. Human initiated transfers are very unreliable.

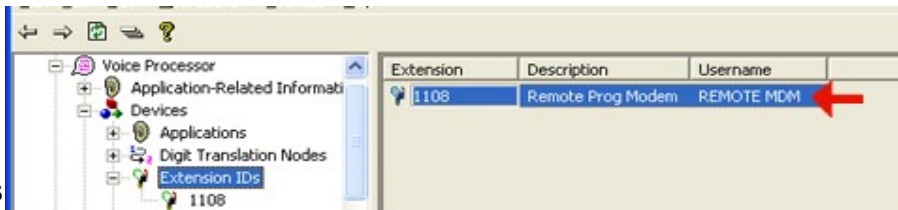
A T1/PRI CO Trunk Circuit may be set for Day and Night Mode Ring-in to a Call Routing Table (CRT). The CRT would then be programmed with the DNIS digits for the dedicated telephone number to route the call to the Internal Modem Extension.

Modems may be accessed by a transfer from an Auto Attendant or Call Routing Announcement Voice Processing Application if incoming calls are directly answered by the application without human intervention. To direct dial the extension that the modem is on, you will need to create an "Extension ID" in the Voice Processing programming.

You may also use the Digit Translation feature of Call Routing Announcement Applications to transfer to the modem extension when a specific digit is dialed.

### Creating an Extension ID for the Modem Extension in Voice Processor

The Voice Processor only recognizes extensions of Voice Processing Applications or Mailboxes. In order for the



Voice Processor to recognize other extensions, Extension ID's must be created in the Voice Processor programming. To create an Extension ID for the modem, in Session Manager Database Programming, expand Voice Processor. Expand devices. Click on "Extension ID's" on the left tree pane. On the right pane, right click in a clear area, then left click on "Create Extension ID". From the pop-up window in the "Select types to Include", select Single Line for a stand alone modem or "Modem" for an Internal Modem. Click the "Next Button". Click on the extension that the modem is connected to highlight it. Click the "Add Item" button. Click the "Finish" button to close the pop-up window.

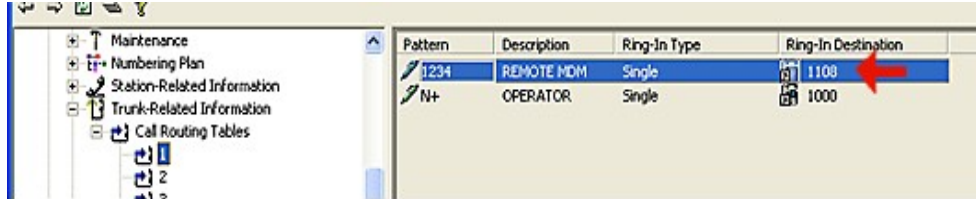
### Creating an entry in the Call Routing Table for the Modem Extension

If the CO Trunks connected to your communication system are a digital service such as a T1/PRI circuit, then you can use a Call Routing Tables (CRT) to route calls through the DNIS digits tagged with the call. DNIS identifies the number that the caller dialed to reach your location. Your Telephone Service Provider (referred to as Tel-Co or Carrier) usually provides you a group of Telephone numbers that they route to your T1/PRI circuit. You could dedicate one of these numbers as the Remote Programming Modem number and use the CRT to route the incoming call to the internal modem extension.

To use CRT's your CO Trunk Group containing the T1/PRI must have the Ring-in destination set for "Call Routing Table" for both Day and Night Mode. To determine if the CO Trunk Group is set for CRT, navigate to System > Devices and Feature Codes > CO Trunk Groups. Double left click the CO Trunk Group Extension containing the T1/PRI B Channels. In the field after Ring-in Day Mode and Ring-in Night Mode the value must be set to "Call Routing Table". The "Extended Value" is the Table Number.

To create a table entry, navigate to System > Trunk Related Information. Double left click over Call Routing Tables on the right pane. Double left click over the Table number that the CO Trunk Group was set to utilize. In a clear area of the right pane, right click and select "Add 1 to list...".

In the newly created entry, in the "Pattern" field enter the DNIS pattern associated with the dedicated Telephone number. Enter a description such as "REMOTE MDM" or "PROGRAMMING". Set the Ring-in destination to the Modem Extension.

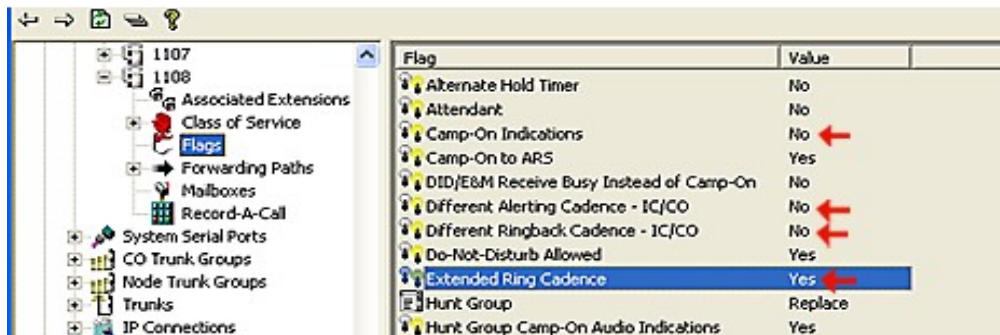


### Configuring a Single Line Port for a Modem

If the modem is connected to a single-line port on a SL Card or Module, a port on a Single Line Adapter (SLA), a phone with a Modem Data Port Module (MDDPM), the following custom programming must be performed on the extension.

Navigate to System > Devices and Feature Codes > Stations, Endpoints or Phones > {Specific Extension} > Flags. Change the following Flags

- Camp-On Indications: No (default is Yes)
  - Different Alerting Ring Cadence Intercom (IC)/CO: No (default is Yes)
  - Different Ringback Cadence: No (default is Yes)
  - Extended Ring Cadence: Yes (default is No)
- as depicted in the image.



### 7.2 Instructions to set up remote access through a Serial to IP Server

The Office Automation Serial to IP Server comes with a "Quick Start Guide" with all the information required. This manual is also available online at the Office Automation On-Line Support Technical Resource Center (TRC) at [www.support.offauto.com](http://www.support.offauto.com). By default settings, the Serial to IP Server uses IP Port 4660/TCP. To be accessible from the Internet, you will need to set up Network Address Translation (NAT)/Port Address Translation(PAT) on your Internet Gateway Router for this port.

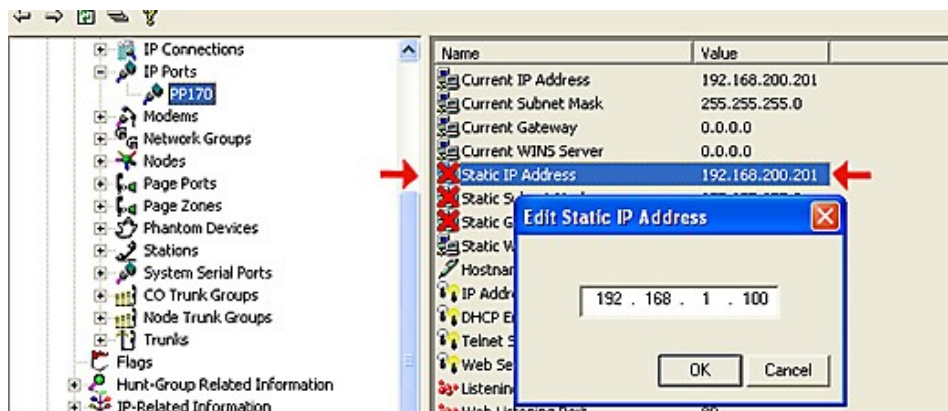
You may purchase the Office Automation Serial to IP Server from the Office Automation Web site at [www.offauto.com](http://www.offauto.com) or by contacting the Sales department at 1-800-393-1106.

### 7.3 Instructions to set up remote access to a CPC Network Connection

You will need to configure the CPC with a Static IP Address compatible with your LAN through a Serial connection or a Network connection. After the CPC is initially configured with this Static IP Address it will be accessible from any computer on your LAN.

The Axxess CPC card utilizes IP Port 4000/TCP. To be accessible from the Internet, you will need to set up Network Address Translation (NAT)/Port Address Translation(PAT) on your Internet Gateway Router for this port.

To set the IP address on the CPC, navigate to System > Devices and Feature Codes > IP Ports > PP170 (CPC IP Port 1). On the right pane, double left click over the Extension number. In the field after Static IP Address, right click over the IP Address, then left click on "Edit". Enter the LAN Compatible IP Address in the



pop-up window. Now set the Subnet Mask and Default Gateway. Set "DHCP Enabled" to "No" by clicking over the word yes and unchecking the check mark.

#### 7.4 Instructions to set up remote access to a CS-5000 Network Connection

You will need to configure the CS-5000 with a Static IP Address compatible with your LAN through either the front panel or through a Session Manager Database Programming.

To change the IP address through the Front Panel, press the large button to open up the Menu selections, use the arrow buttons to navigate to the following:

Network Menu > Configure > IP ADDRESS. Then do the same for Subnet Mask, Default Gateway and to disable DHCP.

The CS-5000 version 3.X and earlier utilizes IP Port 4000/TCP. CS-5000 Version 4.x System Administration & Diagnostics and higher utilize both Port 4000/TCP and Port 44000/TCP. To be accessible from the Internet, you will need to set up Network Address Translation (NAT)/Port Address Translation(PAT) on your Internet Gateway Router for these ports.

## ERRORS AND TROUBLESHOOTING

For errors and troubleshooting for external devices, please refer to the manufacturers installation and troubleshooting manuals. For internal Modems and Network connections, please refer to the Inter-Tel / Mitel Installation and programming manuals.

Check and verify all cable connections. For network Connections you will require a computer connected to the network with the Communications System for troubleshooting.

### Modem Connection Troubleshooting:

If you are using a stand alone modem, are you using the specially configured modem with the correct cables? A standard out of the box modem will not work to allow Session Manager to connect to the communication system. Are you using the proprietary modular adapter connected to the modems DB-25 port?

Have you tested the telephone number, telephone jack and line cord by unplugging the line cord from the modem and plugging it into a standard telephone to assure that it can receive calls?

If the modem is connected to a Single Line Port, have you configured the port correctly? Refer to the section "Configuring a Single Line Port for a Modem" in this guide. If you are using an Internal Modem, have you called the external modem phone number from a standard phone to see if you receive a modem handshake tones?

If the modem connected to the Communications System answers the call, but you are unable to establish a Session Manager connection, the modem in your programming computer may be incompatible with the modem on the Communications System. It is recommended that you use a US Robotics 56K External Modem on your programming computer to program the Communications System. The modem on your programming computer may use the standard configuration.

**Network Connection Troubleshooting:**

Does the CPC, CS-5000 or IP to Serial Server have a network connection?

Have you verified that the device are set to the correct IP address? After changing the IP Address, the device may require a reset. Can you PING the CPC, CS-5000 or IP to Serial Server, IP Address?

Can you access the Web Page of the CPC, CS-5000 or IP to Serial Server?

**SUMMARY AND RECOMMENDATIONS**

This guide has outlined some possible methods to provide remote access to an Inter-Tel / Mitel Communication System. Modem communications have always been unreliable and slow and should only be employed when a network option is unavailable. It is highly recommended to implement a network based solution.

If you are unable to successfully implement a Remote Access solution yourself, you may contact the Office Automation Sales Department at 1-800-393-1106 to arrange for one of our partners to come to your site to implement a solution for you.

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## **Appendix A – Default TCP/IP Port References**

Axxess and CS-5000 Version 3.X and earlier Session Manager

TCP Port 4000

CS-5000 Version 4.x and newer System Administration and Diagnostics Session Manager

TCP Port 4000 & TCP Port 44000

Office Automation Serial to IP Server

TCP Port 4660

VNC Server (Real, Tight)

TCP Port 5900

Symantic PCAnywhere

TCP Port 5631 & UDP Port 5632

Windows Remote Desktop Connection

TCP Port 3389

## **Appendix B – Glossary of Acronyms**

CO - Central Office

CRT - Call Routing Table

DHCP - Dynamic Host Configuration Protocol

DNIS - Dialed Number Information Service

KSU - Keypad Service Unit

LAN - Local Area Network

NAT - Network Address Translation

PAT - Port Address Translation

POTS - Plain Old Telephone Service also referred to as Loop Start

PRI - Primary Rate Interface

TCP - Transport Control Protocol

UDP - Universal Datagram Protocol

VPN - Virtual Private Network