

Using the Service Shell Host Configuration Wizard to Set Up Microsoft Windows as a PPP Server for MCE Devices

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Revision History

Revision	Date	Author	Comments
1st	03 Nov, 2004	S. Stacey/J. Delgado	Document for Windows PPP server setup revised for use with Service Shell 2.6 Configuration Wizard.
2nd	16 Nov. 2004	B. Yager	Changed the overview section, new communication architecture diagram, and reorganized some content. Changes for Windows Professional workstations.
3rd	19 Nov. 2004	B. Yager	Added Creo Feature Licensing requirement to overview and troubleshooting sections. Minor changes to architecture diagram.
4th	23 Nov. 2004	B. Yager	Minor changes from ServiceWire team feedback
5th	14 Apr. 2005	S. Stacey/J. Delgado	Revised information about creating MCEDevice account
6th	02 June 2005	S. Stacey/J. Delgado	Revised the information about the range of IP addresses required when performing the setup procedure in Windows 2000. Although only three are required for the setup, the wizard requires a minimum of four.
7th	22 Nov. 2005	S. Stacey/J. Delgado	Corrected information in Selecting an Authentication Server

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OVERVIEW

The purpose of this document is to help you set up a Print Console workstation that is running Microsoft® Windows® 2000 (Professional or Server) or Windows Server 2003 as a point-to-point protocol (PPP) server using the configuration wizard in Service Shell.

Note: If you are using a version of Service Shell earlier than 2.6, you must use the procedures in one of these documents:

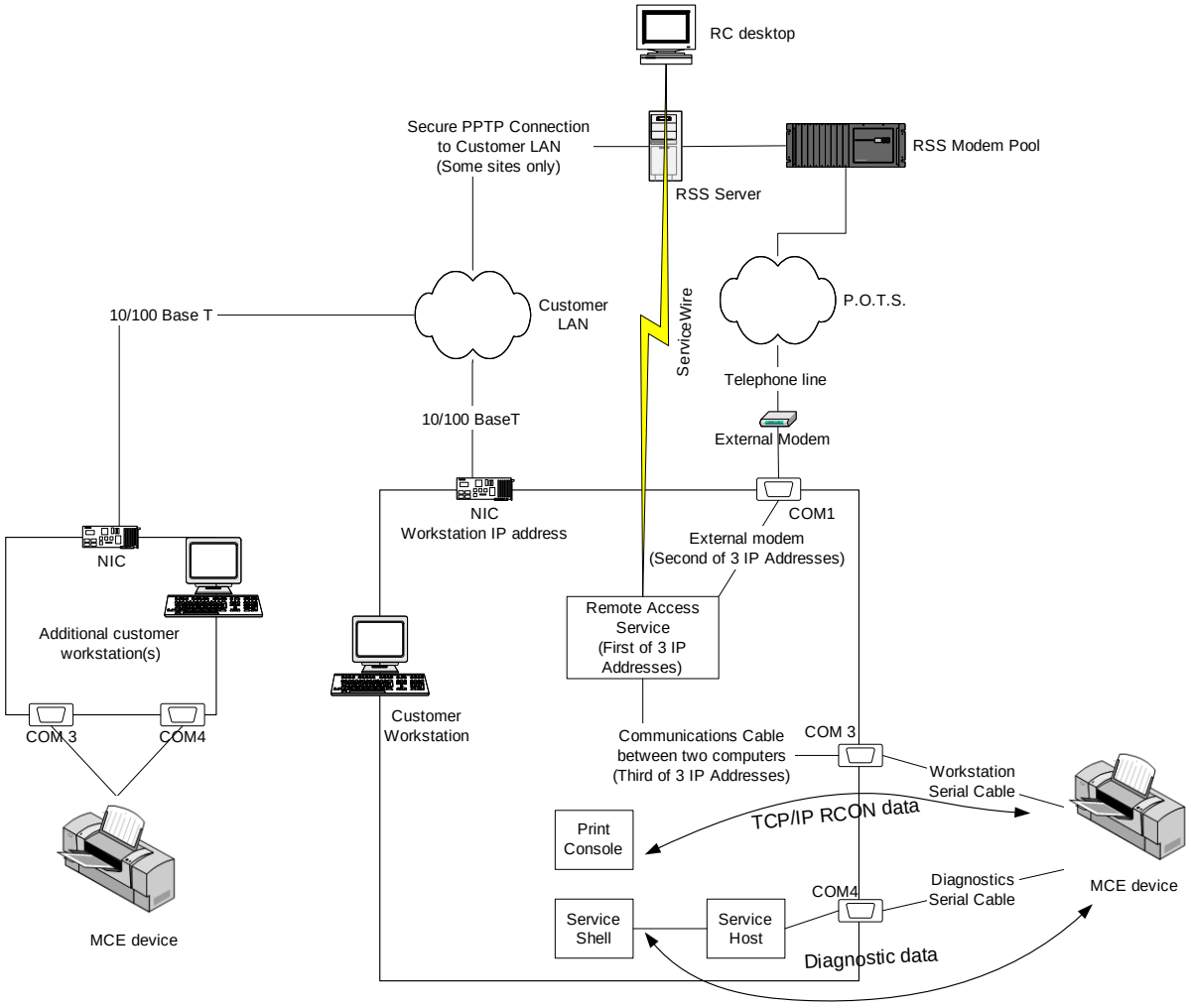
- *Configuring Windows 2000 as a PPP Server for MCE TCP/IP Serial Connection with Print Console*
- *Configuring Microsoft Windows Server 2003 as a PPP Server for MCE TCP/IP Serial Connection With Print Console*

Note: The TCP/IP configuration feature in the Service Shell host configuration wizard is a Service licensed tool. Creo Feature Licensing must be installed and a Service License must be present to use this tool. If this is not possible, you must use the procedures in one of the documents above. Information about Creo Feature Licensing is available through the Feature Licensing link on the Service Shell TechPlanet home page.

Communication Architecture

The information in this document is mainly concerned with establishing a connection between the MCE and Print Console. Because both the MCE and the Response Center use the Remote Access Service to establish a TCP/IP connection to the workstation, it is important that setting up an MCE does not break Response Center connectivity.

The following diagram shows the network and communication architecture for a Print Console workstation connected to an MCE device and the Response Center:



The following components are relevant for this configuration:

Customer Workstation – This is the Microsoft Windows computer that will be configured to communicate with an MCE device. Print Console runs on this workstation. Service Shell may or may not be running on this computer.

Additional Customer Workstations – These are additional workstations connected to Creo output devices. The Response Center may need to connect to and diagnose problems on these workstations via a modem connection to the Customer Workstation (above).

RC Desktop – The Response Center desktop computer is used by Response Center personnel to connect remotely to the workstation to diagnose and troubleshoot problems. The remote connection is established and managed by ServiceWire.

ServiceWire – The ServiceWire connection allows Creo computers to connect to the workstation. There are two methods to establish the connection, the traditional modem connection via telephone lines (P.O.T.S.) or via broadband connection and point-to-point tunneling protocol (PPTP). Note that broadband connections are currently only available at select sites so the modem connection method must continue to be created and supported.

Modem – The modem installed on the customer workstation allows Response Center personnel to connect remotely to the workstation via Remote Access Service. The modem has its own IP address, usually the second address in the IP pool.

MCE – The MCE based device has both a workstation and diagnostics serial connection to the workstation. Print Console communicates primarily via RCON commands sent as TCP/IP packets over the workstation serial link to control the device.

Diagnostics serial link – The diagnostics serial link is used to send and receive ASCII based data to the MCE for troubleshooting and service related communication.

Workstation serial link – The workstation serial link is used to send and receive TCP/IP based RCON (recorder control) data to control the output device operation.

NIC – The network interface card permits the broadband connection to the workstation to be established from the RSS server at Creo, and allows connections to other customer workstations via a single modem connection (that is, dial-up one modem at a site, and access any other workstation at the same site).

Print Console – Print Console communicates with the MCE via RCON (recorder control) commands/responses sent as TCP/IP packets over the workstation serial connection.

Remote Access Service – The remote access service authenticates incoming connections (from either the modem or MCE) and manages the IP addresses and IP routing

How the devices communicate after Windows is set up as a PPP server

When Windows is functioning as a PPP server, it can accept incoming communications from:

- The MCE output device to which the workstation is connected (via communications cable between two computers COM3)
- The modem that is used for remote support (typically through COM1)

When the MCE firmware tries to establish an authenticated connection with the server over serial COM3, it provides its IP address, account, and password. Windows compares the account and password with the account and password in its own user account and authenticates the device. Print Console uses its registry and the HOSTS file to map to the correct IP address to communicate with the device.

PPP server setup affects only the workstation serial port (normally COM3). The diagnostic port (normally COM4) has not changed and still uses the same protocol to communicate with Service Shell.

Process for setting up the workstation as a PPP Server:

To set up the workstation as a PPP server, the following steps should be followed. Each of these steps is expanded in the remaining sections of this document:

1. Gathering Information – See Section 1
2. Verify minimum requirements – See Section 2

3. Create a user account for the MCE – See Section 3
4. Use the Service Host Configuration Wizard in Service Shell to configure the system automatically – See Section 4
5. Enable Remote Access Logging (Optional – Windows servers only) – See Section 5

1 GATHERING INFORMATION

The following checklist of information contains information that is important for future steps in the procedure for configuring the workstation as a PPP server. Gather the following information before proceeding further.

	Information	Source	Comment
	RAS IP Pool	Network administrator	See "Selecting an IP Pool" below. If you are performing the setup on a system running Windows 2000, be sure to read Important Note For Windows 2000 Users on page 5.
	Operating System	System Properties	Right click "My computer" on the desktop then click "Properties". Need to know which of the following operating systems is installed: - Windows 2000 Professional - Windows 2000 Server - Windows 2003 Server
	Administrator username and password	Network administrator	The Host configuration utility must be run while logged in as an administrator because it automatically updates system parameters which require administrator access.

Selecting an IP Pool

Selecting a correct range for the IP pool is important to ensure that both the Response Center can connect to the Creo workstation(s) at the site remotely and Print Console can successfully communicate with the MCE.

Note: Before using the Service Shell host configuration wizard, ensure that an IP address has been assigned to the workstation's network card that is connected to the customers LAN. (To verify this, type 'ipconfig' at a dos prompt and note the IP address assigned.)

You will need three more static IP addresses (in addition to the one for the workstation's connection to the LAN) for the procedures in this document. These addresses must be consecutive. The first address is for the workstation socket. The second is for the RAS

modem. The third is for the output device, and is the IP address that will be entered in the HOSTS file and in the firmware by the host configuration wizard.

The following guidelines should be followed to select the IP address:

- The IP addresses should be consecutive
- They should not be assigned to any other network device in the customers LAN. This should be verified by the customer IT department
- They should be on the same subnet as the IP address for the workstation network card

CAUTION: An IP pool of non-routable IP addresses (such as 169.254.255.xxx style addresses) must NOT be used unless absolutely necessary. Although these addresses will work for Print Console <-> MCE communication, they will result in connectivity problems from the Response Center. (Using these style addresses will prevent the Response Center from being able to connect remotely to other workstations/devices at the site through the modem on this workstation.)

1.1 Important Note For Windows 2000 Users

If you are performing the setup on a workstation using Windows 2000, you will require **four** consecutive IP addresses (***not*** including the IP address for the network card). Only three are actually needed for the PPP Server setup, but the wizard will not accept fewer than four.

If you enter only three addresses in the wizard in Service Shell 2.6 SP1, you will receive a warning that asks if you want to proceed with four addresses. If you say "Yes", the wizard will automatically increment the number to four by adding the next consecutive address–but you must make sure that the fourth address is set aside by the customer's IT department for PPP server use only.

If you enter only three addresses in the wizard in Service Shell 2.6, there will be no warning, but the wizard will finish with errors that do not directly point to the fact that you should have entered four addresses. There will be no communication with the device.

Be sure to reset the device and reboot the workstation.

2 CHECKING REQUIREMENTS

2.1 Operating System and Software version Requirements

Microsoft Windows 2000 (Professional or Server) or Windows Server 2003

Service Shell Host version 2.6 or higher (which requires Microsoft .NET and the .NET Service Pack 1)

Print Console version 3.17 or higher

Prinergy version 2.1 or later, if installed

Creo Feature Licensing version 1.1 or later, and a valid service dongle is present

2.2 MCE Requirements

Use the Service Shell Client to check whether the MCE Device firmware supports TCP/IP. Type the command Net Status, Help Net Set Net. The results should match the information below (results may not be exactly as shown, depending on the version of firmware).

```
TSSPENG>> net status
Net Interface Port Information:
Port Type:      SERIAL
Serial Port Id: 53
Baud Rate:      57600
Protocol:       PPP Client
Protocol Link:  Down
Net disabled:   FALSE
*** Command Complete
TSSPENG>> help net
net status                          Net Interface Status
net newaccount <n> <name>
<n>                                 Which account number to update
<name>                              Update the account name
net newpassword <n> <password>
<n>                                 Which account number to update
<password>                          Update the account password
net <on|off>                        Net Subsystem Commands
<on|off>                            <on|off>
*** Command Complete

TS>> set net
PRM net parameters:
Group        Parameter       Active             Default            Units
--------------------------------------------------------------------------
-
net          IpAddress        ""                ""
net          NetMask          ""                ""
net          Gateway          ""                ""
net          AccountName      ""                ""
```

```
net   NetDisabled false       false

*** Command Complete
```

TMCE Board with ECO 810 implemented. Check this using one of the following methods:

- Check the revision level on the board label. It should be at least TMCE 10-4766A-C.

- In the Service Shell Client, type *TS>> list version*
  Version Information:
  FW: TSMCE Jul 09 2002 18:07:18
  Version: 1.03.04 Build No: 00409
  Built using Baseline #2399 - Jun 06 2002
  HW: Master Control Electronics Hardware Board (MCE)
  MCE PCB Version is 04 or higher
  MCE PCB Population Option Number 01, 02
  Xilinx Version: 1.05
  Machine Serial Number: **Not Available**

- Visually inspect the MCE board for:
  Jumper wire between pins 1 and 7 on serial port connectors J37, J38, J39, and J40.
  Jumper wire between pins 1 and 2 on J35, which is the version register.
  (All jumper wires are soldered on the rear side of the board. On the latest boards, the jumpers are an integral part of the board).

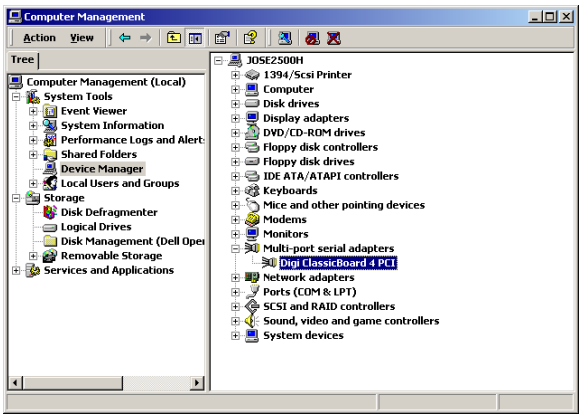
2.3 Multi-Port Serial Adapter Requirements

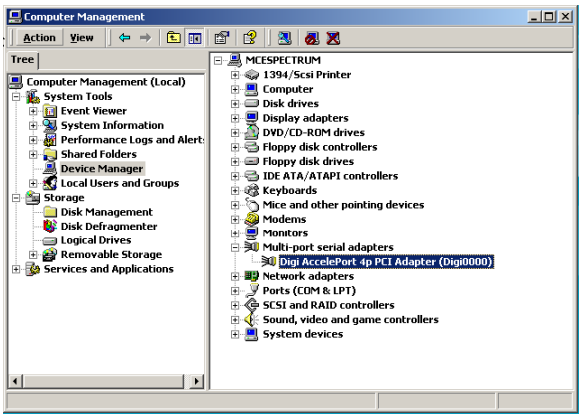
1. The Digi ClassicBoard 4 PCI W2K driver is preloaded in the ghost OS image. Use this procedure to verify that the driver is correctly loaded and that COM3 to COM6 exist:

   - Right-click the **My Computer** icon on the desktop and select **Manage**.

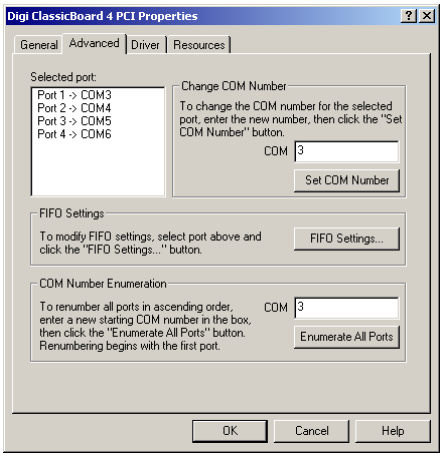
   - In the left pane click **Device Manager** and in the right pane double-click **Multi-port serial adapters**.

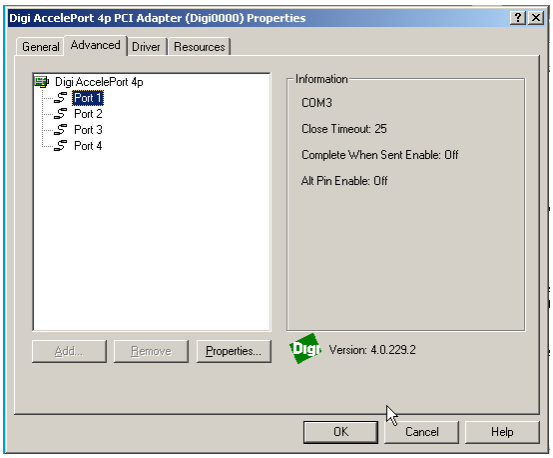
   - Verify that the PCI adapter appears—this could be the **Digi ClassicBoard 4 PCI** or the **Digi AccelePort 4p PCI** adapter.



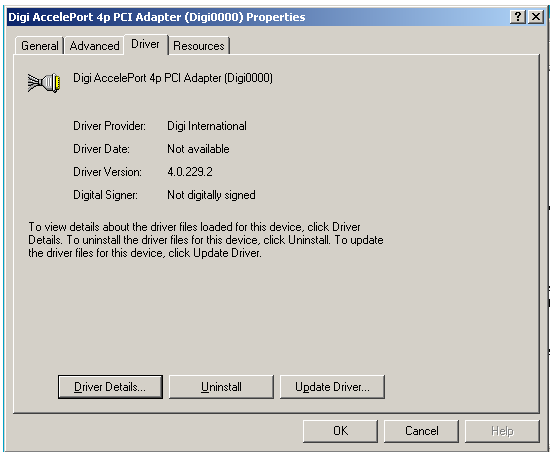


- Right-click on **Digi ClassicBoard 4 PCI** or **Digi AccelePort 4p PCI** and select **Properties** to open the device properties window.
- Select the **Advanced** tab.
- Verify that Ports 1-4 are mapped to COM3-COM6 as shown in the next pictures. **Note:** Depending on your setup, this window may look different.





- For the Digi AccelePort board verify the driver version is 4.0.229.2 or higher.



2.4 Modem Requirements

Ensure that the modem is installed and configured for COM1

1. Select **Start > Settings > Control Panel > Phone and Modem Options**.
2. Select the **Modems** tab.
3. Make sure that the modem you have set up for remote support is the only modem assigned to COM1. If there are other modems assigned to COM1, delete them.

3 SELECTING AN AUTHENTICATION SERVER

This step determines the name of the computer on which Windows will authenticate the connection (compare the account and password with the account and password provided by the output device). You must decide whether authentication will take place on a workstation or in the domain, and then create a registry entry and an MCEDevice account on the appropriate server:

- If you are authenticating the connection on the local workstation (recommended), create this registry entry on the local workstation:
  HKEY_LOCAL_MACHINE \ SYSTEM \CurrentControlSet \ Services \ RasMan \ PPP \ ControlProtocols \ BuildIn \ DefaultDomain = [name of local workstation]

  (**Note:** If the customer wants *operators* to authenticate with the domain controller, that is done in the usual way, but the *device* will authenticate with the local workstation.)

  If you are authenticating the connection on the domain, ask the network administrator to create this registry entry on the domain controller:
  HKEY_LOCAL_MACHINE \ SYSTEM \CurrentControlSet \ Services \ RasMan \ PPP \ ControlProtocols \ BuildIn \ DefaultDomain = [name of domain controller]

- Create an MCEDevice account on the same computer on which you created the registry entry (above).

If you are authenticating the connection on the local workstation (recommended), create the MCEDevice account using the procedure in section 3.1.

If you are authenticating the connection on the domain, ask the network administrator to create an MCEDevice account with these properties on the domain controller:

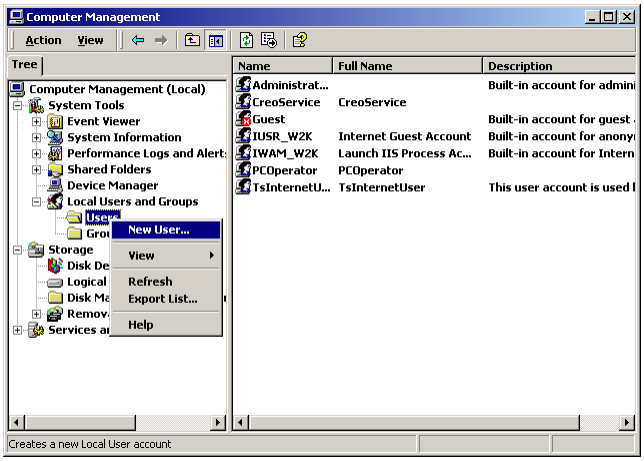
Username:	MCEDevice
Password:	Creo1Spot
Properties:	Account is enabled
	Account is not locked out
	User must change password at next login = FALSE
	Password never expires = TRUE
	RAS access = Defined by Remote Access policy

3.1 Creating an MCEDevice Account on the Authentication Server

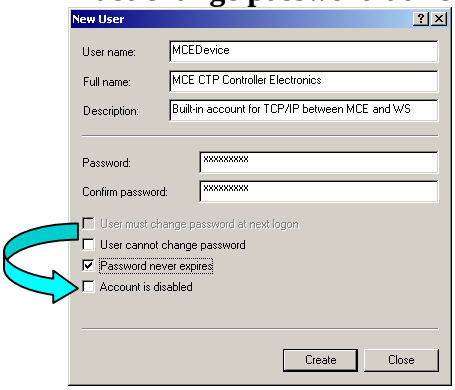
The MCEDevice user account may have already been created on the machine. If not, you must create it now. If you are creating the MCEDevice user account on the local machine (recommended), use the following procedure.

Create a new user account:

1. Right-click the **My Computer** icon on the desktop and select **Manage**.
2. Double-click **Local Users and Groups**, right-click **Users**, and click **New User** to set up a user account for the connection.



3. Enter the user information shown below. Make the password `Creo1Spot`, clear **User must change password at next logon,** and select **Password never expires.**



4. Click **Create**.

5. Close the window.

4 USE THE HOST CONFIGURATION WIZARD IN SERVICE SHELL TO CONFIGURE WINDOWS AS A PPP SERVER

In this procedure you will configure the Print Console workstation to act as a remote access server. Use the onscreen instructions in the Service Shell configuration wizard and the Service Shell online help to perform this procedure.

The exact configuration for the workstation depends on the customer's requirements and needs. For security reasons, workstations leaving Creo are configured as servers within a workgroup. They have non-routable addresses and the Response Center cannot access other devices on the rest of the customer's corporate LAN. *The TCP/IP addresses shown in the procedures are not valid numbers and must be changed to meet the customer's specific requirements.*

Note: In an MCE with TCP/IP connection to the workstation, *do not use the directions in the operating system's installation document to configure the Remote Access Server*. This will interfere with the MCE connection. Use the Service Shell host configuration wizard for all RAS settings.

The Service Shell host configuration wizard will complete the following actions:

- Ensure the Remote Access Service is enabled and running.
- Configure Remote Access Service for MCE communication.
- Install and configure a "Communications Cable between two computers" modem.
- Verify the MCEDevice (or alternative) account properties.
- Store the MCE IP address, MCEDevice username and password in the MCE NVS.
- Enable the CreoService and Administrator accounts for Remote Access.

- Store the MCE IP address in the HOSTS file.
- Reset the MCE (if necessary) to pickup and changes in the MCE NVS.
- Verify TCP/IP communication with the MCE.

At the end of the configuration process the host configuration wizard will display a dialog indicating whether the process was or was not successful. If the configuration process failed, proceed to section 6 for troubleshooting tips.

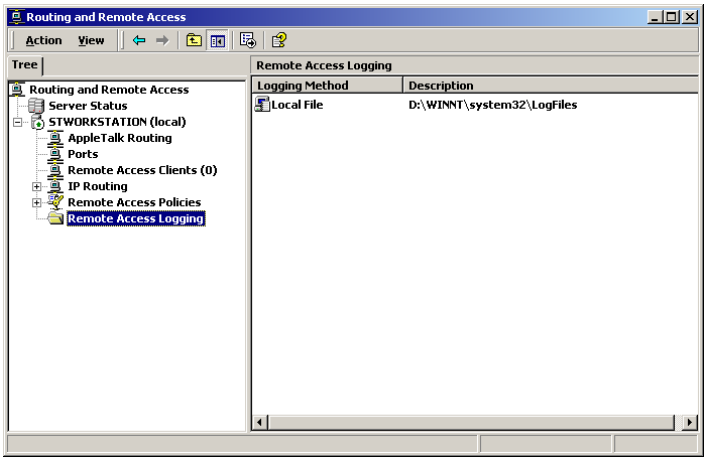
5 CONFIGURE THE LOG FILES

Windows 2000 Server and Windows 2003 provide additional logging for Remote Access that may be helpful to diagnose problems establishing a connection from the MCE or the Response Center. Although this step is optional, it is recommended to enable these additional logs.

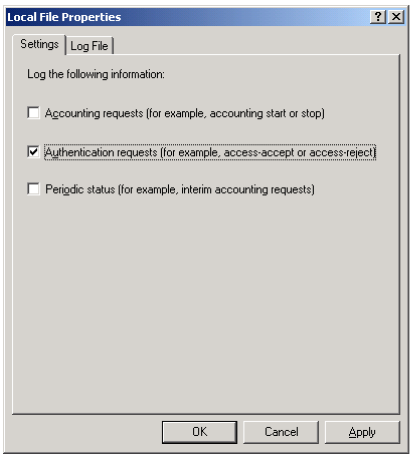
For Windows 2000 Professional or Windows XP, no additional logging is possible and the following steps should be skipped.

To set up log files:

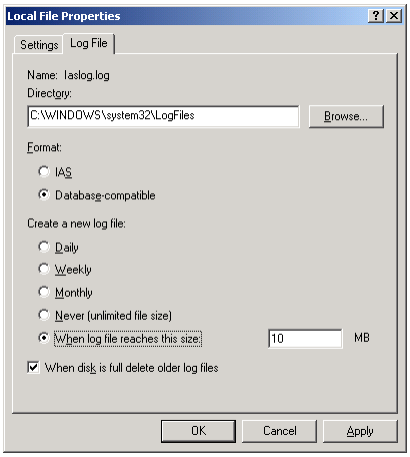
1. From Control Panel, select **Administrator Tools**, then **Routing and Remote Access**
2. Highlight the **Remote Access Logging** folder
3. Highlight **Local File**, right-click, and select **Properties**.



4. In the **Settings** tab, select **Log authentication requests**.



5. In the **Log File** tab, in the F**ormat** section, select **Database compatible**. In the **Create a new log file** section, select **When log file reaches this size** and enter a size in the **MB** box (suggested size is 5 - 10 MB).



6. Click **OK**.

6 TROUBLESHOOTING

Note: You can use the log files to check for troubleshooting data.

6.1 The Host Configuration wizard reports 'TCPIP configuration wizard is not licensed'

Problem: When the MCE TCP/IP Configuration page is displayed, the following error message is displayed:

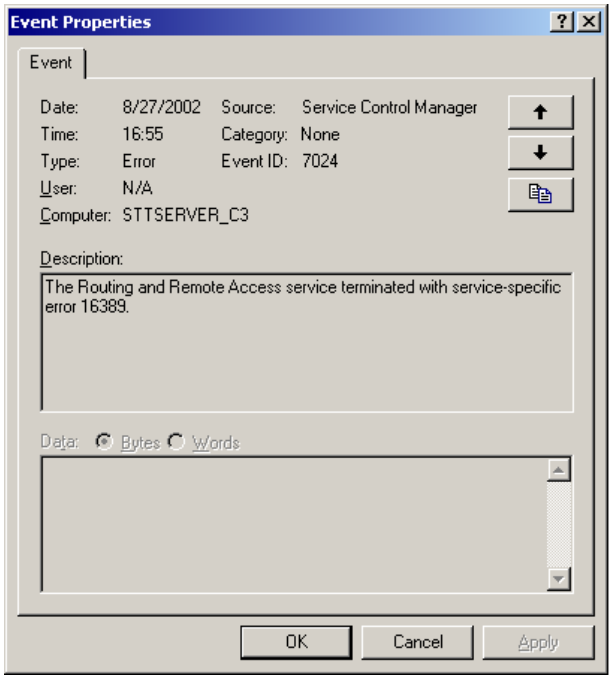
> "The TCPIP configuration wizard is not licensed on this workstation. Contact Creo to obtain a valid service dongle/license."

Solution: The MCE TCP/IP configuration page is a Service licensed feature and is only available to Creo authorized service personnel. To enable this feature on the workstation, Creo Feature Licensing (version 1.1 or higher) must be installed and running on the workstation. A valid Service license must be present as well. This Service license may take

the form of a personal dongle with Creo access level (local or remote), or a text based license. Consult Creo Feature Licensing documentation for further details.

6.2 Unable to Start 'Routing and Remote Access Service'

Problem: Windows displays the error message `The Routing and Remote Access Service terminated with service-specific error 16389` as shown in the "Event Log" error shown:



This problem has two possible solutions:

Solution 1: Cannot create temp files for the following reasons.

1. Confirm the following system variables are correctly set up:

   TEMP <*systemdrive*>:\WINNT\TEMP

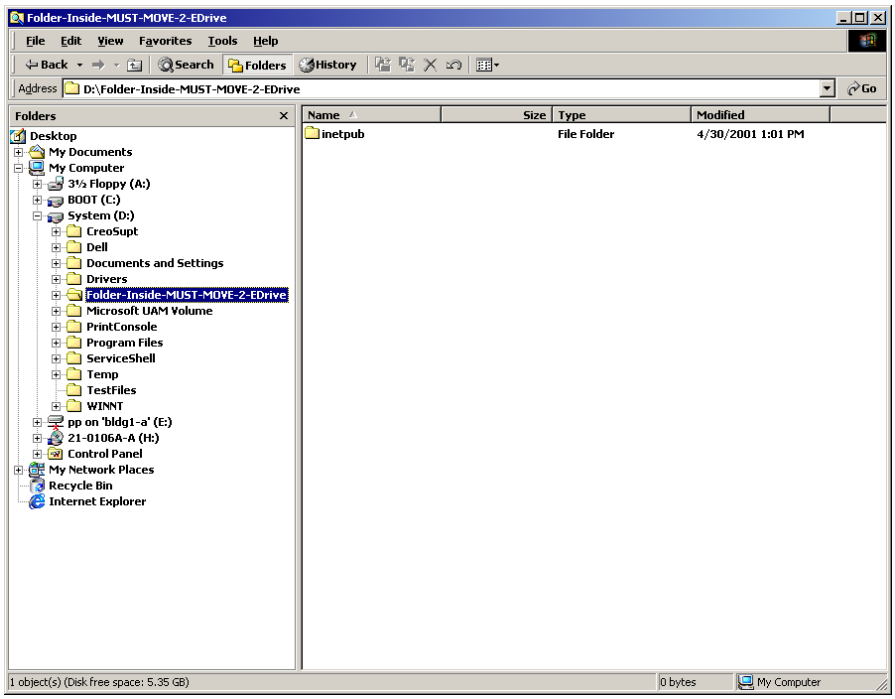
   TMP <*systemdrive*>:\WINNT\TEMP

2. The service usually runs in the local system account and tries to use **<*systemdrive*>:\WINNT\TEMP** as the temp folder. In the NTFS permissions for this folder, there has to be the user "SYSTEM"with full control permissions.

3. Give the "SERVICE" user full access permission to the **<*systemdrive*>:\WINNT\TEMP** folder.

Solution 2: Internet information services (IIS) has not been properly installed. When using Windows 2000 Server, production ghosts the server and leaves the folder **inetpub** inside the folder **Folder-Inside-MUST-MOVE-2-EDRIVE** in the system drive (D:) to be moved at a later day. To resolve this problem, move this folder to the root of E: drive.

This problem has been found in Prinergy secondary servers.



6.3 Routing and Remote Access Server Stops Authenticating Dial-Up Networking Clients

Problem: Windows 2003, Windows 2000, NT, 98, 95 error messages:

619 The port was disconnected.

645 Dial-Up Networking could not complete connection to the server.

930 The authentication server did not respond to authentication requests in a timely fashion.

This problem happens when the account you used to log on at the time you joined the domain didn't have administrator privileges on the Windows 2000 based domain.

Solution: You must register the RRAS server in Active Directory using an account that has domain administrator permissions.

For Windows 2003- or 2000-based and Windows NT-based RRAS or RAS servers:

1. Log on to your computer with an account that has administrator privileges on the Windows 2000 domain.
2. Launch the **Active Directory Users and Computers** MMC snap in and then double click the domain name.
3. Double-click the **Users** folder and then double-click the **RAS and IAS Servers** security group.
4. Select the **Members** tab.
5. Add the RRAS server to this group.

For Windows 2000-based RRAS servers:

1. Log on to the RRAS computer using an account that has domain administrator privileges, type `netsh ras add registeredserver` at a command line and then press ENTER.

An alternate method to run a command with administrator privileges without being logged in as an administrator.

1. At a command line on the RRAS computer, type `runas / user:<domain name>\<administrator name>"cmd"`.
2. Type your password at the prompt; the computer will connect to the domain controller and verify the credentials.
3. A command line will open with the message:

   `Cmd (running as domain name\administrator name)`

4. At a command line, type `netsh ras add registeredserver` and then press ENTER.

Windows will display one of the following messages:

```
Command is successful:
   Registration completed successfully:
   Ras Server: RAS server name
   Domain: domain name
Command is not successful:
   Registration FAILED:
   RAS Server: RAS server name
   Domain: domain name The specified domain either does not
      exist or could not be contacted
```

6.4 Device Does Not Connect and Cannot Ping the MCE

Problem: The workstation or the device does not connect.

Solution 1: Make sure that the workstation and device passwords match.

1. Because the password in the device does not display, the only way to be sure of what it is, is to change it: type `TS>>net newpassword 1 Creo1Spot.`
2. Also change the workstation password for the MCEDevice account to `Creo1Spot`.
3. Reset the device.

Note: The 'TR' light on the modem indicates the RAS status:

On – modem is set up correctly

Off – modem is not set up correctly

6.5 The wizard finishes with errors and there is no communication with the device

If you are performing the setup on a workstation using Windows 2000, you require **four** consecutive IP addresses (***not*** including the IP address for the network card). Only three are actually needed for the PPP Server setup, but the wizard will not accept fewer than four.

See Important Note For Windows 2000 Users on page 5.