



**NCD ThinPATH Portal
Administration Guide
Version 4.0**

NCD ThinPATH Portal Administration Guide

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Revision History

August 20, 2004, Version 4.0
May 23, 2003, Version 3.3, Rev. A
April 9, 2003, Version 3.3
January 17, 2003, Version 3.2

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Introduction

ThinPATH Portal is the one tool that empowers an IT department to easily deploy and manage thin-client desktops, whether they are PCs running NCD's new ThinPATH PC software, NCD's ThinSTAR Windows-based terminals or other selected thin-client devices.

ThinPATH Portal provides automated software deployment, centralized configuration distribution, and remote management. It gives administrators a tool to easily deploy the user's thin-client desktop—either individually or on a group basis—with connections, device settings and software configuration. And by restricting access to low-level control panel or configuration utilities, an administrator can prevent locally installed applications and can protect against accidental changes that may affect desktop stability.

Since the HTTP protocol is used for all property and connection management communications and most networks support HTTP, remote management can even be performed securely from beyond a typical firewall.

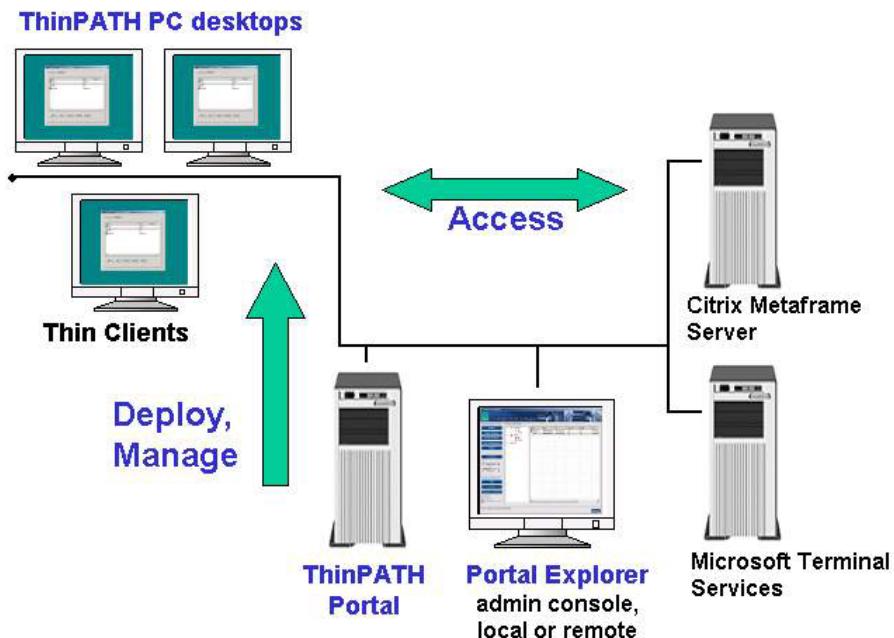


Figure 1

ThinPATH Portal Explorer

ThinPATH Portal's management and reporting capabilities are accessed through NCD Portal Explorer, a utility that can run on the Portal's console or that can be easily deployed to and operated from a PC anywhere on the network.

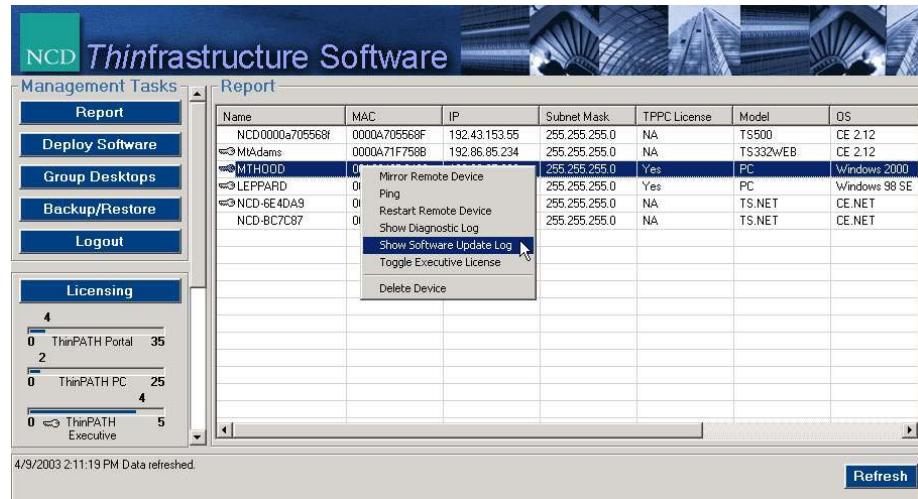


Figure 2

Portal Explorer capabilities include:

- Obtain software version and configuration reports on all ThinPATH PCs and ThinSTAR devices
- Manage software distribution for all supported desktops
- Manage device properties and connections by groups for each model
- Use secure NT authentication for administrative or general use
- Manage ThinPATH licenses
- Portal Explorer runs in a resizable window for display on lower resolution monitor
- Right-click on devices in the Report window for:
 - Diagnostics
 - Registry and process information
 - Network tests (ping utility)
 - Remote reboot of desktop devices (immediate or scheduled)
 - Wake on LAN for those devices that support it
 - Launching NCD Desktop Mirror

NCD ThinPATH PC

ThinPATH Portal includes software for deploying and managing NCD's ThinPATH PC desktop solution. ThinPATH PC converts a PC running Microsoft Windows with Internet Explorer into a thin client, providing a dedicated user interface to **local or server based** applications. Once installed, ThinPATH PC accesses the Portal to obtain licenses, software updates, host connections and device properties, allowing easy remote management of PCs. For additional information on ThinPATH PC, consult the ThinPATH PC User's Guide referenced in the Additional Documentation section of this document.

ThinPATH PC includes the following features:

- Replaces the standard Windows shell with a Windows-style interface, shown in Figure 3, or a Windows-based terminal style interface, both allowing for very easy use.
- Allows users to add, delete, edit and access connections to server-based Windows applications via RDP and ICA protocols and also to web servers.



Figure 3

- Provides access to local applications residing on the PC.
- Provides an optional background browser control to an internet/intranet web page (or Citrix Nfuse server).
- Configuration page with a wide range of options that allows an administrator to restrict access from users to system and low-level hardware configurations.

Quick Tour of ThinPATH Portal server applications

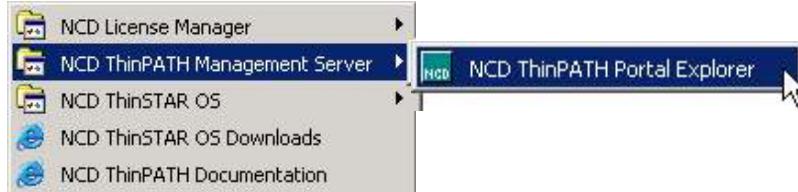


Figure 4

NCD License Manager

- A separate License management utility that supports NCD legacy licenses
- Use of the Portal's built-in licensing feature is recommended but this utility is helpful in debugging possible licensing problems.

NCD ThinPATH Portal Explorer

- This is the user interface for all management actions performed on the Portal. By default, it is installed when the Portal server is installed on a computer. Portal Explorer can also be deployed to a remote computer, allowing easy administration of ThinPATH Portal.

NCD ThinSTAR OS | NCD ThinSTAR Manager

- ThinSTAR Manager provided support for Legacy ThinSTAR terminals, which are now supported by the ThinPATH Portal. This utility can be helpful in debugging possible software deployment problems associated with Legacy terminals.

NCD ThinSTAR OS Downloads

- Launches an IE browser to the NCD web page containing operating system images for all NCD ThinSTAR terminals. These can be download to the Portal.

NCD ThinPATH Documentation

- Launches an IE browser to **NCD's ThinPATH Documentation** web page.

ThinPATH Portal Installation

ThinPATH Portal installation details are provided in a separate document. See the "NCD ThinPATH Portal Installation Guide and Release Notes", located at <http://www.ncd.com/products/software/thinpath/PortalInstallNotes.pdf>

Deploying software from the Portal

Using Internet Explorer on most PCs available today, ThinPATH PC is easily downloaded and installed, providing either a window-like or thin-client like interface for the user. Deployment of ThinPATH PC to the desktop and of Portal Explorer to a remote server is performed through a network installation feature of Microsoft Web Services.

ThinPATH Portal uses the Microsoft *virtual directory* feature of Internet Information Services (IIS) to deploy software packages and to manage remote desktops. A virtual directory appears to client browsers as though it were in the home directory on the web server. Through the virtual directory, an installation program can be downloaded via HTTP and executed on a local PC. Virtual directories are also used to communicate between the desktop device and the Portal, providing management of the desktop.

Portal Explorer is installed on the Portal server during the Portal's installation and can be run locally on the server's console. It can also be deployed to a remote server for use by other administrators or helpdesk personnel, providing control of all managed desktop devices from multiple administration points on the network. Portal Explorer is also deployed to remote servers using the virtual directory on the ThinPATH Portal. Figure 5 provides a sample installation image.

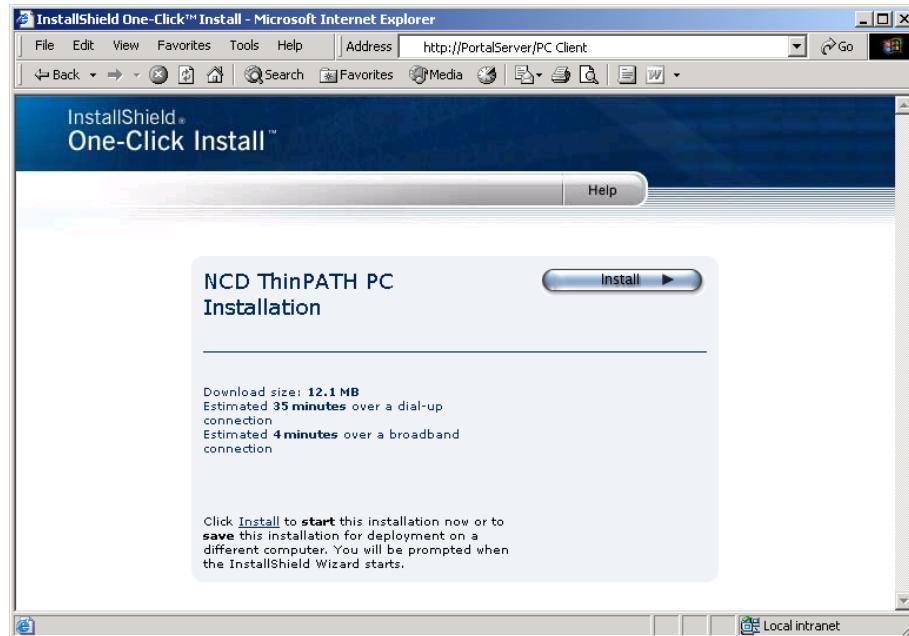


Figure 5

Deploying ThinPATH PC

Requirements

- ThinPATH PC can be installed on any PC with Microsoft Windows 2003, Windows XP, Windows 2000 Professional (SP2), Windows NT 4.0 Workstation (SP6), Windows 98, 98se or Windows 95
- Internet Explorer (IE) 5.0 or higher.

Procedure

1. Log in with administrative rights on the PC to be converted and then direct the IE browser to the “**PC Client**” virtual directory on the ThinPATH Portal server (e.g. “<http://server name/PC Client>” where “server name” is the host name of the ThinPATH Portal server.)
2. Click the “Install” button on the web page displayed to install the ThinPATH PC software, shown in Figure 5 above.
3. The installation program, InstallShield*, downloads files and configures ThinPATH PC. On completion, the PC will prompt to reboot.
4. After the PC reboots, verify that it is contacting the ThinPATH Portal – refresh the Portal’s “Report” window and the new ThinPATH PC appears. The ThinPATH PC will continue using the same Portal for its management that it used for installation, unless otherwise configured.
5. Repeat for each PC to be converted.

Deploying Portal Explorer

Requirements

- ThinPATH Portal Explorer can be installed and run on any PC with Microsoft Windows XP or Windows 2000.

Procedure

1. Log in with administrative rights, direct the IE browser to the “**PortalExplorerInstall**” virtual directory on the ThinPATH Portal server (e.g. <http://server name/PortalExplorerInstall> where “server name” is the host name of the ThinPATH Portal server.)
2. A “One-Click” web-based installation page appears. Click on Install. See Figure 5 above.
3. The installation program, InstallShield*, downloads files and configures Portal Explorer on the PC.

* InstallShield Developer v8.0

Managing desktops with Portal Explorer

Portal Explorer is the administrative interface for ThinPATH Portal and it provides a view into the state of the Portal to which it is connected. Whether Portal Explorer is running locally on the ThinPATH Portal server or Portal Explorer has been deployed to another device on the network, this is the interface used to query for information on desktop clients, update configurations, deploy software and manage the thin-client desktop devices.

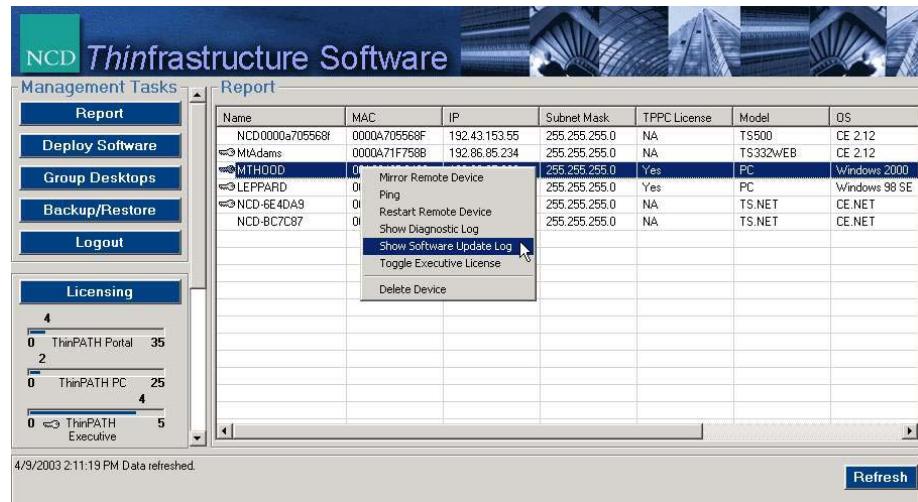


Figure 6

Logging in to Portal Explorer

To launch Portal Explorer from the console of the ThinPATH Portal or from a remote PC with Portal Explorer installed:

- Select **Start | Programs | NCDTools | NCD ThinPATH Management Server | Portal Explorer**. You will be presented with the Portal Explorer login screen.



Figure 7

- When logging into Portal Explorer, either enter "**localhost**" if Portal Explorer is running on the same server as the ThinPATH Portal, or

ThinPATH Portal Administration Guide

enter the name or IP address of the Portal server at the "Management Portal" prompt. Click on the "Login" bar.

Standard NT authentication will be used on the Portal server during connection. Using your current user credentials from wherever you are running Portal Explorer, ThinPATH Portal determines if you are connecting as a user with administrative rights, able to view and make changes to the Portal, or as a user with view-only capabilities.

Users with Administrative rights have full control of the Portal. Without these rights, the user can view devices in the Report view and use the right-click diagnostics tools, but cannot manage terminals or software. This level of use is optimal for some help desk access in troubleshooting terminal problems. See the Troubleshooting section on File and Registry Access Permissions for additional information.

If ThinPATH Portal cannot authenticate the user at all, username and password entry boxes are presented and the Portal will try to authenticate with the new credentials as a local account on the Portal server.

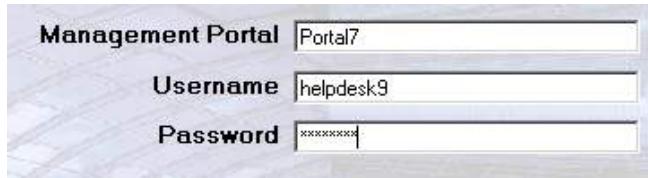


Figure 8

The lower left corner of the Portal Explorer indicates the access level granted to the user once connected to the Portal, as shown in Figure 9. In addition, general Portal status information is available here.

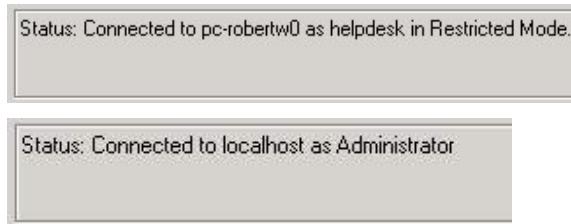


Figure 9

Note: All copies of Portal Explorer deployed to remote servers must match the version that runs locally on the Portal. This ensures data compatibility. Re-deploy it to upgrade remote versions.

Using Portal Explorer

There are seven **Management Task** options that appear on the left side of the Portal Explorer interface, shown in Figure 10:

- **Report** – Desktop device reporting and access to device management utilities.
- **Deploy Software** – Deploy and manage the operating and local client software on ThinPATH PC and thin-client desktop devices.

- **Group Desktops** – Group desktop devices to receive unique property and connection configuration updates.
- **Backup/Restore** – A complete snapshot of the current groups and terminal configurations is made, allowing administrators to return to known states.
- **Logout** – Log out from the Portal. Returns user to the log-in screen.
- **Licensing** – Manage ThinPATH licenses.

Note: All actions undertaken through Portal Explorer are performed immediately on the Portal.

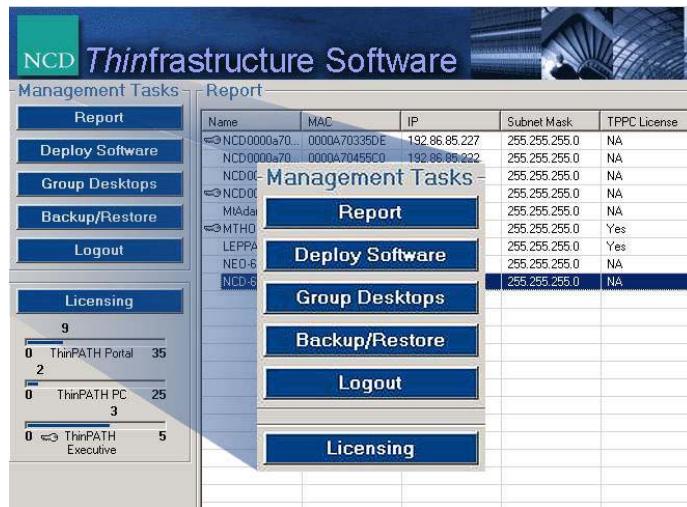


Figure 10

Report

The Report screen is the default screen at startup and displays all the desktop devices that have contacted and registered with the Portal.

Name	MAC	IP	Subnet Mask	TPPC License	Model	OS	Group	Contact Time	Reboot Time
MTHOOD	00A0242D9499	192.86.85.229	255.255.255.0	Yes	PC	Windows 2000	PgmMgmt2	4/1/2003 11:00	
LEPPARD	00A0246FF096	192.43.159.67	255.255.255.0	Yes	PC	Windows 98 SE	PgmMgmt2	3/31/2003 14:53	
NCD-6E4DA9	00E0C56E4DA9	192.43.159....	255.255.255.0	NA	TS.NET	CE.NET	ProdMktg1	3/31/2003 14:52	
NCD0000a70...	0000A70335DE	192.86.85.227	255.255.255.0	NA	TS200		ProdEng1	NA	

Figure 11

The following fields are shown for each device:

- **Device name** – Either the concatenation of the manufacturer's name and a serial number or an assigned logical name.
- **MAC** (Media Access Control) address - Device's unique hardware address, also known as Ethernet address.
- **Subnet Mask** – Typically assigned by DHCP to the desktop device.
- **IP** (Internet Protocol) address – Unique network address provided by network administrator or network utility, such as DHCP.
- **TPPC License** - Indicates if the device holds a current ThinPATH PC license.

- **Model** – TS indicates a ThinSTAR terminal with model designation or TS.NET for ThinSTAR 532.NET or 564.NET; PC indicates ThinPATH PC. Neoware devices are also supported.
- **OS (Operating System)** –Indicates the operating system running on the device.
- **Group** – Specifies the group to which a device has been assigned.
- **Contact Time** – Last time the desktop device contacted the Portal.
- **Reboot Time** – Displays the scheduled or last executed reboot time for the device, shown in 24 hour format.
- **Wake Time** – Displays the scheduled or last executed wake time.

Click on any column's title to sort all devices alphabetically on that field.

If devices do not appear as expected, check the Troubleshooting section on resolving device registration.

Executing management tasks within the Report screen

Portal Explorer provides tools and utilities to report on and manage the desktops that contact ThinPATH Portal. Select a particular device

Report					
Name	MAC	IP	Subnet Mask	TPPC License	
MTHOOD	00A0242D9499	192.86.85.229	255.255.255.0	Yes	
LEPPARD	00A024CE5E9C	192.42.150.67	255.255.255.0	Yes	
NCD-6E4DA9	00E0C5		Mirror Remote Device	255.0	NA
NCD0000a70...	0000A7		Ping	255.0	NA
NCD0000a70...	0000A7		Restart Remote Device	255.0	NA
MtAdams	0000A7		Show Diagnostic Log	255.0	NA
NCD0000a70...	0000A7		Show Software Update Log	255.0	NA
NCD0000a70...	0000A7		Toggle Executive License	255.0	NA
			Delete Device		

and choose from the menu produced by a right-mouse click:

Figure 12

<u>ThinPATH PC</u>	<u>ThinSTAR 532.NET/564.NET</u>	<u>ThinSTAR legacy terminal</u>
Ping remote devices	Ping remote devices	Ping remote devices
Restart Remote Device	Restart Remote Device	Restart Remote Device
Wake Remote Device	Wake Remote Device	Wake Remote Device
Show Diagnostic Log	Show Diagnostic Log	Show Diagnostic Log
Show Software Update Log	Hardware Configuration	Registry Dump
	Software Package Information	Software Package Information
Toggle ThinPATH Executive License	Toggle ThinPATH Executive License	Toggle ThinPATH Executive License
	Version Information	Running Processes
Delete Device	Delete Device	Delete Device

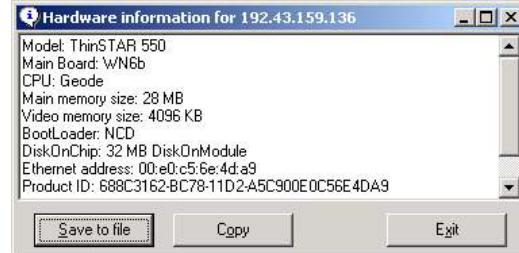
Management Reports

Below are details of the utilities available from the Report screen, listed alphabetically, that report on information available from the desktop devices.

- **Hardware Configuration**

Lists hardware information including main memory size, video and Flash memory.

Supports: TS500.NET



- **Ping**

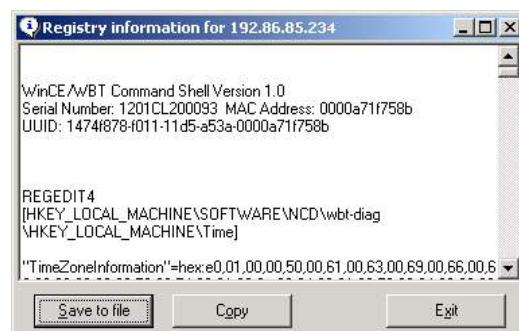
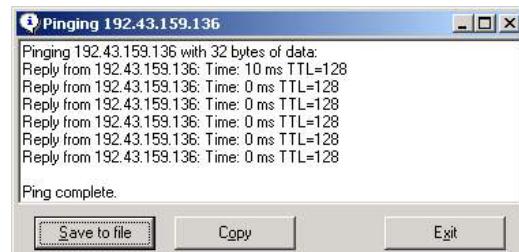
A utility to determine whether a specific IP address is accessible and used primarily to troubleshoot network connections.

Supports: All devices

- **Registry Dump**

Low level troubleshooting information primarily used by technical support.

Supports: Legacy ThinSTARs



- **Running Processes**

Displays current processes running on devices with embedded operating system. Used primarily with technical support.

Supports: Legacy ThinSTARs



- **Show Diagnostic Log**

Displays the communications between the Portal and NCDsrv, a component on all managed devices.

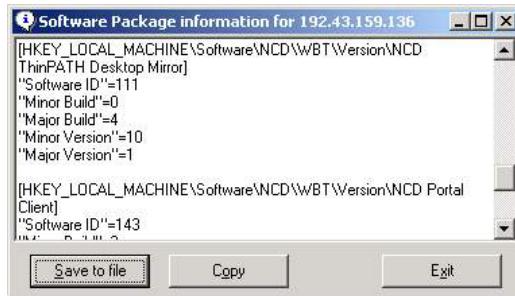
Supports: All



- **Software Package Information**

Major and minor build information on installed software packages.

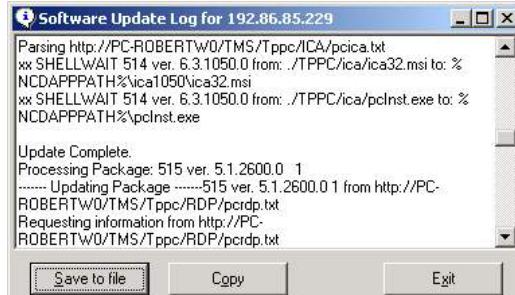
Supports: TS500.NET



- **Show Software Update Log**

Details the operating system and client software update process between ThinPATH PC and the Portal as found in the file update.log.

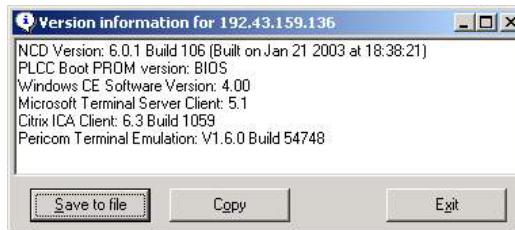
Supports: ThinPATH PC



- **Version Information**

General version information on OS and local clients.

Supports: TS500.NET



Management Utilities

The following utilities are available from a right-click on a device in the Reports view.

- **Mirror a remote device using NCD ThinPATH Desktop Mirror**

Mirror enables remote, centralized desktop support for remote PCs and ThinSTAR thin clients. Support staff can request to "mirror" another user at any resolution or color scheme and use both the keyboard and mouse devices. They can view the entire desktop including terminal emulations, web browser, and setup/configuration screens, and correct problems without traveling to the user's desktop.

If any NCD Mirror components are missing from either the target desktop device or the machine on which Portal Explorer is run, "Mirror Remote Device" will be grayed out and unavailable. This can occur when running Portal Explorer directly on the ThinPATH Portal server and on remote servers. Additional details on NCD Desktop Mirror, including evaluation software and licenses are available at <http://www.ncd.com/products/software/thinpath/mirrords.html>

New with Version 3.3 of ThinPATH Portal, in order to Mirror a device, an Executive License must be associated with the device in the Report view. Executive licenses cover the number of devices that are licensed concurrently for NCD Desktop Mirror and NCD ThinPATH Plus.

- **Toggle Executive License**

A new right-click option is available in Version 3.3 to toggle ThinPATH Executive licensing, enabling and disabling this feature on individual devices. A terminal that has an executive license can be "mirrored" and will indicate this with a key icon to the left of it.

- **Restart Remote Device**

This utility causes or schedules a reboot of the device or devices selected. Figure 13 shows the options available for restarting a device immediately, scheduling or rescheduling a restart, or clearing a scheduled restart. No notification is given at the remote device that a reboot will occur.



Figure 13

The reboot utility uses the Windows "at" utility which can schedule jobs up to seven days ahead. Once a device has been rebooted the

value in the Reboot Time column will remain until the refresh button is pressed, clearing the entry.

Multiple devices can be rebooted or scheduled for a reboot by using standard Ctrl and Shift key combinations to select the terminals and then selecting the restart option from the right-click menu. You can schedule a reboot for an entire group by sorting on the group column and then doing a multi-select of the devices in the desired group and specifying the reboot.

The Device Password field supports only the ThinSTAR 500.NET (CE .NET) devices at this time. Note that there is no support for rebooting ThinSTAR 532LX (Linux) devices at this time.

- **Wake on Lan**

This utility initiates or schedules a "Wake on LAN" of devices that support this feature. Devices that are turned off between uses need to be "woken" before automatic software or configuration updates can be sent to the device.

The Wake on LAN utility uses the Windows "at" utility which can schedule jobs up to seven days ahead. Once a device has been woken the value in the Wake Time column will remain until the refresh button is pressed, clearing the entry.



Multiple devices can be scheduled for waking by using standard Ctrl and Shift key combinations to select the terminals and then selecting the wake option from the right-click menu. You can schedule a wake for an entire group by sorting on the group column and then doing a multi-select of the devices in the desired group and specifying Wake on LAN.

The Wake Up Delay sets the number of seconds to delay between waking multiple devices, reducing potential loads clients would place on servers during their boot-up process.

The Device Password field supports only the ThinSTAR 500.NET (CE .NET) and Neoware devices at this time. Note that there is no support for rebooting ThinSTAR 532LX (Linux).

- **Delete Device**

Removes the device from the ThinPATH Portal, useful for removing devices that no longer contact the Portal. If a current device is removed accidentally, it will automatically be added back when it next reboots or it can be added back manually, an option available under the "Group Desktops" management operation.

Deploy Software

ThinPATH Portal provides automated software deployment and maintenance for ThinPATH PC desktops and for the ThinSTAR family of terminals. When a desktop device contacts a ThinPATH Portal, the Portal is provided with the current version numbers of the components on the desktop device. It compares these version numbers against the versions available on the Portal for upgrade and checks the component upgrade policy (i.e. Upgrade if Different, Upgrade if Newer, etc.). Based on the upgrade policy, the Portal may then provide a list of components to the desktop device that need updating. The device then requests the files from the ThinPATH Portal and these are sent using the ThinSTAR Management Service (TMS) network protocol, in the case of Legacy ThinSTAR terminals, or sent via web services to ThinPATH PCs.

Software deployment is supported on the following devices:

- ThinPATH PC
- ThinSTAR 532.NET, 564.NET
- ThinSTAR 500
- ThinSTAR 400
- ThinSTAR 300, 332, 332Web
- ThinSTAR 232
- ThinSTAR 200 *
- ThinSTAR 532LX
- Neoware Eon3000
- Neoware E100, E300
- Neoware Capio-One

*Note that with support for the ThinSTAR 200 added in Portal v3.3, it is necessary to remove the ICA client in order to free sufficient space for a TS200 to download and install ncdrv, a component necessary for the management of the terminal by the Portal. This is true for any ThinSTAR terminal that has only 8 MBs of flash memory.

To deploy and manage the operating and client software on desktop devices:

1. Select the “Deploy Software” management task button. Note that a menu at the bottom left of the Portal Explorer screen appears with the software upgrade policies available.

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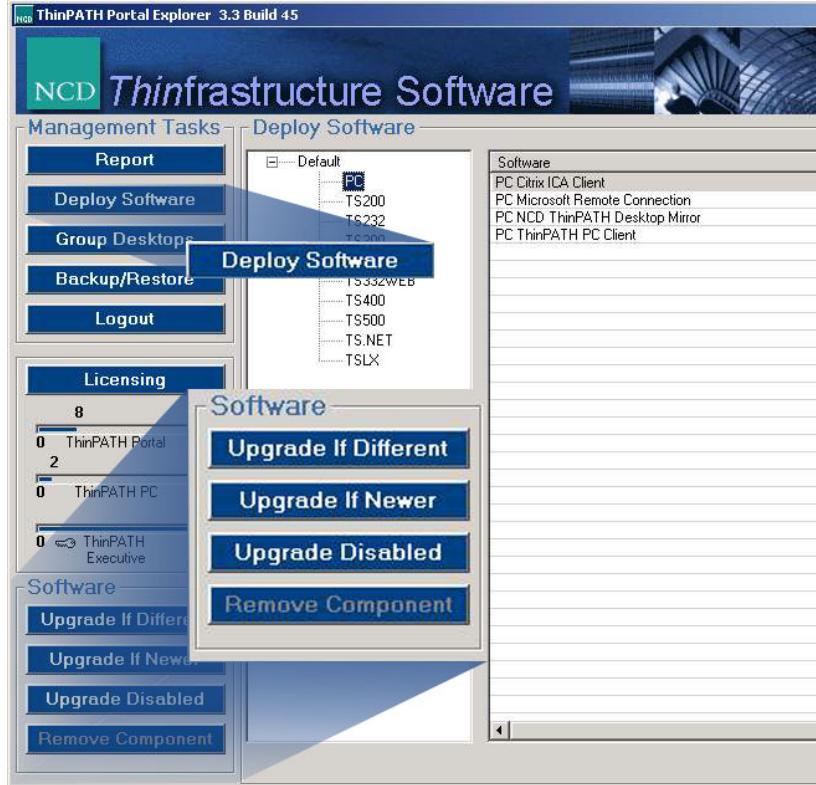


Figure 14

2. Select a model from the tree view. The available software components, their size, version and Upgrade Policy are displayed.

Software	Size	Version	Policy	Model
PC Citrix ICA Client	2,310,144	6.3.1050.0	Upgrade If Newer	PC
PC Microsoft Remote Connection	769,536	5.1.2600.0	Upgrade If Newer	PC
PC NCD ThinPATH Desktop Mirror	4,974,264	1.10.4.0	Upgrade If Newer	PC
PC ThinPATH PC Client	8,266,566	3.3.40.0	Upgrade If Newer	PC

Figure 15

3. Select the operating system components or client software under the Software column, such as the Citrix ICA client as shown above, and choose the appropriate upgrade policy for that component. Upgrade policies can either be chosen by right-clicking on the software package and choosing the policy, or selecting the software package and then selecting the appropriate button on the lower left of the screen, shown in Figure 14.

Upgrade policies determine whether a device's software is replaced and by what criteria. The default policy for most components is to upgrade a device's software if the software on the ThinPATH Portal is newer. You can set different policies for each software component for a particular device model. The policy applies to all devices of that model type that contact the Portal being configured.

Upgrade Policies	
Upgrade if Different	Operating software and client software on the device are replaced if newer or older than the software on the ThinPATH Portal. With this policy, you can return to an earlier version or upgrade to a newer version.
Upgrade if Newer	Operating software and client software are upgraded if the software on the ThinPATH Portal is newer, ensuring the device always runs the latest version available to it. This is the default value for most operating software components.
Upgrade Disabled	The device's operating software and client software are not upgraded.
Remove Component	ThinPATH Portal removes the software component from the device the next time it restarts. Use this policy to remove software that you no longer use, or to increase the amount of available flash memory. *

Table 1

4. When a device next reboots, it displays an upgrade message while it replaces its software. The device will reboot on completion of the new software download and installation.

CAUTION: Do not turn ThinSTAR terminals off during an upgrade as this may leave its software in an unknown state, possibly requiring a software recovery.

*NOTE: Some components cannot be removed using the “Remove Component” policy. At this time it is not possible to remove the RDP, ICA, or ThinPATH PC components from a PC using the Portal.

Group Desktops

NCD ThinPATH Portal brings desktop configuration to a central location. With this functionality, you can configure device properties and session connections, store them on the Portal to update devices automatically or on a scheduled basis.

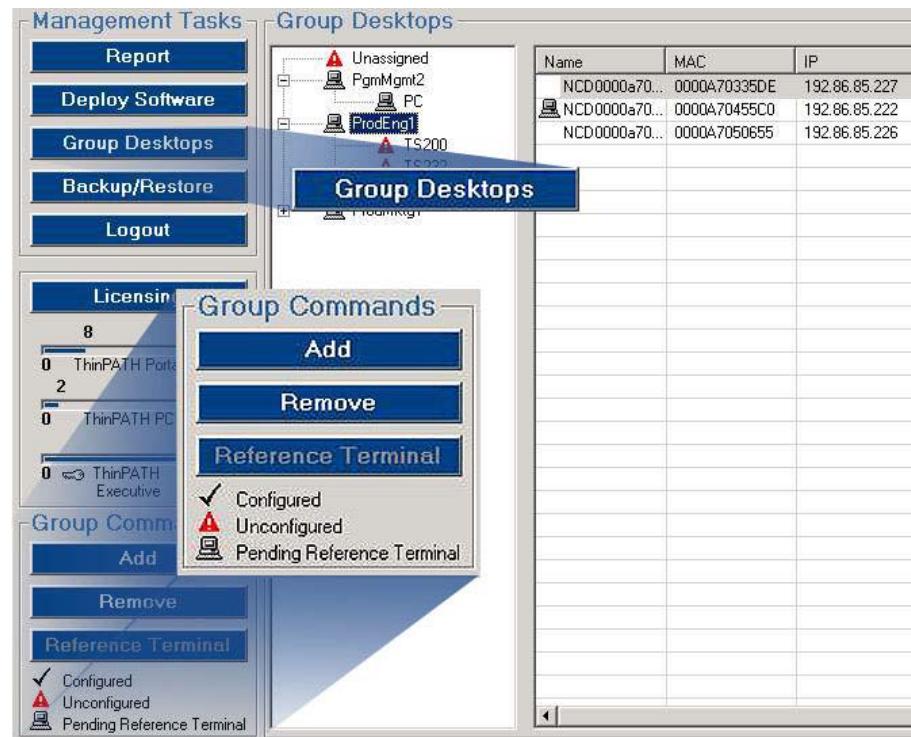
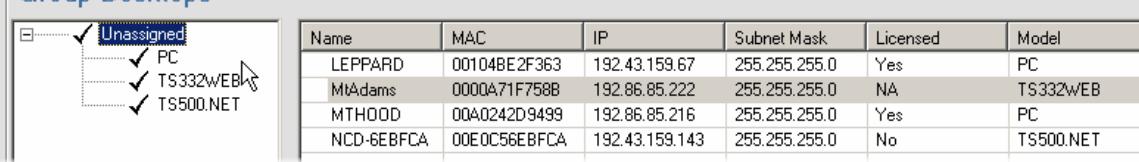


Figure 16

Groups

All ThinPATH PCs and ThinSTAR terminals that contact the ThinPATH Portal are initially placed in the "Unassigned" group. To manage the properties and connections of a desktop device, it must be assigned to a group. It is a simple matter of creating the required group or groups and dragging one or more devices into the correct groups. All devices that are assigned to the same group receive the same device properties and connections that have been set for that group.

Within each group are all the model types of devices that have been assigned to that group. In Figure 17, three model types exist in the Unassigned group: ThinPATH PC, ThinSTAR 332Web and ThinSTAR 500.NET terminals. As new model types contact the Portal, these types also appear in the "Unassigned" group. As devices are added to groups, the appropriate model-types appear in those groups.



The screenshot shows a software interface titled "Group Desktops". On the left, there is a tree view with a root node "Unassigned" containing four items: "PC", "TS332WEB", "TS500.NET", and another "Unassigned" node which is expanded to show "LEPPARD", "MtAdams", "MTHOOD", and "NCD-6EBFCA". On the right, there is a table with columns: Name, MAC, IP, Subnet Mask, Licensed, and Model. The data from the table is as follows:

Name	MAC	IP	Subnet Mask	Licensed	Model
LEPPARD	00104BE2F363	192.43.159.67	255.255.255.0	Yes	PC
MtAdams	0000A71F758B	192.86.85.222	255.255.255.0	NA	TS332WEB
MTHOOD	00A0242D9499	192.86.85.216	255.255.255.0	Yes	PC
NCD-6EBFCA	00E0C56EBFCA	192.43.159.143	255.255.255.0	No	TS500.NET

Figure 17

Groups can be created to organize desktop devices based on logical or physical groupings. For example, all terminals in Marketing might need the same base set of server connections, or all devices in a particular building could require a specific set of security settings.

Desktop devices can only be assigned to one group.

Reference Terminal

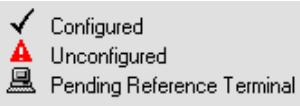
After a group is created and devices have been added, one device is designated as the **Reference Terminal** (select device and press the *Reference Terminal* button) and the “Pending Reference Terminal” icon appears next to the device name. When this device's properties are set and the desired connections have been created locally in “Connection Manager”, the device is rebooted. During the reboot process, its configuration and connection information is uploaded and stored on the ThinPATH Portal as the template for all of the devices in a group that are of the same model type.

The group is then considered to be “Configured.” All devices in the group that are the same model type will download the settings provided by the Reference Terminal and will be configured similarly during their next reboot.

It is strongly recommended that a Reference Terminal be rebooted immediately after designating it as a Reference Terminal. Until it is rebooted, no device in the same group, whether same device type or not, will pick up property or connection information as expected during a reboot.

A group that has at least one model configured will remain configured even if there are no devices in the group. Since only the models that have one or more devices assigned appear in the group, it is not possible to determine which model is configured, however, unless you happen to drag a terminal of that type into the group.

Status Summary

	Description
Configured	Designates a group or a model type within a group that has been configured with a set of properties and connections from a Reference Terminal (see above for details). When any device that is a member of the same group, and of the same model type within the group, is

	<p>rebooted it will download the new configuration information and configure itself in the same manner as the Reference Terminal.</p> <p>Also indicates a ThinPATH PC that has been configured by rebooting and downloading the settings pushed to the Portal by a Reference Terminal. It is then easy to determine which devices have picked up any new configurations.</p>
Unconfigured	A group or a model type within a group that has not been Configured .
Pending Reference Terminal	<p>Designates the one device whose properties and connection information will be propagated to all other devices of the same model type in the same group. Once the terminal reboots and transfers its settings to the Portal, the terminal will lose its "Pending Reference Terminal" status and the icon will disappear. The model type within the group will display the "Configured" check mark. All devices of the same model type in the group that subsequently reboot will download the new properties and connection settings from the Portal.</p> <p>Also designates a group and a device model type within a group in which a Pending Reference Terminal has been assigned.</p>

Table 2

Creating Groups

- From the “Group Commands” section, select “Add”. In the box that appears at the bottom of the screen, type the name of the new group, 30 characters or less, and click the “Add” button to the right or press the return key.

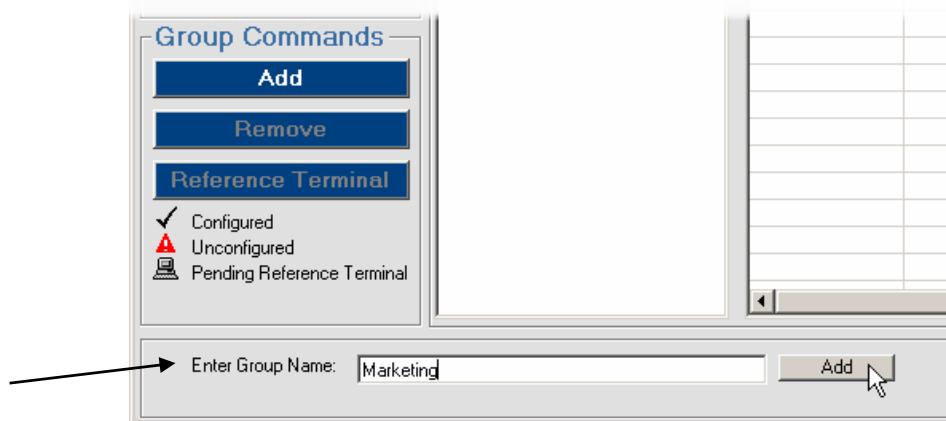
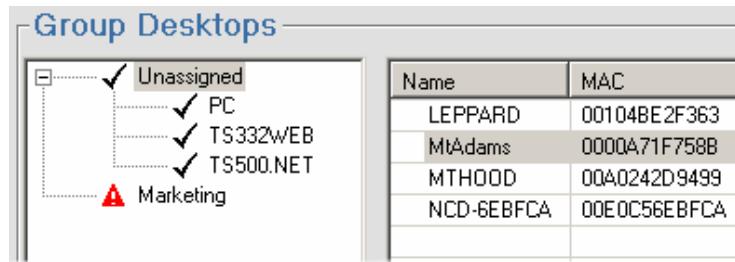


Figure 18

2. Drag the desired terminals from the unassigned group or from any existing groups into the newly created group. Drag and drop multiple terminals using the standard Ctrl and Shift key combinations. Note that you must have a ThinPATH Portal access license for each terminal you wish to assign to a group. Refer to the section on licensing for more details.



The screenshot shows the 'Group Desktops' window. On the left is a tree view with the 'Unassigned' group expanded, showing three devices: 'PC', 'TS332WEB', and 'TS500.NET'. Below the tree view is a red warning icon with the word 'Marketing'. On the right is a table with columns 'Name' and 'MAC'. The table contains four rows of data:

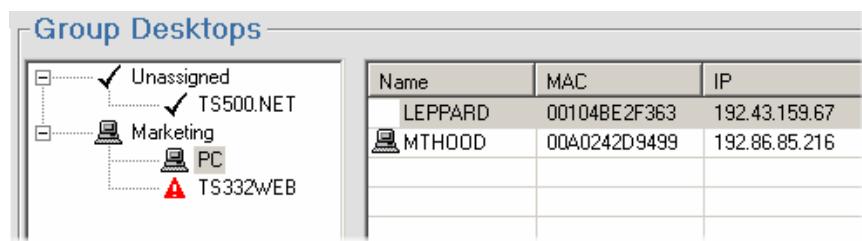
Name	MAC
LEPPARD	00104BE2F363
MtAdams	0000A71F758B
MTHOOD	00A0242D9499
NCD-6EBFCA	00E0C56EBFCA

Figure 19

The icon next to the group name and the model types within the group indicates its configuration status.

Updating Devices using the Reference Terminal

1. To set a reference terminal for a model type within a group, select the desktop device to be the Reference Terminal and either select "Reference Terminal" from the right-click menu or click on the "Reference Terminal" button in the lower left corner of the window. The Reference Terminal will be marked with the PC icon, as shown in Figure 20.



The screenshot shows the 'Group Desktops' window. In the tree view, the 'Marketing' group is selected, and its 'TS500.NET' device is marked with a blue PC icon, indicating it is the Reference Terminal. Other devices in the group are marked with red warning icons. On the right is a table with columns 'Name', 'MAC', and 'IP'. The table contains two rows of data:

Name	MAC	IP
LEPPARD	00104BE2F363	192.43.159.67
MTHOOD	00A0242D9499	192.86.85.216

Figure 20

2. Reboot the Reference Terminal to force it to transfer its properties and connection settings to the ThinPATH Portal. The device can be rebooted by selecting it, clicking the right mouse button and selecting "Restart Remote Device" from the pull-down menu.
3. Once the Reference Terminal has rebooted and its properties and connections settings uploaded to the Portal, all other devices of the same model type in the group will configure themselves using the information from the Reference Terminal when they next reboot.

Note: Any property changes and connection configurations made locally on a device will be removed on reboot and replaced with the settings from the Portal.

Additional Group Functions

By right-clicking on an existing group, a number of additional functions are available:



Figure 21

Add Managed Devices

A device can be pre-staged to a specific group before it has contacted the ThinPATH Portal. This is useful for pre-allocating Portal Access Licenses for devices prior to their deployment. When the terminal first contacts the Portal, it will register itself, provide the rest of its information, in addition to its MAC address, get assigned to its group and pick up any new group related connection and property configurations.

To pre-stage a desktop device:

1. Select a group (see Figure 21)
2. Right-click and select “Add Managed Device”
3. Enter the device’s MAC address in the text entry box at the bottom of the Portal Explorer screen
4. Press return or click the “Add” button.

The pre-staged device entry is only visible by clicking on the group icon. The Portal has no information needed to determine the device's model type until the device contacts the Portal and provides it.

Rename a Group

Existing groups can be renamed. A pop-up window will confirm the change and indicate that IIS will be restarted.



Figure 22

Backup and Restore

The Backup/Restore feature allows the user to create a complete snapshot of the current group and terminal configuration. All group information will be saved for all terminals in the Portal. The primary purpose is to save a known configuration before making changes that an administrator might want to restore at a later date.

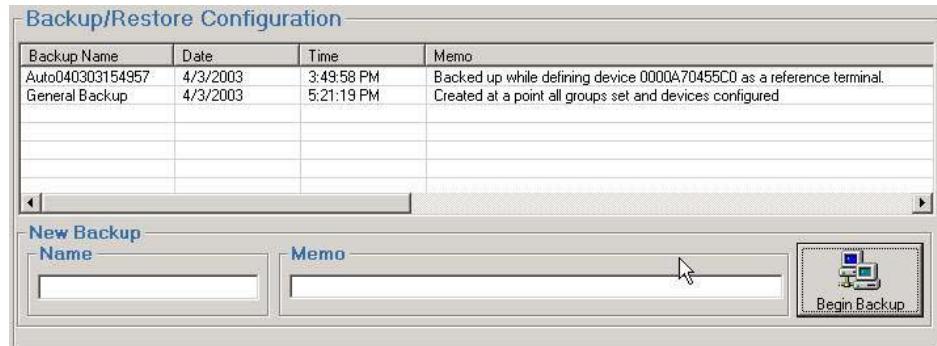


Figure 23

The operation is straightforward. To create a backup:

1. Select the Backup/Restore button
2. Enter a "New Backup Name" and "Memo", both of which are recorded in the log shown with a date and time stamp
3. Press the "Begin Backup" button.

To restore a backup:

1. Right-click on the backup to restore. A warning message indicates "the current configuration will be lost and IIS will be restarted" and prompts to continue or cancel the restore.

There are a few things to be aware of when performing a backup or restore:

- When restoring a backup, any new groups created since the backup will be lost.
- When restoring a backup to an existing configuration the current terminal information such as IP, subnet mask, contact time, reboot time, etc. will be preserved and the group information will be restored. If new terminals have contacted and registered with the Portal, these will be left alone. However, if these new terminals were in a group created after the backup was made, that group will be lost during the restore and the devices placed in the unassigned group. It is necessary to then re-create the group for these new terminals or assign them to existing groups.
- When restoring a backup after deleting terminals the info that the terminal had at the time of the backup will be restored (except for last contact time, reboot time, and configuration status).
- It is not possible to backup and restore a single group. An entire snapshot of the Portal is taken.

ThinPATH Portal Administration Guide

- The backup is not portable. It cannot be exported and moved to a different Portal installation, for example. If you uninstall your Portal you will lose the backup.
- Each device needs to be rebooted in order to re-synchronize its data with the Portal to ensure that the device has downloaded the restored configuration.

Logout

Logs a user out of the Portal and returns to the Portal Explorer log in screen.

Refresh Button

The refresh button synchronizes the Portal Explorer with the registry on the ThinPATH Portal server and refreshes any changes other users may have made. Users are encouraged to **refresh the screen information often**, especially if there are multiple users who may be making simultaneous changes. If another user has made a change to the Portal, Portal Explorer will not allow you to make a change until you press the *Refresh* button, preventing any accidental overwriting of data.

Licensing

The licensing tool allows an administrator to add or remove licenses. For each type of license, the total number of licenses available displays below the indicator bar and the current licenses in use show above the bar. The following are licensing basics:

- A Portal access license is required for each ThinPATH PC and ThinSTAR device to use the Group Desktops tasks and manage device properties and connections via the Portal.
- The Portal will manage software updates and provide basic reporting without Portal Access Licenses.



Figure 24

- A ThinPATH PC license is required for each PC converted to a thin client.
- License keys from NCD's earlier ThinPATH Manager product (v2.0 and higher) are accepted and work as Portal Client Access Licenses.

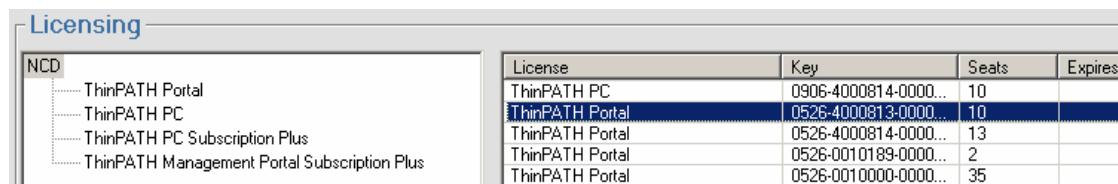
Refer to the ThinPATH Licensing Requirements section of the [NCD ThinPATH Portal Installation Guide and Release Notes](#) for additional details on licensing requirements.

Adding and Removing Licenses

To add a license, click on the “Add” button as shown in Figure 24. Enter the new license number in the text-entry box that appears at the bottom of the Portal Explorer. The expected format for licenses is a four character field, followed by a seven character field, then six characters, then five, e.g. 0906-123456-78901-1234.

To remove a license, select the appropriate license, click on the Remove button and click “Yes” at the confirmation pop-up box or right-click after selecting the license and then select "Remove License".

Licenses can also be managed directly on the Portal through the NCD License Manager utility found from the Start menu: **Start | Programs | NCD Tools | NCD License Manager | NCD License Manager**. This utility supports some NCD licenses that may appear on the Portal.



The screenshot shows the 'Licensing' section of the NCD License Manager. On the left, there's a tree view under 'NCD' with nodes for 'ThinPATH Portal', 'ThinPATH PC', 'ThinPATH PC Subscription Plus', and 'ThinPATH Management Portal Subscription Plus'. On the right, a table lists the following license information:

License	Key	Seats	Expires
ThinPATH PC	0906-4000814-0000...	10	
ThinPATH Portal	0526-4000813-0000...	10	
ThinPATH Portal	0526-4000814-0000...	13	
ThinPATH Portal	0526-0010189-0000...	2	
ThinPATH Portal	0526-0010000-0000...	35	

Figure 25

ThinPATH Portal Access Licenses

A ThinPATH Portal access license is required for each device that is assigned to a group. The ThinPATH Portal license-use counter increments each time a device is assigned to a group from the unassigned group. Licenses can be reclaimed by dragging devices out of a group and back to the unassigned group. If no licenses are available, devices cannot be assigned to groups.

ThinPATH PC Licenses

A ThinPATH PC license is required for each ThinPATH PC that is created from a ThinPATH Portal. A new ThinPATH PC will attempt to get a license from the Portal during its installation. If no license is available, installation will complete normally but the user will be periodically reminded that there is no license available when using ThinPATH PC.

If ThinPATH PC is to run in an environment without a Portal, a license can be added directly to the ThinPATH PC.

ThinPATH Executive Licenses

ThinPATH Executive licenses are applied by toggling (associating) a license to a managed device using the right-click option in the Report view. This is also covered in the Management Utilities section of this document. A desktop device that has an executive license will have a key icon located to the left of it in the Report view.

The executive indicator bar shows the total number of licenses available. Since the Executive product covers Desktop Mirror, ThinPATH Plus and ThinPATH Load Balancing, the licensing utility accounts for any of these product licenses that already exist or are added to the Portal. The total number of available Executive licenses is based on the largest of either of the three products listed above, plus any additional purchased Executive licenses. For example, assuming that 15 ThinPATH Plus licenses and 25 Desktop Mirroring licenses had been added to the Portal, a new ThinPATH Executive license would appear showing 25 licenses, the largest quantity of the three packages mentioned above already installed. Now, if an additional 40 Executive licenses were purchased and installed, a second ThinPATH Executive license would appear and the total count of licenses showing on the Executive indicator bar would show 65 licenses.

Subscription Plus Licenses

Subscription Plus licenses provide customers with one year of software updates in addition to technical support via email. Since it is licensed per-server, this is a convenient location to store the license number and reference it when contacting technical support

Custom management topics

Using different network ports for ThinPATH Portal

ThinPATH Portal currently installs on a PC and uses port **80** to communicate with and manage remote devices. It is possible to change the port number used to work with the clients as long as they are configured to also use the new port number.

To change the port number on the Portal, use Add/Remove Programs in the Control Panel, select Change/Remove on NCD ThinPATH Portal and do a "Repair". The first InstallShield Wizard window will present the Management Server information, typically the IP address of the Portal followed by "/TMS". Add the new port number after the IP address and separated by a colon. In changing the port number from the default (80) to 888, for example, a new Management Server entry might look like this: 156.44.28.100:**888**/TMS

Click "Next", IIS will be restarted and the repair will complete.

Using the Internet Information Services (IIS) administration utility, change the port number on the "Default Web Site" to port 888. All PCs that subsequently use the Portal to download ThinPATH PC using the "one-click install" will automatically be assigned the Portal contact value, for example 156.44.28.100:888/TMS. Any existing ThinPATH PC's will need to have the Portal Server value manually changed under the ThinPATH PC's Properties Window.

Doing a subsequent Repair or reinstallation on the Portal requires the port number for the "Default Web Site" be temporarily set back to 80. This should be done through the IIS utility.

Managing ThinPATH PC over dialup connections

ThinPATH PC can be managed remotely over dialup by ThinPATH Portal but a registry entry must be made on the ThinPATH PC. The Portal expects to receive a MAC address from a ThinPATH PC but PCs making dialup connections often don't have a network interface card (NIC). To resolve this problem, add the following String value to the registry key on the ThinPATH PC:

Reg. Key: HKEY_LOCAL_MACHINE\Software\NCD\PC\NCDSRV\
String value: MacAddress
Value data: 00:00:00:00:00:00

If more than one ThinPATH PC will be managed over dialup connections, each PC must have a unique MAC address. These can be arbitrarily set. Note that this value is only used by NCD ThinPATH Portal to identify and manage ThinPATH PC.

When ThinPATH PC is turned on, the user will first be presented with the Windows login window. The user must check the box labeled "Establish Dial-Up Networking Connection" and then login. The ThinPATH PC will establish a dial-up networking connection, and then automatically connect to the NCD Portal server for registration, licensing and configuration or software updates. Once the normal connection manager window is displayed, connections to local applications and Terminal Server hosts can be established.

Failure on the Portal to obtain the MAC address of a ThinPATH PC will create an entry in NCDSRV.log similar to the following:

GetInfo: Attempt 1 failed to get MAC Address.

Troubleshooting

ThinPATH Portal Troubleshooting

Device registration

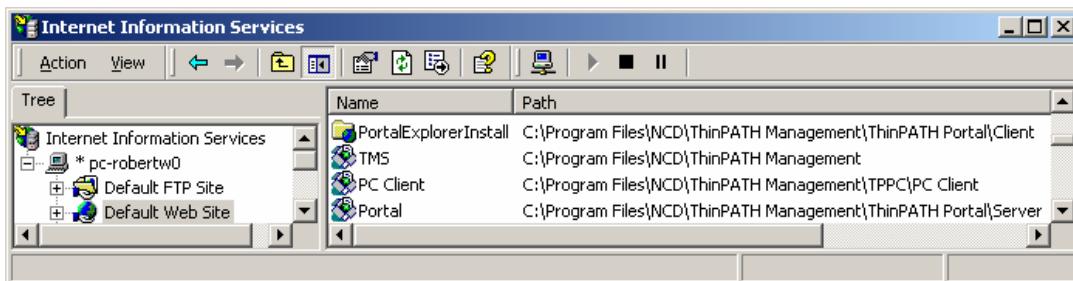
To determine what Portal the desktop device is attempting to contact, check the following:

- On ThinPATH PC, press F2 at the Connection Manager window. Expand the "ThinPATH PC" entry and select Management Server. The name or IP address of the Portal should appear followed by TMS (e.g. Portal1/TMS, where Portal1 is the hostname of the server running ThinPATH Portal.) When ThinPATH PC software is downloaded and installed from a Portal, the PC is automatically configured to use the same Portal as its management server.
- On a ThinSTAR device, from the NCD ThinSTAR Terminal Properties window (Ctrl-Alt-End, then press F2), select the Management Tab, then the Server tab. The name or the IP address of the Portal should appear here.

All devices must reboot to communicate and register with ThinPATH Portal after the device is properly configured. Use the “Refresh” button on the Portal Explorer to update the display and view new devices that have connected.

Internet Information Services

Once the Portal is fully installed, the entries in IIS for the Portal appear as shown below. Launch IIS with **Start | Programs | Administrative Tools | Internet Services Manager**.



Each of the virtual directories have properties that can be modified that will affect the behavior of the product. The four Virtual Directories in IIS used by the ThinPATH Portal server are named *Portal*, *TMS*, *PortalExplorerInstall*, and *PC Client*. The directory *Portal* must have at least "Scripts and Executables" execute permissions. The other three must have at least "Scripts only" execute permissions.

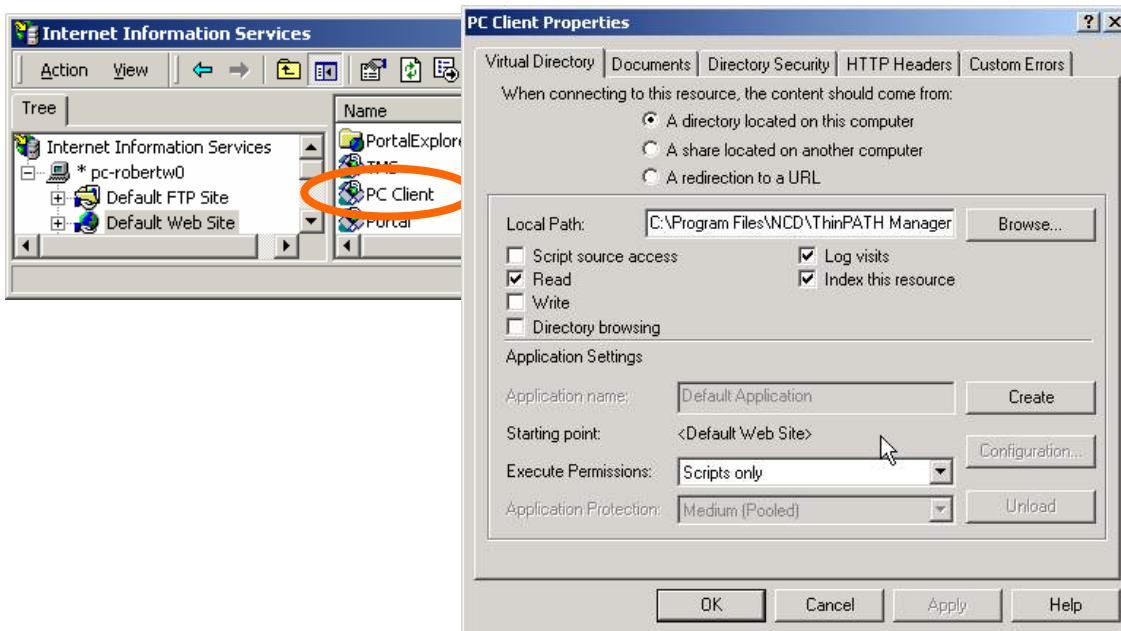


Figure 26

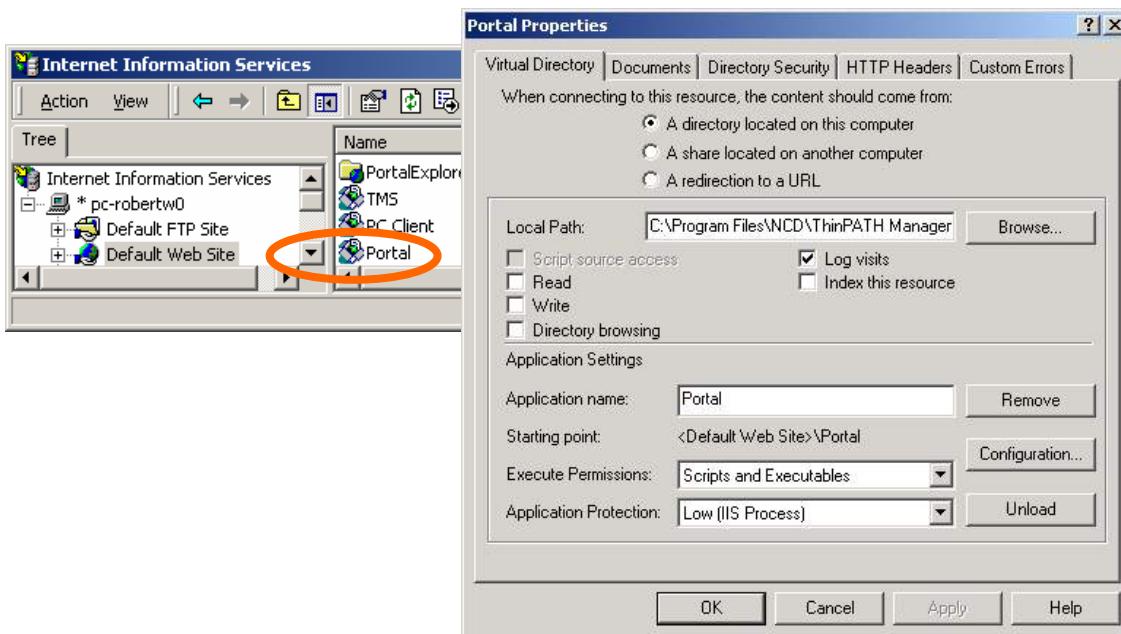


Figure 27

Servers that use an IIS Lock-down utility will deny access to the ThinPATH Portal. Since the Portal is generally meant for use on a LAN or secure WAN,

it is not expected that the server will need to be heavily secured. The following section details minimum security requirements.

Minimum Security Access Requirements for ThinPATH Portal Server

When IIS is installed, an "Internet Guest Account" is created named "IUS_<hostname>" depending on the server's hostname. This account is for anonymous access (not requiring entry of password) to IIS services and is used by the ThinPATH PC and the ThinSTAR Portal Client to register and access the ThinPATH Portal server. Read only access (by the Internet Guest Account) to the directory *%Program Files%\NCD* is all that is required except during the Reference Terminal sequence. The reference terminal sequence is where the ThinPATH PC or ThinSTAR client devices upload configuration information to the ThinPATH Portal server, and this requires both read and write access to the *Groups* directory by the Internet Guest Account. The ThinPATH Portal server places all data such as group and configuration settings in this directory, traditionally found in *%Program Files%\NCD\ThinPATH Management\Groups*. So, the Internet Guest Account should ordinarily have Read and Write access to the *Groups* folder in the Portal installation folder hierarchy.

File and Registry Access Permissions

The Portal Explorer login is used to authenticate administrative users to the ThinPATH Portal Server. Any account used to login to Portal Explorer must have at least Read folder permissions on all folders within the Portal installation folder hierarchy. By default that is *%Program Files%\NCD* and all sub-folders. This will allow the account to see information in the Portal Explorer. Write folder permission on the same folders is also necessary for any account that will use the Portal Explorer to make administrative changes to the Portal configuration. By default the administrators group has full access to these folders, but other specific users could be granted full access, so an admin login would not be required to enable management of ThinSTAR and ThinPATH PC desktops.

Similarly, Read and Full Control permissions are needed for the NCD registry keys (HKEY_LOCAL_MACHINE\SOFTWARE\NCD and all sub-keys) for any account that will read data from or make administrative changes to the ThinPATH Portal server. These permissions can be modified with the REGEDT32 utility.

Port Usage

Port 80 is used for basic communications between legacy ThinSTAR terminals, ThinPATH PC and ThinPATH Portal. A few other ports that are used are:

TS500.NET - Port 222 for remote reboot and viewing log information on the Portal

ThinPATH PC – Port 5999 for remote reboot and viewing the log remotely in the Portal.

Legacy ThinSTAR terminal – Software updates use various set and random TCP and UDP ports.

ThinPATH PC Troubleshooting

There are two log files on the ThinPATH PC and an on-screen diagnostics window that can be used for troubleshooting, particularly if the PC is not contacting the Portal correctly and the reporting tools on the Portal are not providing updated information:

- To enable the diagnostics window from the NCD ThinPATH PC Properties screen (Press F2 at the Connection Manager screen), expand Management Server node in the tree-view. Click on Diagnostic Window and click the option to show it. This provides a detailed communication information screen each time the PC boots.
- Update.log Log file that is generated during software updates and is found in:
 - a. \windows\system\ncdcfg on Windows 95/98
 - b. \winnt\system32\ncdcfg on NT4 / Windows2000
- Ncdsrv.log Contains information about the contact between ThinPATH PC and the Portal. Typically found at c:\Ncdsrv.log.

Additional troubleshooting information for ThinPATH PC can be found in the [NCD ThinPATH PC and Portal Installation Guide and Release Notes](#) document.

Frequently Asked Questions

ThinPATH Portal

Why can't I remove the RDP or ICA components in ThinPATH PC using ThinPATH Portal?

They are required components in this release. Future releases will allow their removal.

Do I need the Portal to use ThinPATH PC?

You do not need ThinPATH Portal to operate a ThinPATH PC. A ThinPATH PC license can be installed locally on the ThinPATH PC, allowing it to operate independently. This happens automatically when installing ThinPATH PC from a ThinPATH Portal server, given that licenses are available on the Portal server.

ThinPATH Portal is required to convert a PC to ThinPATH PC. It can provide and track licenses, deploy software updates, and manage connections and device properties.

Can I add the ThinPATH Management Portal Server software to my current web server?

Yes, the NCD ThinPATH Portal can be added to an existing Windows 2000 Server with IIS.

What impact to my network traffic does the ThinPATH Management Portal impose?

Minimal network traffic is needed for desktop configuration. If new software releases such as Citrix ICA are needed, this would impact the network briefly as each desktop retrieves the software from the server. This would occur very infrequently.

ThinPATH PC

The PC is unable to contact the ThinPATH Portal. What do I do?

- Make sure you can PING the Portal server from the PC.
- Increase the management server timeout value from the F2 configuration screen (the default is 10 seconds) and test.

I don't use ICA and/or RDP client and I don't want them installed?

Uninstall the client from the PC using Add/Remove programs from the control panel on the PC. Be sure to set the upgrade policy in the Portal to "Upgrade Disabled", otherwise it will get installed again when the PC reboots.

How can I switch my PC to run the Windows desktop once ThinPATH PC is installed, and then to running ThinPATH PC again?

To return the PC back to the Windows Desktop:

1. Press F2 at the Connection Manager to get the ThinPATH PC properties page. If Connection Manager is now showing, press Ctrl+Alt+End simultaneously.
2. Expand the ThinPATH PC entry under ThinPATH Configuration
3. Select "Return to Windows Desktop"
4. Click in the check box for "Return PC to Windows Desktop"
5. A popup will appear requesting a reboot of the PC for this setting to take affect. Exit this window and the ThinPATH PC properties page and either log out of your session and log back in or reboot the PC using the "Shutdown" button on the Connection Manager screen.

To return to ThinPATH PC operating mode:

1. From the Start menu, select **NCD ThinPATH PC | ThinPATH PC Properties**
2. Expand the ThinPATH PC entry under ThinPATH Configuration
3. Select "Return to Windows Desktop"
4. **Un-check** the box for "Return PC to Windows Desktop"
5. A popup will appear requesting a reboot of the PC for this setting to take affect. Exit this window and the ThinPATH PC properties page and reboot the PC. Logging out and back in, if possible, performs the same function.

Does my firewall need to be configured to allow ThinPATH Portal to manage ThinPATH PC?

By default, ThinPATH PC accesses ThinPATH Portal via port 80. The firewall would only need to allow this access.

Additional Documentation

Product documentation available at NCD's documentation web page -
http://www.ncd.com/support/docs_thinpath.html:

- ThinPATH PC User's Guide
- NCD ThinPATH Desktop Mirror Startup Guide

Installation Information available at <http://www.ncd.com/downloads> under the
“ThinPATH PC and ThinPATH Portal” Download Page link:

- ThinPATH Portal / ThinPATH PC Installation Guide and Release Notes
- ThinPATH Desktop Mirror Installation Guide
- ThinPATH Plus Installation Guide

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