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## Getting Started With ACP Thin Clients

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Use the **F1** button on any page of a ThinManager wizard to launch Help for that page.

Visit [www.thinmanager.com/TechNotes/Intro/Manuals.shtml](http://www.thinmanager.com/TechNotes/Intro/Manuals.shtml) to download the full Manual or the ThinManual.

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Building and configuring an ACP thin client network requires three types of hardware and three types of software. This document will provide an overview of the process and provide links to more detailed articles.

The three hardware components are:

- A Terminal Server
- An Ethernet Network
- ThinManager Ready Thin Clients

The three software components are:

- Microsoft Terminal Server
- Client Communication Protocol
- ACP ThinManager

## The Hardware Components

### The Server

#### Server Sizing

**The most important component of the server hardware is memory (RAM).** Each terminal user that logs into the server will have a self-contained session requiring enough RAM to run its applications. To determine the quantity needed, add the amount needed for each session to the 128 MB needed for the operating system. While 16 MB may be enough for an office terminal running a word processor and an e-mail program, HMI and SCADA programs require higher amounts. Plan on 64 to 128 MB for each HMI operator station.

For example, 1 GB provides 128 MB for the server and 128 MB for 7 sessions. 2 GB provides 128 MB for the server and 128 MB for 15 sessions.

**Server speed is also important.** A faster chip will provide better performance than a slower chip. Using a dual processor or dual core will also improve performance.

#### Hardware Configuration

We often think of servers as a specialty style of hardware: rack mounted, RAID hard drives, dual or quad processors, and redundant power supplies. This style of hardware is ideally suited to the demands of server computing, but is not the defining criteria. What creates a server is the operating system. Server software can effectively run on a variety of hardware configurations. While the modern rack-mounted server is ideally suited to the task, desktop workstation hardware can also be used to run server software.

### The Network

ACP Enabled Thin Clients connect to the terminal server using TCP/IP. Most current models use 10-based-T/100-based-T Ethernet. Fiber optics can be used for the network backbone.

**Dual Network Card:** A common practice is to use two network cards in the terminal servers. One card can attach to the corporate network to allow communication with the entire plant. A second network card is used for the thin clients, PLCs and process control instruments. This eliminates traffic on the thin client subnet, and allows DHCP to be set up for the thin clients that doesn't interfere with the corporate network.



## ThinManager Ready Thin Clients

ThinManager Ready thin clients are ACP enabled thin clients. These are computing devices that run without a hard drive or a configurable operating system that requires maintenance. The ThinManager Ready label on the hardware shows that it is ready to connect to ThinManager.



ThinManager Ready Logo

ThinManager Ready thin clients use DHCP by default but can have static IP addresses assigned.

## The Software Components

### Terminal Server Operating System

ACP Enabled Thin Clients require a server running Microsoft Windows 2000, 2003 Server or Microsoft Windows 2008 Server with Terminal Services enabled. These allow terminals to login to the terminal server and run a complete Windows session on the server that is distinct and separate from the other sessions.

Microsoft requires that each terminal session have a Microsoft Terminal Services Client Access License (TS CAL).

### Client Communication Protocol

The Client Communication Protocol provides the communication between the thin clients and the terminals. ThinManager supports both the default RDP (Remote Desktop Protocol) from Microsoft, and the ICA (Independent computer Architecture) from Citrix. The ThinManager Terminal Configuration Wizard allows either protocol to be selected for each terminal.

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**Note:** In the past ThinManager came bundled with a light version of the ICA protocol called Citrix Device Services. Citrix stopped support of this version when Windows 2003 Server was released so ThinManager uses RDP as the default. ThinManager Ready thin clients can still connect to established Citrix Device Services terminal servers, but no new ones can be licensed.

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### ACP ThinManager

ThinManager is an administrative user interface that controls, configures, and organizes the ACP Enabled thin clients. ThinManager is the visible control panel that works in conjunction with a background service named ThinServer.

The ThinManager interface has a control panel with a tree-view pane and a details pane. The tree-view pane provides "at-a-glance" management by icon color to show the on/off status of the terminal. When the terminal is expanded it shows what terminal servers or Application Groups that it is assigned and connected.

Selecting a terminal icon or group icon in the tree-view pane will display the configuration parameters of the terminal or group in the details pane. This provides quick access to configuration information.

When a terminal is added to a Group, it inherits the configuration of the group.



When a new thin client is added to the system, the ThinManager will prompt for the configuration of the new terminal. The terminal can be easily configured by either:

- Adding it to an existing Group and receiving the Group configuration
- Copying the configuration from an existing terminal
- Auto-Creation from the floor to match the configuration of a default terminal
- Individually configuring the terminal to meet individual needs

The configuration parameters include:

- Whether the terminal boots automatically or whether the user login is manually entered at each terminal boot
- Whether an initial application is run upon terminal booting
- The video resolution
- Which modules to load
- Specifying which server to connect to if multiple servers are used.

Use of modules speed the terminal boot process because the terminal will load only the code from the modules that are specified. The modules include:

- Touch screen drivers
- Instant Failover
- Sound drivers
- Serial Mouse drivers

ACP ThinManager has failover capabilities. If one or more terminal servers are used, ACP ThinManager can be configured so that if one server fails, the terminals will quickly connect to a server that is designated as a secondary server.

## Preplanning

Before establishing the ACP thin client environment you need to determine the following:

- Determine how you want IP addresses assigned, using DHCP, BootP, or Static IP addresses.
- Decide whether the ACP Enabled thin clients will logon automatically at start, or whether the operator will be required to logon at startup and on reboots.
- Decide if you want the ACP Enabled thin client to be configured individually, organized into a single group with similar configurations, or divided into multiple groups, each with a different configuration.
- Define the naming convention for the groups.
- Define the initial startup session, deciding whether you want the Windows desktop or a specific application to run on startup.
- Decide what level of Windows security needs to be assigned to the users.
- Define the naming convention for the ACP Enabled thin clients