

Resource Partitioning Manager

User Guide

Part Number 265193-001
December 2001 (First Edition)

Product Version: 1.1

COMPAQ

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About This Guide

This guide is designed to be used as step-by-step instructions for installation and as a reference for operation, troubleshooting, and future upgrades for the Compaq Resource Partitioning Manager.

Symbols and Conventions Used in This Guide

These symbols may be found in the text of this guide. They have the following meanings.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

This document uses the following conventions:

- *Italic type* is used for complete titles of published guides or variables. Variables include information that varies in system output, in command lines, and in command parameters in text.
- **Bold type** is used for emphasis, for onscreen interface components (window titles, menu names and selections, button and icon names, and so on), and for keyboard keys.
- `Monospace typeface` is used for command lines, code examples, screen displays, error messages, and user input.
- Sans serif typeface is used for uniform resource locators (URLs).

Getting Help

If you have a problem with this product on supported Compaq servers and have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Technical Support

In North America, call the Compaq Technical Support Phone Center at 1-800-OK-COMPAQ. Telephone support is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.

Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for worldwide Technical Support Centers are listed on the Compaq website:

www.compaq.com

Be sure to have the following information available before you call Compaq:

- Technical support registration number (if applicable)
- Software version number
- Server model name(s) and numbers(s)
- Applicable error messages
- Third-party hardware or software
- Operating system type and revision level
- Detailed, specific questions

Compaq Website

The Compaq website has information on this product. You can access the Resource Partitioning Manager page on the Compaq website by logging on to the Internet at

www.compaq.com/rpm.

Compaq Authorized Reseller

For the name of your nearest Compaq authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, see the Compaq website for locations and telephone numbers.

Resource Partitioning Manager

Overview

Compaq Resource Partitioning Manager is an easy-to-use, Graphical User Interface (GUI) enabled tool that extends the Microsoft Windows 2000 Server operating system to give IT administrators the power to dynamically optimize their Compaq *ProLiant*[™] servers. Resource Partitioning Manager increases server utilization by giving administrators control over the size and physical location of system resources available to individual applications, services, and other processes. Resource Partitioning Manager users can create multiple Resource Partitions, limit each Partition to specific resource quantities, and establish rules that allow for the dynamic reallocation of processors and memory.

The ability to assign flexible resource boundaries to Partitions enables users to confidently deploy multiple applications on a Compaq ProLiant server, improving overall server utilization. Users can focus on their core competencies while Resource Partitioning Manager optimizes their servers.

What Is a Resource Partition?

A Resource Partition is a defined set of processor and memory resources assigned to a Windows 2000 job object. Resource Partitioning Manager creates and manages Resource Partitions whose boundaries can be dynamically reallocated based on the resource needs of the objects.

What Is a Job Object?

A job object is a feature of Windows 2000 that allows a user to group processes together. These job objects can be thought of as containers that hold user-defined applications, services, and other processes.

System Requirements

The following list displays the necessary requirements for using Compaq Resource Partitioning Manager.

Standard Requirements

- A Microsoft Windows 2000 Server operating system
- One or more supported Compaq ProLiant servers
- 800 x 600 resolution or higher on the server running the Resource Partitioning Manager GUI

Requirement for Single Point of Management Feature

- A network containing one or more Compaq ProLiant servers
- An administrative user account on each target system

Other Important Notes

- It is not recommended to run Microsoft SQL Server from within a Resource Partition.
- Some products such as Microsoft Exchange Server, IIS, and Terminal Server do not allow multiple instances to be run under a single operating system (OS) instance. Use of Resource Partitioning Manager will not overcome these product-specific limitations. For example, you may run Microsoft Exchange Server from within a Resource Partition on the same computer running IIS from within another Resource Partition but you may **not** simultaneously run two copies of Microsoft Exchange Server from within two Resource Partitions on the same OS instance.
- It is not recommended to run Resource Partitioning Manager remotely on a system using Microsoft Terminal Server.
- If the Resource Partitioning Manager GUI is shut down, the Partitions that have already been created will remain.
- See the troubleshooting section of this guide for more information about running multiple instances of the same application.

Installation Instructions

Use the following instructions to install Resource Partitioning Manager on your Compaq ProLiant server:

1. Insert the Workload Management Pack CD.
2. On most systems the Resource Partitioning Manager installer will automatically run. If autorun is enabled, skip to step 4. Otherwise, proceed to step 3.
3. Use Windows Explorer to locate the SETUP.EXE file and double-click to launch the file.
4. The Resource Partitioning Manager installation program will begin. Follow the program instructions to install the software successfully.
5. When prompted, enter the license key number from the back of the CD sleeve.

NOTE: A system reboot is not required following the installation of Resource Partitioning Manager.

User Interface

When Resource Partitioning Manager is launched, the user interface will be displayed. The user interface serves as the control point for all Resource Partitioning Manager functions. However, because the Compaq Resource Partitioning Manager controls resources using the Resource Partitioning Manager service, the user interface does not need to be active at all times. The user interface window can be closed at any time without affecting the configurations, rules, or execution of any Resource Partition.

The main screen of the user interface, shown in Figure 1, is used to create, edit, launch, terminate, or delete Resource Partitions. The graphics displayed on the user interface can be used to quickly view processor and memory utilization for the server.

The main screen consists of three elements: a toolbar, Resource Partition screens, and utilization graphs.

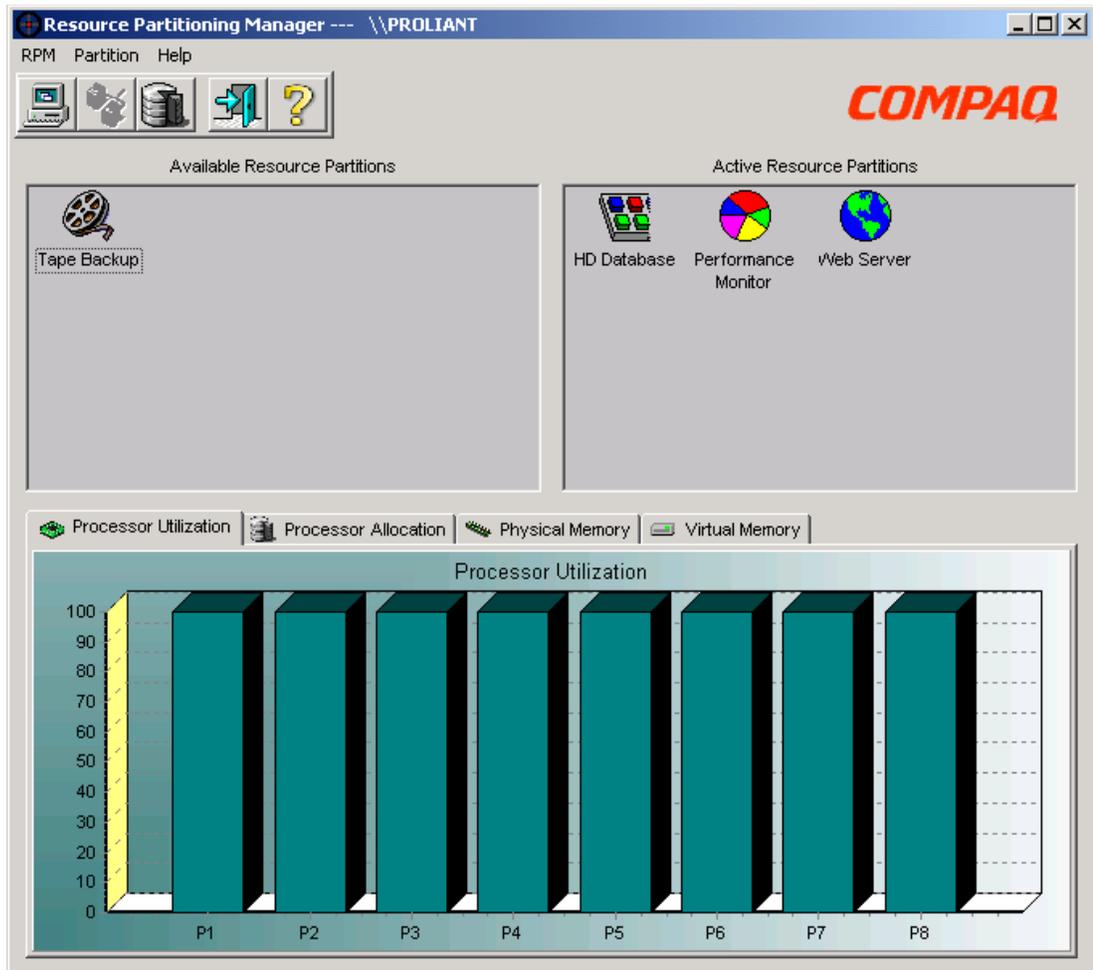


Figure 1: Resource Partitioning Manager user interface

Resource Partitioning Manager Toolbar

Table 1 describes the icons and functions of the Resource Partitioning Manager toolbar found at the top of the user interface.

Table 1
Tool Bar Explanations

Icon	Function	Description
	Select Computer	Opens dialog box for accessing other systems in the network.
	Service Properties	Allows management of the RPM service. The General tab can be used for maintenance of the RPM service—it can be started, stopped, or updated. The Logon tab can be used to assign a logon user account to the RPM service to enable access to resources such as files and folders protected by Microsoft Windows 2000. When a resource partition is active, this icon and menu item are disabled.
	Create Resource Partition	Launches the Create Resource Partition process.
	Exit	Exits the Resource Partitioning Manager interface. Active Partitions and rules are unaffected.
	Help	Offers context-sensitive help about the current page and opens the help viewer for further searching of the help contents.

Resource Partition Panels

The main window of the user interface includes the Available Resource Partitions screen and the Active Resource Partitions screen. The Available Resource Partitions screen (Figure 2) contains inactive Resource Partitions that have been previously defined.

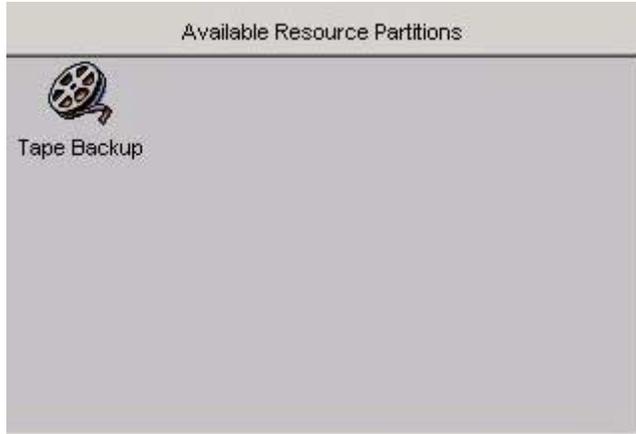


Figure 2: Available Resource Partitions screen

The Active Resource Partitions screen (Figure 3) contains all Resource Partitions currently running on the server.

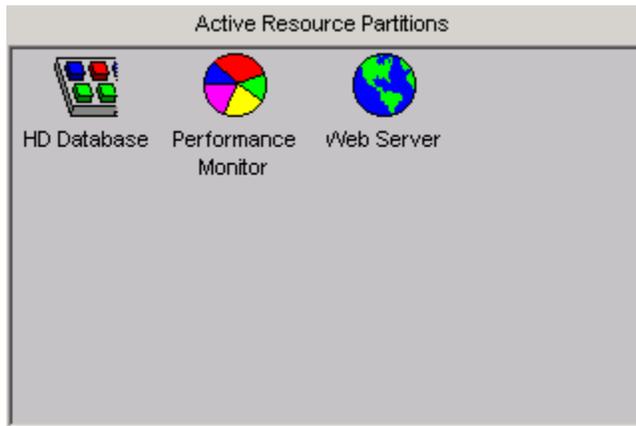


Figure 3: Active Resource Partitions screen

Processor and Memory Tabs

The bottom section of the main window displays processor and memory utilization and allocation graphs.

The **Processor Utilization** tab (shown in Figure 4) displays the current processor utilization for all system activity.

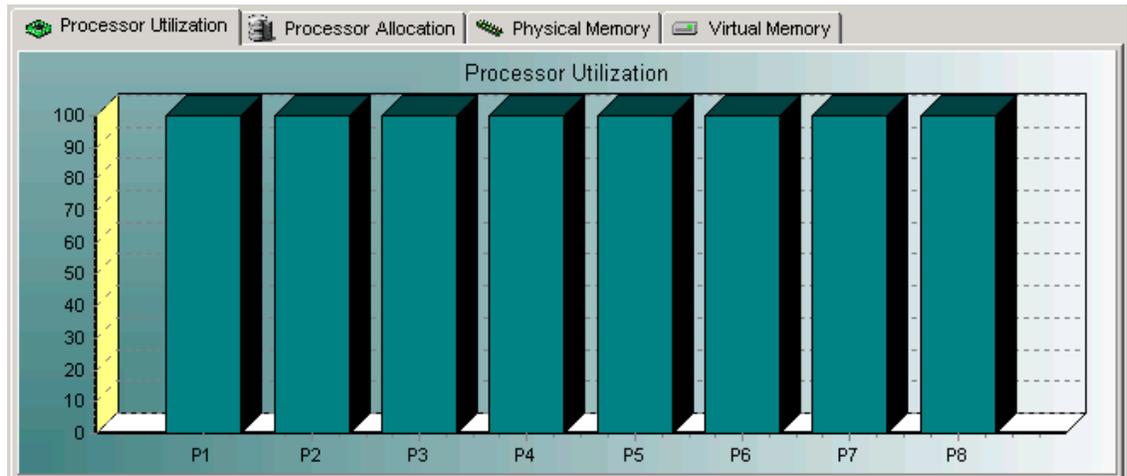


Figure 4: Processor Utilization tab

The **Processor Allocation** tab (shown in Figure 5) displays which processor(s) are assigned to which Partition.

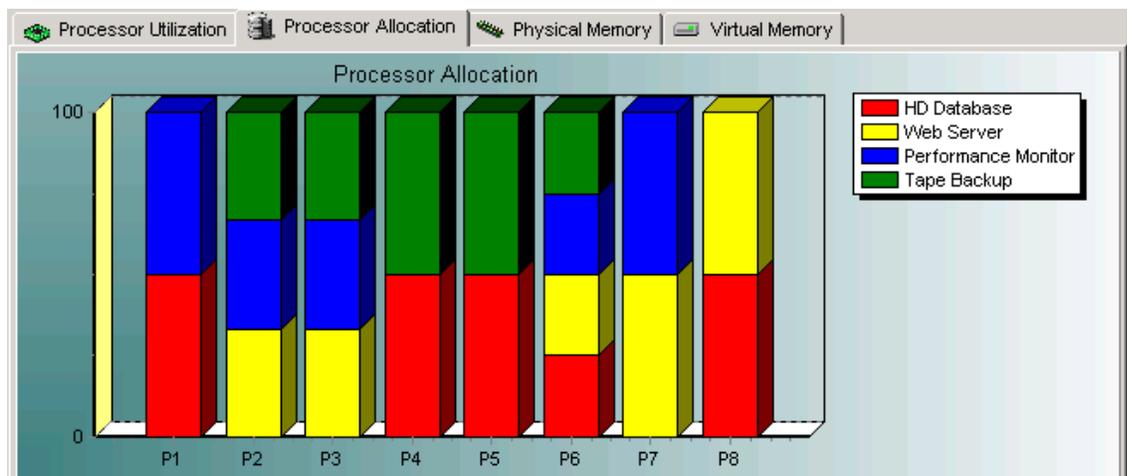


Figure 5: Processor Allocation tab

The **Physical Memory** tab (shown in Figure 6) displays the current amount of physical memory in use by each Active Resource Partition.

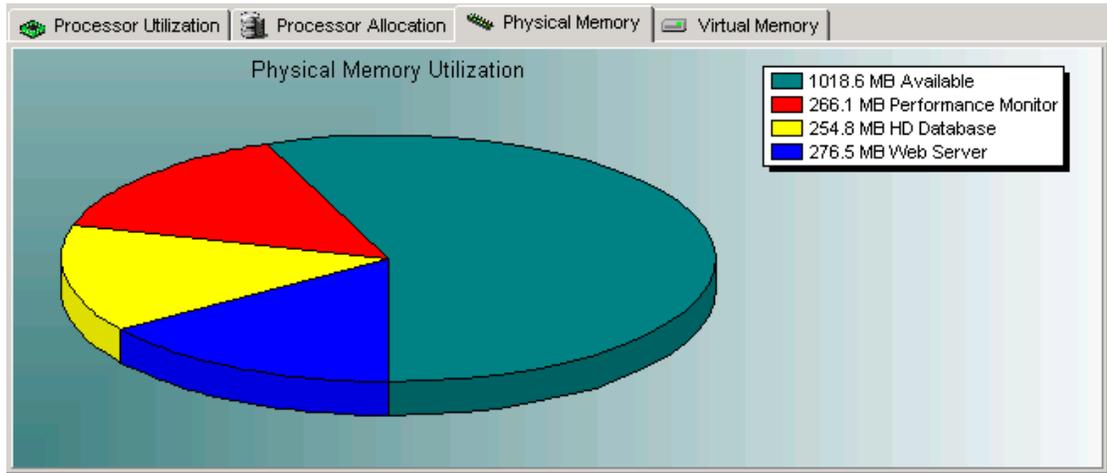


Figure 6: Physical Memory tab

The **Virtual Memory** tab (shown in Figure 7) displays the amount of virtual memory in use for each Active Resource Partition.

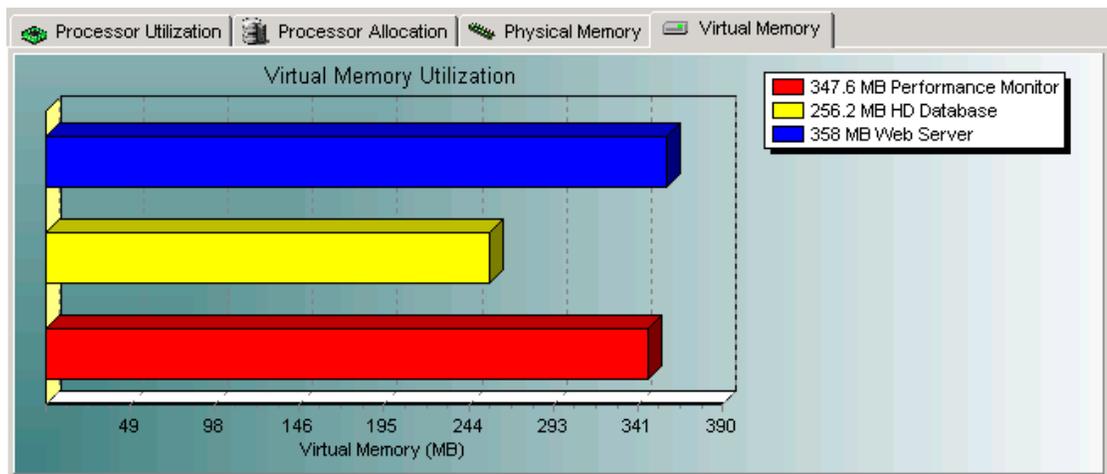


Figure 7: Virtual Memory tab

Creating a Resource Partition

The core purpose of Resource Partitioning Manager is to contain processes within defined Resource Partitions, and to have those processes obey the configured boundaries of their associated Partitions. These boundaries are defined during the process of creating a Resource Partition.

These instructions are for creating a Resource Partition on a local system. For instructions on creating a Resource Partition on a target system, see the “Using Compaq Resource Partitioning Manager on a Target Machine” section of this guide.

There are three basic steps in the creation of a Resource Partition:

- Partition Properties—Defining the processor and memory resources available to the Partition.
- Partition Processes—Identifying the processes to be contained within the Resource Partition.
- Partition Rules—Creating rules to dynamically modify the processor and memory resources available to the Partition based on resource utilization.

Partition Properties

The first step in creating a Resource Partition is to set the basic properties for the Partition. Click the **Create Resource Partition** icon on the toolbar or select **Partition, Create** from the main menu to launch the Create Resource Partition Wizard. The Resource Partition Properties screen is displayed, as shown in Figure 8.

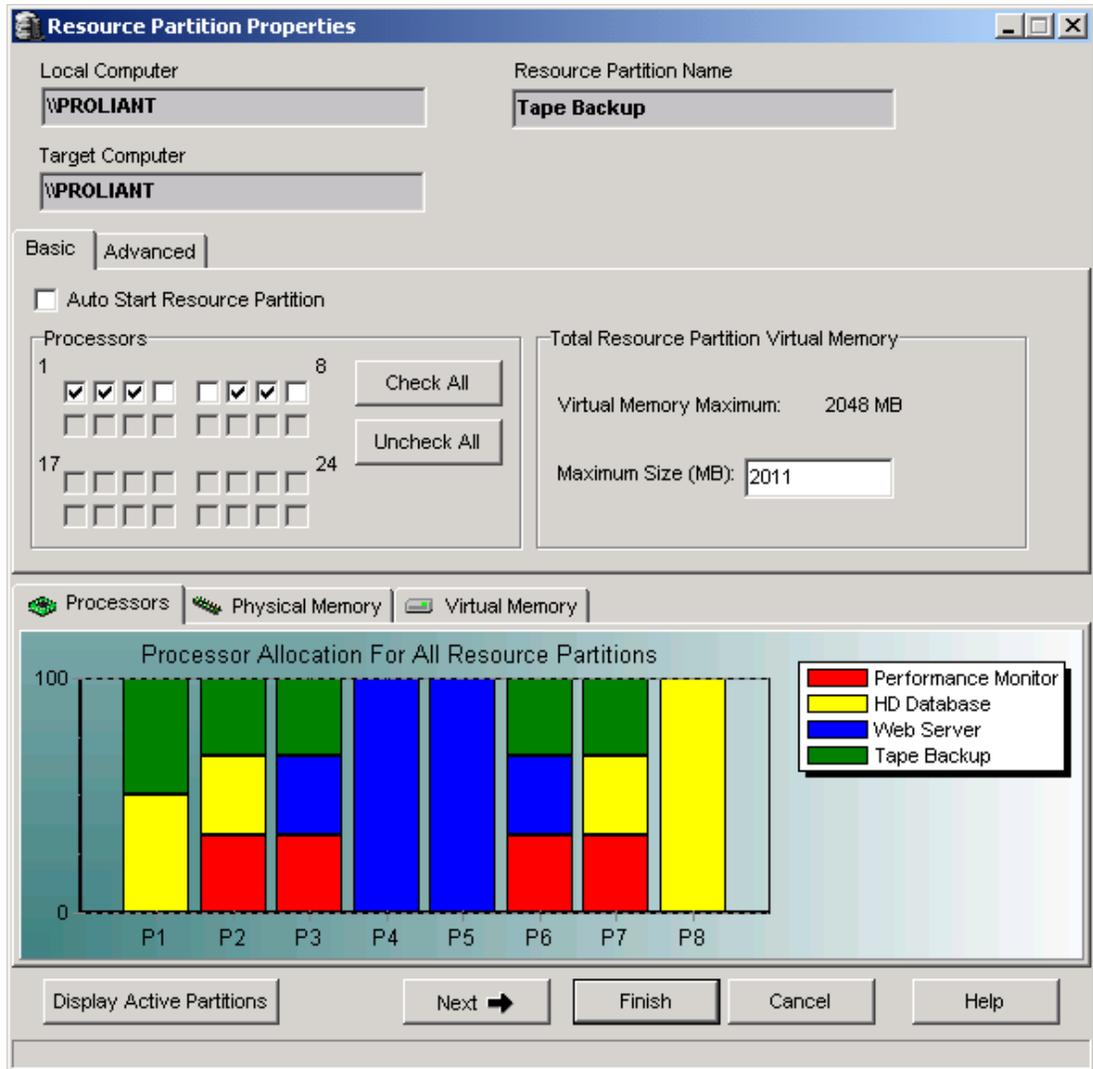


Figure 8: Resource Partition Properties screen (Basic tab view)

The Resource Partition Properties screen allows you to name a Partition, to define the basic processor and memory resources available to the Partition, and to assign other Partition attributes to the target system.

Use the following steps to create a Resource Partition:

1. Enter a name in the **Resource Partition Name** field.

NOTE: The **Next** and **Finish** buttons will be disabled until you have named the Resource Partition.

2. Check or uncheck individual processors on the **Basic** tab to allocate processor resources to the Resource Partition.

The initial processors assigned to the Resource Partition are selected using the check boxes in the Processors area.

- Checked boxes represent processors to be used by the current Resource Partition.
- White boxes represent other available processors.
- Gray boxes represent processors that are not physically present.

When creating a new Partition, the Resource Partitioning Manager selects all available processors by default. The example shown in Figure 8 indicates that five processors are assigned to this Resource Partition.

3. Select **Auto Start Resource Partition** to automatically activate the Resource Partition after subsequent server restarts.

NOTE: For information about how associated processes can be started when the Resource Partition is activated, see the “Adding an Active Process Using the Capture Method” section of this guide.

To set the amount of total Virtual Memory available to a Partition, enter the desired maximum value (in Megabytes) in the **Maximum Size** field. A Partition must be allocated a minimum of 16MB of Virtual Memory, with the maximum possible value determined by your machine configuration (and displayed in the Virtual Memory Maximum field).

Processor Allocation Graphs

The Processor Allocation section graphs the number of Resource Partitions that are already assigned to each processor. The allocation bars are color-coded by Resource Partition, and the name of the Resource Partition can be viewed by moving the mouse over the colored bar.

NOTE: A single processor can be assigned to multiple Resource Partitions; however, this may impact performance.

The **Display Active Partitions** button controls the display of the processor and memory allocation charts. If the **Display Active Partitions** button is clicked, the chart shows only objects that are currently active and the text on the button will change to **Display All Partitions**. If the **Display All Partitions** button is clicked, all objects (both active and inactive) are displayed.

Advanced Features

To modify advanced features, click the **Advanced** tab, as shown in Figure 9.



CAUTION: You must fully understand the implications of each of the settings on the **Advanced** tab before using them. Users unfamiliar with the significance of **Advanced** tab settings within the Windows 2000 operating system should avoid their use.

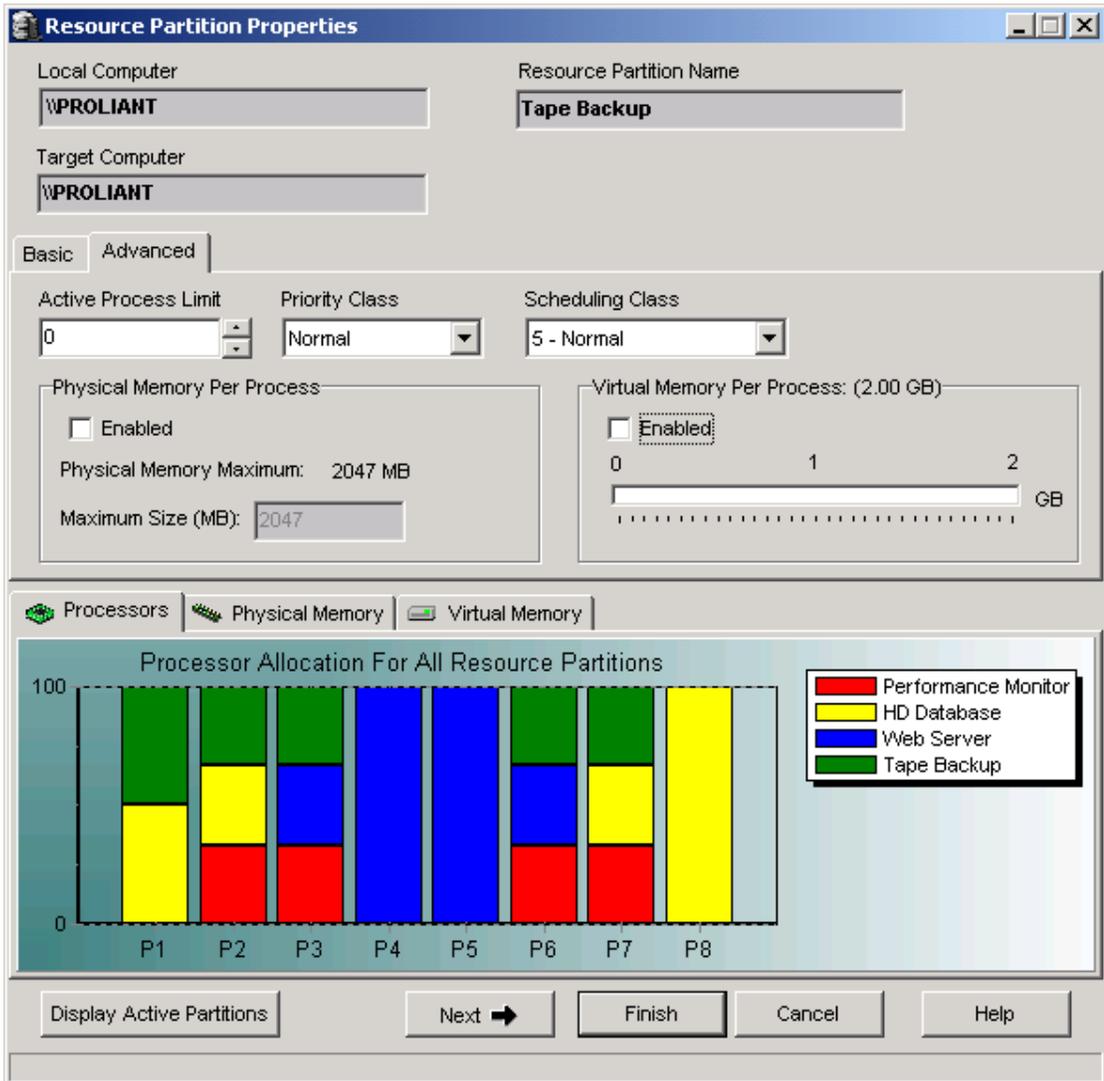


Figure 9: Resource Partition Properties screen (Advanced tab view)

The Active Process Limit field sets the maximum number of processes that can be activated within a given Resource Partition. Microsoft Windows 2000 will not start processes beyond this limit. Processes are activated in the same order as they were entered. Leaving the Active Process Limit field at zero indicates that unlimited processes can be activated within a given Resource Partition. This is the default for normal operation.

- The Priority Class field sets the Windows 2000 priority class for all threads within each process in the Resource Partition. The default value is Normal.
- The Scheduling Class field sets the length of time allocated for all threads within each process in the Resource Partition. The default value is 5-Normal.
- The Physical Memory Per Process section sets the maximum amount of physical memory available to any individual process contained within the Resource Partition.

NOTE: For both the Physical and Virtual Memory settings, the allocation is the same for each process in the Resource Partition. You cannot set a different limit for individual processes.

- The Virtual Memory Per Process section is the amount of virtual memory available to any individual process within the Resource Partition.

NOTE: By default, each user process on the 32-bit version of Windows 2000 can have up to a 4-GB private address space, where 2-GB are for the private address and the remaining 2-GB are used by the operating system. Microsoft Windows 2000 Advanced Server and Windows 2000 Datacenter Server support a boot-time option that allows 3-GB user address spaces. Resource Partitioning Manager automatically recognizes that the system is running in this configuration and adjusts the value for “Total Virtual Memory Available” accordingly.

Click **Next**. The Resource Partition Processes screen is displayed as shown in Figure 10.

Methods for Adding a Process

The three methods for adding a process into a Resource Partition are:

- Add Active Process—Capturing the process information from a running process by selecting it from a Task Manager-style list.
- Add Process By Path—Indicating the exact file path (on your hard drive, for example) of an executable representing the process.
- Add Process By Name—Indicating the Image Name that the process will run under when executed. The Image Name of a process can be viewed under Task Manager when that process is active.

The following sections explain each method in more detail.

Adding an Active Process Using the Capture Method

The Capture method provides a simple way to add an already-running process to the Resource Partition.

From the Resource Partition Processes screen [Figure 10], click the **Add Active Process** button. This brings up the **Add Active Process** screen, shown in Figure 11.

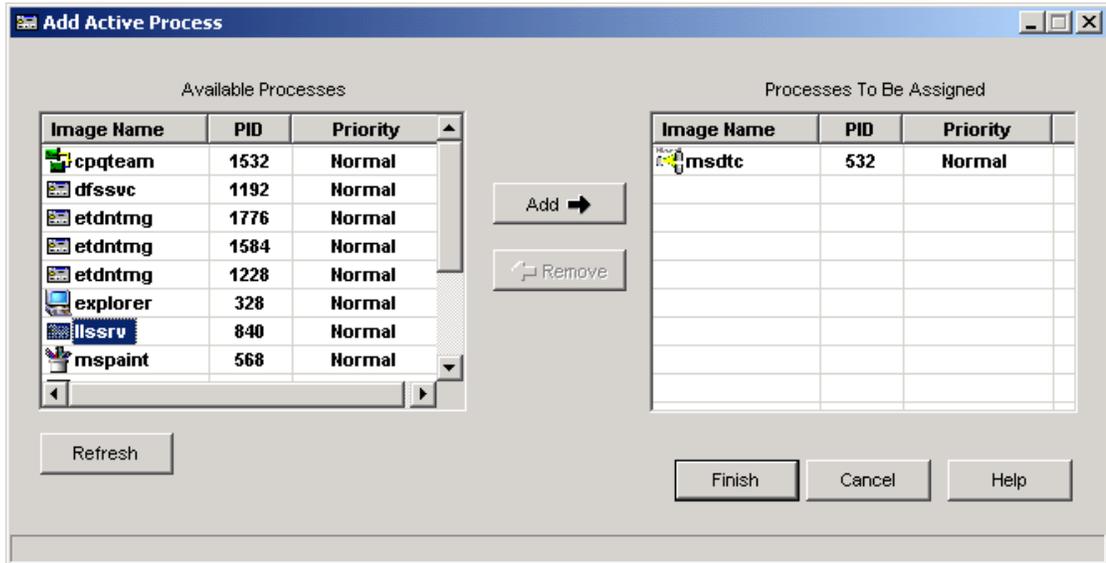


Figure 11: Add Active Process screen

This screen displays two listboxes. The left listbox shows all processes running on the system, with the exception of certain system and kernel processes that are excluded to avoid potential conflict issues.

To capture a process within the Resource Partition, double-click the target image name in the left listbox to move it to the **Processes To Be Assigned** list on the right, or highlight the target image name and click **Add**.



CAUTION: Adding a running process to a Resource Partition will result in that process being terminated if the Partition is later deactivated.

Adding a Process Using the Executable Path Method

With the Executable Path method, a new process can be added to the Resource Partition simply by pointing to the location of the executable file that is associated with this process.

To begin, from the Resource Partition Processes dialog box, click **Add Process By Path**. When the **Add Process By Path** screen (see Figure 12) is displayed, enter the path directly or click the **Browse** button to browse to the target executable file.

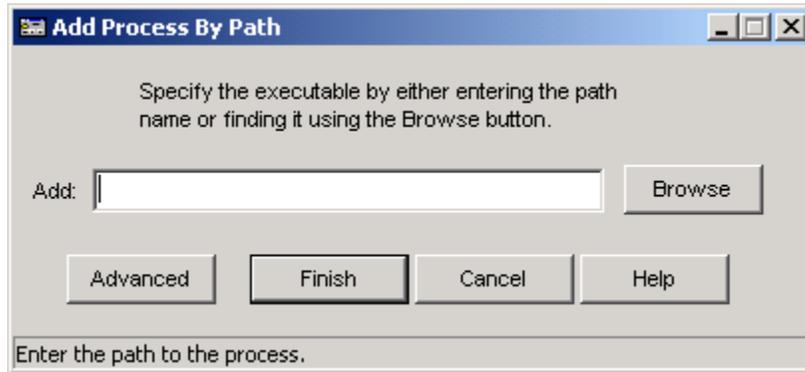


Figure 12: Add Process By Path dialog box

For processes specified using the Executable Path Method, two additional options are available under the **Advanced** button, as shown in Figure 13.

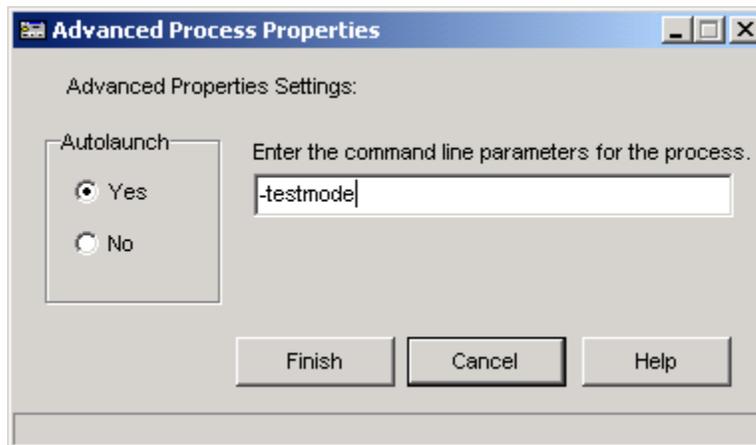


Figure 13: Advanced Process Properties options

- **Autolaunch**—The default is set to No. If Autolaunch is set to Yes, Resource Partitioning Manager will attempt to launch this process whenever the associated Resource Partition is activated.



CAUTION: Using the Autolaunch feature, Resource Partitioning Manager can be configured to launch a process or processes from Resource Partitioning Manager whenever the Resource Partition is activated, rather than waiting for the process to become active. This can be beneficial in certain situations, such as using Resource Partitioning Manager to launch a process on a remote system over a network (see “Using Compaq Resource Partitioning Manager on a Target Machine” in this guide.) However, using the Autolaunch feature can cause unexpected behavior changes in certain applications, as well as require a change in the methods already used to launch applications on the system. For these reasons, it is recommended that Autolaunch be set to **No** for general system use. Also, system services and some other processes cannot be launched by Resource Partitioning Manager, due to requirements of the Windows 2000 operating system. To manage these services with by Resource Partition Manager, assign them to a Resource Partition by means of the Capture method.

- Command line parameters—Enter the command line parameters for processes that are launched automatically.

After the path name is specified, click **Finish** to save the changes. The newly added process will appear in the Assigned processes list on the Resource Partition Processes screen.

NOTE: Resource Partitioning Manager can be used to specify processes for executables accessed over a network. However, these executables must be accessible by means of a previously configured network share drive.

Adding a Process Using the Image Name Method

With the image name method, a new process is specified by the image name it runs under (as displayed in Task Manager). This method is useful where multiple instances of a specific application may be running on the same system and may not be identifiable simply by the executable path. This method allows the user to indicate an image name for a specific instance of an application.

To begin this method, click **Add Process By Name** on the Resource Partition Processes screen.

When the **Get Image Name** dialog box is displayed, enter the image name that the process runs under and click **Finish** as shown in Figure 14.

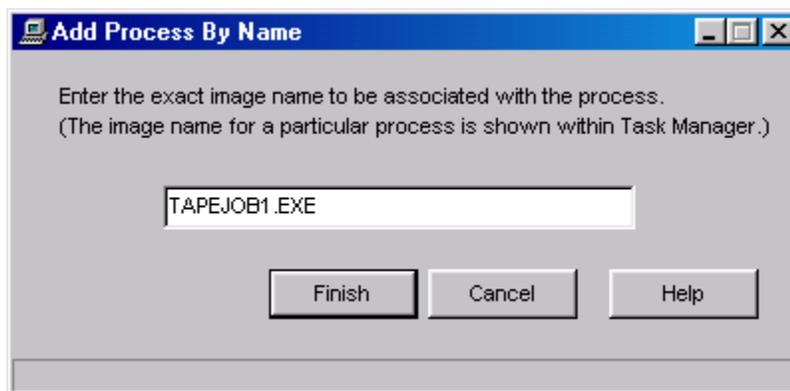


Figure 14: Add Process By Name dialog box

Additional Notes on Processes

To add more processes, repeat the steps for the desired method.

- Processes will be shown on the **Assigned** tab as they are added to the Resource Partition.
- To remove a process from an inactive Partition, highlight the process in the list view under the **Assigned** tab and click **Remove**. Processes cannot be removed from an active Resource Partition.
- After all desired processes are assigned to the Partition, click **Next** to set the rules for the newly created Resource Partition, or click **Finish** to save the Resource Partition and be returned to the main page.

Processes Screen

After creating the partitions, you can view the processes assigned to each partition through the Resource Partition Processes screen. Two different process views are available: Assigned and Active. Available Resource Partitions contain assigned processes. Active Resource Partitions will show both assigned and active processes.

Assigned Tab

To view a list of processes that have been assigned to a Resource Partition, click the **Assigned** tab. Figure 15 shows an example of this view, which is the default view for the Resource Partition Processes screen.

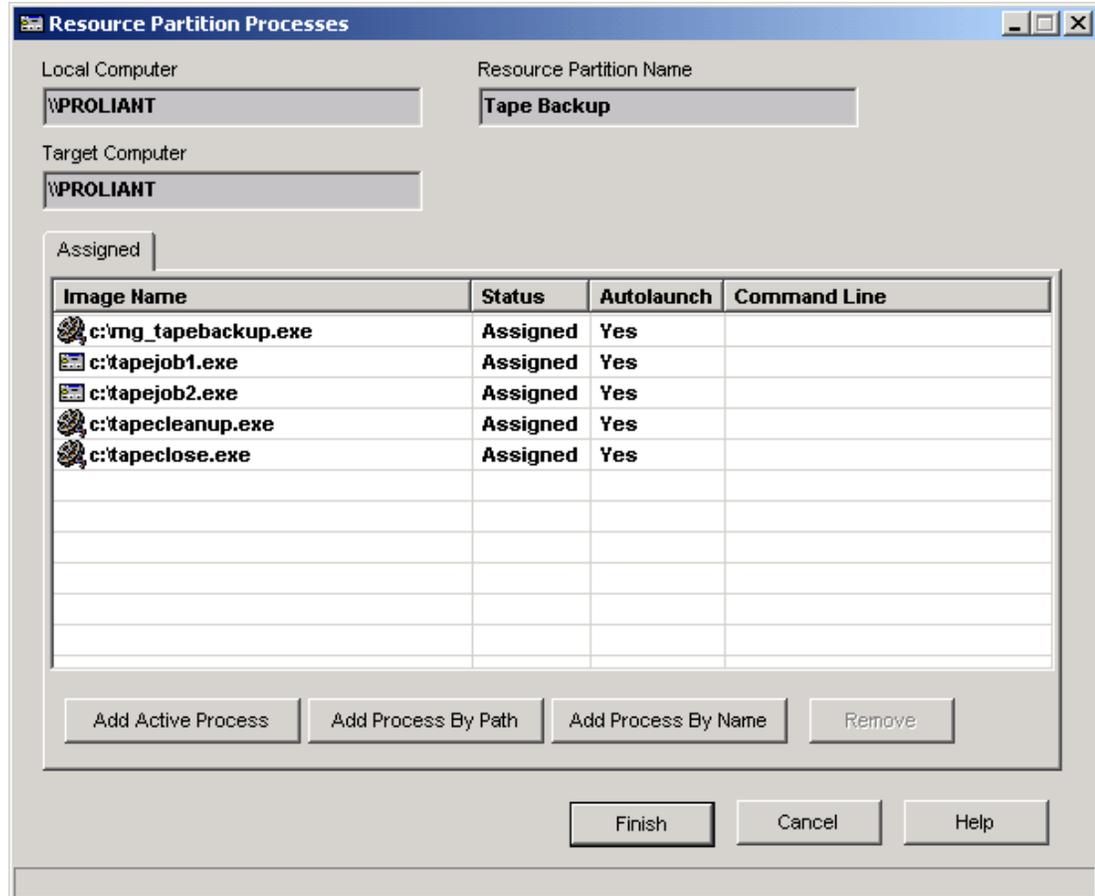


Figure 15: Resource Partition Processes screen (Assigned tab view)

The following information is provided about each assigned process:

- Image Name—The image name of the process (also shown in Task Manager).
- Status—The current assignment status of this process.
 - If Status is Assigned, the process is currently assigned to this Partition.
 - If Status is Assigned (Pending), the process has been selected for assignment to this Partition but is pending until the Finish button is clicked.
 - If Status is Removed (Pending), the process has been selected for removal from this Partition but is pending until the Finish button is clicked.

- Autolaunch—Processes that are specified using the Executable Path method can be configured to Autolaunch.
 - If Autolaunch is set to Yes, Resource Partitioning Manager will attempt to launch this process when the Resource Partition is started.
 - If Autolaunch is set to No, starting the Partition will not launch the process. Instead, the process will be “pulled into” the Partition whenever the process and the Partition are both active.
 - If Autolaunch is set to N/A, the process cannot be configured to Autolaunch.
- Command Line—Shows any command line parameters configured for this partition.

Active Tab

The **Active** tab displays those processes that are running within the Resource Partition when it is active, including those processes that are called from the assigned process. Figure 16 shows an example of this view.

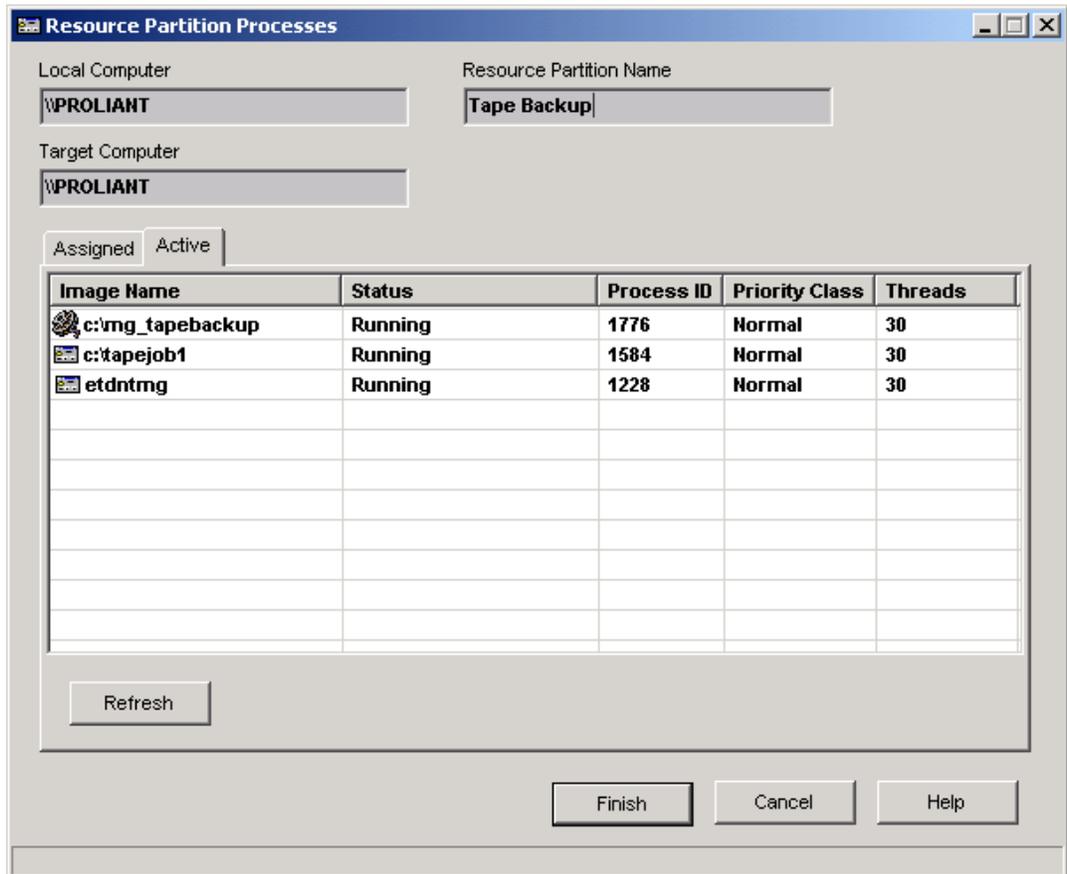


Figure 16: Resource Partition Processes screen (Active tab view)

The following information is provided about each process:

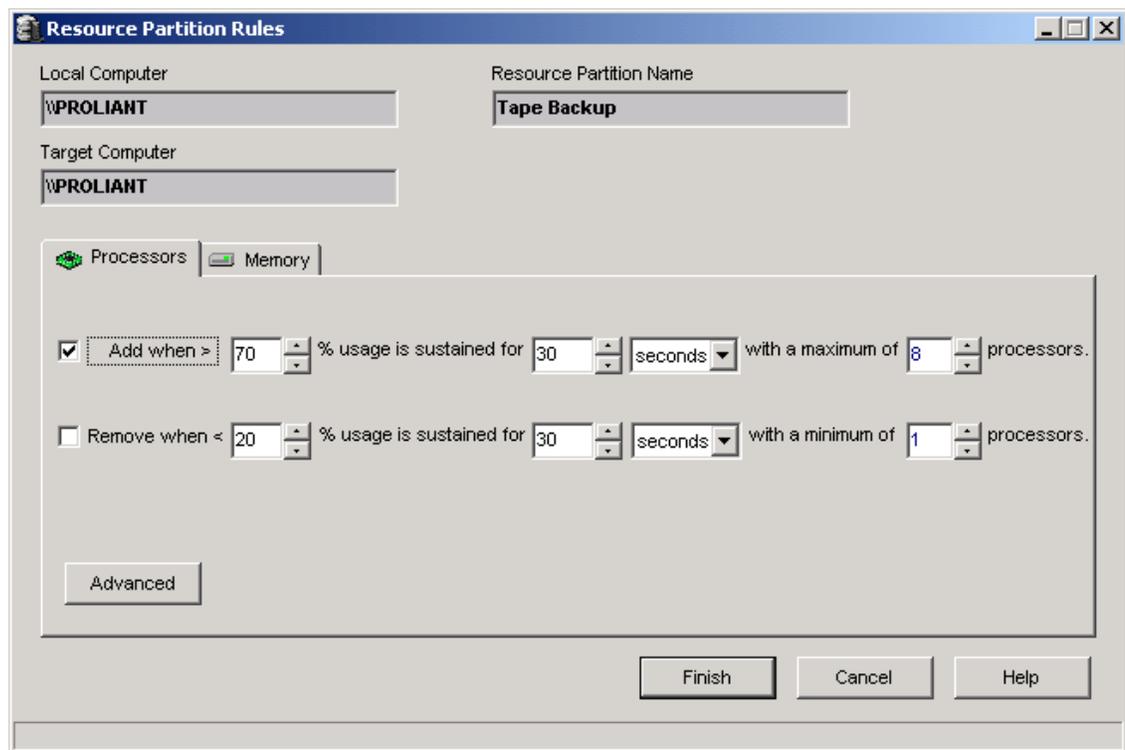
- Image Name—The image name of the process (also shown in Task Manager).
- Status—The current status of this process (in the Active tab, this is usually “Running”).
- Process ID—The Process Identifier for the process.
- Priority Class—The priority class setting for this process.
- Threads—The number of threads currently associated with the process.

Clicking the **Refresh** button updates the information in the process list.

Assigning Rules for a Resource Partition

After a process has been assigned to a Resource Partition, rules can be associated with that Resource Partition. After rules are associated, Resource Partitioning Manager can dynamically reallocate processors and memory.

The Resource Partition Rules screen is shown in Figure 17.



**Figure 17: Resource Partition Rules screen
(Processor tab view)**

The following two processor rules are available. These rules are independent of each other and can be in effect at the same time. Processors are added and removed one at a time.

- Add when—When this rule is enabled, available processors are dynamically allocated to the Resource Partition as the preset rule conditions arise. The rules continue to be active as long as the Resource Partition is active or until the maximum number of processors is reached.
- Remove when—When this rule is enabled, processors are removed from the Resource Partition after the overall processor utilization has remained below the chosen total processor usage for the given time until the minimum number of processors is reached or until the Resource Partition is inactivated.

To enable or disable a processor rule, select the check box at the left of the rule.

In some cases it may be advantageous to control the order in which processors are added or removed by the rules. Resource Partitioning Manager provides this control through the **Advanced Processor Rules Settings** screen shown in Figure 18.

To reach this screen, click **Advanced** on the **Processor Rules** tab.

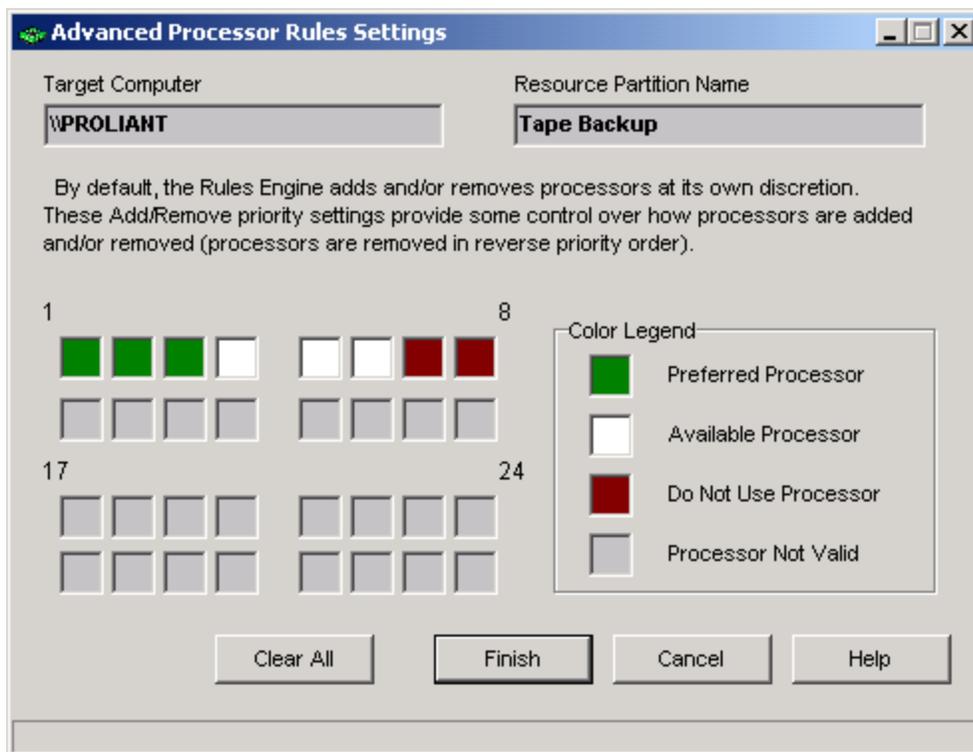


Figure 18: Advanced Processor Rules Settings screen

Clicking on a processor box cycles through the processor prioritization classifications, as indicated by the color legend.

When an Add Processor rule fires, any processors marked as **Preferred** will be added first (if available), followed in priority order by those marked **Available**. Processors marked as **Do Not Use** will never be added. If a Remove Processor rule fires, processors will be removed in reverse priority order.

Two memory rules are also available, as shown in Figure 19.

NOTE: Memory is added and removed in 16-MB increments.

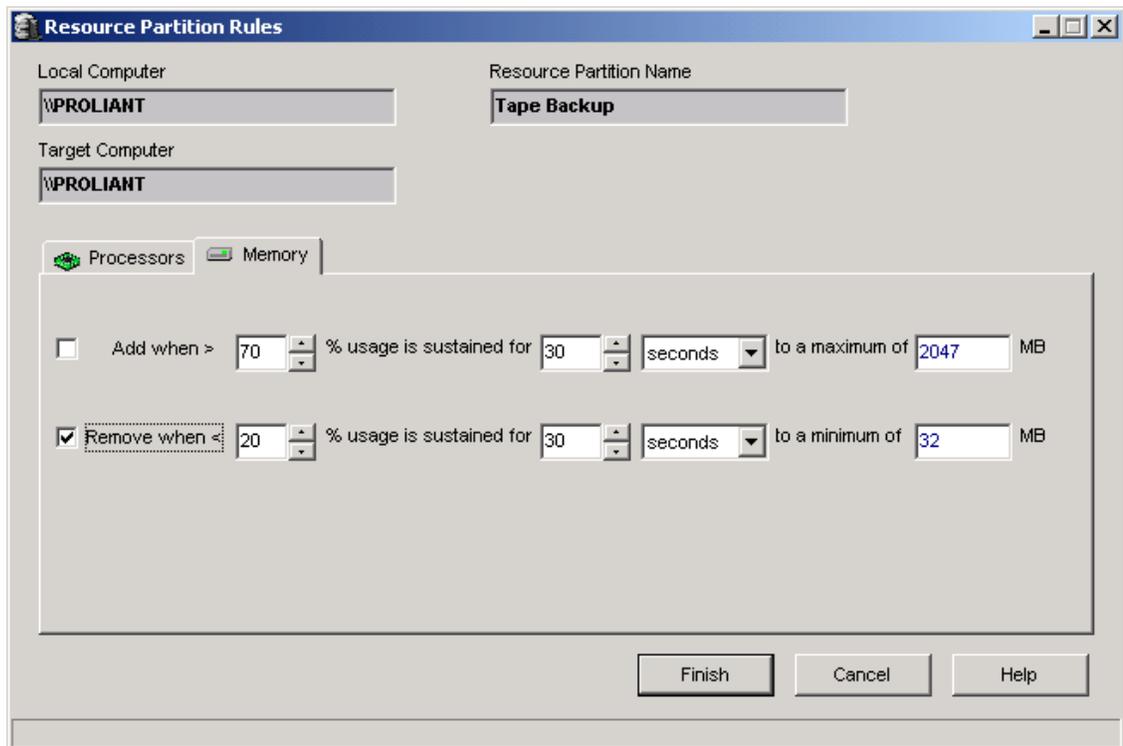


Figure 19: Resource Partition Rules screen (Memory tab view)

- Add when—When this rule is enabled, a set amount of available memory is dynamically allocated to the Resource Partition as the preset rule conditions arise. The rules continue to be active as long as the Resource Partition is active or until the maximum amount of memory is reached.
- Remove when—When this rule is enabled, memory is removed from the Resource Partition after the processes have used less than the chosen percentage of total memory for the given time period, until the minimum amount of memory is reached or until the Resource Partition is inactivated.

To enable or disable a memory rule, select the check box at the left of the rule.

Click **Finish** to apply the processor and memory rules, or click **Cancel** to proceed without applying the rules.

Resource Partitioning Manager will return to the main screen with the newly created Resource Partition displayed in the Available Resource Partitions screen, as shown in Figure 20.

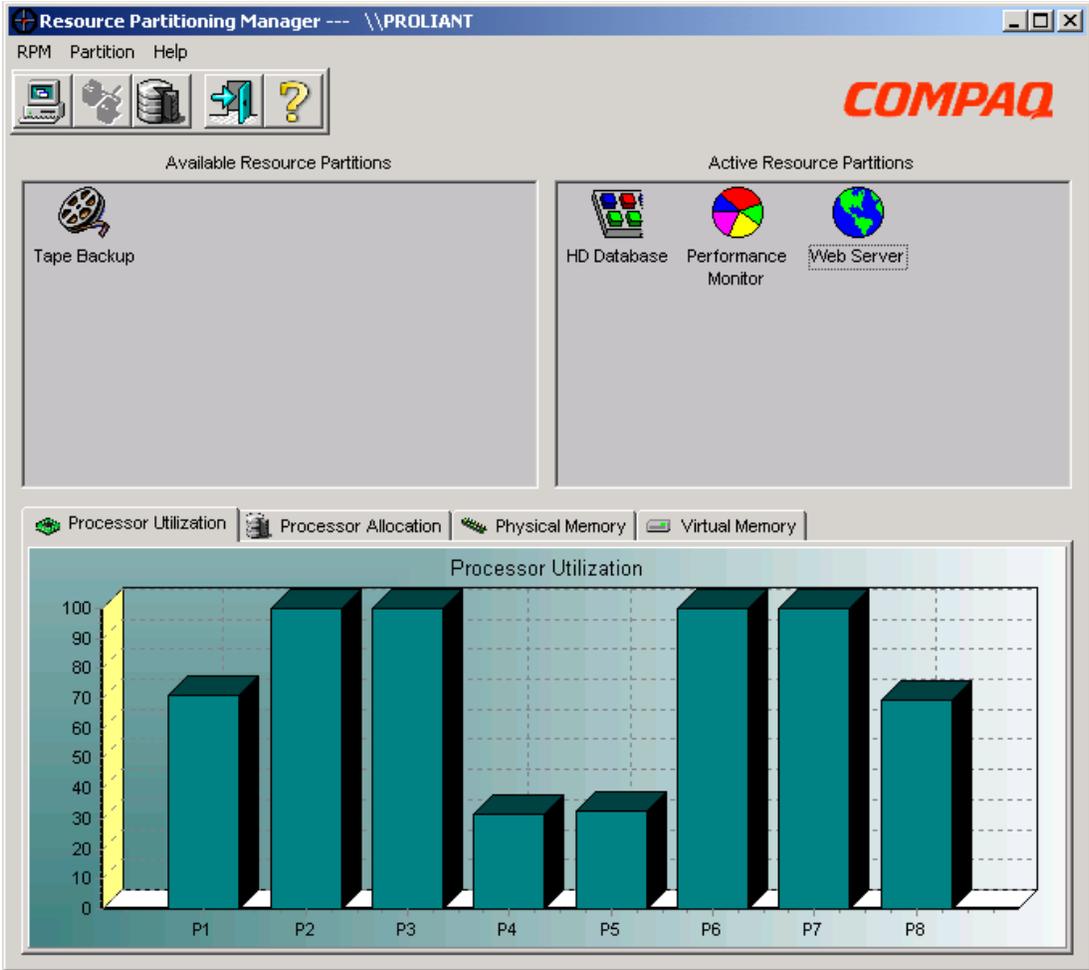


Figure 20: Main Screen with an available Resource Partition

Activating a Resource Partition

To activate one of the Available Resource Partitions, drag its icon into the **Active Resource Partitions** screen or right-click on the **Partition** icon and click **Start** (see Figure 21).

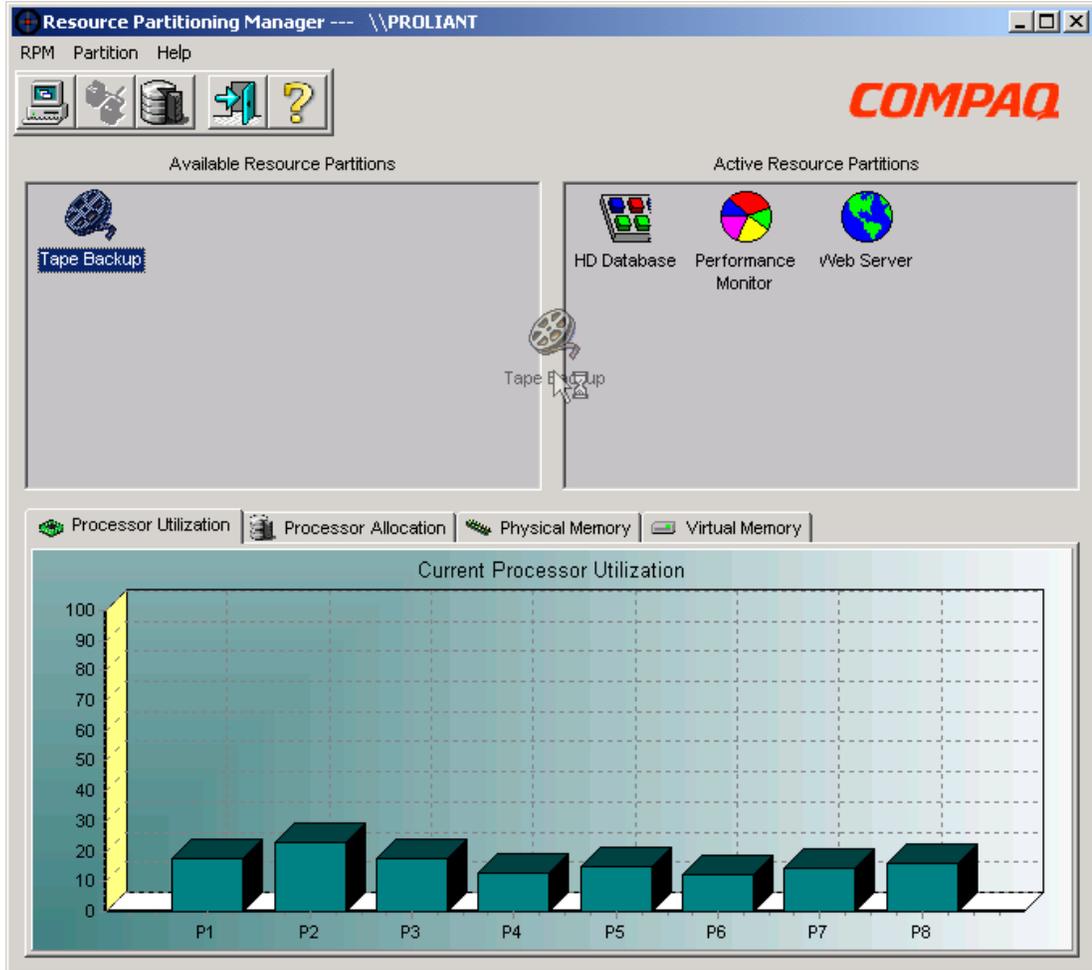


Figure 21: Activating a new Resource Partition

To deactivate a Resource Partition, drag the icon back to the **Available Resource Partitions** screen or right-click on the **Partition** icon and click **Stop**.

NOTE: Associated processes may or may not be activated when a Resource Partition is activated. For more information, see the following section, "Activating Processes Inside of Resource Partitions."



CAUTION: Deactivating a Resource Partition will forcefully terminate all applications, similar to using Task Manager to end a process. This will not initiate a normal application shutdown and could lead to a loss of data.

Activating Processes Inside of Resource Partitions

Resource Partitioning Manager is primarily designed to provide process management capabilities (using Resource Partitions) while allowing the continued use of normal business processes. Thus, the preferred method for managing a process is as follows:

1. A Resource Partition is configured to include a process by specifying the Image Name directly or by capturing it while the process is active (see “Adding Processes”).
2. The Resource Partition is activated, either automatically using the Autostart Resource Partition check box or manually by means of the Resource Partitioning Manager GUI.
3. The Resource Partitioning Manager waits for the process to become active. Whenever the process is activated, Resource Partitioning Manager automatically pulls the process into the boundaries of the Resource Partition.

No overhead is consumed by an active Resource Partition that is waiting for a process to become active.

Using the Autolaunch feature (available when adding a process using the executable path method), Resource Partitioning Manager can be configured to launch a process or processes whenever the Resource Partition is activated, rather than waiting for the process to become active.

However, using the Autolaunch feature may require changes in the methods already used to launch applications on the system, or can cause unexpected behavior changes in certain applications. For these reasons, it is recommended that Autolaunch be set to **No** for most situations.

Changing the Configuration of an Available Resource Partition

To change the configuration of an available Resource Partition, right-click the **Resource Partition** icon in the Available Resource Partitions screen. A list of configuration options will be displayed, as shown in Figure 22.

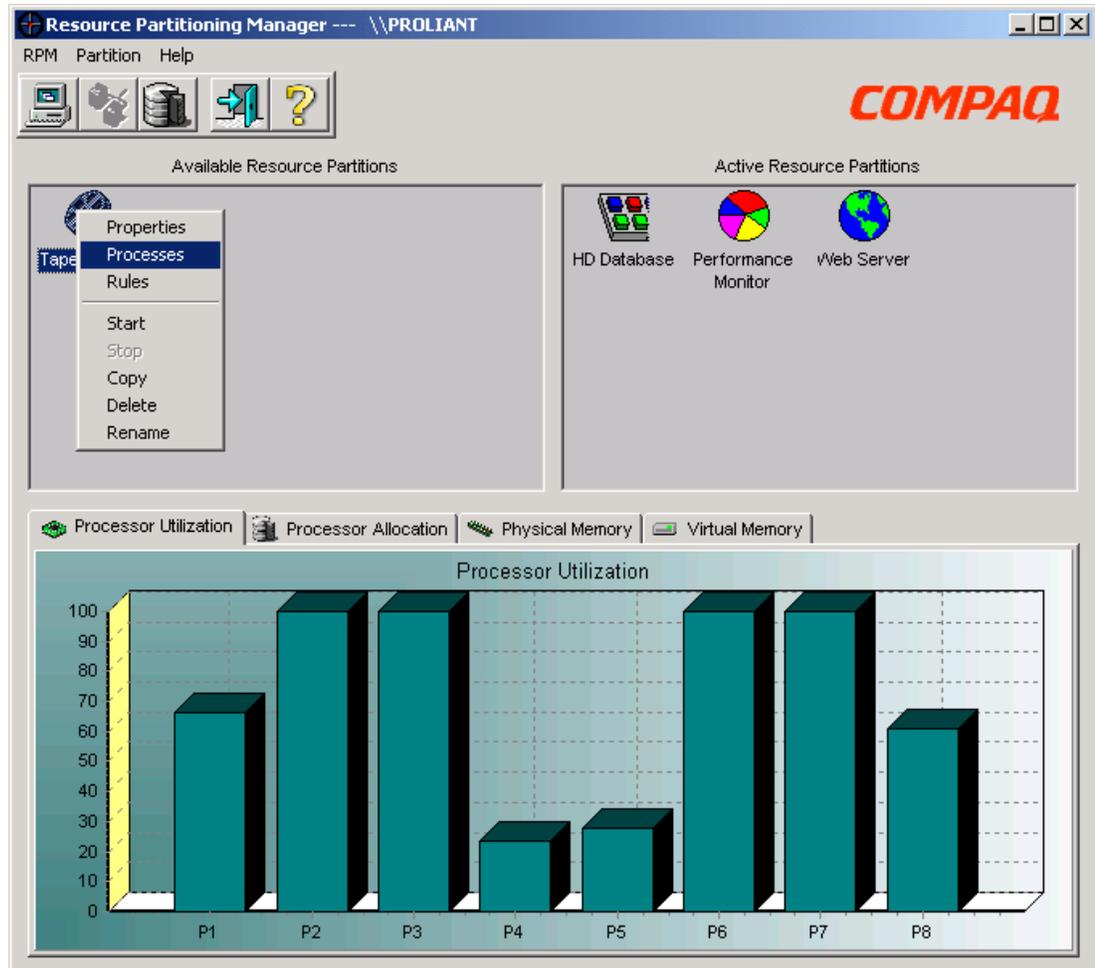


Figure 22: Changing the configuration of an Available Resource Partition

The following options are available:

- **Properties**—Displays the Resource Partition Properties screen and enables editing of properties of the Resource Partition.
- **Processes**—Displays the Resource Partition Processes screen and enables editing of the process list. When viewing the process list in editing mode, right click a process to remove it or double-click the process name to edit the advanced properties.
- **Rules**—Displays the Resource Partition Rules screen and enables editing of the rules.
- **Start**—Activates the selected Resource Partition.

- Copy—Creates a new Resource Partition with the same properties, processes, and rules as the selected Resource Partition.
- Delete—Deletes the selected Resource Partition.
- Rename—Renames the selected Resource Partition.

Changing the Configuration of an Active Resource Partition

To change the configuration of an Active Resource Partition, right-click the **Resource Partition** icon in the Active Resource Partitions screen, as shown in Figure 23. The following configuration options are enabled.

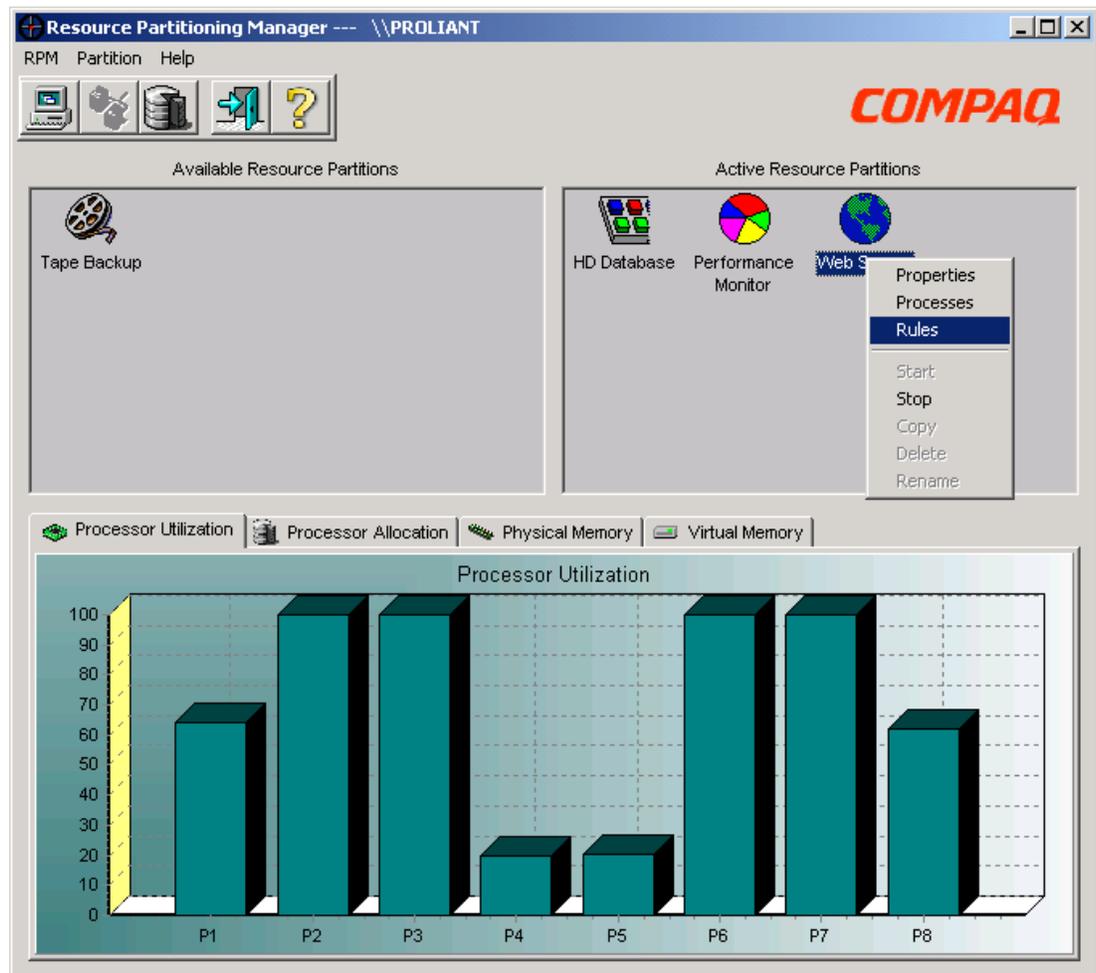


Figure 23: Changing the Configuration of an Active Resource Partition

- Properties—Displays the Resource Partition Properties screen and enables editing of general properties of the Resource Partition.
- Processes—Displays the Resource Partition Processes screen and enables editing of the process list.

-
- Rules—Displays the Resource Partition Rules screen and enables editing of the rules.
 - Stop—Deactivates the selected Resource Partition.

Copy, Delete, and Rename are unavailable while the Resource Partition is in the Active Resource Partitions screen.

Service Properties

Configuration and management of the Resource Partitioning Manager service is performed through the Service Properties dialog box. Service Properties can be accessed through the toolbar or the menu. Because modifying the properties of the service will affect any active Resource Partitions, this dialog box is only available when no Partitions are currently active.

The General tab provides the following management options:

- Start—Starts the Resource Partitioning Manager service if it is not currently active.
- Stop—Stops the Resource Partitioning Manager service if it is currently active.
- Update—Allows manual replacement of the Resource Partitioning Manager service with an available update.

The Resource Partitioning Manager service, by default, logs on to the LocalSystem account. The **Logon** tab can be used to configure the Resource Partitioning Manager service to log on to a user account. This feature is relevant when Resource Partitioning Manager is being used to manage a process that requires access to network resources (such as files and folders) that are protected by Windows 2000.

NOTE: When a Resource Partition is active, the **Service Properties** icon and menu item are disabled.

Using Compaq Resource Partitioning Manager on a Target Machine

Compaq Resource Partitioning Manager provides a method for managing resources on other systems on the network that are running Resource Partitioning Manager.

NOTE: Resource Partitioning Manager can provide data for any remote Microsoft Windows 2000 Server system to which the user has administrator access.

1. Click the **Select Computer** icon, as shown in Figure 24.



Figure 24: Selecting a computer

2. The **Select Target Machine** dialog box opens, as shown in Figure 25.

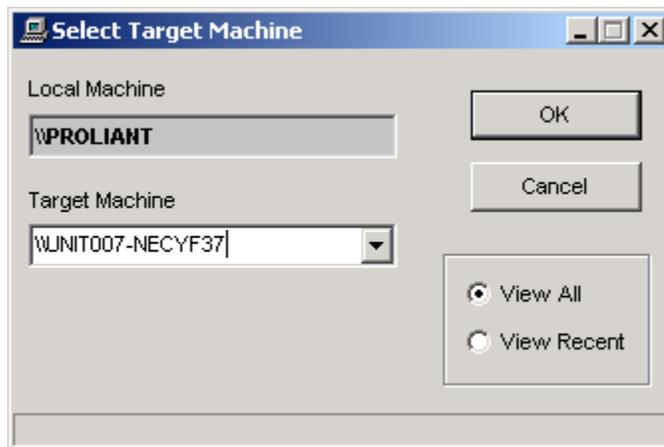


Figure 25: Selecting a target machine

3. Enter a computer name in the **Target Machine** field, or use the drop down menu to browse for another computer:
 - To view a list of all available systems in your workgroup or domain, select **View All** or specify the path.
 - To view recently accessed systems, select **View Recent**.
4. Click **OK** to access the target machine.
5. After accessing the target machine, follow the instructions in the “Creating a Resource Partition” section of this guide. The Partition on the target can be operated or maintained in the same manner as a Partition on a local machine.

Clustering Support for Compaq Resource Partitioning Manager

Compaq Resource Partitioning Manager can be successfully used in a clustered environment without interfering in normal cluster operations.

Resource Partitioning Manager provides “landing zones” for applications in a clustered environment. A landing zone is a Resource Partition that has been predefined for an application on the application’s standby cluster node.

Clustering support for Resource Partitioning Manager can best be understood in the example of a two-node cluster, where both nodes are used to provide services to clients, as shown in Figure 26.

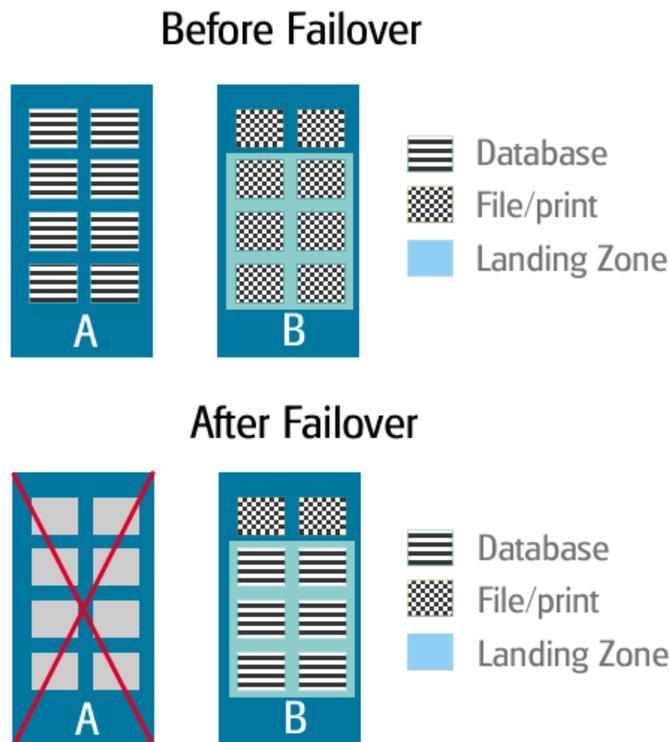


Figure 26: Two-node cluster

Server A has eight processors and is running a critical database application, while Server B is a file and print server with eight processors. Without the capabilities of Resource Partitioning Manager, the administrator of this cluster has two fairly undesirable options to handle the allocation of resources for these applications in the event of a cluster node failure and the subsequent migration of the failed node’s applications to the surviving server:

1. Let the Database and File and Print applications vie for resources (undesirable because the final allocation of resources may end up favoring the less important application).
2. Configure each application to use only the portion of the available resources on each server (undesirable because idle resources are not being utilized in the normal, non failed-over state to ensure resource availability for the failed-over condition).

In the following explanation, assume that you want to give resource priority to the Database application. Using Resource Partitioning Manager, create the home Partition on Server A for the Database application by defining six of the eight processors as “Preferred Processors” and the other two processors as “Available Processors” in the advanced section of the Processor Rules screen. Also, define a Resource Partition for the LanManServer process (services.exe) that limits it to the two processors designated as available to the database application.

Services.exe controls the publishing of file shares and print spools to clients. From the cluster point of view, file sharing will behave as if it is a separate application. In actuality, it is part of the server’s service that runs on every Microsoft Windows NT and Windows 2000 machine.

IMPORTANT: If you create a Partition for services.exe, **never** deactivate this Partition.

On Server B, create a landing zone partition for the database application, again giving it a six preferred and two available processor allocation. Define the rules for this partition as two processors “preferred” and the remaining six processors as “available”. Also create a partition for services.exe.

By setting up the home and landing zone partitions in this manner, you have ensured that in a normal operation state (no node failures), each application has all the processors of its home machine available to it. If the file and print server node fails, the database on the surviving node has at least six of eight processors available to it. File and print access will be slower on this node because you elected to give the database a higher priority in using resources, so this reduction is acceptable.

NOTE: For additional information on clustering using Resource Partitioning Manager, visit the Compaq website:

www.compaq.com/rpm

Troubleshooting

Hardware Configuration Changes

In the event of a significant change to the system configuration, particularly the addition or removal of processors or memory, Resource Partition configurations may be rendered invalid. In this case, Resource Partition configurations should be reviewed for any needed updates in light of the system changes. Resource Partitioning Manager will display a warning box noting that a system configuration change has occurred, and it will attempt to highlight potential areas of concern.

GUI Synchronization

If a single server is managed simultaneously by two Resource Partitioning Manager GUIs—one local and one remote—GUI synchronization issues may result. For example, if the GUI is left running on the server, and an administrator uses a GUI remotely to delete a Resource Partition, that change will not be automatically reflected on the Resource Partitioning Manager GUI running on the server. If the GUI is closed and restarted, all changes will be updated.

In general, the best practice is to close the Resource Partitioning Manager GUI when it is not in use. It is essentially a configuration interface—the Resource Partitioning Manager service controls all Resource Partition management.

Terminal Services

Terminal Services is designed to emulate a mainframe client-server environment. When viewing the server screen using Terminal Services, the user is actually seeing a reproduction of the server screen, centric to that user's activities (as if he or she is the only user).

Because of this effect, running Resource Partitioning Manager by means of Terminal Services can produce some confusion. More specifically, applications launched by Resource Partitioning Manager when running by means of Terminal Services will not appear to have been started, because they will be launched outside of the user's client space. Thus, they will not appear in the user's Terminal Services window, although they will appear on the actual server console.

Running Multiple Instances of the Same Application

Although Resource Partitioning Manager supports running multiple instances of most applications, in situations where you have to capture multiple instances of the same program, care must be taken to ensure that processes are captured by the correct Active Resource Partition. Table 2 shows three instances of an application and three Active Resource Partitions, each waiting to capture an instance.

Table 2: Multiple Instances of the Same Application

Application	Active Resource Partition
Application Instance # 1	Active Resource Partition # 1 (waiting for application to start)
Application Instance # 2	Active Resource Partition # 2 (waiting for application to start)
Application Instance # 3	Active Resource Partition # 3 (waiting for application to start)

In situations where each Resource Partition is configured differently, start each Resource Partition manually, then manually start the application instance to be captured. Continue the sequence until all of the instances have been started (activate a resource partition, start an application instance, activate a resource partition, start an application instance, and so on).

NOTE: This scenario only applies if an instance **MUST** be captured by a specific Resource Partition.

Additional Troubleshooting Information

For additional Resource Partitioning Manager troubleshooting information, refer to the troubleshooting section of the Resource Partitioning Manager website. This section contains more comprehensive information and should be consulted before contacting Compaq Technical Support. The troubleshooting section is located at

www.compaq.com/rpm

Conclusion

When you have finished creating and activating Resource Partitions, you can keep Resource Partitioning Manager visible to display active processor utilization, minimize Resource Partitioning Manager, or close the user interface window completely and move on to other activities while Resource Partitioning Manager manages your resources.