

PACE Configuration Contents

This control panel is used to set configuration options for the 3Com PACE adapter driver installed on your system. In addition to a [PACE Technology Overview](#), help can be obtained on the three main tabs of the control panel property sheet:

[PACE Supported Applications](#)

[PACE Additional Ranges](#)

[PACE Advanced Options](#)

PACE Technology Overview

3Com's innovative Priority Access Control Enabled ([PACE](#)) technology meets both the technical and business challenges of bringing multimedia and video applications to the desktop across a 10Mb LAN. PACE enhances both real-time, interactive applications and multimedia (data, voice and video) applications by enhancing network bandwidth utilization, reducing latency, controlling jitter and supporting multiple traffic priority levels. Additionally, PACE technology does not require wholesale upgrades to existing Ethernet networks.

PACE-enabled switches monitor traffic and guarantee network access to devices on the network. Through this mechanism, the latency and jitter is bounded, thus guaranteeing regular delivery of data. By making the connection to the network "better behaved," links to PACE-enabled switches can be utilized up to 98% of their capacity - a 25% improvement over standard switched links.

PACE also offers the ability to prioritize multimedia and real-time data over Ethernet through the use of a PACE-enabled [network driver](#). This prioritization increases the efficiency of bandwidth utilization and allows traditional data and time-sensitive voice, video or data to share the same physical network infrastructure.

PACE Supported Applications

PACE Support

From here, PACE support can be enabled or disabled. If disabled, the network driver will perform no PACE checking and multimedia support will not be enhanced for any applications. Also, no other fields in the control panel will be accessible. If PACE is enabled, the network driver will perform PACE checking for multimedia network traffic for those applications specified.

Select the PACE supported applications installed

In order for the PACE adapter driver to recognize high priority network traffic, it must know if a stream of network traffic was generated by a given application. 3Com has evaluated the listed applications and determined the information necessary to support prioritization of them. To enable PACE support for these applications, simply check the box next to the appropriate application name. If an application is not listed here, you may obtain information from the application's manufacturer and manually enter the information in the [Additional Ranges](#) tab.

PACE Additional Ranges

Although we have made every effort to include support for many popular multimedia applications through the Support Applications section, there is an ever increasing number of applications which are not explicitly supported there. In this section, you can add the information for additional applications you may want prioritized. For these applications, [port or socket ranges](#) need to be specified as well as the network protocol being used. This information can often be obtained from the application manufacturer. The PACE network driver will use these ranges to determine whether a packet should be treated as high priority.

Range Start

Enter the beginning of the port or socket range for the application. The range start should be a 4-digit hexadecimal value.

Range End

Enter the inclusive ending value of the port or socket range for the application. The range end should again be a 4-digit hexadecimal number. If only one port or socket is needed, Range End should match Range Start.

Protocol

Enter the protocol that the application uses. This can be TCP, UDP or IPX. Some applications may support multiple protocols and have port or socket ranges for each. In this case, the range/protocol that is entered should match the protocol being run on the system. For example, if only TCP/IP is installed, do not enter the socket range for IPX as it will adversely affect driver performance.

Add

Once the Range Start, Range End and Protocol are entered press the Add button. This will add the range to the list below.

Remove

To remove a range, simply highlight the range in the list below and press the remove button.

PACE Advanced Options

The Advanced Options can be used in some cases to “fine tune” how the network driver handles certain types of PACE traffic. In general, these values need not be altered.

FIFO Packet Threshold

Indicates the number of non-PACE packets the network driver will allow in the FIFO ahead of any PACE packets. A smaller number will decrease the time in between PACE packets, but could adversely affect performance. A value of 3 is recommended.

Concurrent UDP Streams

Controls the number of simultaneous multimedia UDP packet streams the network driver can handle at any given time. For many applications, the number of UDP streams directly maps to the number of connections being used. For example, if I am videoconferencing with three other people, the applications would use three UDP streams for the video data.

The value must be a power of two (2, 4, 8 ...) but the optimal value may vary depending on the machine/application. A video server may wish to support 32 connections but a client may only ever want to conference with 4 other people at a time. A value of 16 is recommended for most applications.

Low Priority Ratio

When PACE support is enabled, high-priority packets are always transmitted before low-priority packets. This means that if a certain high-priority applications sends out enough packets, a condition might arise where no low-priority packets get sent. To alleviate this potential problem, the driver uses a ratio value to periodically send out a low-priority packet (if one is waiting to be sent.) For example, if a value of 1000 is entered, one low-priority packet would be sent for every 1000 high-priority packets. A value of 25 is recommended for most applications.

Natural Packet Interval

To communicate packet priority to the interconnect devices (repeaters, switches, etc.), the PACE driver will slightly modify the Ethernet packet. When these modified packets are sent out for large intervals without any low-priority packets being sent, interconnect devices can become “confused” which may result in connection problems. For this reason, the driver can be configured to send out an unaltered, “natural” packet periodically. The value given is in seconds. A value of 180 seconds (3 minutes) is recommended for most applications.

Disable Switch Priority Communication

Disables modification of Ethernet packets used for prioritization of multimedia traffic within 3Com switch products. If a multimedia connection cannot be made between a PACE-enabled workstation and a non-PACE workstation, disabling the switch prioritization can sometimes alleviate this problem. Disabling switch prioritization only affects the switch, it does not change the behavior of the PACE driver in any way. Packets deemed to be high priority will still be transmitted ahead of most non-PACE packets on the workstation.

PACE

PACE stands for Priority Access Control Enabled

Network Driver

A network driver is the piece of software that directly interacts with a network adapter card.

Ports and Sockets

Ports (for TCP and UDP packets) and sockets (for IPX packets) are portions of the packet which can be used to identify what application generated it.

Ranges

Many times, an application will need more than one port or socket. For example, a videoconferencing application may use one port for the video stream and another for the audio stream. If the video was transmitted on port 01FE and the audio on 01FF, the range for this application would be 01FE-01FF.

Ranges

Many times, an application will need more than one port or socket. For example, a videoconferencing application may use one port for the video stream and another for the audio stream. If the video was transmitted on port 01FE and the audio on 01FF, the range for this application would be 01FE-01FF.

Multimedia Network Traffic

Network traffic for an application where timely delivery of data is necessary for acceptable results. Examples include videoconferencing, network video broadcasting and real-time network audio.

