

February 14, 2002
16AZ-0202A-WWEN

Prepared by OS Development

Compaq Computer Corporation

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Headless Server Operations and Issues

Abstract: This paper discusses the various issues encountered and remedies found for operating a server without keyboard, mouse, or other legacy hardware.

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Headless Operations and Issues
White Paper prepared by ISSG – OS Development

First Edition (February 2002)
Document Number 16AZ-0202A-WWEN

Introduction

Purpose

This paper is designed to illustrate and help users understand various issues that may be encountered while running a *headless* server, and how to configure the server to minimize issues and errors.

Background

This paper focuses primarily on issues arising from running a server in headless mode. The term *headless* refers to running a server without legacy input/output devices such as keyboard, mouse or monitor. Such servers would have to be accessed through alternative means, such as network or serial ports. Some servers, such as the ProLiant BL line of server blades, are specifically designed for headless operation.

Microsoft Windows 2000 issues

Microsoft Windows 2000 was not designed to run in a headless configuration. As a result, when it is in headless mode, the following issues may be seen.

Device Manager Alerts

While running a headless server with Window 2000, certain devices appear with a yellow alert (exclamation mark) beside them in Device Manager. A server without keyboard or mouse may show the following:

- PS/2 Keyboard – This can be ignored since a keyboard is not attached.
- PS/2 Mouse – This can be ignored since a mouse is not attached.
- Com Port 1 – This can be ignored on ProLiant BL10e server blades since the BL e-Class Server Blade Enclosure reserves Com Port 1 on each installed server blade.
- Parport – This can be ignored on servers without parallel (LPT) ports.

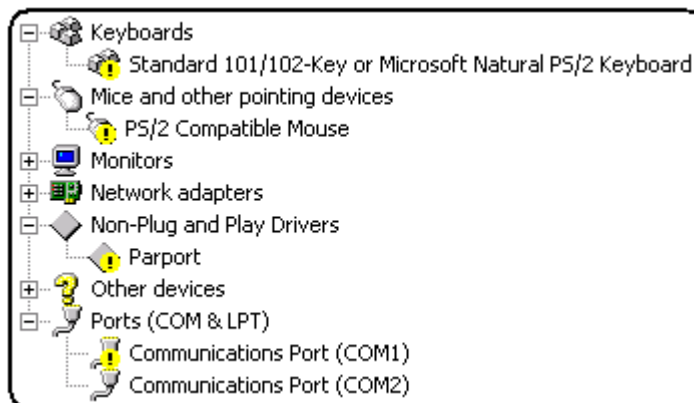


Table 1: Device Manager Alerts

Event Log Messages

For the same reasons described above under Device Manager Alerts, missing hardware (such as keyboard and mouse) generate event log messages as well. On a server running Windows 2000, the following event log messages are the result of missing keyboard and mouse (a typical headless configuration):

- Error: <i8042prt> " Exceeded the allowable number of retries (configurable via the registry) on device."
- Warning: <i8042prt> "The keyboard device does not exist or was not detected."
- Information: <i8042prt> "No mouse port ("PS/2 compatible") mouse device was detected on the i8042 auxiliary port (not a problem unless this type of mouse really is connected)."
- Information: <Service Control Manager> "The following boot-start or system-start service failed to load: i8042prt".

Other Messages

Since there are no PS/2 ports on a ProLiant BL10e server blade (unless the Diagnostic Adapter is attached), the i8042prt service will fail. I8042prt is the service that drives the PS/2 ports. When the i8042prt service fails, a dialog is presented which states the following:

- <Service Control Manager> "At least one service or driver failed to load during system start up. Use Event Viewer to examine the event log for details".

If the event log message states that the only failing service is i8042prt, and no PS/2 keyboard or mouse is attached, then this dialog is reporting a benign error.

Microsoft Windows .NET Server Issues

Device Manager Alerts

Microsoft Windows .NET does not report alerts in Device Manager due to missing keyboard or mouse, as running in headless mode is supported by Microsoft Windows .NET. Servers without parallel (LPT) ports may still show an alert on the following device:

- Parport – This can be ignored on servers without parallel (LPT) ports.

Event Log Messages

For the same reasons described above under Microsoft Windows 2000 issues, missing hardware (such as keyboard and mouse) generate an event log message in Windows .NET as well. On a server running Microsoft Windows .NET Server (as of Beta 3), the following event log message is the result of missing keyboard and mouse:

- Error: <i8042prt> " Exceeded the allowable number of retries (configurable via the registry) on device."

Compaq Legacy Port Configuration Component

Purpose

Compaq has created the Legacy Port Configuration Component, which reduces the number of benign errors reported during operation of a headless server (as described above). This utility removes these errors reported by Device Manager due to headless operations, or nonexistent hardware, as well as the dialog and event log entry generated by Service Control Manager.

Requirements

This utility is designed for:

- Microsoft Windows 2000 (SP2 required, Hotfix Q262798 recommended).
- Microsoft Windows .NET Server (Beta 3 or greater).

Usage

This utility automatically executes when it is installed. If the server is reporting any of the benign errors mentioned in this paper it corrects them. If you wish to see the errors at a later time, the default system configuration can be restored. The default behavior is to prevent these errors from being reported. The accepted command switches are as follows:

- /q - Run quiet (do not run any GUI dialogs).
- /r:host - Make configurations to remote machine 'host'.
- /u - Restore original system default configuration.

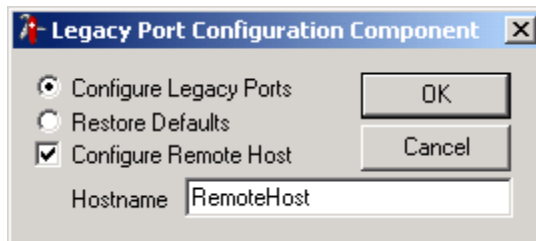


Table 2: CpqLpcc.exe screenshot

Availability

This utility is available via download at: <http://www.compaq.com/support/files/server/us/index.html>