

S/390



User's Guide
Reference Summary
for the 9032 Model 3
ESCON Director,
9033 Model 4 ESCON
Director, and
9032 Model 5 Director

Note

Before using this information and the product it supports, read the general information under "[Notices](#)" on page v.

Second Edition (August, 1999)

This is the second edition of SA22-7298.

This edition applies to 9032-003 and 9033-004 Enterprise Systems Connection (ESCON) Directors, the 9032-005 Director, and to all subsequent releases and modifications of the Directors until otherwise indicated in new editions or technical newsletters.

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About This Publication

This publication includes a summary of key user reference material for the IBM 9032 Model 3 Enterprise Systems Connection (ESCON®) Director Console, 9033 Model 4 ESCON Director Console, and 9032 Model 5 Director Console.

Who Should Use This Publication?

This publication is intended as a quick reference summary for Director Console operators and service personnel.

Where to Find More Information

The following publications provide information to help plan for, use, and maintain the Director and Director Console:

- *Using the 9032 Model 3 ESCON Director, 9033 Model 4 ESCON Director, and 9032 Model 5 Director* (SA22-7296).
- *Console Installation and User's Guide: 9032 Model 3 ESCON Director, 9033 Model 4 ESCON Director, 9032 Model 5 Director, and 9037 Model 2 Sysplex Timer* (GA22-7291).
- *Maintenance Information for the 9032 Model 3 Enterprise Systems Connection Director* (SY27-3601).
- *Maintenance Information for the 9033 Model 4 Enterprise Systems Connection Director* (SY27-2638).
- *Maintenance Information for the 9032 Model 5 Director* (SY28-1158).
- *Planning for the 9032 Model 3, 9033 Model 4, and 9032 Model 5 Enterprise Systems Connection Directors* (SA22-7295).
- *Planning for the 9032 Model 5 Director with FICON Converter Feature* (SA22-7415).
- *Operator Panel Reference Summary for the 9032 Model 3 Enterprise Systems Connection Director* (SA26-6103).
- *Operator Panel Reference Summary for the 9033 Model 4 Enterprise Systems Connection Director* (SA22-7211).
- *Operator Panel Reference Summary for the 9032 Model 5 Director* (SA22-7297).
- *Up and Running OS/2 Warp V4* (S84H-3090).

The 9032 Model 3, 9033 Model 4, and 9032 Model 5 Director Console

Director Consoles described herein operate in a Windows®-Operating System/2® (Win-OS/2®) environment. Menus, dialog boxes, and function keys operate as standard objects. This document does not contain complete information about Win-OS/2 operation. Refer to operating system specific publications and online information for detailed references. Only general operation references, exceptions, and extensions to the standards are referenced here.

Console Operations

The Director Console communicates with a group of Directors using a Token Ring local area network (LAN). Only one instance of the Director Console application may be open at the Console PC at any one time. However, multiple windows (logs, saved matrixes) can be opened within the application for each Director, allowing monitoring and operations of up to 16 devices. These devices can be a combination of up to 14 Directors and two 9037 Model 2 Sysplex Timer networks. Only one *Matrix* window can be open per Director at any one time.

Basic Concepts

Use the Director Console to perform the following:

- Configure the attributes of one or more Director port addresses. There are six possible attributes to assign to an address (refer to "[Matrix Port Attribute Symbols](#)" on page 14):
 - Blocked or unblocked.
 - Dedicated or not dedicated.
 - Prohibited or allowed.
- Maintain multiple Director configurations (port address attributes).
- Download a desired configuration to any attached Director.
- Display or change the name of any Director port.
- Display product data of devices attached to any Director port.
- Monitor the current hardware operational status of the Director and Director ports.
- Access audit logs to track changes made to the Director and Console software configurations.
- Access logs to track incidents occurring on the Director or in the Console.

- Access utility and maintenance functions for a specific Director.
 - Maintain multiple Director Licensed Internal Code (LIC) versions.
 - Download a desired LIC version to any attached Director.
 - Provide password protection for each level of Director management.
-

Mouse

Use the mouse to navigate through windows, dialog boxes, and menus, and to select or modify data in the window. The following information applies to all windows and menus displayed on the Console.

Scroll information through windows using the horizontal and vertical scroll bars (where scroll bars appear). Click the arrows at the ends of the scroll bars to scroll data one line (or information segment) in the direction of the arrow. Click the main part of the scroll bar on either side of the thumb (the shaded box in the scroll bar) to scroll one page in the direction relative to the thumb's position. Drag the thumb (holding down the mouse button with the cursor on the thumb while moving the mouse) to position the display at the point relative to where the button is released on the scroll bar.

Pull down (display) menus by clicking on a menu name in the menu bar. Select menu options by highlighting that menu option and releasing the mouse button.

Select or set controls in dialog boxes by clicking the control item (check box or radio button) or the text associated with the control. Position the typing cursor in a text edit control by clicking the left button while the cursor (I-beam) is at the desired position in the text string. Drag the mouse cursor over a section of text to select (highlight) the text; any character typed when text is selected replaces all selected text with the typed character.

Keyboard

Although a mouse may be used effectively for many operations on the Console, it is not required. The keyboard is fully supported through the use of navigation keys, menu accelerators, and matrix attribute setting keys. The following descriptions apply to all windows and menus on the Console.

Navigation Keys

PgUp / PgDn - Scrolls the displayed window up or down one page (a page is the amount of data displayed). The option is not available for the *Port Maintenance* or *Terminal* windows.

Ctrl+PgUp / Ctrl+PgDn - Scrolls the window data left or right one page. The option is not available for the *Port Maintenance* or *Terminal* windows.

Home / End - Moves the display to the leftmost (Home) or the rightmost (End) position without scrolling. The option is not available for the *Port Maintenance* or *Terminal* windows.

Ctrl+Home / Ctrl+End - Moves to the top or bottom of the displayed data. The option is not available in the *Port Maintenance* or *Terminal* windows.

Ctrl+Shift+Home / Ctrl+Shift+End - Scrolls to the beginning (top left) or bottom right of the data. The option is not available in the *Port Maintenance* or *Terminal* windows.

Arrow Keys - Moves the highlight (selection indicator) in the direction of the arrow one position at a time. The option is not available in the *Port Maintenance* or *Terminal* windows.

Ctrl+F6 - Rotates through the display of other Console windows that may be open. The next window in the sequence is brought into view.

Alt+F6 - Selects an alternate dialog box if multiple dialog boxes are open. For example, a *Director Information* dialog box is accessed from the *Select Active Director* dialog box; the **Alt+F6** keys alternate keyboard selection between the two dialog boxes, allowing dialog box interaction.

F10 or Alt - Selects a window's menu bar. Use the arrow and **Enter** keys to select a menu option (or use underlined letter mnemonic).

F1 - Help for selected window. The option is not available for the *Terminal* window.

F4 - In dialog boxes, a list of all possible predefined options appears when the **F4** key is pressed from a list box (*Edit* field with a down arrow button to the right of the field). In a window with no open dialog boxes, pressing **F4** refreshes or rereads the data on the display.

Accelerator Keys

To assist more experienced Console operators, accelerator keys are available for performing frequently used operations without accessing functions from a menu. To help in learning the accelerators, available accelerators (usually a control or alternate key, like **Ctrl+D**) are listed to the right of the associated options on pull-down menus. A menu option function is executed with the accelerator keystroke when the menu is not pulled down (active).

To pull down a menu bar menu, hold the **Alt** key while pressing the underlined letter of the menu name. When a menu appears, press the underlined character of the menu item to execute the selection.

Dialog boxes also have letter mnemonics for buttons, controls, and entry fields. Pressing the underlined letter executes the function of the push button, toggles or sets the control, or moves keyboard focus to the field. When the cursor is over an entry field (which accepts keystrokes as characters for the field), use **Alt** with the letter key as the accelerator to select the desired control.

Matrix Window

The graphic display of the configuration matrix (Figure 1) provides an easy-to-recognize visual interface with the configuration attributes of the selected Director.

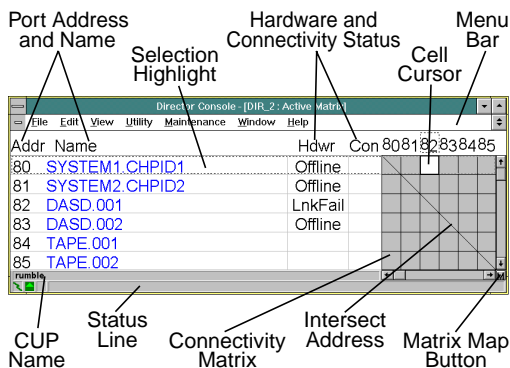


Figure 1. Matrix Window and Components

Matrix Keyboard Support

This section describes keyboard options available for navigation through the *Matrix* window (where such options are not indicated as accelerator keys on pull-down menus).

PgUp or F7 / PgDn or F8 - Scrolls the matrix up or down one page (a page is the number of addresses displayed in a *Matrix* window).

Ctrl+PgUp / Ctrl+PgDn - Scrolls the matrix left or right one page.

Home / End - Moves the cell cursor horizontally to the leftmost displayed cell or to the rightmost displayed cell.

Shift+Home / Shift+End - **Shift+Home** scrolls the matrix horizontally to the lowest port address (**80** for the 9032-003, **C0** for the 9033-004, **04** for the 9032-005), without changing the vertical position. **Shift+End** scrolls the matrix to the highest port address (**FB** for the 9032-003, **CF** for the 9033-004, **FB** for the 9032-005).

Shift+PgUp / Shift+PgDn - **Shift+PgUp** scrolls the matrix vertically to the lowest port address (**80** for the 9032-003, **C0** for the 9033-004, **04** for the 9032-005), without changing the horizontal position. **Shift+PgDn** scrolls the matrix to the highest port address (**FB** for the 9032-003, **CF** for the 9033-004, **FB** for the 9032-005).

Ctrl+Home / Ctrl+End - Moves the cell cursor to the upper left displayed cell or to the lower right displayed cell.

Ctrl+Shift+Home / Ctrl+Shift+End - Scrolls the matrix horizontally and vertically to the lowest port addresses (**80, 80** for the 9032-003, **C0, C0** for the 9033-004, **04, 04** for the 9032-005) or to the highest port addresses (**FB, FB** for the 9032-003, **CF, CF** for the 9033-004, **FB, FB** for the 9032-005).

Ctrl+Ins or C - Copies *Allow* and *Prohibit* attributes for the selected address row to the clipboard for later paste operations. Equivalent to the *Edit* menu *Copy* option. This function copies the attributes to the clipboard for use by the Console matrix paste operation.

Shift+Ins or T - Inserts (pastes) *Allow* and *Prohibit* attributes from the clipboard to the selected address row. Equivalent to the *Edit* menu *Paste* option.

Arrow keys - Move the cell cursor one cell in the direction of the arrow. When the selected cell is at the edge of the displayed matrix page (top, bottom, right, or left edge), continued use of the arrow key scrolls the matrix one cell, until the minimum or maximum port addresses (**80** or **FB** for the 9032-003, **C0** or **CF** for the 9033-004, **04** or **FB** for the 9032-005) are encountered.

Tab / Shift+Tab - Moves the cell cursor one cell to the right or left, respectively. From the edge of the displayed matrix, subsequent use of these keys moves the selected cell (and the row selection indicator) to the next or previous row, respectively, without changing the displayed matrix position. The bottom right cell wraps to the upper left cell on a **Tab**, and the upper left cell wraps to the lower right cell on a **Shift+Tab**.

A / P - The alpha character **A** (upper or lower case) clears the *Prohibit* attribute (allows a connection) for the selected cell (intersection addresses), and **P** (upper or lower case) sets the *Prohibit* attribute for the selected cell. The cell cursor advances to the next cell after either character. Hold the **Shift** key down while pressing either key to move the cursor to the previous cell after setting the attribute. Scrolling occurs at either end of the displayed matrix grid.

B / U - The alpha character **B** (upper or lower case) sets the *Blocked* attribute for the selected address, and **U** (upper or lower case) clears (unblocks) the *Blocked* attribute for the selected address. The selection row advances down after either character. Hold the **Shift** key down while pressing either key to move the selection row up after setting the attribute. Scrolling occurs at the top or bottom of the displayed matrix grid.

Space bar - Toggles the *Prohibit* attribute for the selected intersection cell. The cell cursor does not move.

F4 - Rereads the active matrix from the Director. This performs a *Revert to last activated* function. The current Director matrix configuration overwrites any nonactivated changes made to the active matrix.

Matrix Mouse Usage and Features

Most areas of the *Matrix* window are sensitized for mouse usage. Actions on matrix scroll bars perform normal scrolling actions. Actions within the main area of the window are initiated with the mouse by positioning the mouse cursor and performing one of the following operations:

Single click (left button) - Selects the address under the cursor and moves the dashed highlight box to the selected address. If the mouse cursor is on a port address or name (or within the status columns for an address) the address is selected and the cell cursor (white box) is not changed. If the mouse click occurs in the gray matrix area, the cell cursor is positioned under the cursor. If the mouse click occurs on the intersection cell addresses (top row numbers above the matrix), only the horizontal position of the cell cursor is affected.

Double click (left button) - Performs a default action at the mouse cursor position. For example, if the mouse cursor is on a port address name, the *Name for Address #* dialog box appears to change the selected port address name. If the mouse cursor is in the gray matrix, the *Prohibit* attribute for the cell intersection location is toggled. Refer to "[Sensitized Mouse Regions](#)" below for the locations and functions performed for each region.

Ctrl + Double click (left button) - When the **Ctrl** key is held down while the left mouse button is double-clicked, an extended action is performed at the mouse cursor position. If the mouse cursor is in the *Con* column, the *Blocked* attribute is toggled for the address. If the mouse cursor is in the matrix area, the *Dedicated* attribute is toggled for the intersection addresses in the cell under the cursor. For other areas, the action is the same as if the **Ctrl** key was not held.

M (Matrix Map) button (single-click to select) - This push button is located at the lower right corner of the matrix, below the vertical scroll bar. Select the button to open the matrix map.

Note: The *Matrix Map* button is grayed out (unavailable) for the 9033-004 *Matrix* window.

Sensitized Mouse Regions

[Figure 2](#) shows areas of the *Matrix* window where the mouse is used to select an option.

Double-click the left mouse button (with the mouse cursor in the following areas) to perform the described action.

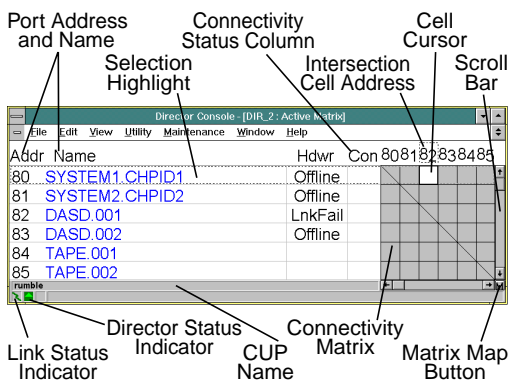


Figure 2. Mouse-Sensitive Matrix Window Areas

Port Address, left side - Displays the node descriptor dialog box, showing information about the device attached to the port. Single-clicking moves the address selection highlight (row selection).

Port Address, top of matrix grid - Swaps the axis of the matrix, providing more information (address name, hardware status, connection status) about a port by putting the port address number on the left side of the matrix. Highlights the row with the chosen port address. Single-clicking moves the cursor cell horizontally (column selection).

Port Address Name - The *Name for Address #* dialog box appears to change the selected port address name. Single-clicking moves the address selection highlight (row selection).

Blocked (B) column; graphic display off) - Toggles the *Blocked* attribute state of the port. This column only appears when graphic display mode is off.

Connections Status (Con or C) Column - The *Name and States* dialog box appears to enter a dedicated connection intersection port address, or to modify *Prohibited* and *Blocked* attributes. Hold the **Ctrl** key while double-clicking the connection status column to toggle the *Blocked* state of the port.

Matrix Grid - Toggles the *Prohibited* state of the intersection cell. Hold the **Ctrl** key while double-clicking to toggle the *Dedicated* attribute for the intersection cell. Single-clicking moves the address selection highlight and cell cursor.

CUP Name - Displays the *Name for CUP* dialog box to modify the Director's control unit port (CUP) name.

Link Status Indicator - Displays the *Console Link Statistics* dialog box to show current status and statistics for the Token Ring link between the Console and Director.

Director Status Indicator - Displays the *Director Operational Status* dialog box, explaining any errors encountered for the Director.

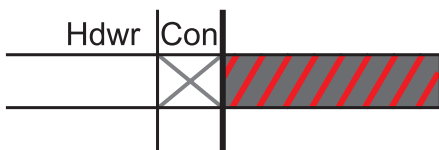
No function is performed by double-clicking in other areas of the matrix (such as the hardware status column). However, double-clicking anywhere on the *Matrix* window clears any message on the status line, in addition to performing the operation.

Matrix Port Attribute Symbols

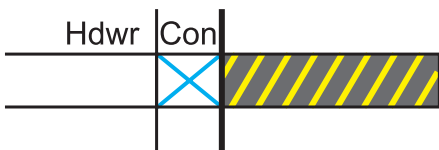
The matrix portion of the *Matrix* window displays symbols for each of the connection attributes. Blocked and dedicated connections appear across all affected port addresses, allowing quick visual identification, even if the associated connection does not appear on the window.

Blocked Symbol Highlighting

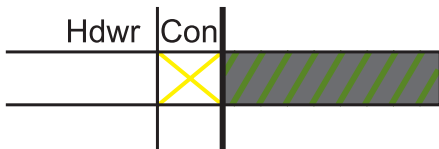
Currently Blocked - Dark bar with red stripes, gray **X** in connection column.



Unblocked ⇒ Blocked - Dark bar with yellow stripes, blue **X** in connection column. Port address was blocked after the configuration was read. Attribute changes to the blocked appearance after activating or saving the matrix.

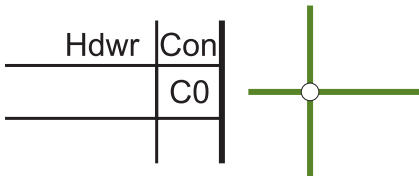


Blocked ⇒ Unblocked - Dark bar with olive stripes, yellow **X** in connection column. Port address was unblocked after the configuration was read. Attribute is cleared from the display after activating or saving the matrix.

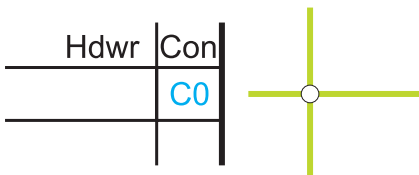


Dedicated Symbol Highlighting

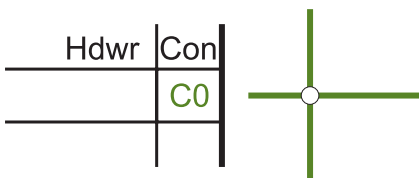
Currently Dedicated - Dark green indicator bars with black address. Port address intersection is currently dedicated.



Not Dedicated ⇒ **Dedicated** - Bright green indicator bars with blue address. Port address intersection was dedicated after the configuration was read. Attribute changes to the dedicated (dark green) appearance after activating or saving the matrix.



Dedicated ⇒ **Not Dedicated** - Olive indicator bars with olive address. Port address intersection was dedicated and cleared after the configuration was read. Attribute is cleared from the display after activating or saving the matrix.



Prohibited Symbol Highlighting

Currently Prohibited - Dark red symbol. Port address intersection is currently prohibited.



Allowed ⇒ **Prohibited** - Bright red symbol. Port address intersection was prohibited after the configuration was read. Attribute changes to the prohibited appearance after activating or saving the matrix.



Prohibited ⇒ **Allowed** - Olive symbol. Port address intersection was prohibited and cleared (allowed). Attribute is cleared from the display after activating or saving the matrix.



Connectivity Hierarchy

Multiple connectivity conditions may exist for any address. A port address can be configured as blocked, dedicated, and prohibited at the same time, or in any combination. For multiple connectivity conditions, a hierarchical priority determines the current address connection. The priority, from highest to lowest, is:

- Blocked.
- Dedicated.
- Prohibited.
- Allowed.

Blocked connections override all remaining connectivity conditions. If an address is not blocked, a dedicated connection overrides a prohibited connection. If no connections are prohibited, the addresses may be dynamically connected (allowed) under host control. For example, if all attributes exist for a single address, the address is blocked. Removal of the blocked attribute allows the dedicated attribute to prevail. Removal of the dedicated connection allows the prohibited attribute to prevail. Finally, removal of the prohibited attribute allows a dynamic connection to another address under host control.

Status Line

A status line ([Figure 3](#)) is available for each Console window. For *Matrix* and *Port Maintenance* windows, this line indicates the status of the Token Ring link between the Director and Console (Link Status indicator), the operational status of the Director (Director Status indicator), and system errors (System Error indicator). The status line also provides an operator identification and status, error, and informational messages.

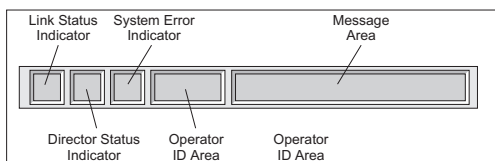


Figure 3. Status Line

For *Terminal* and *Log* windows updated by the Director, the status line consists of the Link Status indicator and message area. Other log windows use the status line only for messages.

Link Status Indicator

Three Director-to-Console link operational states are indicated by the Link Status indicator ([Figure 4](#)):

Link available and idle - Indicates the normal link condition (green lightning bolt on a gray background), where the link is up but no traffic is exchanged.

Data being exchanged - Indicates a busy state (yellow circle on a gray background), where data is transmitted to or received from the Director. This is a transient state normally observed after completing a command.

Link not operational - Indicates an unavailable state (black slash on a red background) where the connection cannot be made between the Director and Console.



Figure 4. Link Status Indicator States

Director Status Indicator

Four Director operational states are indicated by the Director Status indicator (Figure 5):

Director is operational - Indicates the Director is fully operational and operational status bytes are all zeros (0000).

Director is offline - Indicates the Director received an offline command from the host system or the Director Console.

Director status is degraded - Indicates the Director is operating, but the operational status bytes are other than all zeros. To display values of Director status bytes, double-click the Director Status indicator or select the *Director Operational Status* option from the *Utility* menu.

Director status is unknown - Indicates the Director-to-Console link status is unavailable and the Director operational status cannot be obtained.

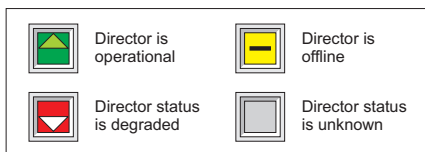


Figure 5. Director Status Indicator States

Director System Error Indicator

Two states are indicated by the System Error indicator (Figure 6):

Indicator extinguished - No system errors have occurred and the indicator is off. This is the normal operating condition.

Indicator illuminated - A system error occurred and the indicator is on (yellow diamond on a gray background).



Figure 6. System Error Indicator States

Operator ID Area

An operator ID area (between the System Error indicator and message area) is visible only when port authorization is enabled. This area displays the operator ID of the user currently authorized to make changes to highlighted portions of the configuration matrix.

Message Area

The message area displays transient operator messages such as error conditions or indications that operations are complete. For example, any change to the Director operational status displays a message indicating the change, and alters the contents of the status indicator. Changes that could go unnoticed (such as updates to the hardware status column from the host), are indicated in the status line message area. Certain user operational errors are also indicated in the message area. Colors indicate the priority of the message:

Black text - indicates normal status (information message only).

Yellow text - indicates transient status (such as a command transmit state) or notification messages (such as notification that the hardware status column was updated).

Red text - indicates an error condition (operator command error, Director error, or link error).

A status message is cleared by double-clicking the *Matrix* window (such as on the message area of the status line), or by a keystroke received by the window.