

zEnterprise System



Open Systems Adapter/Support Facility on the Hardware Management Console

Notice

Before using this information and the products it supports, read the information in “Notices” on page 35. You should also familiarize yourself with the *zEnterprise System, System z10, System z9 and eServer zSeries Open Systems Adapter-Express Customer’s Guide and Reference, SA22-7935, Hardware Management Console Operations Guide, SC28-6830, and System z10 Enterprise Class Support Element Operations Guide, Version 2.10.0, SC28-6868.*

This edition, SC14-7580-00, refers to the IBM® Open Systems Adapter-Express3 Integrated Console Controller for the following operating systems: z/OS Version 1 Release 2 or higher (5694-A01), and z/OS.e Version 1 Release 3 or higher (5655-G52), Open Systems Adapter Support Facility for z/Virtual Machine/Enterprise (z/VM) Version 3 Release 1, Version 4 Release 2 (Program Number 5654-A17), and Version 4 Release 3 or higher (Program Number 5739-A03), OSA/SF for VSE Version 2 Release 2 (part of VSE Central Functions 6.1.1, 5686-066) in VSE/ESA Version 2 Release 2.6 (5690-VSE) or higher, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

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About this publication

This document describes how to use the Open Systems Adapter/Support Facility on the Hardware Management Console.

Who should use this publication

This document is intended for technical staff who configure Open Systems Adapter-Express cards.

What is included in this publication

This publication contains the following chapters:

- Chapter 1, "Overview," on page 1 is an introduction to OSA/SF on the HMC.
- Chapter 2, "New HMC windows," on page 3 contains the new HMC windows and functions for the format and contents of the Query OAT Reply.
- Chapter 3, "Configuration error and warning messages," on page 21 summarizes the error and warning messages for OSA/SF on the HMC.
- Appendix A, "Migration steps," on page 31 outlines the steps to migrate an OAT that was created with the OSA/SF operating system component to OSA/SF on the HMC.
- Appendix B, "Summary of new HMC windows functions," on page 33 summarizes OSA/SF operating system component commands (IOACMD) and how they are handled with OSA/SF on the HMC.

Related publications

Important

Please ensure that you are using the most recent version of all related documentation.

Other IBM publications that you may find helpful include:

- *OSA-ICC User's Guide*
- *zEnterprise System and System z10 OSA-Express Customer's Guide and Reference*

A note on terminology

Throughout this publication, certain equipment terms and short versions of product names are used to make the information more easily understood. These are:

card As used on the HMC panels, refers to an OSA feature.

CHPID Channel path identifier.

GbE Gigabit Ethernet.

OSA Open Systems Adapter. This document may refer to OSA-Express4S or OSA-Express5S as OSA.

OSA/SF

Opens Systems Adapter/Support Facility.

OSD The CHPID type for OSA-Express features that run under Queued Direct Input/Output architecture (QDIO).

OSE The CHPID type for OSA-Express features that do not use QDIO architecture (typically SNA/APPN/HPR applications).

OSN The CHPID type for OSA-Express features that use QDIO architecture and channel data link control (CDLC) protocol.

HMC Hardware Management Console.

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Summary of changes

This is the initial release of this document. For future releases, this section will summarize technical changes or additions to this document's text and illustrations.

Summary of changes for SC14-7580-00

This is the initial release of the document.

Chapter 1. Overview

For the generations of OSA prior to OSA-Express4S and OSA-Express5S, the system administrator who was responsible for OSA installation, configuration, and general management required a separate OSA management tool called OSA/SF (Support Facility). This host specific tool provided functions that were used to configure and manage the OSA. This program product contained two pieces: a z/OS, z/VM, or z/VSE host piece, and a Java-based graphical user interface (GUI) based application as well as a z/OS REXX sample interface.

OSA/SF provides useful run time management functions for the OSA to the host OS via the QDIO (Queued Direct Express Interface) interface. One key administrative function provided by OSA/SF is the ability to display the contents of the OSA Address Table (OAT) for both QDIO and non-QDIO OSAs. The OAT contains such information as IP addresses or virtual Media Access Controls (MACs) that are currently (dynamically) registered by the host Operating Systems using (sharing) the OSA.

The OSA/SF functions necessary to configure, manage and display OSA-Express4S and OSA-Express5S are being moved to the HMC. This document describes the new support.

OSA/SF on the HMC is exclusive to the zEC12 and zBC12. The latest driver level is required. OSA/SF on the HMC is required for the OSA-Express5S features. Either OSA/SF on the HMC or the OSA/SF operating system component can be used for the OSA-Express4S features. The OSA/SF operating system component must be used for the OSA-Express3 features. OSA/SF on the HMC can be used to configure channel path identifier (CHPID) type OSE. It can be used to manage (query/display) CHPID types OSD, OSE, and OSN

For more information about the OSA/SF operating system component, see *zEnterprise System and System z10 OSA-Express Customer's Guide and Reference*, SA22-7935.

HMC overview

Your system can have one or more OSE features defined. Although initial use of an OSE feature is enabled by the default configuration loaded with the feature, any customization can be made with the OSA/SF HMC windows. OSA/SF configuration windows are accessible on your Hardware Management Console through the OSA Advanced Facilities windows. These windows allow you, the system programmer, to customize each OSE on your system and to obtain query information about OSD, OSN and OSE features.

For more information on the Hardware Management Console, see the System z HMC and SE (Version 2.12.1) Information Center:

<http://pic.dhe.ibm.com/infocenter/hwmca/v2r12m1/index.jsp>

OSA Address Table overview

A key administrative function provided by OSA/SF is the ability to display and manipulate the contents of the OSA Address Table (OAT). The OAT contains such information as Devices, IP addresses, images or virtual MACs that are currently enabled on the OSA.

While the OAT can be displayed for OSD, OSN and OSE features, the ability to configure parameters in the OAT is a function that is specific to CHPID type OSE.

Chapter 2, “New HMC windows,” on page 3 shows the HMC panels and functions provided by the new OSA/SF HMC capability.

Security considerations

The following role groups have access to OSA/SF: pedebug, service and sysprog.

Chapter 2. New HMC windows

This chapter summarizes the new HMC windows for managing OSE, OSD, and OSN features, as well as for configuring OSE features.

Refer to the OSA/SF operating system component details provided in *zEnterprise System and System z10 OSA-Express Customer's Guide and Reference*, SA22-7935.

For a summary of OSA/SF operating system component commands (IOACMD) and how they are now handled with OSA/SF on the HMC, see Appendix B, "Summary of new HMC windows functions," on page 33:

Main Advanced Facilities

Users familiar with OSA Advanced Facilities on the HMC will recognize the following Advanced Facilities main window. Additions for OSA/SF on the HMC have been added under the **Card specific advanced facilities...** option.

The following is the main Advanced Facilities window:

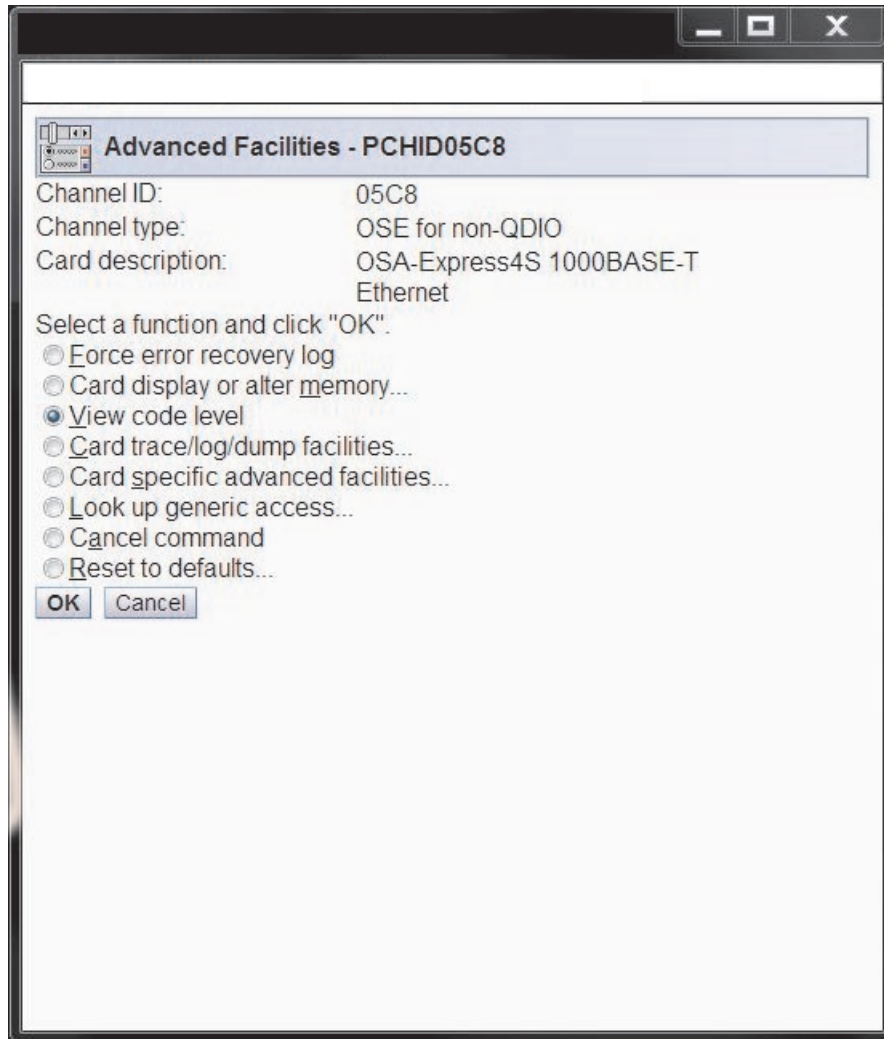


Figure 1. Main Advanced Facilities window

To work with the current CHPID type OSE Configuration or to use the OAT Display capabilities for CHPID types OSD, OSE and OSN, select **Card specific advanced facilities...** and click **OK**.

Advanced Facilities card-specific window

For CHPID type OSE, the Advanced Facilities window provides the following options:

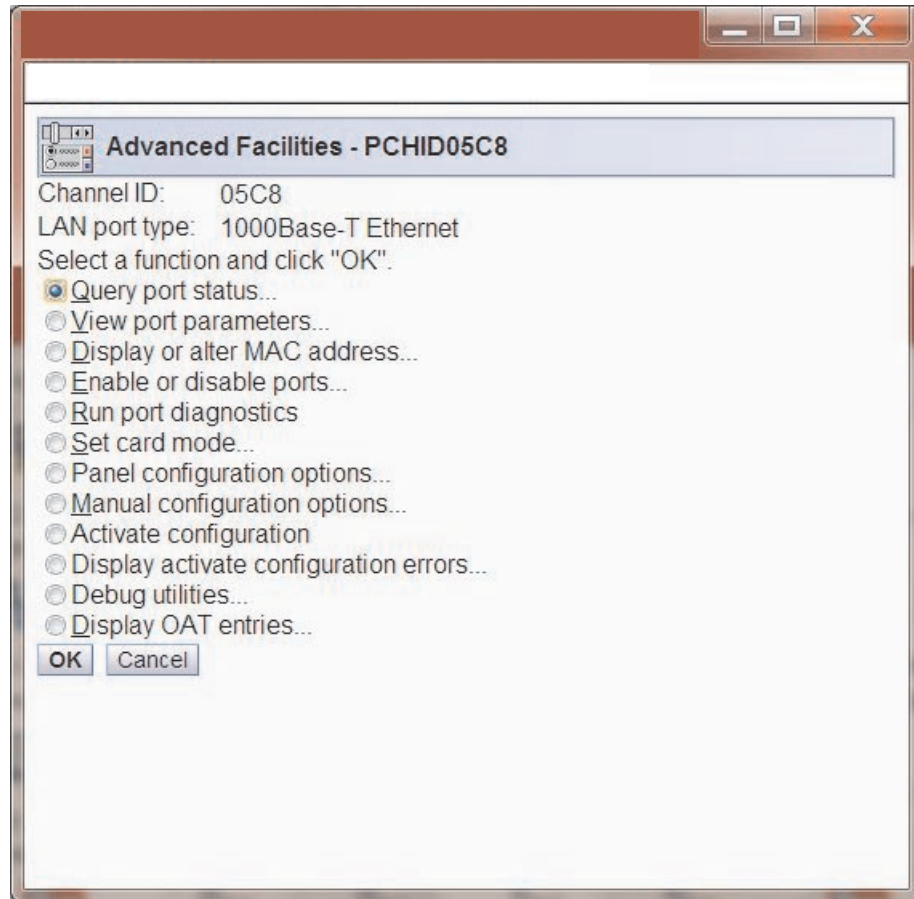


Figure 2. Advanced Facilities window (CHPID type OSE selections)

For CHPID types OSD and OSN, a limited set of functions is available as shown in Figure 3 on page 6:

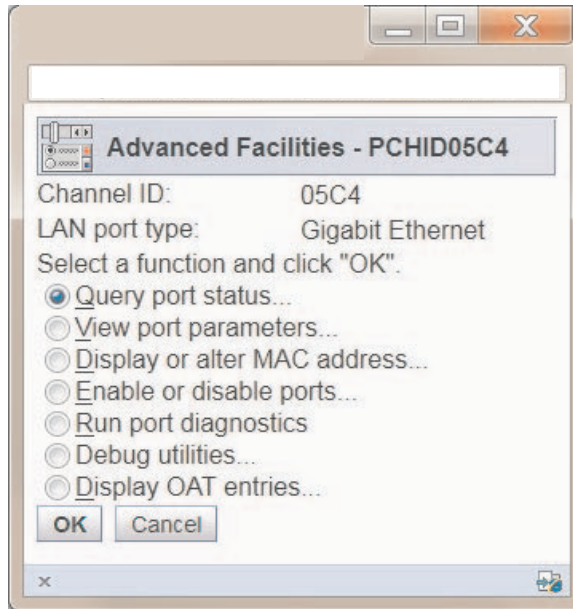


Figure 3. Advanced Facilities window (CHPID type OSD/OSN selections)

Two methods are provided to configure CHPID type OSE to be used as a TCP/IP or SNA gateway.

1. The panel configuration options provide a window-driven menu set that enables you to add the appropriate settings to configure the CHPID type OSE.
2. A manual configuration that enables you to manually edit an ASCII file containing configuration key words.

The parameters and values entered for both the manual and panel configuration options interface are validated before you can activate the configuration. After a successful activation, the values of the windows option menus and manual ASCII file are synchronized on the HMC. This means that you can interchangeably use the panel configuration options or manual options to configure CHPIDs type OSE.

Panel Configuration Options window

The Panel Configuration Options window is a GUI driven option that can be used to create or modify OAT entries for either SNA or TCP/IP sessions. Once a configuration is created, this set of windows can also be used to validate the configuration and view errors or warnings if they exist.

The following is the Panel Configuration Options window. Access this panel from the card-specific Advanced Facilities window (see “Advanced Facilities card-specific window” on page 4) by selecting **Panel configuration options..** and clicking **OK**:

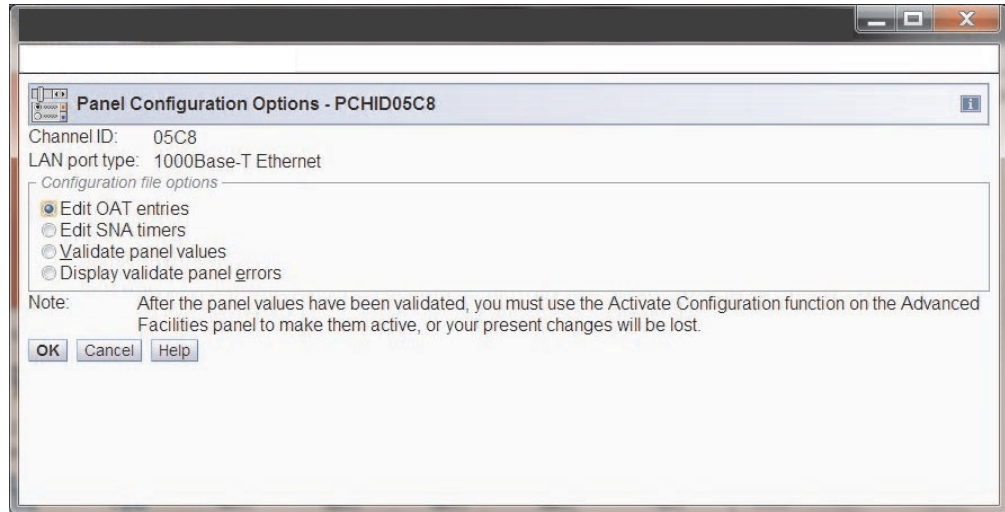


Figure 4. Panel Configuration Options window

This section describes two windows that are listed under **Configuration file options**:

Edit OAT entries

See “Edit OAT Entries window.”

Edit SNA timers

See “Edit SNA Timers window” on page 10.

Validate panel values

Runs the validate option. This option verifies syntax and definitions in the panel setting.

Display validate panel errors

Displays the errors and warnings, if any, after a validate has been performed. The error codes are listed and briefly explained in Chapter 3, “Configuration error and warning messages,” on page 21.

Select an option from the radio button and click **OK** to continue.

Edit OAT Entries window

The OSA Address Table (OAT) is a component of an OSA feature’s configuration. An OAT entry defines the data path between an OSA feature port and an image and device unit address.

The Edit OAT Entries window is invoked from the Panel Configuration Options window. Figure 5 on page 8 is a representative window of an active Display. To choose an action, select an entry by selecting the radio button next to the entry and selecting an entry from the **Select Action** pull down.

Table 1. Selecting actions on the Edit OAT Entries window

Select action	Action when selected
Edit as SNA Entry	Edit the OAT Entry as a new SNA Entry
Edit as TCP/IP Entry	Edit the OAT Entry as a new TCP/IP Entry
Invalidate Entry	Clear the Entry
Table Actions	
Export Data	Export the table to local file

Table 1. Selecting actions on the Edit OAT Entries window (continued)

Select action	Action when selected
Show Filters Row	
Clear all Filters	
Edit Sort	Sort the table by column value
Clear all Sorts	

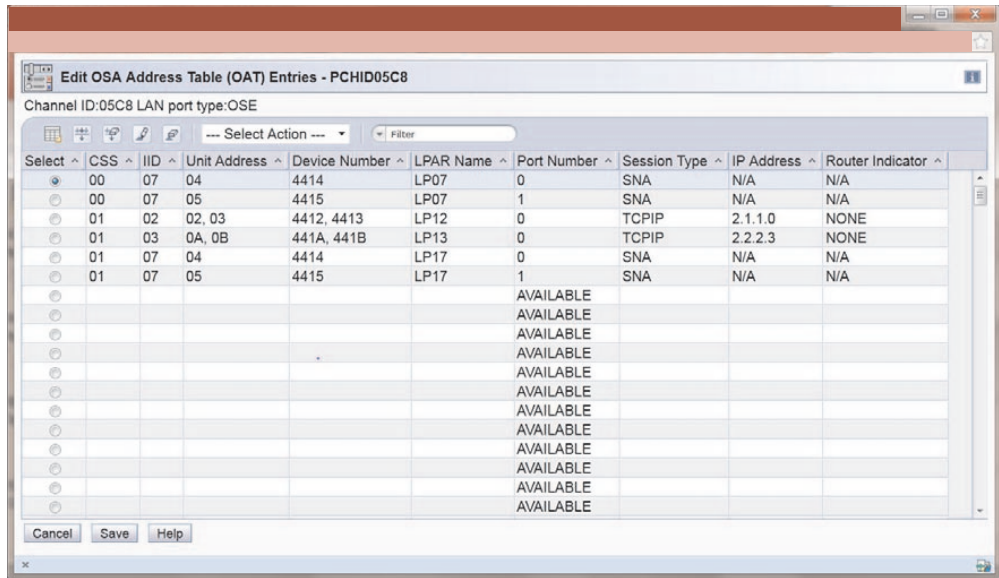


Figure 5. Edit OAT Entries window

The window has the following columns:

CSS The Channel Subsystem (CSS) in which this entry is valid.

IID The LPAR number, also known as the Image ID or Image Number.

Unit Address

The I/O device representation or UNITADD on a CUNUMBER (control unit) in the IOCPgen (Range 0x00 - 0xFF).

Device Number

A mapping of the I/O device representation (UNITADD) to the Host I/O Device Address (IODEVICE ADDRESS).

Port Number

The Port Number on the OSA.

Session Type

The session type, defined as SNA or TCP/IP (for a TCP/IP session, the UA start address must be an even number and has two UAs per entry; for a SNA session, the UA start address can be an even or odd number and contains only one UA per entry).

IP Address

The IP address of an OAT Entry if only one IP is present. The field contains MULTIPLE if more than one IP is defined per OAT entry.

Router Indicator

The router, defined as PRI, SEC, N/A (for SNA), or None.

Click **Save** to preserve your changes.

Edit OAT Entry (as TCP/IP) window: From the Edit OAT Entries window, selecting **Edit as TCP/IP Entry** brings up the window shown in Figure 6. Available values for CSS, Image Number and Unit Address are pre-entered from data gathered from the active IOCDs of the machine.

The screenshot shows a window titled "Edit OAT Entry - PCHID05C8". It features a "Port Number" field with a spinner control. Below this are three dropdown menus: "CSS" with the value "00", "Image Number" with the value "01", and "Unit Address" with the value "00". There is a section for "Default entry indicator" with three radio buttons: "Primary" (selected), "Secondary", and "Not primary or secondary". Below that is a section for "Home IP addresses" with eight text input fields; the first contains "1.1.1.9", the second contains "1.1.1.181", and the remaining six are empty. At the bottom are "Ok" and "Cancel" buttons.

Figure 6. Edit OAT Entry (as TCP/IP) window

This window has the following choices:

Port Number

Select the port number by using the up and down arrows to select the correct setting.

CSS Select the CSS (Channel Subsystem Number) from the drop down list.

Image Number

Select the image number (LPAR number) from the drop down list.

Unit Address

Select the unit address (UNITADD) from the drop down list.

Default entry indicator

Choose one of the following default routing entry indicators:

- Primary
- Secondary
- Not primary or secondary

Home IP addresses

Enter an IPV4 address in dotted decimal notation. You may enter up to eight IPV4 addresses per OAT entry.

Click **OK** after entering the information to define your OAT entry.

Edit OAT Entry (as SNA) window: From the Edit OAT Entries window, select an OAT entry with a session type of SNA.

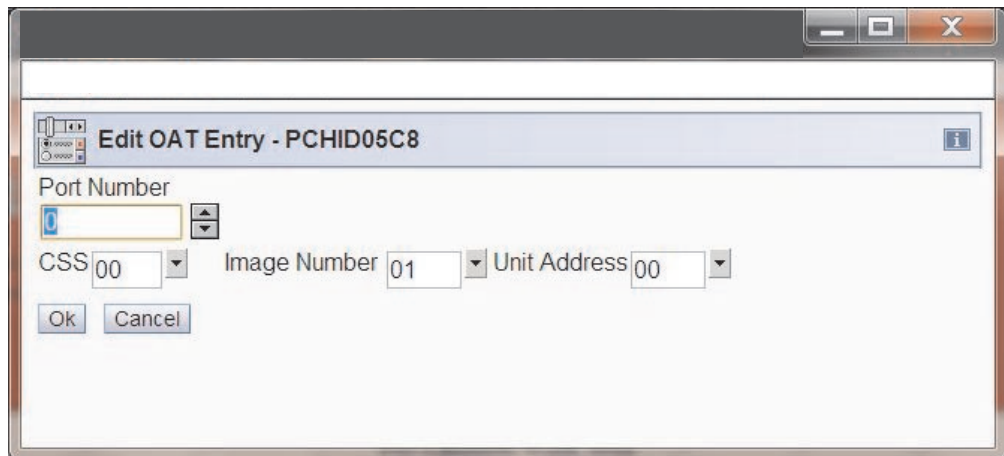


Figure 7. Edit OAT Entry (as SNA) window

This window has the following choices:

Port Number

Select the port number by clicking the up or down arrows to the correct setting.

CSS Select the CSS (Channel Subsystem Number) from the drop down list.

Image Number

Select the image number (LPAR number) from the drop down list.

Unit Address

Select the unit address (UNITADD) from the drop down list.

Click **OK** after entering all of the information.

Edit SNA Timers window

The Edit SNA Timers window is accessed from the Panel Configuration Options window ("Panel Configuration Options window" on page 6).

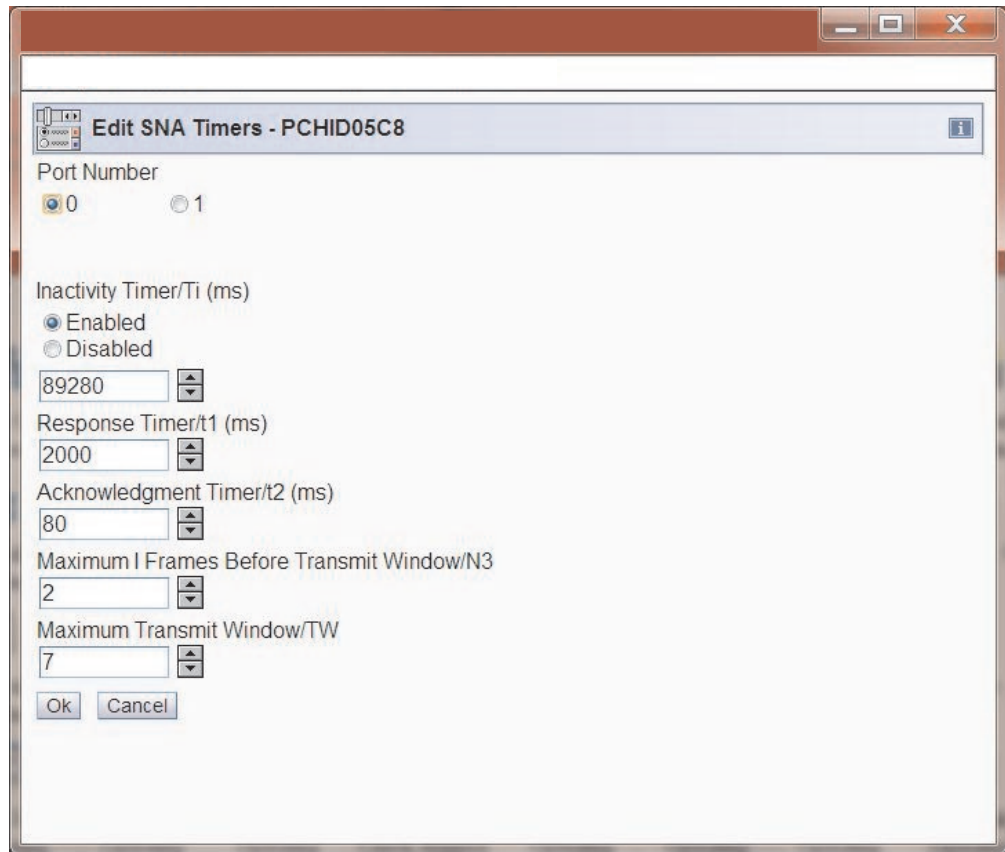


Figure 8. Edit SNA Timers window

This window has the following choices:

Port Number

Select the 0 or 1 radio button.

Inactivity Timer/Ti (ms)

Range .24 - 90.0 seconds in .12 second intervals. If you enable the inactivity timer, the card periodically tests the viability of the network media. The timer setting applies to all clients on the target LAN, not to individual clients. The timer interval indicates how quickly a failure of the network media can be detected when the connection is quiescent.

Choose one of the following:

- Enabled
- Disabled

Response Timer/t1 (ms)

Range .20 - 51 seconds. The T1 timer clocks link events that require responses from clients on the network.

Acknowledgment Timer/t2 (ms)

Range .08 - 20.40 seconds. An OSA CHPID starts the T2 timer when it receives an I-Format LPDU and stops when it sends an acknowledgement.

Maximum I Frames Before Transmit Window/N3

Range 1 - 4. The maximum number of I-Frames that can be sent before an acknowledgement is sent.

Maximum Transmit Window/TW

Range 1 - 16. Maximum number of outstanding I-format link protocol data units (LPDU) before an acknowledgement has to be received.

Click **OK** when you are finished.

Manual Configuration Options window

In addition to being able to configure your CHPID type OSE from the windows described previously in this chapter, you can do so by using the Manual Configuration Options window to edit an ASCII file and to generate a new configuration. In contrast to the multiple EBCDIC files that could be edited and installed on the OSA using the OSA/SF Operating System component on z/VM, z/OS, and z/VSE, the new option provides you with a single ASCII file into which you enter the definition statements. You can edit this configuration file directly on the Support Element (SE) with a selection from the HMC window or you can edit the file on another platform and then use either a USB or the File Transfer Program to import it into the SE. Access the Manual Configuration Options window

Access this window by selecting **Manual Configuration Options...** from the Advanced Facilities card-specific window (see "Advanced Facilities card-specific window" on page 4).

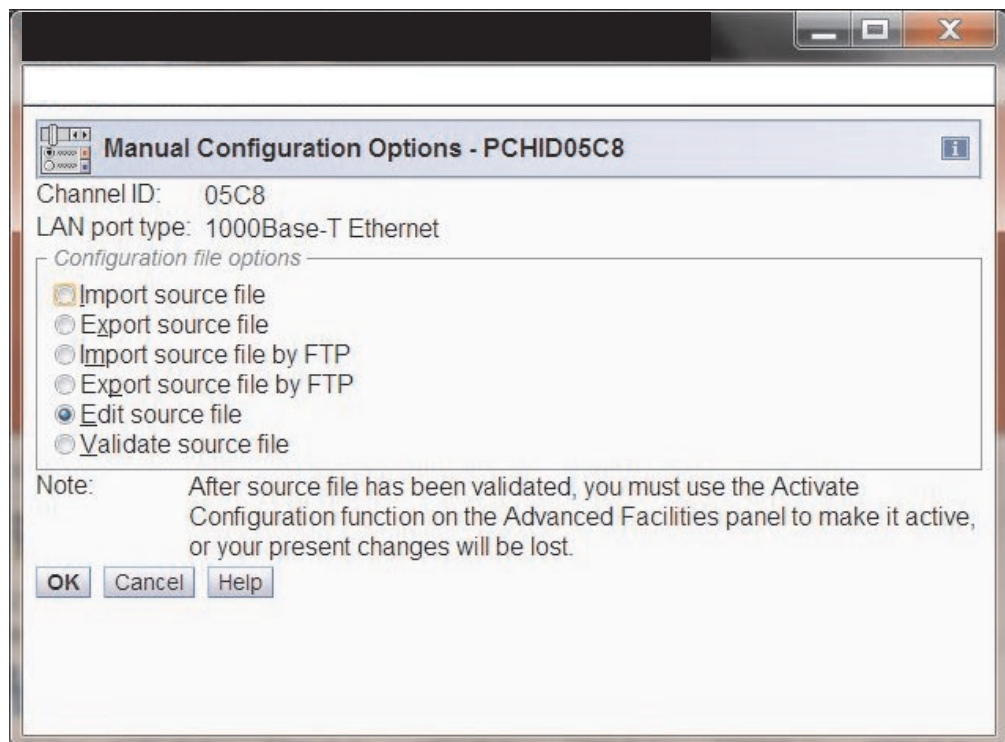


Figure 9. Manual Configuration Options window

This window displays the following information:

Channel ID

The PCHID of the adapter.

LAN port type

The type of port this PCHID is configured as.

Select one of the following under Configuration file options and click OK:

Import source file

Re-open a configuration file from the local USB port. The ASCII configuration file may have been saved from an OSA-E4S or OSA-E5S on a separate platform and then imported here for editing.

Export source file

Save the current configuration to the local USB port.

Import source file by FTP

Re-open a configuration from a remote FTP Server.

Export source file by FTP

Save the current configuration to a remote FTP Server.

Edit source file

Edit the current configuration as an ASCII file.

Validate source file

Check the syntax of the current ASCII configuration file. If an error or warning occurs, the current ASCII configuration file contains the errors or warnings found in the validation step. You will need to correct the errors before the configuration can be re-validated and written (activated) to the card.

Manual Configuration format

Use of the manual configuration is intended to give you control over the entire configuration of the OSE type of CHPID through manipulation of a single file. This section describes the rules to which you must adhere when updating this file. The file has two main parts:

1. Port-specific configuration.
2. Individual OAT entries.

There are certain rules that must be followed when creating and editing the configuration file:

1. Each section must be started with and ended by a tag. That is, <OATENTRY> is a beginning tag, </OATENTRY> is the ending tag. An error is generated if the section is not started or ended with the proper tag.
2. Tags and alphabetic values must be all uppercase.
3. There is no space between a tag and the following equals sign (=), but there is a space between the equals sign and the value. For example:
`RECORD_TYPE= SNA|TCPIP`
4. The CSS/IID must be added in ascending order. (that is, if an entry exists for CSS 0, then it must be located before entries for CSS 1, and so on). If the entries are not in this order, an error is generated during the validation phase.
5. Per the example above, different section headings are used to specify data in the configuration file. A table of errors and warning with corrective steps is provided in Chapter 3, "Configuration error and warning messages," on page 21.
6. There are two main parts of the configuration file: the port specific information (tag <OSE_PORT0> or <OSE_PORT1>) and the OAT information (tag <OAT_TABLE) section. Presently, the only information allowed in the <OSE_PORTx> </OSE_PORTx> section is the SNA timer information.

Table 2 on page 14 defines the valid tags available for use in the configuration file.

Table 2. Valid tags available for use in the configuration file

Tag	Description
//	This indicates that any text to the end of the line is a comment
<OSE>,</OSE>	Start and ending tags
<OSE_PORT0>,</OSE_PORT0> <OSE_PORT1>,</OSE_PORT1>	Port Specific Information (only valid in OSE section)
<OAT_TABLE>,</OAT_TABLE>	Start/End of OAT table area (only valid in OSE section)
<OATENTRY>,</OATENTRY>	Individual OAT Entries - range 1 - 240 (only valid in OAT_TABLE section)
<CSS_IID>,</CSS_IID>	Starting and ending Image information (only valid in OAT_TABLE section)
RECORD_TYPE=	SNA TCPIP (only valid in OATENTRY section)
PORT_NUM=	OSA port Number (only valid in OATENTRY section)
IP_ADDRESS	This tag is used to label the IP address defined on the host for this OAT entry; that is, the value that follows it should be the IP address in dotted decimal notation (for example, 10.128.12.43). This address is assigned to the OSA entry. You can have a maximum of 8 entries per OAT Index to a maximum of 4096 IP addresses per card. IP_ADDRESS= 10.117.121.44 . There is no default (only valid in OATENTRY section). Also for TCP/IP
UNIT_ADDR=	Unit Address (UNITADD) of connection, must be even for TCPIP (only valid in OATENTRY section)
ROUTER_PARM=	For TCP/IP - NONE PRIMARY SECONDARY - the routing parameter for this OAT entry. (only valid in OATENTRY section)
IID=	Image ID (LPAR number; only valid in CSS_IID section)
CSS=	Channel Subsystem ID (only valid in CSS_IID section)
INACTIVITY_TIMER=	For SNA, If set, enable timer - default 90ms (only valid in OSE_PORTx section)
RESPONSE_TIMER=	For SNA, Default 10 (only valid in OSE_PORTx section)
ACK_TIMER=	For SNA, T2 - default 1.04 (only valid in OSE_PORTx section)
MAX_I_FRAME=	For SNA, N3, Max I frame before acknowledgement - default 1 (only valid in OSE_PORTx section)
MAX_XMIT_WIN=	For SNA, Max transmit windows - default 8 (only valid in OSE_PORTx section)

Table 3. ASCII configuration file samples

```

ASCII configuration file samples

// This is a comment
// This is an Example OSE Configuration file
// Let's start with OSE configuration parameters
// configuration
<OSE>
<OSE_PORT0>
  // SNA
  INACTIVITY_TIMER=
  RESPONSE_TIMER=
  MAX_I_FRAME=
  ACK_TIMER=
  MAX_XMIT_WIN=
</OSE_PORT0>

<OAT_TABLE
  //Anything between <OAT_TABLE> and </OAT_TABLE> tags
  //There can be 240 OAT Entries, each defined between the <OATENTRY>
  //and </OATENTRY> tags
  //However, there can be only one <OAT_TABLE> section
<CSS_IID>
CSS=
IID=
  <OATENTRY>
    RECORD_TYPE= SNA|TCPIP
    //SNA or TCP
    PORT_NUM=
    UNIT_ADDR=
    //TCPIP
    ROUTER_PARM=
    IP_ADDRESS=                // Can be 8 of these per entry - max
                                // 4096 IP spread across entries
  </OATENTRY>
  <OATENTRY>
    RECORD_TYPE= SNA|TCPIP
    //SNA or TCP
    PORT_NUM=
    UNIT_ADDR=
    //TCPIP
    ROUTER_PARM=
    IP_ADDRESS=                // Can be 8 of these per entry - max
                                // 4096 IP spread across entries
    IP_ADDRESS=                // Can be 8 of these per entry - max
                                // 4096 IP spread across entries
</CSS_IID>
</OAT_TABLE>
</OSE>

```

Note:

1. Depending on the record type, the default values will be loaded into the configuration file.
2. If you are saving iterations of the ASCII configuration file, they must be saved to USB or to another file outside the SE, because only one version of the configuration file exists at a time on the SE.

Manual Configuration - Import Source File

Selecting this option brings up a window that enables you to copy a file from a USB port to the HMC. You can then edit this file by selecting the **Edit source file** option and clicking **OK**.

Manual Configuration - Export Source File

Selecting this option brings up a window that enables you to copy the active configuration file to the USB port and a storage device attached to it.

Manual Configuration - Export file by FTP/Import file by FTP

Selecting this option brings up the following window. From this window you can transfer a configuration file to and from a remote FTP server.

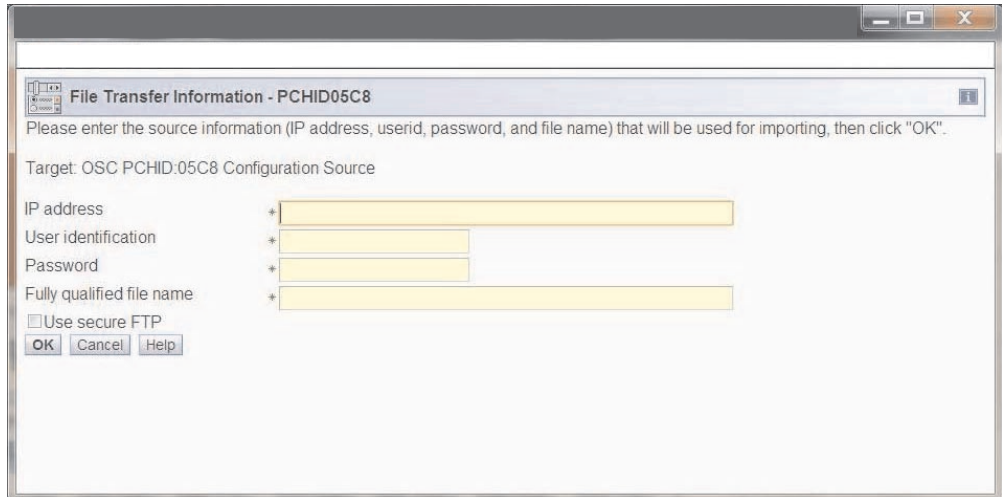


Figure 10. File Transfer Information window

This window has the following choices

IP address

The IP address of the FTP server, in IPV4 dotted decimal notation.

User identification

The user ID on the FTP server.

Password

The password for the user ID.

Fully qualified title name

The path and name of the file to save or retrieve.

Once the file is imported, you can edit it by selecting the **Edit Source file** option and clicking **OK**.

Manual Configuration - Edit source file

Selecting this option brings up the editor window on the SE with the active configuration file loaded. You can then edit and save the file. Once saved, the configuration file must be validated to check for syntax errors. If an error or warning occurs, it is written to the active configuration file. When you edit the configuration file, the errors or warnings are located in the file where the error or warning was detected.

```

Edit Configuration
File Edit Style

// This file has been generated from the binary file: /console/data/iqzo05c8.hut by OSA-E CFG FILE
<OSE>
<OAT_TABLE>
<CSS_IID>
CSS= 00
IID= 00
  <OATENTRY>
    RECORD_TYPE= TCPIP
    PORT_NUM= 0
    UNIT_ADDR= 00
    ROUTER_PARM= NONE
  </OATENTRY>
  <OATENTRY>
    RECORD_TYPE= TCPIP
    PORT_NUM= 1
    UNIT_ADDR= 02
    ROUTER_PARM= NONE
  </OATENTRY>
</CSS_IID>

<CSS_IID>
CSS= 00
IID= 01
  <OATENTRY>
    RECORD_TYPE= TCPIP
    PORT_NUM= 0
    UNIT_ADDR= 00
    ROUTER_PARM= NONE
  </OATENTRY>
  <OATENTRY>
    RECORD_TYPE= TCPIP
    PORT_NUM= 1
    UNIT_ADDR= 02
    ROUTER_PARM= NONE
  </OATENTRY>
</CSS_IID>

<CSS_IID>
CSS= 00
IID= 02
  <OATENTRY>

```

Char 1 Ln 1 Col 1
Insert Mode

Figure 11. Edit Configuration window

Validating your configuration

OSA/SF validates the parameters and values entered for both the manual and windows interfaces before you can activate the configuration. If there are any problems, OSA/SF issues warnings or errors (described in Chapter 3, “Configuration error and warning messages,” on page 21).

Activating your configuration

After OSA/SF has validated your configuration, activate it by selecting **Activate configuration** and clicking **OK** from the Advanced Facilities card-specific window (see “Advanced Facilities card-specific window” on page 4).

Display OAT Entries window

The Display OSA Address Table (OAT) Entries window is valid for CHPID types OSD, OSE, and OSN.

The following is the Display OSA Address Table (OAT) Entries window for CHPID type OSE:

Se...	CSS	ID	Unit Address	Device Number	LPAR Name	Port Number	Session Type	IP Address	Router Indicator	Entry
02	01	00, 01	4410, 4411	LP21	0	TCPIP	NONE	NONE	NONE	S
00	00	02, 03	4412, 4413	UNKNOWN	0	TCPIP	NONE	NONE	NONE	S
01	02	02, 03	4412, 4413	LP12	0	TCPIP	11.1.0	PRB	NONE	S
01	03	04, 05	4414, 4415	LP13	0	TCPIP	MULTIPLE	SEC	NONE	S
00	05	05	4415	LP05	1	SNA	N/A	N/A	NONE	S
01	02	06, 07	4416, 4417	LP12	1	TCPIP	2.1.2.3	NONE	NONE	S
01	03	0A, 0B	441A, 441B	LP13	0	TCPIP	2.2.2.3	NONE	NONE	S

Figure 12. Display OAT Entries window (for CHPID type OSE)

This window displays the CHPID type OSE OAT entries that have been defined and activated using the OSA/SF configuration facility or OAT entries that are defined (automatically generated) when a QDIO interface is activated. Note that you do not configure the values displayed under the Entry column; they are determined at run-time from system information.

The following is the Display OSA Address Table (OAT) Entries window for CHPID type OSD:

Select	CSS	ID	Unit Address	Device Number	LPAR Name	Port Number	Session Type	IP Address	Router Indicator	Entry
00	07	00	0330	LP07	0	QDIO CONTROL	NONE	NONE	NONE	SIU
00	07	01	0331	LP07	0	QDIO CONTROL	NONE	NONE	NONE	SIU
00	07	02	0332	LP07	0	QDIO DATA	10.10.10.14	NONE	NONE	SIU
00	07	03	0333	LP07	0	QDIO DATA	MULTIPLE	NONE	NONE	SIU
00	07	04	0334	LP07	0	QDIO DATA	NONE	NONE	NONE	S
00	07	05	0335	LP07	0	QDIO DATA	NONE	NONE	NONE	S
01	07	00	0330	LP17	0	QDIO CONTROL	NONE	NONE	NONE	SIU
01	07	01	0331	LP17	0	QDIO CONTROL	NONE	NONE	NONE	SIU
01	07	02	0332	LP17	0	QDIO DATA	10.10.10.115	NONE	NONE	SIU
01	07	03	0333	LP17	0	QDIO DATA	MULTIPLE	NONE	NONE	SIU
01	07	04	0334	LP17	0	QDIO DATA	NONE	NONE	NONE	S
01	07	05	0335	LP17	0	QDIO DATA	NONE	NONE	NONE	S

Figure 13. Display OAT Entries window (for CHPID type OSD)

The following is the Display OSA Address Table (OAT) Entries window for CHPID type OSN:

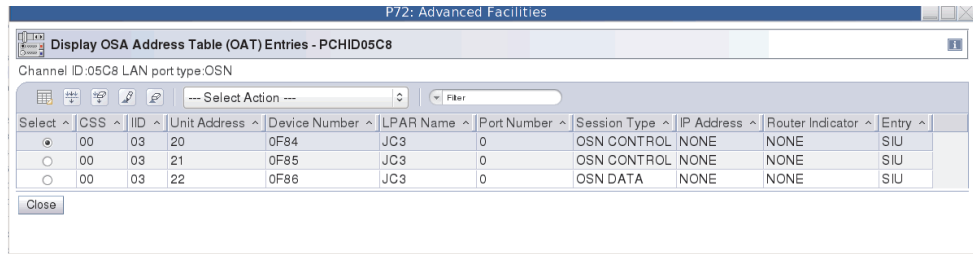


Figure 14. Display OAT Entries window (for CHPID type OSN)

All Panel entries are defined in the Panel Configuration options except for the Entry tag which defines the state of the device, determined at run-time from system information. There are two states:

- S - The entry is defined in an OAT_ENTRY
- SIU - The entry is defined and started by the Operating System.

Under Select Action in this window, you can export this OAT data to a USB or FTP device.

View OAT Entry (detailed) window

The View OAT Entry (detailed) window is accessed from the Display OAT Entries window (“Display OAT Entries window” on page 17).

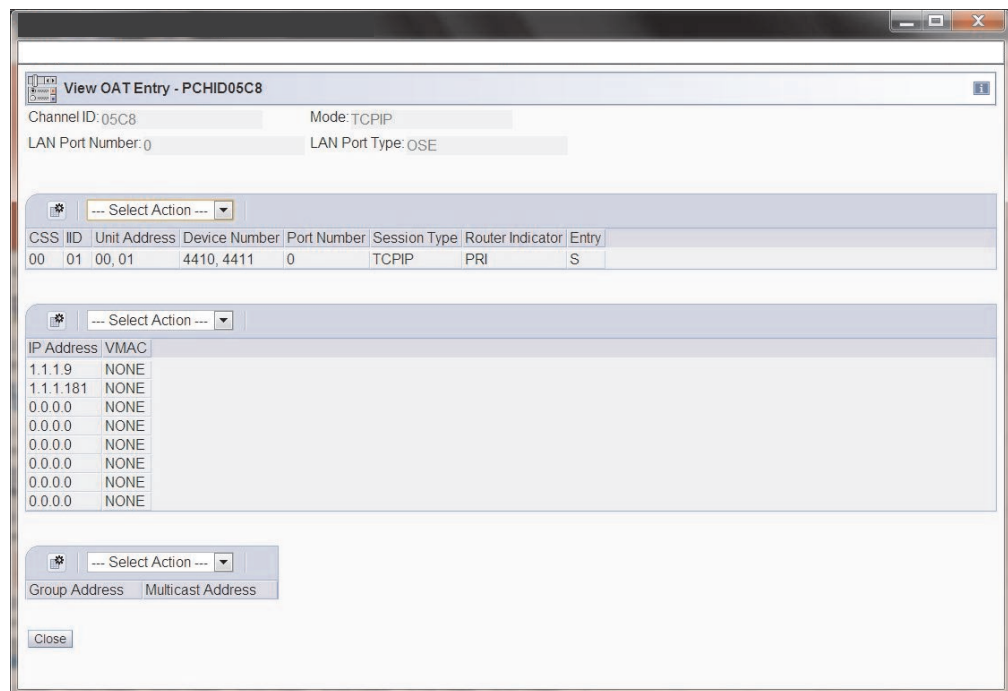


Figure 15. View OAT Entry (detailed) window

This window displays the following information: Channel ID, Mode, LAN Port Number, and LAN Port Type.

Click **Close** when you are finished.

Chapter 3. Configuration error and warning messages

OSA/SF displays configuration errors and warnings with the following window:

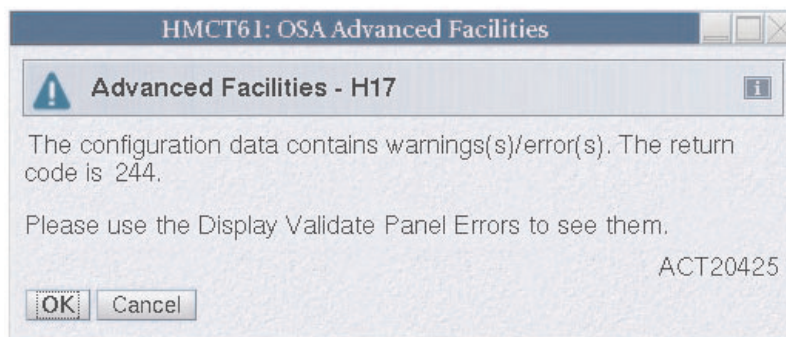


Figure 16. Errors and warnings window

A non-zero return code value between 1 and 999 is a warning. Warning messages do not prevent a configuration from being activated. A return code of 1000 or greater is an error and must be fixed prior to activating the configuration. The entire file is parsed to find errors, but only the first one is displayed on this window. The remainder of this chapter is a list of errors and warnings that may be detected in the OSA configuration file.

Table 4. Warning and error codes

Code	Text/User Action
Warnings	
176	Text: This IP address is already in use. User Action: Verify your IP addresses.
212	Text: The Inactivity Timer has been rounded off to the nearest 0.12 seconds. User Action: None.
214	Text: It is recommended that the Inactivity timer is set to a value at least 5 times greater than the response timer. User Action: Verify your settings.
222	Text: The Response Timer has been rounded off to the nearest 0.20 seconds. User Action: None.
224	Text: It is recommended that the Response timer is set to a value greater than or equal to the Acknowledgement Timer. User Action: Verify your settings.
232	Text: The Acknowledgement Timer has been rounded off to nearest 0.08 seconds. User Action: None.
244	Text: It is recommended that the Max I frame is set to a value greater than Max transmit window size. User Action: Verify your settings.

Table 4. Warning and error codes (continued)

318	<p>Text: SNA tags which are not present in the configuration file will be generated and set to the specified default values.</p> <p>User Action: Verify your settings.</p>
320	<p>Text: Adding default <OSE PORT#> section since at least one SNA OAT entry was defined for this port.</p> <p>User Action: Verify your settings.</p>
506	<p>Text: The OAT entry cannot be brought on-line because CSS is not defined in the active IOCDS.</p> <p>User Action: Verify your I/O Definitions.</p>
507	<p>Text: The OAT entry cannot be brought on-line because IID is not defined for CSS in the active IOCDS.</p> <p>User Action: Verify your I/O Definitions.</p>
508	<p>Text: The OAT entry cannot be brought on-line because Device is not defined for IID in the active IOCDS.</p> <p>User Action: Verify your I/O Definitions.</p>
509	<p>Text: The OAT entry cannot be brought on-line because device is not defined in the active IOCDS.</p> <p>User Action: Verify your I/O Definitions.</p>
510	<p>Text: The OAT entry cannot be brought on-line because there are no images associated to this CSS in the active IOCDS.</p> <p>User Action: Verify your I/O Definitions.</p>
600	<p>Text: This warning is generated because the I/O definitions were not found in the Configuration file examined by the validation tool. The most likely reason for this warning is this is the first invocation of the SE based OSA/SF. After a successful activation using this tool, the warning will not be presented again.</p>
Errors	
3010	<p>Text: Duplicate CSS/IID/UNIT Address combination.</p> <p>User Action: Correct definition.</p>
3020	<p>Text: Cannot have multiple <OSE> tags in a file.</p> <p>User Action: Correct Syntax.</p>
3021	<p>Text: Cannot have <OSE> tag within a <OAT_TABLE> section.</p> <p>User Action: Correct Syntax.</p>
3022	<p>Text: Cannot have more than one <OSE> section (<OSE>...</OSE>).</p> <p>User Action: Correct Syntax.</p>
3023	<p>Text: <OSE> tag not valid within a <OSE_PORT#> section.</p> <p>User Action: Correct Syntax.</p>

Table 4. Warning and error codes (continued)

3024	<p>Text: </OSE_PORT#> tag position not valid.</p> <p>User Action: Correct Syntax.</p>
3030	<p>Text: </OSE> tag position not valid.</p> <p>User Action: Correct Syntax.</p>
3031	<p>Text: <OSE> section must be closed by the </OSE> tag.</p> <p>User Action: Correct Syntax.</p>
3032	<p>Text: <OAT_TABLE> section has to be closed by a </OAT_TABLE> tag.</p> <p>User Action: Correct Syntax.</p>
3061	<p>Text: <CSS_IID> section must be closed by a </CSS_IID> tag.</p> <p>User Action: Correct Syntax.</p>
3062	<p>Text: </CSS_IID> tag not valid outside <OAT_TABLE> section.</p> <p>User Action: Correct Syntax.</p>
3063	<p>Text: <CSS_IID> tag not valid outside <OAT_TABLE> section.</p> <p>User Action: Correct Syntax.</p>
3064	<p>Text: </CSS_IID> section must be closed by a <CSS_IID> tag.</p> <p>User Action: Correct Syntax.</p>
3065	<p>Text: <CSS_IID> tag not valid inside a <OAT_ENTRY> section.</p> <p>User Action: Correct Syntax.</p>
3066	<p>Text: Duplicate CSS/IID combination within <CSS_IID> section.</p> <p>User Action: Correct Syntax.</p>
3067	<p>Text: CSS keyword value missing from <CSS_IID> section.</p> <p>User Action: Correct Syntax.</p>
3068	<p>Text: IID keyword value missing from <CSS_IID> section.</p> <p>User Action: Correct Syntax.</p>
3069	<p>Text: <CSS_IID> section must be closed by a </CSS_IID> tag.</p> <p>User Action: Correct Syntax.</p>
3070	<p>Text: Missing <OATENTRY> tag in <CSS_IID> section.</p> <p>User Action: Correct Syntax.</p>
3071	<p>Text: CSS keyword value missing before <OATENTRY> section.</p> <p>User Action: Correct Syntax.</p>
3072	<p>Text: IID keyword value missing before <OATENTRY> section.</p> <p>User Action: Correct Syntax.</p>
3100	<p>Text: </OAT_TABLE> tag must be within <OSE>,</OSE> tags.</p> <p>User Action: Correct Syntax.</p>

Table 4. Warning and error codes (continued)

3101	Text: Duplicate <OAT_TABLE> tags. User Action: Correct Syntax.
3102	Text: <OAT_TABLE> section has already been defined. User Action: Correct Syntax.
3110	Text: Incorrect </OAT_TABLE> position. User Action: Correct Syntax.
3121	Text: <OATENTRY> tag not valid outside of <OAT_TABLE> section. User Action: Correct Syntax.
3122	Text: <OAT_TABLE> section maximum limit reached. (240 maximum) User Action: Correct Syntax.
3123	Text: <OATENTRY> must be closed by a </OATENTRY> tag. User Action: Correct Syntax.
3124	Text: </OATENTRY> tag incomplete, missing '>' should be </OATENTRY>. User Action:
3125	Text: </OATENTRY> section must be opened with a <OATENTRY> tag. User Action: Correct Syntax.
3126	Text: At least one <OATENTRY> tag must be defined in <OAT_Table> section. User Action: Correct Syntax.
3127	Text: <OATENTRY> tag not valid outside <CSS_IID> section. User Action: Correct Syntax.
3128	Text: Missing keyword (RECORD_TYPE, PORT_NUM, or UNIT_ADDR) in <OATENTRY> section. User Action: Correct Syntax.
3129	Text: Missing </OATENTRY> tag in <OATENTRY> section. User Action: Correct Syntax.
3130	Text: CSS keyword not valid outside <OAT_TABLE> section. User Action: Correct Syntax.
3131	Text: CSS keyword not valid inside <OATENTRY> section. User Action: Correct Syntax.
3132	Text: Incorrect CSS keyword value. Range is [0 - 3]. User Action: Correct Syntax.
3133	Text: CSS keyword not present. User Action: Correct Syntax.
3134	Text: Only 1 CSS keyword allowed in <CSS_IID> section. User Action: Correct Syntax.

Table 4. Warning and error codes (continued)

3135	Text: CSS keyword not valid outside of <CSS_IID> section. User Action: Correct Syntax.
3136	Text: <CSS_IID> sections need to be ordered in ascending order of CSS. User Action: Correct Syntax.
3140	Text: IID keyword not valid outside of <OAT_TABLE> section. User Action: Correct Syntax.
3141	Text: IID keyword not valid inside <OATENTRY> section. User Action: Correct Syntax.
3142	Text: Incorrect IID keyword value. Range is [0 - F]. User Action: Correct Syntax.
3143	Text: Missing IID keyword value. User Action: Correct Syntax.
3144	Text: Only 1 IID keyword allowed in <CSS_IID> section. User Action: Correct Syntax.
3145	Text: IID keyword not valid outside <CSS_IID> section. User Action: Correct Syntax.
3146	Text: <CSS_IID> sections not in proper ascending order of IID. User Action: Correct Syntax.
3147	Text: IID keyword should follow CSS keyword in <CSS_IID> section. User Action: Correct Syntax.
3150	Text: UNIT_ADDR keyword not valid outside <OAT_TABLE> section. User Action: Correct Syntax.
3151	Text: UNIT_ADDR keyword only valid inside <OATENTRY> section. User Action: Correct Syntax.
3152	Text: Incorrect UNIT_ADDR keyword value. Range is [00 - FD]. User Action: Correct Syntax.
3153	Text: Missing UNIT_ADDR keyword value. User Action: Correct Syntax.
3154	Text: Only 1 UNIT_ADDR keyword allowed in <OATENTRY> section. User Action: Correct Syntax.
3155	Text: UNIT_ADDR keyword value must be even for a TCP/IP record entry. User Action: Correct Syntax.
3156	Text: RECORD_TYPE keyword must be specified before UNIT_ADDR keyword. User Action: Correct Syntax.

Table 4. Warning and error codes (continued)

3157	Text: RECORD_TYPE keyword must be specified before ROUTER_PARM keyword. User Action: Correct Syntax.
3158	Text: RECORD_TYPE keyword must be specified before IP_ADDRESS keyword. User Action: Correct Syntax.
3159	Text: PORT_NUM keyword must be specified before IP_ADDRESS keyword. User Action: Correct Syntax.
3160	Text: PORT_NUM keyword must be specified before ROUTER_PARM keyword. User Action: Correct Syntax.
3170	Text: IP_ADDRESS keyword not valid outside of <OAT_TABLE> section. User Action: Correct Syntax.
3171	Text: IP_ADDRESS keyword only valid inside <OATENTRY> section. User Action: Correct Syntax.
3172	Text: IP address is not valid. Must be n.n.n.n where 0 >= n <= 255 and not equal to 0.0.0.0 and 255.255.255.255. User Action: Correct Syntax.
3173	Text: Missing IP_ADDRESS keyword value. User Action: Correct Syntax.
3174	Text: Only 8 IP_ADDRESS keywords may be specified per <OATENTRY> section. User Action: Correct Syntax.
3175	Text: Router keyword value cannot be PRIMARY/SECONDARY since no IP_ADDRESS tag is defined. User Action: Correct Syntax.
3176	Text: More than 512 IP ADDRESS keyword specified for a single port. User Action: Correct Syntax.
3177	Text: Duplicate IP_ADDRESS keyword value within the <OATENTRY> section. User Action: Correct Syntax.
3178	Text: TCP <OATENTRY> section has invalid group size. User Action: Correct Syntax.
3179	Text: SNA <OATENTRY> section has invalid group size. User Action: Correct Syntax.
3180	Text: RECORD_TYPE keyword not valid outside <OATENTRY> section. User Action: Correct Syntax.
3181	Text: RECORD_TYPE keyword only valid inside <OATENTRY> section. User Action: Correct Syntax.
3182	Text: Incorrect RECORD_TYPE keyword value. User Action: Correct Syntax.

Table 4. Warning and error codes (continued)

3183	Text: Missing RECORD_TYPE keyword value. User Action: Correct Syntax.
3184	Text: Only 1 RECORD_TYPE keyword allowed in <OATENTRY> section. User Action: Correct Syntax.
3190	Text: PORT_NUM keyword not valid outside <OAT_TABLE> section. User Action: Correct Syntax.
3191	Text: PORT_NUM keyword only valid inside <OATENTRY> section. User Action: Correct Syntax.
3192	Text: PORT_NUM keyword value must be 0 or 1. User Action: Correct Syntax.
3193	Text: Missing PORT_NUM keyword. User Action: Correct Syntax.
3194	Text: Only 1 PORT_NUM keyword allowed in <OATENTRY> section. User Action: Correct Syntax.
3210	Text: INACTIVITY_TIMER keyword not valid outside of <OSE> section. User Action: Correct Syntax.
3211	Text: INACTIVITY_TIMER keyword only valid outside of <OSE> section. User Action: Correct Syntax.
3212	Text: INACTIVITY_TIMER keyword value must be in the range of [.24 - 90 seconds] - set to 0 to disable. User Action: Correct Syntax.
3213	Text: Missing INACTIVIT_TIMER keyword value. User Action: Correct Syntax.
3214	Text: Only 1 INACTIVITY_TIMER keyword allowed in <OSE_PORT#> section. User Action: Correct Syntax.
3220	Text: RESPONSE_TIMER keyword not valid outside <OSE> section. User Action: Correct Syntax.
3221	Text: RESPONSE_TIMER keyword only valid outside <OSE_PORT#> section. User Action: Correct Syntax.
3222	Text: RESPONSE_TIMER keyword value must be in the range of [.20 - 51 seconds]. User Action: Correct Syntax.
3223	Text: RESPONSE_TIMER keyword value not present. User Action: Correct Syntax.
3224	Text: Only 1 RESPONSE_TIMER keyword in <OSE_PORT#> section. User Action: Correct Syntax.

Table 4. Warning and error codes (continued)

3230	Text: ACK_TIMER not valid outside <OSE> section. User Action: Correct Syntax.
3231	Text: ACK_TIMER only valid in </OSE_PORT#> section. User Action: Correct Syntax.
3232	Text: ACK_TIMER keyword value must be in the range of [.08 - 20.40 seconds]. User Action: Correct Syntax.
3233	Text: Missing ACK_TIMER keyword. User Action: Correct Syntax.
3234	Text: Only 1 ACK_TIMER keyword allowed in <OSE_PORT#> section. User Action: Correct Syntax.
3240	Text: MAX_I_FRAME keyword not valid outside <OSE> section. User Action: Correct Syntax.
3241	Text: MAX_I_FRAME keyword only valid inside <OSE_PORT#> section. User Action: Correct Syntax.
3242	Text: MAX_I_FRAME keyword value must be in the range of [1 - 4]. User Action: Correct Syntax.
3243	Text: Missing MAX_I_FRAME keyword value. User Action: Correct Syntax.
3244	Text: Only 1 MAX_I_FRAME keyword in <OSE_PORT#> section. User Action: Correct Syntax.
3250	Text: MAX_XMIT_WIN keyword not valid outside <OSE> section. User Action: Correct Syntax.
3251	Text: MAX_XMIT_WIN keyword only valid inside <OSE_PORT#> section. User Action: Correct Syntax.
3252	Text: MAX_XMIT_WIN keyword value must be in the range of [1 - 16]. User Action: Correct Syntax.
3253	Text: Missing MAX_XMIT_WIN keyword value. User Action: Correct Syntax.
3254	Text: Only 1 MAX_XMIT_WIN keyword allowed in <OSE_PORT#> section. User Action: Correct Syntax.
3260	Text: ROUTER_PARM keyword not valid outside of <OAT_TABLE> section. User Action: Correct Syntax.
3261	Text: ROUTER_PARM keyword only valid inside <OATENTRY> section. User Action: Correct Syntax.

Table 4. Warning and error codes (continued)

3262	Text: Incorrect ROUTER_PARM keyword value. Valid values are NONE/PRIMARY/SECONDARY. User Action: Correct Syntax.
3263	Text: Missing ROUTER_PARM keyword value. User Action: Correct Syntax.
3264	Text: Only 1 ROUTER_PARM keyword allowed in <OATENTRY>. User Action: Correct Syntax.
3265	Text: Duplicate PRIMARY Router defined for a single port. User Action: Correct Syntax.
3266	Text: Duplicate SECONDARY Router defined for a single port. User Action: Correct Syntax.
3270	Text: ROUTER_PARM keyword is not valid in a SNA OAT entry. User Action: Correct Syntax.
3271	Text: IP_ADDRESS keyword is not valid in a SNA OAT entry. User Action: Correct Syntax.
3310	Text: </OSE_PORT tag incomplete <OSE_PORT#>. User Action: Correct Syntax.
3311	Text: <OSE_PORT#> tag not valid outside <OSE> section. User Action: Correct Syntax.
3312	Text: Incorrect <OSE_PORT#> section value. Must be 0 or 1. User Action: Correct Syntax.
3313	Text: <OSE_PORT#> sections not ended with </OSE_PORT#>. User Action: Correct Syntax.
3314	Text: </OSE_PORT# tag incomplete. It should be </OSE_PORT#>. User Action: Correct Syntax.
3315	Text: Incorrect </OSE_PORT#> section value. Must match value in </OSE_PORT#>. User Action: Correct Syntax.
3316	Text: Only one instance of a specific <OSE_PORT#> tag may appear in the configuration. User Action: Correct Syntax.
3317	Text: Incorrect format for <OSE_PORT#> tag port identifier. Needs to be decimal number. User Action: Correct Syntax.
3319	Text: Missing </OSE_PORT#> tag. User Action: Correct Syntax.

Table 4. Warning and error codes (continued)

3320	Text: </OSE_PORT#> tag must be closed by the <OSE_PORT#> tag. User Action: Correct Syntax.
3321	Text: Missing <OSE_PORT#> section and/or <OATENTRY> section in configuration file. User Action: Correct Syntax.
3323	Text: <OSE_PORT#> tag not valid inside <OAT_TABLE> section. User Action: Correct Syntax.
3324	Text: <OSE_PORT#> tag incorrectly repeated. User Action: Correct Syntax.
3325	Text: Missing values in <OSE_PORT#> section. User Action: Correct Syntax.
3490	Text: Unrecognized configuration parameter. User Action: Correct Syntax.

Appendix A. Migration steps

Migrating the OAT data from configurations that existed for OSE features involves three steps:

1. Saving the configuration
2. Restoring the configuration
3. Renaming the configuration

The rest of this section describes these steps.

Step 1: Saving the configuration

In this first step, you save upgrade data from the SE. All of the channel's configuration files will be saved.

1. From the HMC Service panel, select Systems Management
2. From the Systems Management panel, select Systems
3. From the Systems panel, select the CPC to be worked on
4. Select Change Management
5. Select Save Legacy Upgrade Data.
6. Insert the SE Upgrade USB flash memory drive (part 45D8943) into the first available USB drive. A new device added message is displayed.
7. When the new device added message is no longer visible, Select OK.
8. When the Save Legacy Upgrade Data Success window appears, click OK.
9. Remove the SE Upgrade USB flash memory drive.

Step 2: Restoring the configuration

Power On with SE Upgrade Data from the Removable Media (all of the saved files are loaded to the SE)

1. Power on the machine
2. When the Upgrade Data USB flash memory drive cannot be found screen appears, insert the SE UPGRADE DATA USB flash memory drive into the Primary (A99S) SE USB drive. Wait for the UFD flash memory drive detected message before continuing. Note that the acknowledgement message appears for only 10 seconds.
3. Click OK

Note: The restore data is loaded and the SE reboots.

4. When the Primary SE logon screen appears, remove the Upgrade Data USB flash memory drive from the USB drive.
5. Insert the Upgrade Data USB flash memory into the first available USB drive of Alternate SE labeled A99B.
6. Wait for the UFD Flash memory drive detected message before continuing.
7. Click OK.
8. When the Logon screen appears on both the Primary and Alternate SEs, remove the SE UPGRADE Data USB flash memory drive from the USB drive.

Step 3: Renaming the configuration

Here are the steps for renaming the files during PCHID configuration file migration:

1. Logon SE in Service
2. Select SE Management
3. Select Migrate Channel Config Files
4. Insert the PCHID MIGRATION CD found in B/M 12R9221 into the CD drive of the SE
5. Click OK
6. When the step is complete, Remove the CD and click OK.
7. Click OK
8. When the Command Completed message appears, click OK.

The PCHID migration CD contains one utility that is used to migrate or move the OSA configuration data from one machine to another. It uses the file to rename the PCHID number. For example:

```
:CARDMOVE A06BLG02J.00 0180 A16BLG03J.00 0210
```

Appendix B. Summary of new HMC windows functions

The following is a summary of OSA/SF commands (IOACMD) and how they are handled with OSA/SF on the HMC. Note that not all OSA/SF commands are done on the HMC:

Table 5. New HMC window functions

OSA/SF command	OSA/SF on the HMC
IOACMD:0-End IOACMD	N/A
IOACMD:1-Clear Debug	The debug data cleared using the OSA/SF command is data that the OSA/SF operating system component created; that is, OSA/SF messages and traces, not the debug data referred to in the debug utilities (OSA CHPID specific debug information). This command is not represented in OSA/SF on the HMC.
IOACMD:2-Configure OSA CHPID	This is handled through the manual and windows configuration options described in Chapter 2, "New HMC windows," on page 3
IOACMD:3-Convert OAT	This specific function is not directly covered, but for more information, see the migration steps detailed in Appendix A, "Migration steps," on page 31)
IOACMD:4-Get Configuration File	This information is contained in the windows configuration displays, the manual ASCII file, and the Display OAT output (see Chapter 2, "New HMC windows," on page 3).
IOACMD:5-Get Debug	N/A
IOACMD:6-Get OSA Address Table	This information is contained in the Display OAT Entries window (see "Display OAT Entries window" on page 17)
IOACMD:7-Install	This function is accomplished on the new OSA/SF through validate and activate (see "Validating your configuration" on page 17 and "Activating your configuration" on page 17).
IOACMD: 8 - Put OSA Address Table (OSA-2 only)	This function is accomplished on the new OSA/SF through validate and activate (see "Validating your configuration" on page 17 and "Activating your configuration" on page 17).

Table 5. New HMC window functions (continued)

OSA/SF command	OSA/SF on the HMC
IOACMD:9-Query	<p>This function is accomplished using the following functions:</p> <ol style="list-style-type: none"> 1. Query one OSA is a combination of Display OAT, Display port parameters 2. Query OSA/SF is N/A 3. Query host is a combination of multiple display OAT and display port parameters, as well as the Advanced Facilities command Service—> Global OSA Status (see Chapter 2, “New HMC windows,” on page 3) 4. SNA_info is N/A 5. ATM_info is N/A 6. IPX_info is N/A
IOACMD:10-Set Parameter	<p>This function is accomplished through Advanced Facilities enable and disable port, as well as display or alter MAC address (see “Advanced Facilities card-specific window” on page 4).</p>
IOACMD:11-Shutdown (VM only)	N/A
IOACMD:12-Start Managing	<p>Requiring a user to manage a CHP to make a change is not part of OSA/SF on the HMC.</p>
IOACMD:13-Stop Managing	<p>Requiring a user to manage a CHP to make a change is not part of OSA/SF on the HMC.</p>
IOACMD:14 - Synchronize (OSA-2 only)	N/A

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