

BARR/CHANNEL

Connect the Server Computer Directly to the Mainframe Channel



Documentation Edition 2
Software Version 5.02 or later

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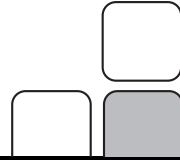
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Preface



Welcome to BARR/CHANNEL. This high-performance product directly connects your Microsoft SNA Server or Microsoft Host Integration Server 2000 (HIS) node to a mainframe channel. The result is a device that tightly couples the two environments by bypassing the front-end processor (FEP) and providing the link from the LAN to the mainframe.

BARR/CHANNEL offers two options.

- **Bus & Tag** – Directly connects your SNA gateway node to a mainframe channel. Your BARR/CHANNEL package includes adapter drivers and hardware.
- **ESCON** – Directly connects your SNA gateway node to an ESCON channel of an IBM or compatible mainframe host system. Your BARR/CHANNEL package includes adapter drivers, an ESCON adapter, and a fiber-optic cable.

Follow the instructions in this manual to install the BARR/CHANNEL software. Additional information about preparing the mainframe computer to work with the channel device is also provided. Follow the instructions in the Help to configure and operate the software. See the Barr channel hardware manual for hardware installation instructions.

Barr Technical Support

Contact Barr Technical Support at 800-BARR-SYS, Monday through Friday between 8 A.M. and 8 P.M. Eastern Time, if you have questions or problems with Barr hardware or software. Technical Support will ask for your software version number and hardware serial numbers. When you call, please have this information on hand.

If you contact Technical Support by fax, e-mail, or the Web site support page (www.barrcentral.com), please include the hardware serial number and software version number in your correspondence.

Using the Knowledge Base system on the Barr Systems Web site gives you the opportunity to solve problems 24 hours a day, seven days a week.

Hardware serial number

You can obtain the adapter serial number from any of these places.

- Blue sticker on the adapter edge, visible from the rear of the computer
- Back of the adapter, where it is handwritten in permanent ink
- Blue sticker on the adapter box

Software version number

You can obtain the version number of the software from one of these methods.

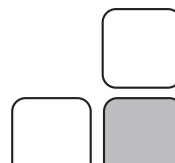
- View the version numbers on the Barr software's Link tab.
- View the properties of the Barredlc, BarrCcfg (Bus & Tag), or Barredlc, BarrEcfcg (ESCON) files in Windows Explorer.
- Run the SNAVER program on the Barredlc, BarrCcfg (Bus & Tag), or Barredlc, BarrEcfcg (ESCON) files.

Acknowledgments

Barr Systems thanks the following people for their contributions to this manual.

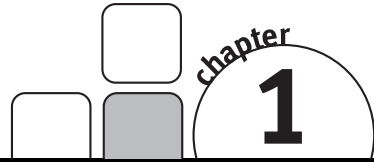
- Hal Antonson, Microsoft Corporation, Redmond, WA
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Notes:



BARR/CHANNEL is a software package that enables you to connect the server computer to the mainframe channel. Designed for users of Microsoft SNA Server or Host Integration Server 2000 (HIS), and the Windows NT or Windows 2000 operating system, the application includes the Barr channel hardware, software drivers to work with Microsoft SNA Server or HIS, and the Help.

1.1 Features

BARR/CHANNEL provides the following features.

Direct connection to the mainframe channel

BARR/CHANNEL provides your SNA gateway with a fast, direct link to the mainframe. It might even eliminate the need for a front-end processor (FEP), depending on your mix of traffic. You can put the computer with the Barr channel hardware in a location that is convenient for the operator.

- **Bus & Tag** – Bus & Tag cables connect the computer to the mainframe channel.
- **ESCON** – The computer connects to the mainframe using a thin, flexible fiber-optic cable. You can also connect multiple ESCON adapters to an ESCON director, which is connected to the mainframe. The ESCON director provides a switched point-to-point fiber-optic configuration, so that failed components can be replaced, and controllers and channels relocated without disrupting operation.

Convenient channel attachment

When you connect a computer to the mainframe, you need the ability to isolate the mainframe from the computer environment. The Barr channel hardware allows you to disconnect the computer without affecting the mainframe or other channel devices.

- **Bus & Tag** – The CHANNEL INTELLIGENCE cable or Channel Attach Box (CAB) (depending on which hardware you purchased) electronically isolates channel signals from the computer. When you exit the software, the CHANNEL INTELLIGENCE cable or CAB disables the computer connection. LED indicators on the cable or CAB show the connection status, so you can tell if the mainframe is operational and communication is taking place.
- **ESCON** – The Barr CHANNEL-IN (ES) adapter is a point-to-point fiber connection to the ESCON channel of an IBM or compatible mainframe host system. The adapter also can be attached to an ESCON director, which is connected to the mainframe. You can disconnect the computer without affecting the mainframe or other channel devices, because no other devices share the same piece of fiber.

Fast access to the mainframe

For any type of computer-to-mainframe access, BARR/CHANNEL provides a faster, more direct link that can dramatically improve your throughput and response times.

- **Bus & Tag** – The Barr CHANNEL INTELLIGENCE and CHANNEL-IN (BT) interfaces support data transfer rates up to 4.5 megabytes per second (MBps).
- **ESCON** – The CHANNEL-IN (ES) interface supports transfer rates of up to 17 MBps.

Front-end processor functionality in a computer

The Barr channel attachment, in combination with the SNA gateway, can provide the same functionality as an FEP at a greatly reduced cost. BARR/CHANNEL connects the computer to the mainframe channel, and the SNA gateway provides Downstream Physical Unit (DSPU) support. DSPU support allows PU Type 2 devices to connect to the server using SDLC and Token Ring 802.2 links. You get the functionality of an FEP at computer prices.

1.2 Computer requirements

You can install the software in a computer that meets the hardware requirements listed in the appropriate Barr channel hardware manual. Additionally, the following software must be installed in the computer.

- Microsoft Windows NT version 4.0 or Microsoft Windows 2000
- Microsoft SNA Server version 3.0 or later, or Microsoft Host Integration Server (HIS) 2000

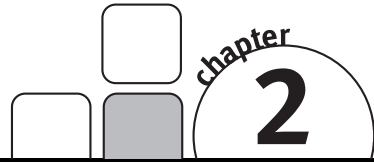
1.3 Package contents

The BARR/CHANNEL package includes these items:

- The hardware listed in your Barr channel hardware manual
- CD-ROM containing the BARR/CHANNEL software and the Help
- *BARR/CHANNEL* manual (this manual)

Notes:

Install the Hardware and Software



Barr software provides the link between the Barr channel adapter and the SNA gateway, Microsoft SNA Server or HIS. To accomplish this link, you need to configure the Barr channel device driver.

Follow the instructions in this chapter to install the software. You will use Microsoft SNA Server or HIS to stop the SNA service, and then use the Barr setup program to install the Barr software.

First installation

If you are installing BARR/CHANNEL for the first time, follow these steps based on your operating system.

Windows NT

1. Insert the adapter into the computer.
2. Turn on the computer. When the Found New Hardware Wizard displays, click **Cancel**. The hardware will be automatically configured after you install the Barr software.
3. Stop the SNA service. (See Section 2.1.)
4. Install the Barr software. (See Section 2.2.)
5. Configure the software. (See Section 2.3.)

Windows 2000

1. Install the Barr software. (See Section 2.2.)
2. Turn off the computer, and then insert the adapter into the computer.
3. Turn on the computer. The hardware will be automatically configured.
4. Configure the software. (See Section 2.3.)

Installing an update

If you are updating previously installed software, you only need to install the new software files. You do not need to add the link service or configure the device driver, but you might want to change Barr software options.

Follow these steps to install an update.



Bus & Tag – If you are replacing the CHANNEL ISA adapter with the CHANNEL-IN (BT) or CHANNEL INTELLIGENCE adapter, you must remove the old Barr Bus & Tag channel link service before you install the new software.

1. Stop the SNA service. (See Section 2.1.)
2. Install the Barr software. (See Section 2.2.)
3. Change the device driver configuration, if needed. (See “Configure the device driver” in Section 2.3.)

2.1 Stop the SNA service

Before you install the software, you must stop the SNA service. Follow these steps.

1. Open Microsoft SNA Manager.
 - **SNA Server** – From the taskbar, click Start | Programs | Microsoft SNA Server | **Manager**.
 - **HIS** – From the taskbar, click Start | Programs | Host Integration Server | **Manager**.
2. Open the **Servers** folder in the left column of the screen.
3. Open the appropriate server, and then click **SNA Service**.
4. On the menu bar, select Service | **Stop**.
5. On the menu bar, select File | **Exit**.

2.2 Install the Barr software

Use the Barr setup program to install the Barr software. Before you run the setup program, you should exit all Windows programs.

1. Insert the Barr software CD into the CD-ROM drive.
2. Right-click **Start** on the taskbar and click **Explore**.
3. Navigate to the CD-ROM drive.
4. Double-click **Setup.exe**.



You can exit the setup program at any time by clicking **Exit** in the lower-left corner of the screen or by pressing F3.

5. Read the text on the **Welcome** dialog box, and then click **Next**.
6. On the **Setup Type** dialog box, select **Barr Systems B&T Channel Link Service** or **Barr Systems ESCON Channel Link Service** (depending on your connection type), and then click **Next**.
7. On the **Select Program Folder** dialog box, select **Barr Channel**, and then click **Next**.
8. On the **Setup Complete** dialog box, select **Yes** to restart the computer, and then click **Finish**. Your hardware will be automatically configured.



If you are installing the software on the Microsoft Windows 2000 operating system, you must restart the computer.

2.3 Configure the software

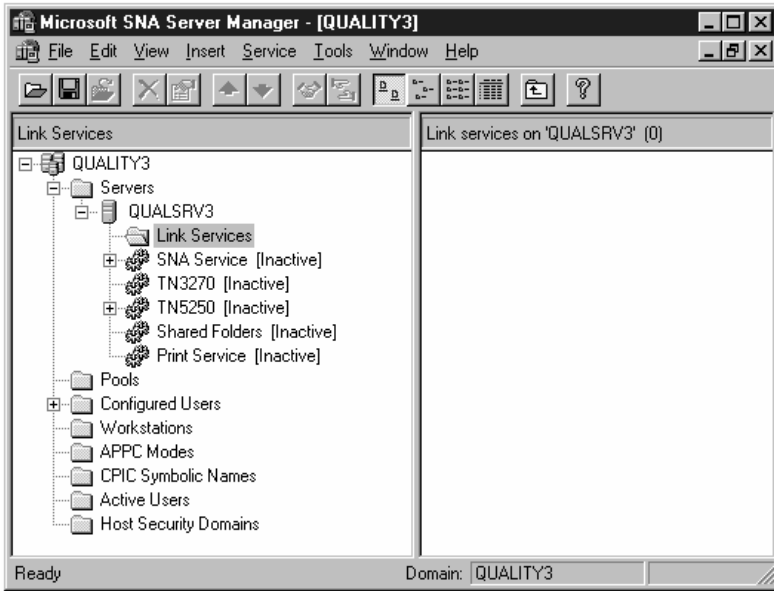
After you install the Barr software, you need to add the BARR/CHANNEL link service to the SNA gateway. When you add the BARR/CHANNEL link service, the Barr configuration utility displays so you can configure the device driver.

Add the link service

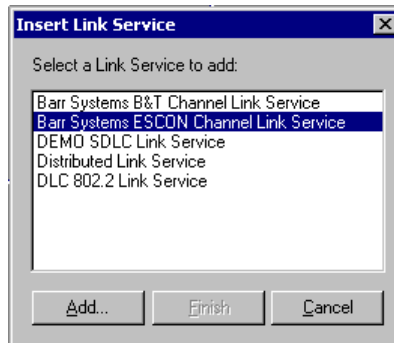
Follow these steps to insert a link service from Microsoft SNA Server or HIS. See the documentation for your SNA gateway for additional instructions.

1. Open Microsoft SNA Manager.
 - **SNA Server** – From the taskbar, click Start | Programs | Microsoft SNA Server | **Manager**.
 - **HIS** – From the taskbar, click Start | Programs | Host Integration Server | **Manager**.

- Open the **Servers** folder in the left column of the window, and then select the server to which you want to add the link service.



- On the menu bar, select **Insert | Link Service**. The **Insert Link Service** dialog box displays.



- Select **Barr Systems B&T Channel Link Service** or **Barr Systems ESCON Channel Link Service** (depending on your connection type) from the link services list.

5. Click **Add**. The Barr configuration utility displays.



If you are using a HIS system, the link service's **Properties** dialog box will display. Click **Configure** to open the Barr configuration utility.

6. Configure the device driver.

Configure the device driver

After you add the BARR/CHANNEL link service, the Barr configuration utility displays. Use this utility to configure the device driver for the Barr channel adapter and define the way the Barr software communicates with the mainframe.

Follow these steps to set up the device driver.

1. Select the **Link** tab.
 - a. Select the **Adapter** from the drop-down list.
 - b. Specify whether or not the link service can be distributed.
2. Select the **Adapter** tab.
 - a. If using a Bus & Tag connection, specify which **Channel transfer mode** to use. If using an ESCON connection, specify the **Control unit image**.
 - b. Specify the **Static subchannel addresses**.
3. When you finish configuring the device driver, click **OK**.

After you set up the device driver, specify the address of each device in the SNA gateway connection and host configurations.

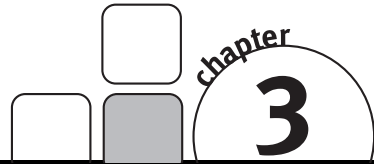
Before you can use the new link service, you must run Microsoft SNA Server or HIS to configure the link service connections. See your Microsoft Help for instructions.



After installation, you can run the configuration utility again by right-clicking the **BARRC1** (Bus & Tag) or **BARRE1** (ESCON) link service icon and then selecting **Properties**.

Notes:

Run Hardware Diagnostics



Easy-to-use BARR/CHANNEL diagnostics enable you to check each step of the installation process. If you have any problems with the Barr hardware or software, diagnostics capture the information Barr Technical Support needs to diagnose the problem. Complete the procedures in the appropriate section for your connection type and hardware.

- Run diagnostics for Bus & Tag using a CAB
- Run diagnostics for Bus & Tag using CHANNEL INTELLIGENCE
- Run diagnostics for ESCON

3.1 Run diagnostics for Bus & Tag using a CAB

Use the BARR/CHANNEL self-test to verify that the channel adapter and Channel Attach Box (CAB) are installed correctly and that they function properly. To perform the self-test, you need the adapter test plug and the CAB terminator and test plugs.

To test both the adapter and the CAB, you must run the self-test in two phases. Always test the adapter first so that if the adapter is at fault, you can avoid disconnecting the CAB from the mainframe channel.

Phase 1: Adapter installation and settings

Phase 1 of the self-test locates the adapter and then sends a data string of 256 characters. The adapter test plug returns the data through the receive side of the adapter, and the self-test verifies that the returned data matches the sent data.

Perform these steps to run Phase 1.

1. Connect the adapter cable to the adapter, then attach the test plug to the other end of the cable.
2. From the **Diagnostics** tab, select the adapter and then click **Start**.



If you experience an error during Phase 1, refer to the *Correcting Phase 1 errors* Help topic for solution tips.

Phase 2: CAB installation and connections

In this phase, the self-test checks the connections from the adapter to the CAB through the Bus & Tag lines. The test sends a data string of 256 characters. Data sent through the Bus In is routed back through Bus Out by the Bus test plug, and data sent through Tag In is routed back through Tag Out by the Tag test plug. The self-test verifies that the returned data matches the sent data.

Follow these steps to run Phase 2.

1. If the CAB is online with the mainframe, remove it from service. Typically, you need to isolate the mainframe by turning off a channel switch or varying offline each channel device. These procedures differ from data center to data center. Follow the procedures required by the data center where the mainframe resides.



Phase 2 proceeds only if the self-test determines that the CAB is isolated from the channel.

2. Make sure that the CAB power supply is connected to an electrical outlet and that the ENABLE/DISABLE switch is set to ENABLE. The test will not pass unless the CAB has power and is enabled.
3. Physically disconnect the Bus & Tag cables from the CAB. Then attach the terminator plugs and test plugs.



Always connect Bus & Tag connectors black to white, never white to white or black to black. The test will fail if you install the test plugs incorrectly.

4. Verify that the adapter is connected to the CAB. If you previously connected the adapter test plug to the adapter cable, you need to remove the adapter test plug and reattach the cable to the CAB.
5. Verify that the red power LED on the CAB is on.
6. From the **Diagnostics** tab, select the adapter to test and then click **Start** to start the self-test.

If you encounter an error during this phase, contact Barr Technical Support.

3.2 Run diagnostics for Bus & Tag using CHANNEL INTELLIGENCE

Use the BARR/CHANNEL self-test to verify that the channel adapter and CHANNEL INTELLIGENCE cable are installed correctly and that they function properly. This test requires the supplied test plugs.

To test both the adapter and the cable, you must run the self-test in two phases. Always test the adapter first so that if the adapter is at fault, you can avoid disconnecting the CHANNEL INTELLIGENCE cable from the mainframe channel.

Phase 1: Adapter installation and settings

Phase 1 of the self-test locates the adapter and then sends a data string of 256 characters. The adapter test plug returns the data through the receive side of the adapter, and the self-test verifies that the returned data matches the sent data.

Perform these steps to run Phase 1.

1. Attach the adapter test plug to the adapter. If you previously connected the cable to the adapter, you need to remove the cable and attach the adapter test plug to the adapter.
2. From the **Diagnostics** tab, select the adapter and then click **Start**.



If you experience an error during Phase 1, refer to the *Correcting Phase 1 errors* Help topic for solution tips.

Phase 2: Cable installation and connections

In this phase, the self-test verifies the connections from the adapter to the CHANNEL INTELLIGENCE cable. The test sends a data string of 256 characters. Data sent through the Bus In is routed back through Bus Out by the Bus test plug, and data sent through Tag In is routed back through Tag Out by the Tag test plug. The self-test verifies that the returned data matches the sent data.

Follow these steps to run Phase 2.

1. If the CHANNEL INTELLIGENCE cable is online with the mainframe, remove it from service. Typically, you need to isolate the mainframe by turning off a channel switch or varying offline each channel device. These procedures differ from data center to data center. Follow the procedures required by the data center where the mainframe resides.



Phase 2 proceeds only if the self-test determines that the CHANNEL INTELLIGENCE cable is isolated from the channel.

2. Attach the test plugs to the Bus & Tag In end of the cable, and the terminators to the Bus & Tag Out end of the cable.



The test will fail if you install the test plugs incorrectly.

3. Verify that the adapter is connected to the CHANNEL INTELLIGENCE cable. If you previously connected the adapter test plug to the adapter, you need to remove the adapter test plug and reattach the cable to the adapter.
4. From the **Diagnostics** tab, select the adapter to test and then click **Start** to start the self-test.

If you encounter an error during this phase, contact Barr Technical Support.

3.3 Run diagnostics for ESCON

Use the Barr ESCON self-test to verify that you installed the ESCON adapter correctly and that it functions properly. To perform the self-test, you need the adapter loop plug and the coupler.

Adapter diagnostics consist of a single self-test. Usually, you test the adapter and cable together. If the combined test fails, you can test the adapter separately, by running the self-test again with the loop plug installed on the adapter, so you can isolate any errors.

If the self-test detects an error it immediately stops and posts an error message. Correct the error, and then repeat the test to confirm that there are no additional errors.

To test both the adapter and the cable, you must run the self-test in two phases.

Phase 1: Adapter installation and settings

Phase 1 of the self-test locates the adapter and then sends a data string of 256 characters. The adapter loop plug receives the data and then returns the data through the receive side of the adapter. The self-test verifies that the returned data matches the sent data.

Perform these steps to run Phase 1.

1. If necessary, remove the protective cover from the adapter.
2. Attach the loopback plug to the adapter.
3. From the **Diagnostics** tab, select the adapter to test and then click **Start**.



If you experience an error during Phase 1, refer to the *Correcting Phase 1 errors* Help topic for solution tips.

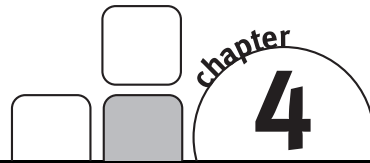
Phase 2: Cable installation and connections

In this phase, the self-test verifies the connections from the adapter to the far end of the fiber-optic cable. The test sends a data string of 256 characters. Data sent through the cable is routed back through the loop plug. The self-test verifies that the returned data matches the sent data.

Follow these steps to run Phase 2.

1. If necessary, remove the protective cover from the adapter.
2. Attach the fiber-optic cable to the adapter.
3. Remove the protective end pieces from the coupler.
4. Attach the coupler to the fiber-optic cable.
5. Attach the loop plug to the coupler.
6. From the **Diagnostics** tab, select the adapter to test and then click **Start**.

If you encounter an error during this phase, contact Barr Technical Support.



HTML Help provides information on installing, configuring, and operating the BARR/CHANNEL software. In HTML Help, the familiar WinHelp window has been refashioned into an HTML Help viewer – a combination of the standard Help window with the added functionality of an Internet browser. HTML Help incorporates a complete table of contents, comprehensive index, and full-text search with advanced search capabilities. HTML Help can be accessed at any time by clicking **Help** or by pressing F1. You can also access the latest Help topics by visiting the Barr Web site, www.barrsystems.com.

4.1 Launch the Help

From any Barr software tab page or dialog box, click **Help** to launch HTML Help and open the topic relating to the tab page or dialog box. Alternatively, press F1.

4.2 Navigate within the Help

You can browse through Help topics or use the **Contents**, **Index**, **Search**, or **Favorites** tabs to locate the topic of your choice.

Browse through Help topics

It is often helpful to browse through Help topics when looking for information.

Use the **Back** button to move backward in the sequence of topics you have viewed.

Use the **Forward** button to move forward in the sequence of topics you have viewed.

Use the Contents tab

The table of contents in an HTML Help system is a tree outline that displays topics in an expandable/collapsible hierarchy. It works just like the **Contents** tab in a WinHelp system.

Follow these steps to find a topic in the table of contents.

1. Click the **Contents** tab.
2. Open or close books by clicking them. A closed book has a plus sign next to it, and an open book has a minus sign.
3. Click the topic you wish to view.

Use the Index tab

The index provides a multilevel list of keywords that are found in the Help. It works like the **Index** tab in a WinHelp system. The index is hierarchical – like the kind you find at the back of a book – and can include multiple levels.

Use the following steps to find a topic using the index.

1. Click the **Index** tab.
2. Type a word or scroll through the list of index entries.
3. To see any topics associated with a keyword, double-click it or select it from the list and click **Display**.
4. If there is more than one topic associated with a keyword, select a topic from the **Topics Found** dialog box.



Topics are often indexed under more than one entry.

Use the Search tab

The **Search** tab allows you to perform a full-text search. With full-text searching, you can search for every word in a Help system. A basic search consists of the word or phrase you want to find. Advanced searches can incorporate Boolean operators, wildcard expressions, nested expressions, similar word matches, a previous results list, or topic titles to further define a search.

The basic rules for formulating search queries are as follows.

- Searches are not case-sensitive, so you can type your search in uppercase or lowercase characters.
- You may search for any combination of letters (a-z) and numbers (0-9).

- Punctuation marks such as the period, colon, semicolon, comma, and hyphen are ignored.
- Group the elements of your search using double quotes or parentheses to set apart each element. You cannot search for quotation marks.



When searching for words in Help topics, you can have each occurrence of the word or phrase highlighted in the topics that are found. To highlight all instances of a search word or phrase, on the Help toolbar, select Options | **Search Highlight On**.

Run a simple search

Follow these steps to run a simple search.

1. Click the **Search** tab.
2. Type the word or phrase you want to find.
3. Press ENTER or click **List topics**.
4. To view a found topic, double-click it or select the topic and click **Display**.

Advanced search features

The following are the available advanced search features.

- **Boolean operators:** You can include Boolean operators in your search. To insert a Boolean operator in your search, click the arrow next to the search text box and select **AND**, **OR**, **NOT**, or **NEAR**.
- **Advanced search:** Use the check boxes at the bottom of the **Search** tab to select advanced search options **Search previous results**, **Match similar words**, and **Search titles only**.

Use the Favorites tab

It may be helpful to maintain a list of favorite Help topics that you reference frequently. Below are the steps to add topics to a list, return to a favorite topic, rename a topic, or remove a topic.

Add a topic

Complete the following steps to add a topic to your list of favorites.

1. Locate the Help topic you want to make a favorite topic.
2. Click the **Favorites** tab.
3. Click **Add**.

Return to a favorite topic

Complete the following steps to return to a favorite topic.

1. Click the **Favorites** tab.
2. Double-click the topic or select the topic and click **Display**.

Rename a topic

Complete the following steps to rename a topic in your list of favorites.

1. Click the **Favorites** tab.
2. Right-click the topic and click **Rename**.
3. Type a new name and press ENTER.

Remove a favorite topic

Complete the following steps to remove a topic from your list of favorites.

1. Click the **Favorites** tab.
2. Select the topic.
3. Click **Remove**.

4.3 Get more out of HTML Help

Here are some tips on how to find more information when using HTML Help.

- To link to another topic or Web page, click the hyperlinks.
- To view topics that contain related information, use the “See also:” and “What do you want to do?” topic links.
- To see if a word or phrase contained in a topic is in the index, select the word, and then press F1.
- If you use a particular Help topic often, you can add it to your list of favorites.
- Right-click in the **Contents** tab or topic pane for shortcut menu commands.

4.4 Copy or print a Help topic

When HTML Help is displayed, you can copy or print Help topics.

Copy a Help topic

You can copy Help topics to the Clipboard with one of these methods. You can paste the topic text into a text editor, such as Microsoft Word, or into an e-mail message.

Copy an entire topic

Complete the following steps to copy an entire topic.

1. In the topic pane, right-click anywhere in the topic you want to copy and choose **Select All**.
2. Right-click again and select **Copy**.

Copy a portion of a topic

Complete the following steps to copy a portion of a topic.

1. Select the text to copy within the Help topic.
2. Right-click anywhere within the Help topic text and select **Copy**.

Print a Help topic

There are three ways to print a Help topic.

- To print the currently displayed topic, click **Print** on the Help toolbar.
- In the topic pane, right-click anywhere in the topic you want to print, and then select **Print**.
- From the **Contents** tab, right-click a topic, and then select **Print**. You will be given the option of printing only the current topic, or the current heading and all subtopics.

4.5 Customize your Help

As with any window, you can easily change the size and location of the Help viewer. In addition, you can resize the navigation and topic panes and set color, font, and accessibility options.

Resize the navigation or topic pane

Complete the following steps to resize the navigation or topic pane.

1. Point to the divider between the two panes.
2. When the pointer changes to a double-headed arrow, drag the divider right or left.

Change colors, fonts, and accessibility options

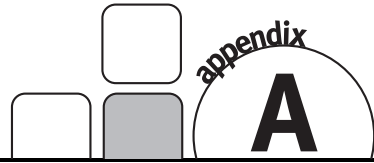
Complete the following steps to change the colors, fonts, or accessibility options of your viewer.



Changing these settings will also change your settings for Internet Explorer.

1. On the Help toolbar, select Options | **Internet Options**.
2. On the **General** tab, click **Colors, Fonts**, or **Accessibility**.
3. Select the options you want, and then click **OK**.
4. To apply the new settings, in the **Internet Options** dialog box, click **OK**.

Configure the Mainframe



The mainframe must be configured to recognize and communicate with the Barr channel device. This appendix provides example mainframe configurations for Bus & Tag and ESCON, sample definitions for configuring multiple LPARS (ESCON only), and lists manuals you can refer to for more information about configuring your mainframe.

The Bus & Tag and ESCON example configurations are for an SNA channel attachment (using VTAM). The Barr channel device, depending on your connection type, responds as the following device type.

- The Barr channel device for Bus & Tag responds as a 3174 Model 1A device type.
- The Barr CHANNEL-IN (ES) device for ESCON responds as a 3174 Model 22L device type.

A.1 Example configurations for Bus & Tag

This section lists example definitions for several operating systems. It specifies parameters that BARR/CHANNEL requires, and parameters that must match Barr software settings. In general, you need to define each physical unit (PU) to the mainframe.

The mainframe definition depends on your mainframe hardware and software, but it usually consists of these parts:

- IOCP definition
- Operating system definition
- VTAM PU definition
- VTAM LOGMODE definition

The text of the following examples is accurate but character positions might not be. See your mainframe documentation for the exact character positions of the text on each line.

IOCP definition

This definition depends on your mainframe hardware. IOCP defines the hardware configuration to the channel subsystem. For MVS version 5 or later, an IOCP definition is not required, because HCD performs this function.

DMKD8EVA	ID MSG1='IOCP EXAMPLE' CHPID TYPE=BL,PATH=((20,05))	
CU520	CNTLUNIT CUNUMBR=0520,UNITADD=((20,1)),SHARED=N, UNIT=3791L,PROTOCL=D,PATH=(05)	+
DEV520	IODEVICE ADDRESS=(0520,1),CUNUMBR=(0520),UNIT=3791L	
CU521	CNTLUNIT CUNUMBR=0521,UNITADD=((21,1)),SHARED=N, UNIT=3791L,PROTOCL=D,PATH=(05)	+
DEV521	IODEVICE ADDRESS=(0521,1),CUNUMBR=(0521),UNIT=3791L	

This example shows definitions for two PUs.

In the **CNTLUNIT** statement, the **UNITADD** parameter specifies two values:

address *number*
 └─┬─┘
 └─┘
UNITADD= (20 , 1)

address Two hexadecimal digits. Subchannel address that identifies the device to the mainframe. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field.

number Recommended value of **1**. Number of active link stations or PUs. Define only one link station or PU in each **CNTLUNIT** statement.

In the **CNTLUNIT** statement, the value for the **PROTOCL** parameter depends on the channel transfer mode you are using. Specify **PROTOCL=D** for DCI High-Speed Transfer (HST) or DCI Single Tag transfer mode. Specify **PROTOCL=S** for Data Streaming at 3 megabytes per second (MBps) or **PROTOCL=S4** for Data Streaming at 4.5 MBps.

Operating system definition

Example definitions for several different mainframe operating systems are included in this section.

VM/ESA with 370 option and VM/XA definition

The following is an example of a VM/ESA with 370 option and VM/XA definition.

```
HCPRIO

* ONE RDEVICE PER PU:

BARR1 RDEVICE ADDR=0520,DEVTYPE=3705,MODEL=L1,      +
      ADAPTER=TYPE4
BARR2 RDEVICE ADDR=0521,DEVTYPE=3705,MODEL=L1,      +
      ADAPTER=TYPE4
```

This example shows definitions for two PUs.

In the **RDEVICE** statement, the **ADDR** parameter specifies two values.

path *address*
 └─┬─┘
 └─┬─┘
ADDR=0520

path

Two hexadecimal digits. Address of the channel to which the device is attached.

address

Two hexadecimal digits. Subchannel address that identifies the device to the mainframe. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field.

VM/ESA with ESA option definition

The following is an example of a VM/ESA with ESA option definition.

```
HCPRIO

* ONE RDEVICE PER PU:

BARR1 RDEVICE  DEVNO=(0520,1) DEVTYPE=3705,MODEL=F6,      +
        ADAPTER=TYPE4
BARR2 RDEVICE  DEVNO=(0521,1) DEVTYPE=3705,MODEL=F6,      +
        ADAPTER=TYPE4
```

This example shows definitions for two PUs.

The **DEVNO** parameter specifies three values.

address
path \swarrow \downarrow \searrow *number*
DEVNO= (0520,1)

<i>path</i>	Two hexadecimal digits. Address of the channel to which the device is attached.
<i>address</i>	Two hexadecimal digits. Subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's Static subchannel addresses field.
<i>number</i>	Recommended value of 1 . Number of active link stations or PUs. Define only one link station or PU in each RDEVICE statement.

VM/ESA version 2.2 (or later) with CMS/CP dynamic configuration definition

The definition depends on whether or not the device is attached to a vehicle **RGUEST**.

If the device is attached to a vehicle **RGUEST**, a definition is required. The definition is the same as the VM/ESA with ESA option definition discussed earlier in this section.

If the device is not attached to a vehicle **RGUEST**, the configuration is dynamic. The Barr software automatically responds to the CP's Sense CCW as a 3174 Model 1A device type.

MVS definition

The following is an example of a MVS definition.

```
CNTLUNIT CUNUMBR=0520, PATH=(05), PROTOCL=D, SHARED=N,          +
          UNIT=3791L, UNITADD=(20,1)
IODEVICE CUNUMBR=0520, UNIT=3791L, ADDRESS=(0520,1)

CNTLUNIT CUNUMBR=0521, PATH=(05), PROTOCL=D, SHARED=N,          +
          UNIT=3791L, UNITADD=(21,1)
IODEVICE CUNUMBR=0521, UNIT=3791L, ADDRESS=(0521,1)
```

This example shows definitions for two PUs.

In the **CNTLUNIT** statement, the **UNITADD** parameter specifies two values.

address ↘ ↙ *number*
UNITADD=(20,1)

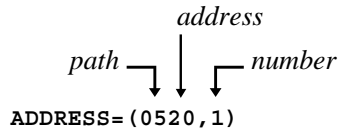
address

Two hexadecimal digits. Subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field.

number

Recommended value of **1**. Number of active link stations or PUs. Define only one link station or PU in each **CNTLUNIT** statement.

In the **IODEVICE** statement, the **ADDRESS** parameter specifies three values.



<i>path</i>	Two hexadecimal digits. Address of the channel to which the device is attached.
<i>address</i>	Two hexadecimal digits. Subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's Static subchannel addresses field.
<i>number</i>	Recommended value of 1 . Number of active link stations or PUs. We recommend defining only one link station or PU in each IODEVICE statement.

DOS/VSE, VSE/ESA definition

The following is an example of a DOS/VSE, VSE/ESA definition.

```
*ONE ADD STATEMENT FOR EACH PU
ADD 0520,3791L
ADD 0521,3971L
```

This example shows definitions for two PUs.

The **ADD** statement specifies several fields:

address
↓
path —┐ ┐ *device type*
 ↓ ↓ ↓
ADD 0520,3791L

- path* Two hexadecimal digits. Address of the channel to which the device is attached.
- address* Two hexadecimal digits. Subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field.
- device type* I/O device or control unit type. The Barr channel device requires a value of **3971L**.

VTAM definition

You need to define a VTAM PU of type 2.0 or type 2.1.

VTAM PU 2.0 definition

The following is an example of a VTAM PU 2.0 definition.

```
BARR      VBUILD TYPE=LOCAL
BARRPU   PU      CUADDR=0520,      *ONE CUADDR PER PU      +
          DISCNT=NO,                +
          DLOGMOD=D4A32782,         +
          ISTATUS=ACTIVE,           +
          MAXBFRU=21,               *ADJUST THIS PARAMETER AS NEEDED +
          MODETAB=ISTINCLM,         +
          PUTYPE=2,                  +
          SSCPFM=USSSCS,            +
          USSTAB=ISTINCDT,          +
          VPACING=7
          *LU DEFS
BARR1    LU      LOCADDR=001
BARR2    LU      LOCADDR=002
BARR3    LU      LOCADDR=003
```

This example shows definitions for one PU with three LUs.

In the **PU** definition, the **CUADDR** parameter specifies the device number.

CUADDR=0520

The device number must match the address parameter of the **IODEVICE** statement. The two low-order hexadecimal digits represent the subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

- When you choose a value for **MAXBFRU**, note that the value for **MAXBFRU** \times **IOBUF** (in your mainframe operating system definition) must be greater than the value for **MAXBTU** (in the SNA gateway's configuration). For example, if the **MAXBTU** value in the SNA gateway is **4105**, and **IOBUF=256**, then the **MAXBFRU** value would need to be at least **17**. ($4105/256 = 16.035$)
- You also must attach the Barr device with an attach statement in the VM Profile GCS (not shown).

VTAM PU 2.1 with LU 6.2 definition

To define a PU of type 2.1, you need VTAM version 3 revision 4 or later.

```
BARR      VBUILD  TYPE=LOCAL
BARRPU    PU      CUADDR=0520,      *ONE CUADDR PER PU      +
           XID=YES                                     +
           DISCNT=NO,                                  +
           DLOGMOD=D4A32782,                          +
           ISTATUS=ACTIVE,                             +
           MAXBFRU=21,      *ADJUST THIS PARAMETER AS NEEDED +
           MODETAB=ISTINCLM,                          +
           PUTYPE=2,                                    +
           SSCPFM=USSSCS,                              +
           USSTAB=ISTINCDT,                            +
           VPACING=7
           *LU DEFS
BARR1     LU      LOCADDR=001
BARR2     LU      LOCADDR=002
BARR3     LU      LOCADDR=003
```

This is an example definition for one PU with a resource capable of acting as an LU 6.2 device.

In the **PU** definition, the **CUADDR** parameter specifies the device number.

CUADDR=0520

The device number must match the address parameter of the **IODEVICE** statement. The two low-order hexadecimal digits represent the subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

When you choose a value for **MAXBFRU**, note that the value for **MAXBFRU** **x IOBUF** (in your mainframe operating system definition) must be greater than the value for **MAXBTU** (in the SNA gateway's configuration). For example, if the **MAXBTU** value in the SNA gateway is **4105**, and **IOBUF=256**, then the **MAXBFRU** value would need to be at least **17**. ($4105/256 = 16.035$)

LOGMODE table

The following sample table shows suggested IBM LOGMODE table entries for 3270 devices. The last entry is for resources capable of acting as LU 6.2 devices.

```

ISTINCLM      MODETAB
              TITLE 'vD4A32782'
*****
*              3274      MODEL 1A (LOCAL SNA)                *
*              WITH 3278 MODEL 2 SCREEN                      *
*              PRIMARY SCREEN 24 x 80 (1920)                  *
*              NO ALTERNATE SCREEN DEFINED                    *
*****
D4A32782      MODEENT LOGMODE=D4A32782,FMPPROF=X'03',        +
              TSPROF=X'03', PRIPROT=X'B1',                  +
              SECPROT=X'90',COMPROT=X'3080',                 +
              RUSIZES=X'87C7',                               +
              PSERVIC=X'020000000000185000007E00'           +
              TITLE   'D4A32783'
*****
*              3274      MODEL 1A (LOCAL SNA)                *
*              WITH 3278 MODEL 3 SCREEN                      *
*              PRIMARY SCREEN 24 x 80 (1920)                  *
*              ALTERNATE SCREEN 32 x 80 (2560)                *
*****
D4A32783      MODEENT LOGMODE=D4A32783,FMPPROF=X'03',        +
              TSPROF=X'03',PRIPROT=X'B1',                  +
              SECPROT=X'90',COMPROT=X'3080',                 +
              RUSIZES=X'87C7',                               +
              PSERVIC=X'020000000000185020507F00'           +
              TITLE   'D4A32784'
*****
*              3274      MODEL 1A (LOCAL SNA)                *
*              WITH 3278 MODEL 4 SCREEN                      *
*              PRIMARY SCREEN 24 x 80 (1920)                  *
*              ALTERNATE SCREEN 43x80 (3440)                  *
*****
D4A32784      MODEENT LOGMODE=D4A32784,FMPPROF=X'03',        +
              TSPROF=X'03',PRIPROT=X'B1',                  +
              SECPROT=X'90',COMPROT=X'3080',                 +
              RUSIZES=X'87C7',                               +
              PSERVIC=X'02000000000018502B507F00'           +
              TITLE   'D4A32785'
*****
*              3274 MODEL 1A (LOCAL SNA)                    *
*              WITH 3278 MODEL 5 SCREEN                      *
*              PRIMARY SCREEN 24 x 80 (1920)                  *
*              ALTERNATE SCREEN 27x132 (3564)                *
*****
D4A32785      MODEENT LOGMODE=D4A32785,FMPPROF=X'03',        +
              TSPROF=X'03',PRIPROT=X'B1',                  +
              SECPROT=X'90',COMPROT=X'3080',                 +
              RUSIZES=X'87C7',                               +
              PSERVIC=X'02000000000018501B847F00'           +

```

```

TITLE                'D4A32792'
*****
*                    3274 MODEL 1A (LOCAL SNA)                    *
*                    WITH 3279 MODEL 2 SCREEN                    *
*                    PRIMARY SCREEN 24 x 80 (1920)                *
*                    NO ALTERNATE SCREEN DEFINED                *
*****
D4A32792  MODEENT  LOGMODE=D4A32792,FMPROF=X'03',                +
          TSPROF=X'03',PRIPROT=X'B1',                            +
          SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'87C7',        +
          PSERVIC=X'028000000000185000007E00'                  +
          TITLE      'D4A32793'
*****
*                    3274 MODEL 1A (LOCAL SNA)                    *
*                    WITH 3279 MODEL 3 SCREEN                    *
*                    PRIMARY SCREEN 24 x 80 (1920)                *
*                    ALTERNATE SCREEN 32 x 80 (2560)            *
*****
D4A32793  MODEENT  LOGMODE=D4A32793,FMPROF=X'03',                +
          TSPROF=X'03',PRIPROT=X'B1',                            +
          SECPROT=X'90',COMPROT=X'3080',                        +
          RUSIZES=X'87C7',                                       +
          PSERVIC=X'028000000000185020507F00'                  +
          TITLE      'D6328904'
*****
          3276 SNA WITH 3289 MODEL 4 PRINTER                    *
*****
D6328904  MODEENT  LOGMODE=D6328904,FMPROF=X'03',                +
          TSPROF=X'03',PRIPROT=X'B1',                            +
          SECPROT=X'90',COMPROT=X'3080',                        +
          RUSIZES=X'8787',                                       +
          PSERVIC=X'03000000000018502B507F00'                  +
          TITLE      'D6328902'
*****
          3276 SNA WITH 3289 MODEL 2 PRINTER                    *
*****
D6328902  MODEENT  LOGMODE=D6328902,FMPROF=X'03',                +
          TSPROF=X'03',PRIPROT=X'B1',                            +
          SECPROT=X'90',COMPROT=X'3080',                        +
          RUSIZES=X'8787',                                       +
          PSERVIC=X'030000000000185018507F00'                  +
*****
*                    RESOURCES CAPABLE OF ACTING AS LU 6.2 DEVICES *
*****
BARRCHAN  MODEENT  LOGMODE=BARRCHAN,FMPROF=X'13',                +
          TSPROF=X'07',PRIPROT=X'B0',                            +
          SECPROT=X'B0',COMPROT=X'DOB1',                        +
          RUSIZES=X'8585',                                       +
          PSERVIC=X'06020000000000000000300'                  +

```

A.2 Example configurations for ESCON

This section lists example definitions for several operating systems. It specifies parameters that BARR/CHANNEL requires and parameters that must match Barr software settings. In general, you need to define each physical unit (PU) to the mainframe.

The mainframe definition depends on your mainframe hardware and software, but it usually consists of these parts:

- IOCP definition
- Operating system definition
- VTAM PU definition
- VTAM LOGMODE definition

The text of the following examples is accurate but character positions might not be. See your mainframe documentation for the exact character positions of the text on each line.

IOCP definition

This definition depends on your mainframe hardware. IOCP defines the hardware configuration to the channel subsystem. For MVS version 5 or later, an IOCP definition is not required because HCD performs this function.

```
DMKD8BVA      ID  MSG1=' IOCP EXAMPLE'  
              CHPID PATH=05,TYPE=CNC,SWITCH=01  
  
CU520         CNTLUNIT CUNUMBR=0520,UNITADD=((20,2))      +  
              UNIT=3791L,PATH=(05),LINK=(C2),CUADD=0  
  
DEV520        IODEVICE ADDRESS=(0520,1),CUNUMBR=(0520),UNIT=3791L  
  
DEV521        IODEVICE ADDRESS=(0521,1),CUNUMBR=(0520),UNIT=3791L
```

This example shows definitions for two PUs.

- In the CHPID statement, the SWITCH parameter specifies the number (00-FF) that identifies the ESCON director for this path.
- In the CNTLUNIT statement, the LINK parameter specifies the port number of the ESCON director to which this device is attached.
- In the CNTLUNIT statement, the value for CUADD specifies the control unit image number for this device. The value must match the Control unit image number you specify in the SNA gateway's connection properties for this device address. For versions of Microsoft SNA Server prior to Version 4.0, this value must match the value specified in the Control unit image number field of the BARR/CHANNEL link service configuration screen.

- In the **CNTLUNIT** statement, the **UNITADD** parameter specifies two values:

address ↘ ↙ *number*
 ↓ ↓
UNITADD= (20 , 2)

The example specifies two PUs: the first PU at subchannel address 20 and the second PU at subchannel address 21. For noncontiguous addresses, code the **UNITADD** parameter as follows:

UNITADD= (20 , 1) , (40 , 1)

address Two hexadecimal digits. Subchannel address of the first channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

number Number of active link stations or PUs.

- In the **IODEVICE** statement, the **ADDRESS** parameter specifies two values:

device number ↘ ↙ *number*
 ↓ ↓
ADDRESS= (0520 , 1)

device number The two low-order hexadecimal digits represent the subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

number Recommended value of **1**. Number of active link stations or PUs. We recommend defining only one link station or PU in each **IODEVICE** statement.

Operating system definition

Example definitions for several different mainframe operating systems are included in this section.

VM/ESA with 370 option and VM/XA definition

The following is an example of a VM/ESA with 370 option and VM/XA definition.

```
HCPRIO

* ONE RDEVICE PER PU:

BARR1 RDEVICE ADDR=0520,DEVTYPE=3705,MODEL=L1,      +
      ADAPTER=TYPE4
BARR2 RDEVICE ADDR=0521,DEVTYPE=3705,MODEL=L1,      +
      ADAPTER=TYPE4
```

This example shows definitions for two PUs.

ADDR=0520

In the **RDEVICE** statement, the two low-order hexadecimal digits of the **ADDR** parameter represent the subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

VM/ESA with ESA option definition

The following is an example of a VM/ESA with ESA option definition.

```
HCPRIO

* ONE RDEVICE PER PU:

BARR1 RDEVICE DEVNO=(0520,1)DEVTYPE=3705,MODEL=F6,  +
      ADAPTER=TYPE4
BARR2 RDEVICE DEVNO=(0521,1)DEVTYPE=3705,MODEL=F6,  +
      ADAPTER=TYPE4
```

This example shows definitions for two PUs.

The **DEVNO** parameter specifies two values:

device number *number*
 ↓ ↓
DEVNO= (0520, 1)

device number

The two low-order hexadecimal digits represent the subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

number

Recommended value of **1**. Number of active link stations or PUs. Define only one link station or PU in each **RDEVICE** statement.

VM/ESA version 2.2 (or later) with CMS/CP dynamic configuration definition

The definition depends on whether or not the device is attached to a vehicle **RGUEST**.

If the device is attached to a vehicle **RGUEST**, a definition is required. The definition is the same as the "VM/ESA with ESA option definition" section discussed earlier in this appendix.

If the device is not attached to a vehicle **RGUEST**, the configuration is dynamic. The Barr software automatically responds to the CP's Sense CCW as a 3174 Model 22L device type.

MVS definition

The following is an example of a MVS definition.

```
ICNTLUNIT CUNUMBR=0520,UNITADD=( 20,2)          +
          UNIT=3791L,PATH=(05),LINK=(C2),CUADD=0

IODEVICE ADDRESS=(0520,1),CUNUMBR=(0520),UNIT=3791L
IODEVICE ADDRESS=(0521,1),CUNUMBR=(0520),UNIT=3791L
```

This example shows definitions for two PUs.

In the **CNTLUNIT** statement, the **UNITADD** parameter specifies two values:

address ↘ ↙ *number*
 ↓ ↓
UNITADD=((20 , 2))

The example specifies two PUs: the first PU at subchannel address 20 and the second PU at subchannel address 21. For noncontiguous addresses, code the **UNITADD** parameter as follows:

UNITADD=((20 , 1) , (40 , 1))

address

Two hexadecimal digits. Subchannel address of the first channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

number

Number of active link stations or PUs.

In the **IODEVICE** statement, the **ADDRESS** parameter specifies two values:

device number ↘ ↙ *number*
ADDRESS= (0520,1)

device number

The two low-order hexadecimal digits represent the subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

number

Recommended value of **1**. Number of active link stations or PUs. We recommend defining only one link station or PU in each **IODEVICE** statement.

DOS/VSE, VSE/ESA definition

The following is an example of a DOS/VSE, VSE/ESA definition.

```
*ONE ADD STATEMENT FOR EACH PU
ADD 0520,3791L
ADD 0521,3791L
```

This example shows definitions for two PUs.

The **ADD** statement specifies several fields:

address ↘ ↙ *device type*
ADD 0520,3791L

address

The two low-order hexadecimal digits represent the subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

device type

I/O device or control unit type. The Barr ESCON device requires a value of **3791L**.

VTAM definition

You need to define a VTAM PU of type 2.0 or type 2.1.

VTAM PU 2.0 definition

The following is an example of a VTAM PU 2.0 definition.

```
BARR  VBUILD TYPE=LOCAL

BARRPU PU      CUADDR=0520,          *ONE CUADDR PER PU      +
                DISCNT=NO,           +
                DLOGMOD=D4A32782,     +
                ISTATUS=ACTIVE,       +
                MAXBFRU=21,           *ADJUST THIS PARAMETER AS NEEDED +
                MODETAB=ISTINCLM,     +
                PUTYPE=2,              +
                SSCPFM=USSSCS,        +
                USSTAB=ISTINCDT,      +
                VPACING=7              +
                                     *LU DEFS
BARR1 LU      LOCADDR=001
BARR2 LU      LOCADDR=002
BARR3 LU      LOCADDR=003
```

This example shows definitions for one PU with three LUs.

In the **PU** definition, the **CUADDR** parameter specifies the device number.

CUADDR=0520

The device number must match the address parameter of the **IODEVICE** statement. The two low-order hexadecimal digits represent the subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

- When you choose a value for **MAXBFRU**, note that the value for **MAXBFRU** \times **IOBUF** (in your mainframe operating system definition) must be greater than the value for **MAXBTU** (in the SNA gateway's configuration). For example, if the **MAXBTU** value in the SNA gateway is **4105**, and **IOBUF=256**, then the **MAXBFRU** value would need to be at least **17**. ($4105/256 = 16.035$)
- You also must attach the Barr device with an attach statement in the VM Profile GCS (not shown).

VTAM PU 2.1 with LU 6.2 definition

To define a PU of type 2.1, you need VTAM version 3 revision 4 or later.

```
BARR  VBUILD TYPE=LOCAL

BARRPU PU      CUADDR=0520,      *ONE CUADDR PER PU      +
              XID=YES
              DISCNT=NO,          +
              DLOGMOD=D4A32782,   +
              ISTATUS=ACTIVE,     +
              MAXBFRU=21,         *ADJUST THIS PARAMETER AS NEEDED +
              MODETAB=ISTINCLM,   +
              PUTYPE=2,           +
              SSCPFM=USSSCS,      +
              USSTAB=ISTINCDT,
              VPACING=7
                                *LU DEFS
BARR1  LU      LOCADDR=001
BARR2  LU      LOCADDR=002
BARR3  LU      LOCADDR=003
```

This is an example definition for one PU with a resource capable of acting as an LU 6.2 device.

In the **PU** definition, the **CUADDR** parameter specifies the device number.

CUADDR=0520

The device number must match the address parameter of the **IODEVICE** statement. The two low-order hexadecimal digits represent the subchannel address of the channel device. The address must match the subchannel address you specify in the SNA gateway's connection properties and in the BARR/CHANNEL configuration utility's **Static subchannel addresses** field, if static addresses are used.

When you choose a value for **MAXBFRU**, note that the value for **MAXBFRU x IOBUF** (in your mainframe operating system definition) must be greater than the value for **MAXBTU** (in the SNA gateway's configuration). For example, if the **MAXBTU** value in the SNA gateway is **4105**, and **IOBUF=256**, then the **MAXBFRU** value would need to be at least **17**. ($4105/256 = 16.035$)

LOGMODE table

The following sample table shows suggested IBM LOGMODE table entries for 3270 devices. The last entry is for resources capable of acting as LU 6.2 devices.

```
ISTINCLM      MODETAB
              TITLE 'vD4A32782'
*****
*              3274      MODEL 1A (LOCAL SNA)                *
*              WITH 3278 MODEL 2 SCREEN                      *
*              PRIMARY SCREEN 24 x 80 (1920)                  *
*              NO ALTERNATE SCREEN DEFINED                    *
*****
D4A32782      MODEENT LOGMODE=D4A32782,FMPPROF=X'03',        +
              TSPROF=X'03', PRIPROT=X'B1',                  +
              SECPROT=X'90',COMPROT=X'3080',                  +
              RUSIZES=X'87C7',                                +
              PSERVIC=X'020000000000185000007E00'            +
              TITLE   'D4A32783'
*****
*              3274      MODEL 1A (LOCAL SNA)                *
*              WITH 3278 MODEL 3 SCREEN                      *
*              PRIMARY SCREEN 24 x 80 (1920)                  *
*              ALTERNATE SCREEN 32 x 80 (2560)                *
*****
D4A32783      MODEENT LOGMODE=D4A32783,FMPPROF=X'03',        +
              TSPROF=X'03',PRIPROT=X'B1',                    +
              SECPROT=X'90',COMPROT=X'3080',                  +
              RUSIZES=X'87C7',                                +
              PSERVIC=X'020000000000185020507F00'            +
              TITLE   'D4A32784'
*****
*              3274      MODEL 1A (LOCAL SNA)                *
*              WITH 3278 MODEL 4 SCREEN                      *
*              PRIMARY SCREEN 24 x 80 (1920)                  *
*              ALTERNATE SCREEN 43x80 (3440)                  *
*****
D4A32784      MODEENT LOGMODE=D4A32784,FMPPROF=X'03',        +
              TSPROF=X'03',PRIPROT=X'B1',                    +
              SECPROT=X'90',COMPROT=X'3080',                  +
              RUSIZES=X'87C7',                                +
              PSERVIC=X'02000000000018502B507F00'            +
              TITLE   'D4A32785'
*****
*              3274 MODEL 1A (LOCAL SNA)                    *
*              WITH 3278 MODEL 5 SCREEN                      *
*              PRIMARY SCREEN 24 x 80 (1920)                  *
*              ALTERNATE SCREEN 27x132 (3564)                  *
*****
D4A32785      MODEENT LOGMODE=D4A32785,FMPPROF=X'03',        +
              TSPROF=X'03',PRIPROT=X'B1',                    +
              SECPROT=X'90',COMPROT=X'3080',                  +
              RUSIZES=X'87C7',                                +
              PSERVIC=X'02000000000018501B847F00'
```

```

          TITLE                'D4A32792'
*****
*          3274 MODEL 1A (LOCAL SNA)          *
*          WITH 3279 MODEL 2 SCREEN           *
*          PRIMARY SCREEN 24 x 80 (1920)      *
*          NO ALTERNATE SCREEN DEFINED       *
*****
D4A32792  MODEENT LOGMODE=D4A32792,FMPPROF=X'03',      +
          TSPROF=X'03',PRIPROT=X'B1',          +
          SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'87C7', +
          PSERVIC=X'028000000000185000007E00'      +
          TITLE 'D4A32793'
*****
*          3274 MODEL 1A (LOCAL SNA)          *
*          WITH 3279 MODEL 3 SCREEN           *
*          PRIMARY SCREEN 24 x 80 (1920)      *
*          ALTERNATE SCREEN 32 x 80 (2560)   *
*****
D4A32793  MODEENT LOGMODE=D4A32793,FMPPROF=X'03',      +
          TSPROF=X'03',PRIPROT=X'B1',          +
          SECPROT=X'90',COMPROT=X'3080',        +
          RUSIZES=X'87C7',                      +
          PSERVIC=X'028000000000185020507F00'      +
          TITLE 'D6328904'
*****
*          3276 SNA WITH 3289 MODEL 4 PRINTER *
*****
D6328904  MODEENT LOGMODE=D6328904,FMPPROF=X'03',      +
          TSPROF=X'03',PRIPROT=X'B1',          +
          SECPROT=X'90',COMPROT=X'3080',        +
          PSERVIC=X'03000000000018502B507F00'      +
          TITLE 'D6328902'
*****
*          3276 SNA WITH 3289 MODEL 2 PRINTER *
*****
D6328902  MODEENT LOGMODE=D6328902,FMPPROF=X'03',      +
          TSPROF=X'03',PRIPROT=X'B1',          +
          SECPROT=X'90',COMPROT=X'3080',        +
          RUSIZES=X'8787',                      +
          PSERVIC=X'030000000000185018507F00'      +
*****
*          RESOURCES CAPABLE OF ACTING AS LU 6.2 DEVICES *
*****
BARRCHAN  MODEENT LOGMODE=BARRCHAN,FMPPROF=X'13',      +
          TSPROF=X'07',PRIPROT=X'B0',          +
          SECPROT=X'B0',COMPROT=X'D0B1',        +
          RUSIZES=X'8585',                      +
          PSERVIC=X'060200000000000000000300'

```

A.3 Configure multiple LPARs using the Barr ESCON adapter



This section applies to ESCON connections only.

The BARR/CHANNEL software with the CHANNEL-IN (ES) adapter supports multiple logical partitions (LPARs). In this example, we will configure three LPARs on one host. To best explain the connections and how they are made, we will start with the SNA gateway configuration and then proceed to the host configuration.

SNA gateway configuration

Microsoft SNA Server and HIS are emulation software that provide SNA connectivity to the mainframe. To configure the SNA gateway, you must define the physical connection as well as the type of device that is using the physical connection. A link service describes the hardware device that the SNA gateway uses to attach to the mainframe. A connection describes the type of device connecting through the link service. Common hardware used for link services includes BARR/SYNC *for Microsoft Networks* for SDLC connections over leased or dial-up lines, DLC (802.2 LLC) connections using Ethernet or Token Ring Network Interface Controllers, and BARR/CHANNEL for direct connections.

Complete the following steps to define the Barr Systems ESCON channel link service.

1. Open Microsoft SNA Server Manager.
2. Open the **Servers** folder in the left column of the screen.
3. Select the server to which you want to add the link service.
4. On the menu bar, select Insert | **Link Service**.
5. Select **Barr Systems ESCON Channel Link Service**.
6. Name the service.

Next, we must define three connections to each of the three LPARs. Each connection uses the same link service. The parameters vary depending on the type of connection the link service uses. The connection parameters for the BARR/CHANNEL link service describe the VTAM physical unit definition. A BARR/CHANNEL link service looks like a local major node to the host. Because each LPAR has its own VTAM definitions, the connection has to identify which subchannel (**CUADDR**) and image (**CUADD**) it is attaching on.

To configure the logical units or 3270 devices on the SNA gateway, right-click on the connection and insert 3270 devices. There must be a corresponding LU defined in the VTAM definition for each LU that you add to the connection.

The VTAM host programmer creates a corresponding definition for each SNA gateway connection. VTAM provides the link between the mainframe and the physical channel connections defined in IOCP.

The following table describes the correlation between IOCP, VTAM, and the SNA gateway.

IOCP (HCD)					VTAM	SNA Gateway Connection	
LPAR	Channel Path (PATH)	Control Unit Number (CUNUMBR)	Control Unit Address (UNITADD)	CUADD	CUADDR	Sub Channel	Control Unit Image
1	0E	E10	10	0	E10	10	0
2	0E	E20	20	1	E20	20	1
3	0E	E30	30	3	E30	30	3

Host configuration

The following are sample host definitions.

Sample host definitions

IOCP describes the channel and devices on the channel to each partition. It is similar to the SCSI BIOS on a PC. Because the SNA gateway with the Barr channel adapter is going to be a shared resource on the mainframe, it is defined in the partition that controls the hardware as a shared resource.

The following are actual host definitions in IOCP and VTAM.

```
RESOURCE PARTITION=( (LPAR3,3), (LPAR2,2), (LPAR1,1) ) CHPID
PATH=(0E), SHARED, PARTITION( (LPAR1,LPAR2,LPAR3),
(LPAR1,LPAR2,LPAR3) ), TYPE=CNC
```

Sample IOCP definitions

LPARS1, 2, and 3 are defined in IOCP as follows:

```
CNTLUNIT CUNUMBR=E10, PATH=0E, UNITADD=(10,1), UNIT=3791L, CUADD=0
IODEVICE ADDRESS=(E10,1), UNIT=3791L, CUNUMBR=E10, PARTITION=(LPAR1)
```

```
CNTLUNIT CUNUMBR=E20, PATH=0E, UNITADD=(20,1), UNIT=3791L, CUADD=1
IODEVICE ADDRESS=(E20,1), UNIT=3791L, CUNUMBR=E20, PARTITION=(LPAR2)
```

```
CNTLUNIT CUNUMBR=E30, PATH=0E, UNITADD=(30,1), UNIT=3791L, CUADD=3
IODEVICE ADDRESS=(E30,1), UNIT=3791L, CUNUMBR=E30, PARTITION=(LPAR3)
```

Sample VTAM definitions

The following are sample VTAM definitions. You can create additional LUs as needed.

LPAR1

```
LPAR1E10  VBUILD TYPE=LOCAL
BARR1E10  PU UADDR=E10, DLOGMOD=SNX32702, USSTAB=USSSNA1, PUTYPE=2,      X
           SSCPFM=USSSCS, MAXBFRU=10
LU1E1002  LU LOCADDR=02
```

LPAR2

```
LPAR2E20  VBUILD TYPE=LOCAL
BARR2E20  PU CUADDR=E20, DLOGMOD=SNX32702, USSTAB=USSSNA1, PUTYPE=2,      X
           SSCPFM=USSSCS, MAXBFRU=10
LU1E2002  LU LOCADDR=02
```

LPAR3

```
LPAR3E30  VBUILD TYPE=LOCAL
BARR3E30  PU CUADDR=E30, DLOGMOD=SNX32702, USSTAB=USSSNA1, PUTYPE=2,      X
           SSCPFM=USSSCS, MAXBFRU=10
LU3E3002  LU LOCADDR=02
```

Summary

The following is a summary of procedures in this section.

- Define the **CHPID** that the SNA gateway channel adapter is attached to as a Shared Resource.
- Define the control unit and **IODEVICE** for each partition.
- Define VTAM nodes in each partition and associate them with the hardware using the **CUADDR**, which matches the **CUNUMBR**.
- Define the link service to the SNA gateway.
- Define each connection in the SNA gateway, and link it to VTAM using the IOCP definitions, which utilize the subchannel address (E10, E20, E30*) and **UNIT ADDRESS.****

*Drop the E since the connection only needs the subchannel number to communicate.

****UNIT ADDRESS** is called **Control unit image** on the **Connection** screen.

References

For more detailed information on the IOCP and HCD definitions, see document number SG24-4037-01 at <http://www.s390.ibm.com:80/bookmgr.cgi/bookmgr.cmd/BOOKS/EZ322600/CCONTENTS>.

A.4 References

Refer to these selected publications for more information about the mainframe definition. The publication number relates to the version number of mainframe software. The number for your publication might be different, depending on the version of the software at your mainframe.

Enterprise System Connections Director (GA23-0383)

Introducing Enterprise System Connections Director (GA23-0363)

IOCP User Guide, Volume A04 (GC38-0097)

VTAM Installation and Resource Definition (SC23-0111)

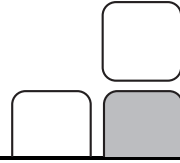
VTAM Version 3 Releases 1 and 1.1 Customization (LY30-5614)

VTAM Diagnosis Guide (SC27-0615)

VTAM Resource Definition Reference Version 3 Release 3 for MVS, VM, and VSE/ESA (SC31-6412)

Notes:

Glossary



adapter

Add-on piece of equipment you can plug into a computer to allow the computer to connect to another device.

BIOS

Acronym for Basic Input/Output System. Program(s) permanently stored in read-only memory (ROM) chips on your computer's system board.

Bus & Tag cables

Cables used to connect devices to mainframe channels. The bus cable transmits data and the tag cable controls the information on the bus.

channel

A functional unit that directs the flow of information between control units and main storage.

Channel Command Word (CCW)

One or more CCWs make up the channel program that directs data channel operations.

command

Something you instruct the computer to do, such as run a program.

communications protocol

A specification of data and control message formats and their meanings. This specification is followed by both the sender and receiver in a communication link.

coupler

In an ESCON environment, link hardware used to join identical optical fiber connector types.

data rate

The rate at which data can be moved between a device and a control unit during the data transfer portion of an I/O operation.

data streaming

The uninterrupted transfer of information over an interface to achieve high data transfer rates.

DCI

Acronym for Direct-Coupled Interlock. A type of channel data transfer. DCI single tag uses one signal pair (Service In, Service Out). DCI HST uses two signal pairs (Service In, Service Out, and Data In, Data Out).

diagnostics

A program to detect and isolate errors in programs and faults in equipment.

DMA

Acronym for Direct Memory Access. A technique for moving data directly between main storage and peripheral equipment without requiring the processing unit to process the data.

ESCON

Acronym for Enterprise Systems Connection. A channel-to-control-unit I/O interface that uses optical cables as a transmission medium.

ESCON director

A device that provides connectivity capability and control for attaching any two links to each other.

FEP

Acronym for Front-End Processor. Generally, a computer or processing unit that produces and manipulates data before another processor receives it.

fiber optics

The branch of optical technology concerned with the transmission of radiant power through fibers made of transparent materials such as glass, fused silica, and plastic.

host computer

A computer that controls the communications network. It has databases and large computing and memory capacity. Other computers can connect to the host to share its resources.

HST

Acronym for High-Speed Transfer. A type of channel data transfer that uses two signal pairs (Service In, Service Out, and Data In, Data Out).

IRQ

Abbreviation for Interrupt Request. A request for processing on a particular priority level.

ISA

Acronym for Industry Standard Architecture, a standard for the computer's expansion bus (where you plug in add-on adapters).

LED

Acronym for Light-Emitting Diode. A semiconductor device that converts electrical energy into light, such as the activity lights on computer disc drives.

LU

Acronym for Logical Unit. In an IBM SNA network, a point denoting the beginning or end of a communications session.

mainframe

Term used for a large central computer that offers a full set of computing services. The term originated in the days when the central processor, memory, and input/output channels were located in one central housing called the mainframe.
Synonymous with Host Computer.

PCI

Acronym for Peripheral Component Interconnect. Standard for a high-performance, 32-bit or 64-bit computer local bus with multiplexed address and data lines. Enables full autoconfiguration of add-on adapters.

protocol

See Communications Protocol.

PU

Acronym for Physical Unit. In SNA, software responsible for managing the resources of a node, such as data links. A PU supports a connection to the host (SSCP) for gathering network management statistics.

terminator plug

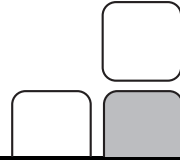
A part that ends the cable path on a computer system. The terminating plug is attached to the last device in a series.

VAC

Acronym for Volts Alternating Current. The measure of the peak-to-peak voltage swing of an electrical signal.

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