

Chapter 62

Permanent Assignments

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Introduction

This chapter describes the permanent assignment service provided by the router, and how to set up and use permanent assignments on the router.

The permanent assignment service is a proprietary TCP-based mechanism for creating a permanent data pipe between any two asynchronous ports. The two ports may be on the same or different routers.

Overview of Permanent Assignments

Permanent assignments provide a method for creating permanent links between asynchronous ports on routers. Any two asynchronous ports on a single router or on routers that can communicate with each other via TCP/IP can be set up to have a permanent assignment between them. Asynchronous traffic coming into each port is sent via TCP to the other port and then sent out that port.

The most common use of permanent assignments is to provide access to network printers. However, permanent assignments can connect any asynchronous devices together. Other examples include connecting an asynchronous port to a host computer asynchronous port and connecting an asynchronous port on a data logger to a computer for capturing the results of experiments.

To set up a permanent assignment, the port numbers of the ports and the IP addresses of the routers at each end of the link must be specified. Each permanent assignment is also given a name. The name is used for management convenience and for identification purposes when the permanent assignment's TCP connection is made at router boot or when the permanent assignment is created or reset. A short dialogue takes place between the two routers involved in the permanent assignment when the assignment is set up, to verify that the correct ports are being connected. This dialogue uses the permanent assignment name for verification. The name is case sensitive and must be identical for both ends of the permanent assignment.

A given permanent assignment has a different view looking from each end of the assignment. The terms *local* and *remote* are used to denote the ends of the assignment from one point of view. Thus there is a local and remote port and a local and remote router for each permanent assignment. Note that the local router is the router that the command is being entered on.

Configuring a Permanent Assignment

This section describes the procedure and gives an example for configuring a permanent assignment.

Each end of the permanent assignment must be set up for the assignment to work correctly. A common cause of problems for permanent assignments is one end of the assignment being set up incorrectly.

Procedure To set up one end of a permanent assignment use the command:

```
add perm=perm-name LPORT=local-port RPORT=remote-port
IP=ipadd
```

The name of the permanent assignment, the local and remote ports and the IP address of the remote router must all be specified in this command.

If the two ports of the permanent assignment are on different routers, the **add perm** command must be entered on each router. If both ports are on the same router, the command only needs to be entered once. The IP address specified may be any one of the IP addresses configured on the router.

To display the configuration of the permanent assignment (Figure 62-1), use the command:

```
show perm [=perm-name]
```

Figure 62-1: Example output from the **show perm** command

Name	Port		IP address
	Local	Remote	
laser-print	01	04	172.16.8.37

To remove a permanent assignment, use the command:

```
delete perm=perm-name
```

This command removes the permanent assignment from the local router. If the other port of the permanent assignment is on a remote router, the permanent assignment should also be removed from the remote router.

To reset a permanent assignment, use the command:

```
reset perm=perm-name
```

This command breaks the current TCP connection being used for the permanent assignment and attempts a new connection. The asynchronous port being used for the permanent assignment is also reset.

To modify an existing permanent assignment, use the command:

```
set perm=perm-name [LPORT=local-port] [RPORT=remote-port]
[IP=ipadd]
```

To display the configuration of a permanent assignment, use the command:

```
show perm [=perm-name]
```

Example This example illustrates the process of setting up a permanent assignment. The assignment is to be established between asynchronous port 0 on a router with IP address 172.26.4.1 and asynchronous port 0 on a router with IP address 172.20.34.9, and is to be named "main office". Since the name of the permanent assignment in this example contains embedded spaces, the whole name must be enclosed in double quotes when entered in a command. The commands to be executed on the router with address 172.26.4.1 are:

```
add perm="main office" lport=0 rport=0 ip=172.20.34.9
show perm
```

which produces the output shown in [Figure 62-2](#).

Figure 62-2: Example output from the **show perm** command for router 172.26.4.1

Name	Port		IP address
	Local	Remote	
main office	00	00	172.20.34.9

The commands to be executed on the router with address 172.20.34.9 are:

```
add perm="main office" lport=0 rport=0 ip=172.26.4.1
show perm
```

which produces the output shown in [Figure 62-3](#).

Figure 62-3: Example output from the **show perm** command for router 172.20.34.9

Name	Port		IP address
	Local	Remote	
main office	00	00	172.26.4.1

Command Reference

This section describes commands available on the router to configure and manage permanent assignments.

The permanent assignment service requires IP to be enabled and configured correctly. See [Chapter 22, Internet Protocol \(IP\)](#) for detailed descriptions of the commands required to enable and configure IP.

See “Conventions” on page lxv of [About this Software Reference](#) in the front of this manual for details of the conventions used to describe command syntax. Note that the = sign is required in the command syntax.

See [Appendix A, Messages](#) for a complete list of messages and their meanings.

add perm

Syntax `ADD PERM=perm-name Lport=lport Rport=rport IP=ipadd`

Description This command adds a permanent assignment on the local router. If the remote end of the permanent assignment is on another router you must also configure the permanent assignment on the remote router.

Parameter	Description
PERM	Name for the permanent assignment you want to add. You must configure both ends of the permanent assignment with the same name, but each permanent assignment on a given router must have a unique name. The <i>perm-name</i> is case sensitive and consists of: <ul style="list-style-type: none"> • a string 1 to 15 characters long • any printable characters If <i>perm-name</i> contains spaces it must be enclosed in double quotes. Default: no default
Lport	Asynchronous port for the local end of the permanent assignment. The <i>lport</i> is the asynchronous port number. Ports are numbered sequentially starting with 0. Default: no default
Rport	Asynchronous port for the remote end of the permanent assignment. The <i>rport</i> is the asynchronous port number. Ports are numbered sequentially starting with 0. Default: no default
IP	IP address of the remote router, in dotted decimal notation. Default: no default

Examples To add a permanent assignment called *DataLogger* between asynchronous port 0 on the local router and asynchronous port 0 on a remote router with the IP address 172.16.38.5, use the command:

```
add perm=DataLogger lport=0 rport=0 ip=172.16.38.5
```

Related Commands [delete perm](#)
[reset perm](#)
[set perm](#)
[show perm](#)

delete perm

Syntax DELEte PERM=*perm-name*

Description This command removes a permanent assignment from the local router. If the remote end of the permanent assignment is on another router you must also delete the permanent assignment from the remote router.

The **perm** parameter specifies the name of the existing permanent assignment you want to delete.

Examples To delete the permanent assignment called *DataLogger*, use the command:

```
del perm=DataLogger
```

Related Commands [add perm](#)
[reset perm](#)
[set perm](#)
[show perm](#)

reset perm

Syntax RESET PERM=*perm-name*

Description This command resets a permanent assignment. The TCP connection used by the permanent assignment is closed and new TCP connection is established, and the asynchronous port is reset.

The **perm** parameter specifies the name of the existing permanent assignment you want to reset.

Examples To reset the permanent assignment called *DataLogger*, use the command:

```
reset perm=DataLogger
```

Related Commands [add perm](#)
[delete perm](#)
[set perm](#)
[show perm](#)

set perm

Syntax SET PERM=*perm-name* [LPORT=*lport*] [RPORT=*rport*] [IP=*ipadd*]

Description This command modifies the parameters of a permanent assignment on the local router. If the remote end of the permanent assignment is on another router you must also modify the permanent assignment on the remote router.

Parameter	Description
PERM	Name for the permanent assignment you want to modify. You must configure both ends of the permanent assignment with the same name, but each permanent assignment on a given router must have a unique name. The <i>perm-name</i> is case sensitive and consists of: <ul style="list-style-type: none"> • a string 1 to 15 characters long • any printable characters If <i>perm-name</i> contains spaces it must be enclosed in double quotes. Default: no default
lport	Asynchronous port for the local end of the permanent assignment. The <i>lport</i> is the asynchronous port number. Ports are numbered sequentially starting with 0. Default: no default
rport	Asynchronous port for the remote end of the permanent assignment. The <i>rport</i> is the asynchronous port number. Ports are numbered sequentially starting with 0. Default: no default
IP	IP address of the remote router, in dotted decimal notation. Default: no default

Examples To change the local and remote asynchronous ports used by the permanent assignment called DataLogger to asynchronous port 0, use the command:

```
set perm=DataLogger lport=0 rport=0
```

Related Commands

- [add perm](#)
- [delete perm](#)
- [reset perm](#)
- [show perm](#)

show perm

Syntax `SHOW PERM [=perm-name]`

where *perm-name* is the name of a permanent assignment

Description This command displays information about permanent assignments (Figure 62-4, Table 62-1).

If you specify a value for the **perm** parameter, only information about the specified permanent assignment is displayed.

If you do not specify a value for the **perm** parameter, information about all permanent assignments is displayed.

Figure 62-4: Example output from the **show perm** command

Name	Port		IP address
	Local	Remote	
laser-print	00	04	172.16.8.37

Table 62-1: Parameters in output of the **show perm** command

Parameter	Meaning
Name	Name of the permanent assignment.
Local	Local port for the permanent assignment.
Remote	Remote port for the permanent assignment.
IP address	IP address of the remote router.

Examples To display all the permanent assignments configured on the local router, use the command:

```
show perm
```

Related Commands [add perm](#)
[delete perm](#)
[reset perm](#)
[set perm](#)

