

Chapter 62

Stream Printing

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Introduction

This chapter describes the stream printing service provided by the router, and how to set up and use stream printing on the router. Stream printing is a TCP-based printing service providing a simpler alternative to the Line Printer Daemon (LPD) protocol.

Stream printing requires IP to be enabled and configured. See [Chapter 21, Internet Protocol \(IP\)](#) for descriptions of these commands.

The stream printing service is only available on AR725 and AR745 routers.

Overview of Stream Printing

Stream printing is a TCP-based printing service that provides a simpler alternative to the Line Printer Daemon (LPD) protocol.

Stream printing has the following advantages:

- It does not require a complicated printer driver on the client machine, as LPD does.
- It does not tie up an asynchronous port on the client machine, as a permanent assignment does.
- It does not require the router to process control files, as LPD does.

The router supports stream printing on any asynchronous port. Printer ports cannot be used for stream printing as they are reserved for use by LPD. A printer must be connected to the asynchronous port, and the asynchronous port must be configured as a stream printer port so that the router establishes the required TCP ports for incoming calls. Stream printer ports on the router are named.

The router sets up TCP listen ports for stream printing for those ports that have been configured as stream printer ports. The TCP port numbers used for stream printing are related to the asynchronous port number to which the printer is attached by a simple mapping:

$$\text{TCP port number} = \text{asynchronous port number} + 5000 \text{ (decimal)}$$

For example, if asynchronous port 0 on the router is configured as a stream printer port, client machines must use TCP port number 5000 to print to the printer attached to this port. Attempting to send data to a TCP port number that does not map to a port that has been configured for stream printing results in a connection failure.

The router IP address and TCP port numbers must also be configured on the client machines that will be using the stream printing service. Refer to the documentation for the stream printing implementation on the client machine for more information.

To send data to the printer, a client machine opens a raw TCP data connection to the IP address and TCP port number on the router and transmits the print data over the TCP connection directly to the printer. There are no overheads associated with stream printing above the TCP setup phase.

Configuring Stream Printing

This section gives a step by step procedure and example for configuring stream printing.

Procedure To set up a stream printer port on the router use the command:

```
add stream=stream-name port=port [dtr]
```

Both the stream name and port number used for the stream printer must be specified. The stream name should be unique on the router and not already in use, and the port must be an asynchronous port not already in use. The port must also be set to a fixed speed (i.e. not be set to autobauding).

To check that the stream port has been set up correctly, use the command:

```
show stream[=stream-name]
```

A further check can be made by displaying the status of the TCP ports in use by using the command:

```
show tcp
```

See [Chapter 21, Internet Protocol \(IP\)](#) for complete details of this command.

To remove a stream printer, use the command:

```
delete stream=stream-name
```

The stream name must be specified in the command. This command removes the stream printer, closes the TCP listen port for the printer and frees the asynchronous port.

To modify a stream printer, use the command:

```
set stream=stream-name [port=port] [dtr]
```

To reset a stream printer, use the command:

```
reset stream=stream-name
```

The stream name must be specified in the command. Resetting the stream printer clears any current TCP connection, resets the stream printer's asynchronous port and reopens the TCP listen port for the stream printer.

You can not disable a stream printer. If a stream printer is to be turned off for a period of time, you must delete the stream printer port and then add it back again later.

Example In this example, two stream printers are required. One is to be called printLab, the other printOffice. The router ports allocated for these printers are ports 1 and 2 respectively. Since these ports have not been modified since the router was installed, they are currently set to autobauding. Both ports are to be set to 9600 baud.

The commands are:

```
set asyn=1 speed=9600
set asyn=2 speed=9600
add stream=printLab port=1
add stream=printOffice port=2
show stream
```

The output is shown in [Figure 62-1](#).

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

Name	Port	DTR	Connects	Characters

printLab	01	enabled	0000	0000000000
printOffice	02	enabled	0000	0000000000

Command Reference

This section describes commands available on the router to configure and manage stream printing. The stream printing service is available on AR725 and AR745 routers only.

Stream printing requires IP to be enabled and configured correctly. See [Chapter 21, Internet Protocol \(IP\)](#) for detailed descriptions of the commands required to enable and configure IP.

See “Conventions” on page lxiv of [About this Software Reference](#) in the front of this manual for details of the conventions used to describe command syntax. See [Appendix A, Messages](#) for a complete list of messages and their meanings.

add stream

Syntax `ADD STReam=stream-name PORT=port [DTR]`

Description This command adds a stream printer to the router. The properties of the stream printer just added are displayed in the same format as the **show stream** command.

Parameter	Description
STReam	Unique name for the stream printer you want to add. The <i>stream-name</i> is not case sensitive and consists of: <ul style="list-style-type: none">• a string 1 to 15 characters long• any printable characters If <i>stream-name</i> contains spaces it must be enclosed in double quotes. Default: no default
Port	Asynchronous port the stream printer is attached to. The <i>port</i> is the asynchronous port number. Ports are numbered sequentially starting with 0. The port must be set to a fixed speed and must not already be in use as a stream printer. The router opens a TCP listen port for the stream printer. The TCP port number is the asynchronous port number plus 5000 (decimal). Default: no default
DTR	Disables the DTR signal on the asynchronous port. Default: no default

Examples To add a stream printer called *Stores* on asynchronous port 0, use the command:

```
add str=stores po=0
```

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

delete stream

Syntax DELEte STReam=*stream-name*

Description This command deletes a stream printer. Any existing print job is aborted, and no more print jobs are accepted for the printer. The stream printer is removed, the asynchronous port allocated to the stream printer is freed, and the TCP listen port is closed.

The **stream** parameter specifies the name of the existing stream printer you want to delete.

Examples To delete the stream printer called *Stores*, use the command:

```
del str=stores
```

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

reset stream

Syntax RESET STReam=*stream-name*

Description This command resets a stream printer. The asynchronous port and TCP connection are reset, and the stream printer is cleared of any existing print job.

The **stream** parameter specifies the name of the existing stream printer you want to reset.

Examples To reset the stream printer called *Stores*, use the command:

```
reset str=stores
```

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

set stream

Syntax `SET STReam=stream-name [Port=port] [DTR]`

Description This command modifies the parameters of a stream printer. The properties of the stream printer just modified are displayed in the same format as the **show stream** command.

Parameter	Description
STReam	Unique name for the stream printer you want to modify. The <i>stream-name</i> is not case sensitive and consists of: <ul style="list-style-type: none">• a string 1 to 15 characters long• any printable characters If <i>stream-name</i> contains spaces it must be enclosed in double quotes. Default: no default
Port	Asynchronous port the stream printer is attached to. The <i>port</i> is the asynchronous port number. Ports are numbered sequentially starting with 0. The port must be set to a fixed speed and must not already be in use as a stream printer. The router opens a TCP listen port for the stream printer. The TCP port number is the asynchronous port number plus 5000 (decimal). Default: no default
DTR	Disables the DTR signal on the asynchronous port. Default: no default

Examples To disable DTR on the port assigned to a stream printer called *Stores*, use the command:

```
set str=stores dtr
```

Related Commands [add stream](#)
[delete stream](#)
[reset stream](#)
[show stream](#)

show stream

Syntax `SHoW STReam [=stream-name]`

Description This command displays information about stream printers (Figure 62-2, Table 62-1).

If you specify a value for the **stream** parameter, only information about the specified stream printer is displayed.

If you do not specify a value for the **stream** parameter, information about all stream printers is displayed.

Figure 62-2: Example output from the **show stream** command

Name	Port	DTR	Connects	Characters
Printer1	00	enabled	0012	0000023854
Printer2	01	enabled	0002	0000003531

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

Parameter	Meaning
Name	Name of the stream printer.
Port	Asynchronous port used by the stream printer.
DTR	Whether or not DTR is enabled on the asynchronous port; one of "enabled" or "disabled".
Connects	Number of connections that have been made to the stream printer.
Characters	Number of characters that have been sent to the stream printer.

Examples To display details of the stream printer called Stores, use the command:

```
sh str=stores
```

Related Commands

- [add stream](#)
- [delete stream](#)
- [reset stream](#)
- [set stream](#)