Chapter 11

Working with Printer Objects

Introduction

The Printer object allows printed alarms, summaries, and reports from within the N30 system to be generated. A Printer object needs to be added for each piece of printer hardware that exists on the system. Each N30 allows for a maximum of two printers to be attached to it.

> IMPORTANT: Do not do a serial download of an N30 from Project Builder through a port for which a direct connect printer is defined. Doing so can cause communications to stop working, causing download errors.
> For example, if you are downloading a database with a direct connect Printer object assigned to Port 1 of the N30, you should establish your communications with the N30 on either Port 2 or Port 3 to avoid communications errors.

This chapter describes how to:

- add a Printer object
- edit a Printer object
- command a Printer object
- delete a Printer object

Key Concepts

Printer Object

The Printer object provides hard copy output of the alarms, summaries, and other reports generated by objects, features, and the system. The Printer object is responsible for the buffering of output to the printer device. Printers are either connected directly or connected through dial-up access via modems.

The Printer object provides the interface to manipulate the printer device and performs the following:

- Prints alarm messages from the Message Router object.

- Prints trend log data, summaries, and utility profile reports.

The Printer object's attributes allow a user to configure a variety of filters that establish the type of messages, or Status Notification Reports (SNR), which the Printer object receives. For more information about determining filter configurations, refer to *Appendix B: Building a Message Router Application (LIT-6892320)* in this document.

Attributes

The values of an object's attributes determine how the object operates. The Printer object attributes described below are listed in the order that they appear on the screen. Entry requirements for these attributes are in Table 11-2.

For additional information about the Printer object and its attributes, refer to the *Object Dictionary*.

Object Name

Identifies the object on the user interface.

Description

Provides optional information to further describe the object.

Object Type

Indicates the kind of object, such as Schedule, N2 Analog Input, or Analog Alarm.

Object Category

Determines the general classification of an object to help define user access capability and message routing.

Port Number

Specifies which serial port the printer is connected to.

Active Filter

Selects the type of filtering in effect for this printer destination. The filter types are as follows:

- **Pass None** - When selected this destination receives no alarm messages.

- **Pass All** - When selected this destination receives all alarm messages.

- **Filter A** - This destination receives alarm messages based on settings of Filter A.

- **Filter B** - This destination receives alarm messages based on settings of Filter B.

- **Filter A and B** - This destination receives alarm messages based on settings of Filter A and B.

Priority Filter A

Defines which priorities this destination receives when Filter A is in effect. A value of True for a particular selection means messages of that defined priority reach this destination. Choices from highest to lowest priority are Critical, Serious, Important, Status.

Category Filter A

Defines which categories of messages the destination receives when Filter A is in effect. This filter has no effect for alarm messages without a defined category. A value of True for a particular selection means messages of that defined category reach this destination.

Msg Type Filter A

Defines which types of messages the destination receives when Filter A is in effect. A value of True for a particular selection means messages of that defined type reach this destination. Choices from highest to lowest priority are System Alert, Operator Transaction, Alarm.

Priority Filter B

Defines which priorities the destination receives when Filter B is in effect. A value of True for a particular selection means that messages of that defined priority reach this destination. Choices from highest to lowest priority are Critical, Serious, Important, Status.

Category Filter B

Defines which categories of messages the destination receives when Filter B is in effect. This filter has no effect for alarm messages without a defined category. A value of True for a particular selection means that messages of that defined category reach this destination.

Msg Type Filter B

Defines which types of messages the destination receives when Filter A is in effect. A value of True for a particular selection means messages of that defined type reach this destination. Choices from highest to lowest priority are System Alert, Operator Transaction, Alarm.

Alt SNR Destination

Indicates the alternate destination to receive this printer's output if this printer is unavailable.

Page Size

Indicates the number of lines per page.

SNR Delimiter

Identifies if printed alarm messages and other data should be separated by a dashed line.

Interleave

Specifies whether to mix alarm messages in other types of reports. If this attribute is True, alarm messages will be held or buffered until the end of the currently printing page. At this point, all of the buffered alarm messages will be printed. When the alarm messages are done printing, the remaining report pages are printed. If False, the complete report will be printed before alarm messages are printed.

Max SNR Queue

Specifies the maximum number of alarm messages that can be buffered for this printer. If the queue is full, alarm messages sent to this printer to be printed may be lost.

XOFF Delay Time

Defines the amount of time that passes before filtering XON/XOFF signal changes. Once the Serial Datalink object receives the XOFF signal, the Printer object waits the specified amount of time before changing the Error State attribute to `OUT OF PAPER`.

Use Dial

Indicates remote connect printer or the direct connected printer. If this attribute is set to True, the object is set for the remote connect printer. If this attribute is set to False, the object is set for the direct connect printer and the Phone Number can't be changed from None.

Phone Number

Indicates the dial out phone number to printer device if a modem is connected to the port. If a printer device is connected to the port directly, this attribute should be blank.

Modem Config Object

Lists the name of the object that holds the modem initialization strings and other dialout-related data.

SNR Dial Out Level

Indicates the percentage of the queue that needs to be full before dial out occurs.

Retry Interval

Indicates the interval in which the Printer object retries sending the Dial command periodically, if dial out fails. This attribute has no effect if the object is designated for the direct connect printer.

Hang Up Wait Time

Specifies how many times the Printer object resends the Dial command. If the dial up connection is unsuccessful, the Printer object sends the Dial command again in the time defined as the Retry Interval. This attribute has no effect if the object is designated for the direct connect printer.

Process Identifier

Used to identify the Printer object as a destination for SNRs. This identifier must be unique for each device. If it is not specified, the next available identifier is automatically used.

Procedure Overview

Table 11-1: Working with Printer Objects

To Do This	Follow These Steps:
Add a Printer Object	Browse to and highlight the Operator Devices container. Press the F3 (Add) key. Highlight Printer and press Enter. Fill in the fields using Table 11-2. Press the F3 (Save) key. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. Press any key to continue. Press the F4 (Cancel) key to return to the container hierarchy.
Edit a Printer Object	Browse to and highlight a Printer object. Press Enter to open the object. Press the F3 (Edit) key. Edit the fields according to Table 11-2. Press the F3 (Save) key. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. Press any key to continue. Press the F4 (Cancel) key to return to the container hierarchy.
Command a Printer Object	Browse to and highlight a Printer object. Press the F2 (Command) key. Use the Spacebar and the Backspace key to cycle through the list until the desired command appears. Press Enter.
Delete a Printer Object	Browse to and highlight a Printer object. Press Enter to open the object. Press the Delete key. Press the Tab key to confirm the deletion.

Detailed Procedures

Adding a Printer Object

To add a Printer object:

1. Browse to and highlight the Operator Devices container.

2. Press the F3 (Add) key. The Add Object list appears.

3. Highlight Printer and press Enter. The first of two Printer object attribute screens appears (Figure 11-1).

Note: Use the [and] keys to page to other screens.

```
N30P497: ADMIN                              Tue 12 Dec 2000 18:39 CST
=====================================================================
      N30P497.Operator Devices.Printer
---------------------------------------------------------------------
Object
 Object Name              ████████████████████████
 Description
 Object Type              Printer
 Object Category          HVAC
Port Setup
 Port Number              Port 2
Setup
 Active Filter            Pass All
 Priority Filter A        [4] Items
 Category Filter A        [5] Items
 Msg Type Filter A        [3] Items
 Priority Filter B        [4] Items
 Category Filter B        [5] Items
 Msg Type Filter B        [3] Items


         F3-Save F4-Cancel []-Page
Enter an alphanumeric string
```

Figure 11-1: Printer Object Attribute Screen (1 of 2)

```
N30P497: ADMIN                                    Tue 12 Dec 2000 18:38 CST
===============================================================================
      N30P497.Operator Devices.Printer
-------------------------------------------------------------------------------
  Alt SNR Destination    ███████████████████████████████████
  Page Size
  SNR Delimiter          False
  Interleave             False
  Max SNR Queue                  25
  Xoff Delay Time                20 second
  Process Identifier
Dial Setup
  Use Dial               False
  Phone Number
  Modem Config Object
  SNR Dial Out Level             80 %
  Retry Interval                180 second
  Retries                         3
  Hang-up Wait Time              10 second


          F3-Save F4-Cancel []-Page
Enter object name
```

Figure 11-2: Printer Object Attribute Screen (2 of 2)

4.   Fill in the fields using Table 11-2.

Table 11-2: Attribute Entry Requirements

Screen Area	Attribute	Required	Default	Options/Range
Object	Object Name	No	Blank	Maximum 32 characters Invalid characters: @ . ? * $ # : ' [ ] If not completed, the system assigns a name.
	Description	No	Blank	Maximum 40 characters
	Object Type	Yes	Printer	The default is preset and cannot be changed.
	Object Category	Yes	HVAC	Use the Spacebar and Backspace key to view and select options: HVAC, Fire, Security, Services, Administrative.
Port Setup	Port Number	Yes	Port 2	Use the Spacebar and Backspace key to view and select options: Port 0, Port 1, Port 2, Port 3. Port 2 and Port 3 are the only valid options.
Setup	Active Filter	Yes	Pass All	Use the Spacebar and Backspace key to view and select options: Pass None, Pass All, Filter A, Filter B, Filter A and B.
	Priority Filter A	Yes	[4] Items	Use the Spacebar and Backspace key to view and select True or False for the following values: Critical, Serious, Important, Status.
	Category Filter A	Yes	[5] Items	Use the Spacebar and Backspace key to view and select True or False for the following values: HVAC, Fire, Security, Services, Administrative.
	Msg Type Filter A	Yes	[3] Items	Use the Spacebar and Backspace key to view and select True or False for the following values: System Alert, Operator Transaction, Alarm.

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Screen Area (Cont.)	Attribute	Required	Default	Options/Range
Setup (Cont.)	Priority Filter B	Yes	[4] Items	Use the Spacebar and Backspace key to view and select True or False for the following values: Critical, Serious, Important, Status.
	Category Filter B	Yes	[5] Items	Use the Spacebar and Backspace key to view and select True or False for the following values: HVAC, Fire, Security, Services, Administrative.
	Msg Type Filter B	Yes	[3] Items	Use the Spacebar and Backspace key to view and select True or False for the following values: System Alert, Operator Transaction, Alarm.
	Alt SNR Destination	No	Blank	Enter the exact name of the Printer or VT100 object to act as an alternate destination for messages should this printer be inoperable.
	Page Size	No	Blank	3-255 (Blank = printed lines not counted)
	SNR Delimiter	Yes	False	Use the Spacebar and Backspace key to view and select options: True, False.
	Interleave	Yes	False	Use the Spacebar and Backspace key to view and select options: True, False.
	Max SNR Queue	Yes	25	3-100
	Xoff Delay Time	Yes	20	0-65535 seconds
	Process Identifier	No		3-15
Dial Setup	Use Dial	Yes	False	Use the Spacebar and Backspace key to view and select options: True, False.
	Phone Number	No	Blank	Blank = printer connected directly
	Modem Config Object	No	Blank	Enter the exact name of the Modem Configuration object containing the required dial-out information.
	SNR Dial Out Level	Yes	80 %	35-100 percent
	Retry Interval	Yes	180	60-600 seconds
	Retries	Yes	3	0-10
	Hang Up Wait Time	Yes	1	0-65535 seconds

5. Press the F3 (Save) key.

6. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. If errors were detected, correct them and resave the entries. Once the save is successful, continue with Step 7.

7. Press any key to continue.

8. Press the F4 (Cancel) key to return to the container hierarchy.

Editing a Printer Object

To edit a Printer object:

1. Browse to and highlight a Printer object.

2. Press Enter to open the object.

3. Press the F3 (Edit) key. The Printer object attribute screen appears (Figure 11-1 and Figure 11-2).

4. Edit the fields according to Table 11-2.

5. Press the F3 (Save) key.

6. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. If errors were detected, correct them and resave the entries. Once the save is successful, continue with Step 7.

7. Press any key to continue.

8. Press the F4 (Cancel) key to return to the container hierarchy.

Commanding a Printer Object

To command a Printer object:

1. Browse to and highlight a Printer object.

2. Press the F2 (Command) key. The Command field appears.

3. Use the Spacebar and the Backspace key to cycle through the list until the desired command appears. The Printer object supports the commands listed in Table 11-3. For more information about supported commands, refer to the *Object Dictionary*.

Table 11-3: Supported Commands

Command	Description
Form Feed	Form feeds the paper.
Queue Clear	Clears the queue entries.
Cancel Print	Stops printing Trend Log, Summary, or Utility Profile data in progress.
Dial	Forces a dial out when the Error State is Dial Out Failed.

4. Press Enter.

Deleting a Printer Object

To delete a Printer object:

1. Browse to and highlight a Printer object.

2. Press Enter to open the object.

3. Press the Delete key.

4. Press the Tab key to confirm the deletion.