

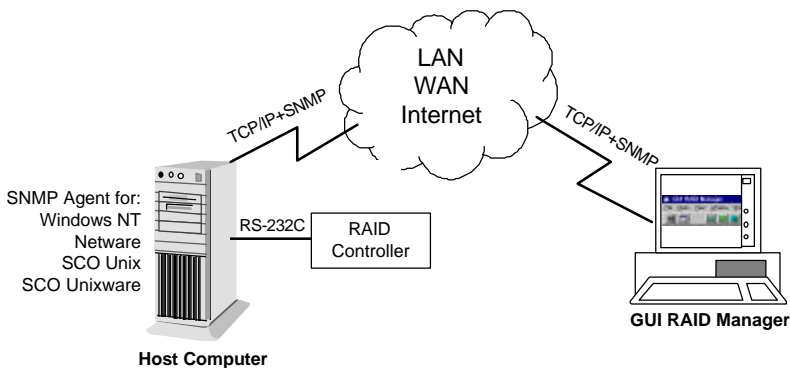
Chapter 11 Remote Administration

The DA-3000 RAID Controller can be administered remotely. When an event, warning or controller notification occurs, DA-3000 will dial out to a pager to inform the administrator to take the appropriate measures.

There are several ways of administrating the controller remotely:

- GUI RAID Manager using SNMP service
- Remote Terminal Emulation using PPP+Telnet
- Remote Terminal Emulation using Modem
- Dial-out pager for event notifications

11.1 GUI RAID Manager Using SNMP Service

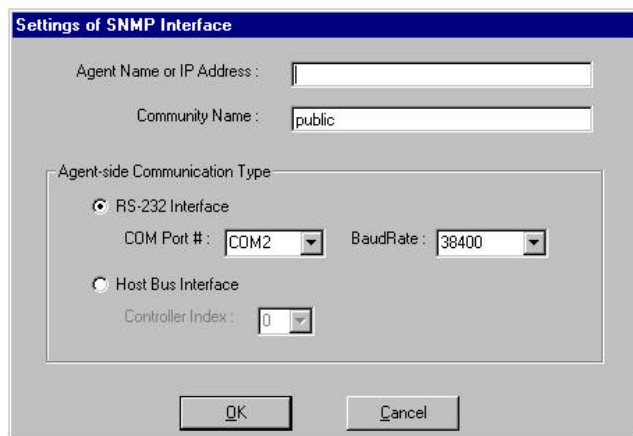


Connect the DA-3000 RAID controller to the host computer via the RS-232C interface. Install the SNMP agent that corresponds to the operating system on the Host computer and enable the SNMP service. The client computer running with GUI RAID Manager will be able to remotely administer the DA-3000 RAID controller.

How to Establish Connection through SNMP?



Choose the “File” menu. Click “Connect” and choose “SNMP” from the pop up menu.



Enter the Agent name or the IP address and the Community name of the host computer in the first column.

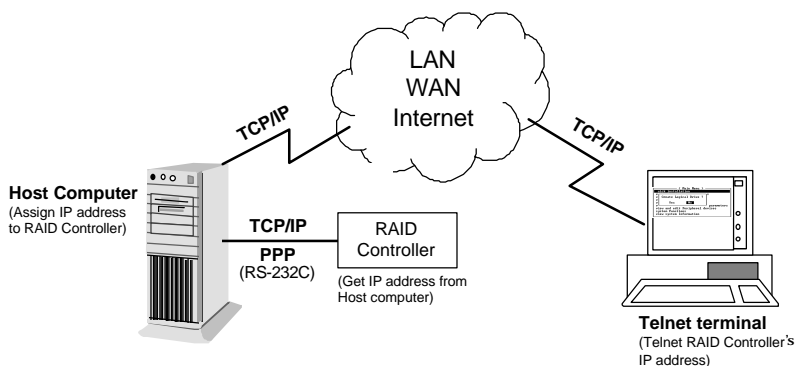
Click on the select button in front of “RS-232 Interface” to select. Choose the COM port of the host computer connected to the RAID controller, and choose the baud rate speed of the RAID controller. Press “OK” to establish the connection. After the connection has been established, all operations will act exactly the same as executing the GUI RAID Manager from the host computer. The Fault-bus error signals and drive failure signals will also pass through the SNMP.



IMPORTANT:

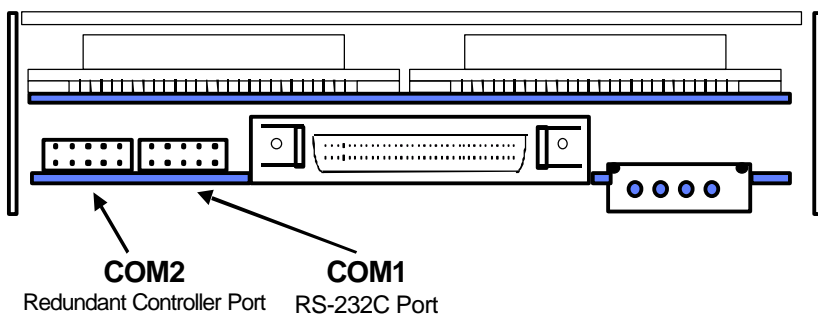
- *The baud rate of both the RAID controller and GUI RAID Manager must be the same in order to establish the connection.*

11.2 Remote Terminal Emulation Using PPP+Telnet



Connect DA-3000 to the host computer. Assign DA-3000 with an IP address (please refer to the host operating system's manual), and use TELNET from a remote client to control or monitor DA-3000. DA-3000 supports PPP protocol for connection to the host computer. The client computer will be able to locally as well as remotely see the terminal emulation interface.

Hardware Connection



Connect the host computer's serial port (RS-232C) to DA-3000 COM 1. If the controller is not configured as redundant controller, you may also use COM 2. Terminal emulation data through COM 1 and COM 2 are synchronized.

Baud Rate Settings

The baud rate can be changed via the front panel. To change the baud rate of the controller according to the host RS-232C interface:

Press **ENT** for two seconds to enter the Main Menu. Press ▼ or ▲ to select “View and Edit Config Parm”, then press **ENT**.

View and Edit
Config Parm ↕

Select “Communication Parameters ..”, then press **ENT**.

Communication
Parameters ..

Select “RS-232 Configuration ..”, then press **ENT**.

RS-232
Configuration ..

Select “COM1 Configuration ..”, then press **ENT**. (Select COM2 if you are using COM2)

COM1
Configuration ..

Select “Baud-rate “, then press **ENT**.

Baud-rate 9600
 ..

Press ▼ or ▲ to select the baud rate, then press **ENT** for 2 seconds to set.

Baud-rate 9600
Change to 38400?

* Available baud rates are: 2400, 4800, 9600, 19200 and 38400.

Enable Terminal Emulation

Press **ENT** for two seconds to enter the Main Menu. Press ▼ or ▲ to select “View and Edit Config Parm”, then press **ENT**.

View and Edit
Config Parm ↕.

Communication
Parameters ..

Select “Communication Parameters ..”, then press **ENT**.

Select “RS-232 Configuration ..”, then press **ENT**.

```
RS-232
Configuration ..
```

Select “COM1 Configuration ..”, then press **ENT**. (Select COM2 if you are using COM2)

```
COM1
Configuration .
```

Select “Term Emul Disab”, then press **ENT**. If it is already enabled, “Term Emul Enab” will appear. There is no need to change the setting if it’s already enabled.

```
Term Emul Disab
..
```

Press ▼ or ▲ to select “Change to Enab”, then press **ENT** for 2 seconds to set.

```
Term Emul Disab
Change to Enab ?
```

Setting PPP ID, PPP Password

To establish connection between DA-3000 and the host computer through PPP, it is necessary to enter a PPP Name and PPP Password for logon identification. Set the PPP Name and PPP Password. They will be stored in the controller and will be used for PPP connection later on.

Press **ENT** for two seconds to enter the Main Menu. Press ▼ or ▲ to select “View and Edit Config Parm”, then press **ENT**.

```
View and Edit
Config Parm   ↓
```

Select “Communication Parameters ..”, then press **ENT**.

```
Communication
Parameters ..
```

```
PPP
Configuration .
```

Select “PPP Configuration ..”, then press **ENT**.

Select “PPP Name ..”, then press **ENT**.

Enter the PPP Name one by one. Press ▼ or ▲ to choose a character for that space, then press **ENT** to move to the next space. After the PPP Name has been entered, press **ENT** for 2 seconds to set.

PPP Name

Enter PPP Name:

Select “PPP Password ..”, then press **ENT**.

Enter the PPP Password one by one. Press ▼ or ▲ to choose a character for that space, then press **ENT** to move to the next space. After the PPP Password has been entered, press **ENT** for 2 seconds to set.

PPP Password

Enter Password:

Data Routing Through PPP, Data Routing Direct to Port

There are two options in this column, “Comm Route PPP” (Data Routing Through PPP) and “Comm Route Dir” (Data Routing Direct to Port). Set it to “Comm Route PPP” (Data Route Through PPP) in order to let the terminal emulation data pass through PPP, then to the client computer.



IMPORTANT:

- If the COM port is not used for PPP connection, set it as “Comm Route Dir” (Data Routing Direct to Port) to keep the terminal emulation working properly.

Press **ENT** for two seconds to enter the Main Menu. Press ▼ or ▲ to select

View and Edit
Config Parm s ↕.

“View and Edit Config Parm”, then press **ENT**.

Select “Communication Parameters ..”, then press **ENT**.

```
Communication
Parameters .
```

Select “RS-232 Configuration ..”, then press **ENT**.

```
RS-232
Configuration .
```

Select “COM1 Configuration ..”, then press **ENT**. (Select COM2 if you are using COM2)

```
COM1
Configuration .
```

Select “Comm Route Dir”, then press **ENT**.

```
Comm Route Dir
.
```

Press ▼ or ▲ to select “Change to PPP”, then press **ENT** for 2 seconds to set.

```
Comm Route Dir
Change to PPP ?
```

Establishing Connection Between the Host Computer and DA-3000

After setting the data routing through PPP, DA-3000 will now wait for PPP to connect to the host computer. If the establishment succeeded, an IP will be given to DA-3000.

Check IP Address Assigned to the Controller

Press **ENT** for two seconds to enter the Main Menu. Press ▼ or ▲ to select “View and Edit Config Parm”, then press **ENT**.

```
View and Edit
Config Parm  ↓.
```

Select “Communication Parameters ..”, then press **ENT**.

```
Communication
Parameters      .
```

Select “Communication Status ..”, then press **ENT**.

```
Communication
Status          .
```

Select “PPP Status ..”, then press **ENT**.

```
PPP Status
                .
```

Press **ENT** to view the IP address of DA-3000, then press ▼ or ▲ to view the Gateway IP address.

```
IP Packets
being Routed
```

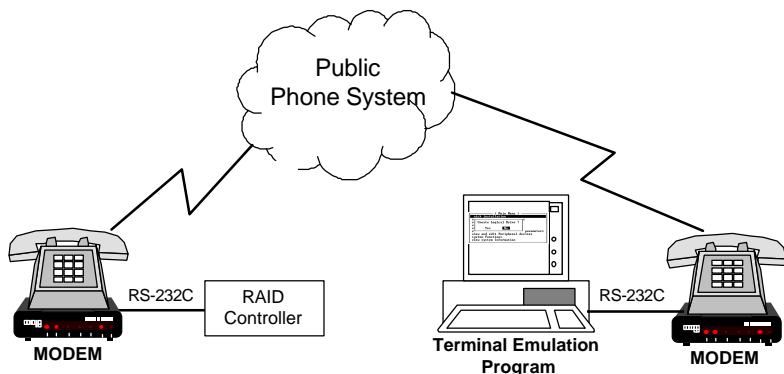
```
Local IP Addr:
. . .
```

```
Gateway IP Addr:
. . .
```

Connect Telnet to the Controller IP from the Client Computer

Use any “Telnet” client program from the remote computer, then connect to the IP address of DA-3000. The terminal emulation screen will display the client Telnet program, as well as when using terminal emulation locally.

11.3 Remote Terminal Emulation Using Modem



The controller can be configured and monitored remotely through a modem. If there are several RAID systems in several different places, the administrator can remotely administer all the controllers on his desk by using a terminal emulation program.

There is no need to install a RAS (Remote Access Server) to the controller. Simply connect a modem to DA-3000. The controller can manage by itself the dial-in remote administration and dial-out event notifications through the proper settings.

If the controller is not connected as a redundant controller, COM 1 can be used as the local RS-232C terminal interface, GUI RAID Manager connection or PPP connection to the host computer. COM 2 can be used to provide a remote administration service by connecting a Modem. The terminal emulation screen will show that COM 1 and COM 2 are exactly the same and synchronized. It is a must to retain the Initial screen when not using it. The password will be asked for verification only when entering the Main Menu from the Initial screen.



IMPORTANT:

- *Always keep the terminal emulation screen on the Initial screen for security checking. The controller's password will be asked for verification only when entering the Main Menu from the Initial screen.*

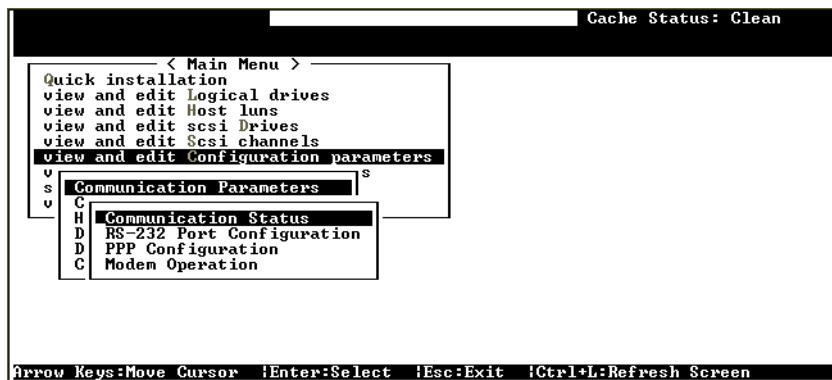
- The terminal emulation screen for both COM 1 and COM 2 connections are synchronized. Users connected to COM 1 and COM 2 can see each other operating screen.

Hardware Connection for DA-3000

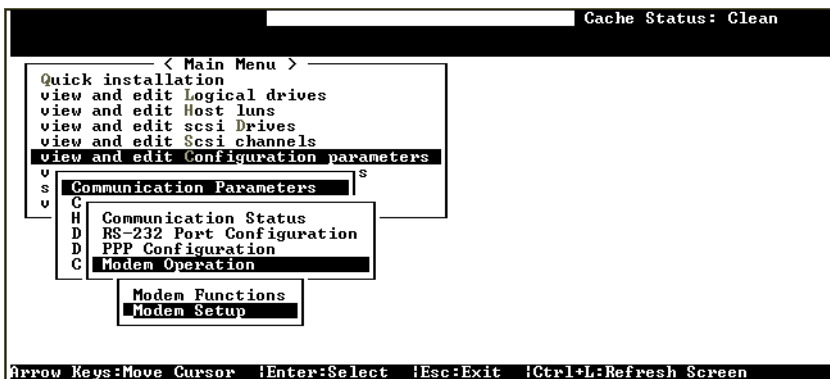
Pick up a standard external modem which uses standard AT command set. Connect the modem to COM 1 or COM 2 of the DA-3000 RAID controller. Complete the other connections of the modem (power cables and phone wires) and switch on the power of the Modem.

Setting DA-3000 using the RS-232C Terminal Interface

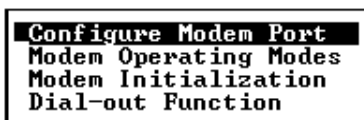
The following example shows connecting COM 1 to the local terminal emulation, and COM 2 to the modem:



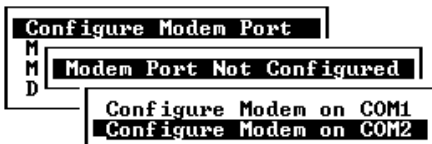
Configuring the Modem Port



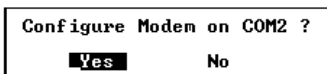
Choose “Modem Operation” from the communication parameters menu, then select “Modem Setup” in the next menu.



In the Modem Setup menu, choose Configure Modem Port.



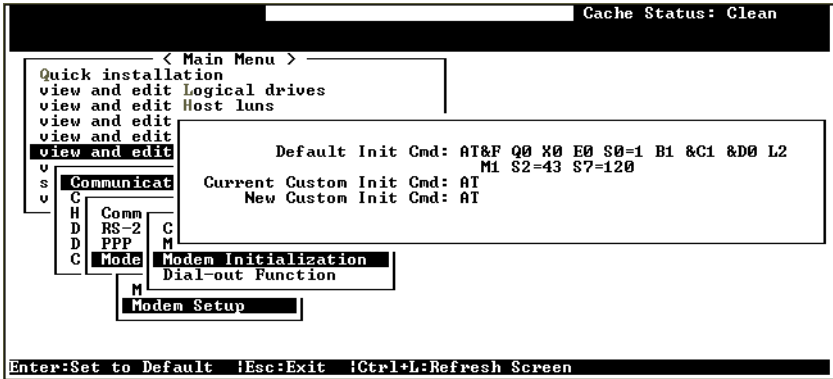
The current setting of the modem port will be displayed on the screen. If there is no modem port configured yet, it will display “Modem Port Not Configured”. Press **[Enter]** on the selection, and choose “Configure Modem on COM 2” by pressing **[Enter]**.



Choose “Yes” to configure the modem on the COM2 port.

To delete the configured modem port, press **[Enter]** on the configured modem port item and choose “Reconfigure Modem Port”.

Modem Initialization Command



In the Modem Setup menu, choose “Modem Initialization”. A dialog box will appear showing the default initialization command and the current custom initialization command. Enter the AT command in the “Vew Custom Init Cmd” field, if required.

Modem Operating Modes

To send the initialization command to the modem, there are three selectable options:

- Sending Default Init command only – “None <Default Used>”
- Sending Custom Init command only – “Replace Default”
- Sending Default Init command and Custom Init command – “Append to Default”



Choose “Modem Operating Modes” in the Mode Setup menu. The current setting will be displayed on the screen. Press **[Enter]** to see a list of choices. Choose the desired setting.



IMPORTANT:

- *It is a must to enable “Auto answer mode” of the connected modem in order to answer the dial-in calls and establish the connections automatically.*

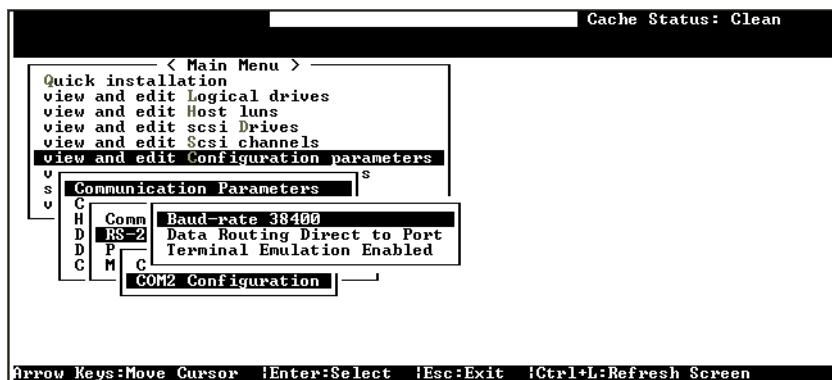
Initializing Modem

Comm		
RS-2	Scan/Init Modem ?	
PPP		
Mode	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Modem Functions
Modem Setup

Choose “Modem Operations” in the Communication Parameters menu, then select “Modem Functions”. A dialog box will appear. Choose **Yes** to scan and send initialization command to the Modem.

Baud rate, Data Routing and Enable Terminal Emulation



In the Communication Parameter menu, select “RS-232 Port Configuration”. Choose “COM 2 Configuration” to configure the COM 2 port of the DA-3000 RAID Controller.

Set the baud rate of the modem and the client terminal emulation program. In this example, COM 1 and COM 2 are used for terminal emulation at the same time. The baud rate for both COM 1 and COM 2 must be the same.

Set the “Data Routing...” to “Data Routing Direct to Port”, and enable the Terminal Emulation. The Modem is now ready to answer the dial-in connections.



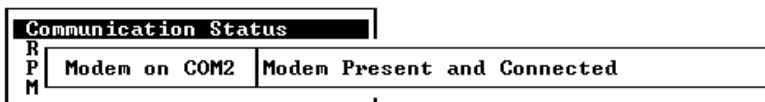
IMPORTANT:

- If COM 1 and COM 2 are both used as terminal emulation, the baud rate must be the same.
- The baud rate setting in the client (remote site) terminal emulation program must be the same as the baud rate setting of the controller COM port.

Establish the Connection from the Remote Terminal

Use a terminal emulation program that supports ANSI or VT-100 terminal emulation modes. From the remote terminal program, dial the phone number of the modem connected to the DA-3000 RAID controller. The modem should answer the call and start “Handshaking” with the modem on the remote site. After the connection is established, the screen on the remote terminal program will look the same as the screen on the local site.

How do you know the modem is connected?



Choose "Communication Status" from the Communication Parameters menu and press **[Enter]**. The configured COM port and it's current status will be shown on the screen. The message "Modem Present and Connected" means the modem is connected now.

Setting DA-3000 Using the Front Panel

Here is an example of connecting COM 1 to the modem:

Configure Modem Port

Press **ENT** for two seconds to enter the Main Menu. Press ▼ or ▲ to select "View and Edit Config Parm", then press **ENT**.

View and Edit
Config Params ↑.

Select "Communication Parameters ..", then press **ENT**.

Communication
Parameters ..

Select "Modem Operation ..", then press **ENT**.

Modem Operation
..

Select "Modem Setup ..", then press **ENT**.

Modem Setup
..

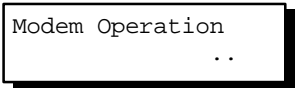
Select "Configure Modem Port ..", then press **ENT**.

Configure Modem
Port ..

The LCD displays "Modem Port Not Configured", then press **ENT**.

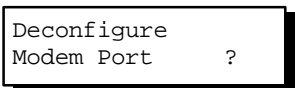
Modem Port
Not Configured..

Select “Configure Modem on COM1?”, then press **ENT** for two seconds to set.



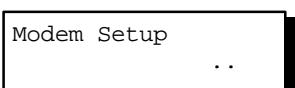
To delete the configured Modem port, choose the configured Modem port, then press **ENT**.

Select “Deconfigure Modem Port”, then press **ENT** for two seconds to delete.

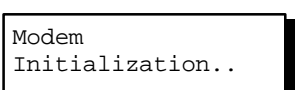


Modem Initialization Command

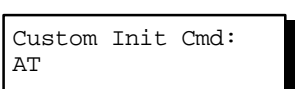
In the “Modem Setup” menu, press **ENT**.



Select “Modem Initialization ..”, then press **ENT**.



Enter the AT command, if required, then press **ENT** for two seconds when finished.

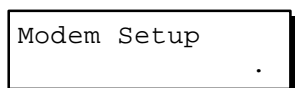


Modem Operating Modes

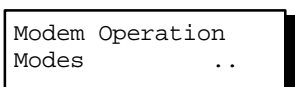
To send the initialization command to the Modem, there are three selectable options:

- Sending Default Init command only – “None“
- Sending Custom Init command only – “Replace“
- Sending Default Init command plus Custom Init command – “Append“

In the “Modem Setup” menu, press **ENT**.



Select “Modem Operation Modes ..”, then press **ENT**.



The current setting of this item will be displayed on LCD. Press **ENT**.

```
Custom ModemInit
None-DefaultUsed
```

Choose None, Replace or Append, then press **ENT** for two seconds.

```
Custom Modem
Init - None    ?
```



IMPORTANT:

- *It is a must to enable “Auto answer mode” of the connected Modem in order to answer the dial-in calls and establish the connections automatically.*

Initializing Modem

In the “Modem Operation” menu, press **ENT**.

```
Modem Operation
..
```

Select “Modem Functions ..”, then press **ENT**.

```
Modem Functions
.
```

Select “Re-Init Modem?”, then press **ENT** for two seconds to scan and send initialization command to the Modem.

```
Re-Init Modem  ?
```

Baud Rate, Data Routing and Enable Terminal Emulation

Set the desired baud rate, Data Routing direct to port and enable the Terminal Emulation. Please refer to Chapter 11.2 on how to set the Baud rate, Data Routing and Terminal Emulation. The modem is now ready to answer the dial-in connection.

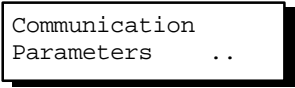
Establish the Connection from the Remote Terminal

Use a terminal emulation program that supports ANSI or VT-100 terminal emulation modes. In the remote terminal program, dial the phone number of the modem connected to the DA-3000 RAID controller. The modem should answer the call and start “Handshaking” with the modem on the remote site. After the

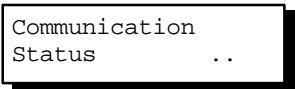
connection is established, the screen on the remote terminal program will look the same as the screen on the local site.

How do you know the modem is connected?

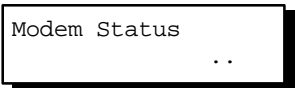
In the “Communication Parameters ..” menu, press **ENT**.



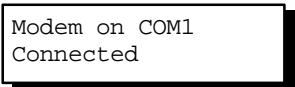
Select “Communication Status ..”, then press **ENT**.



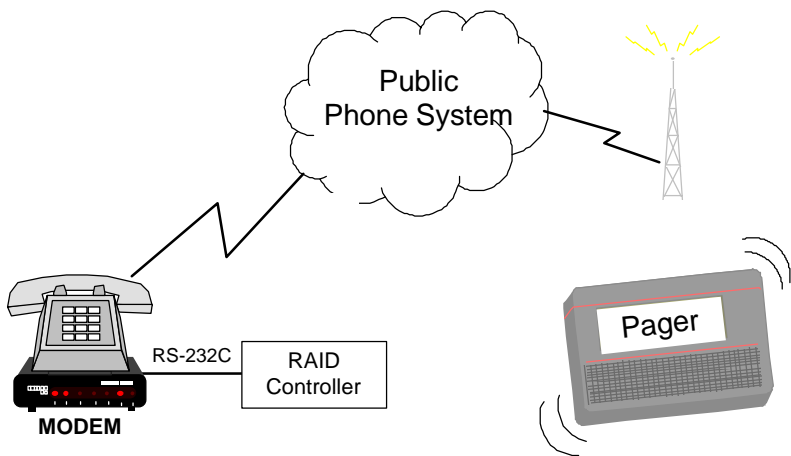
Select “Modem Status..”, then press **ENT**.



The current connection status will be shown on the LCD.



11.4 Dial-out for Event Notifications



The controller can be set to dial-out a pager for event notification, or dial-out to a remote computer with terminal emulation program as well as dial-in via a remote computer.

Dial-out to a Terminal or a Pager?

If the Dial-out function is used as a event notification to a pager, the terminal emulation of the COM port has to be disabled. If the Dial-out function is used with a remote terminal, enable the terminal emulation.

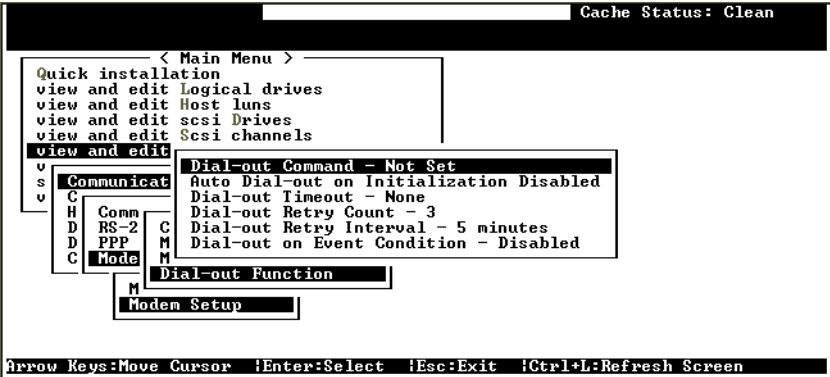
Configure the controller in order to use the remote terminal with the modem. Please refer to Chapter 12.3, Remote Terminal Emulation Using Modem, for details.



IMPORTANT:

- *If the controller is dialing-out to a pager, the Terminal Emulation of the corresponding COM port must be disabled.*
- *If the controller is dialing-out to a remote administration terminal, the Terminal Emulation of the corresponding COM port must be enabled.*

Setting Dial-out Function Through the Terminal Emulation



Choose “View and Edit Configuration Parameters” in the Main Menu, then select “Communication Parameters”. Choose “Modem Operation”, then select “Modem Setup” and “Dial-out Function” in the menu. A Dial-out Function menu will appear on the screen.

Dial-out Command



Choose “Dial-out Command” in the Dial-out Function menu. A dialog box will appear showing the current dial-out commands. Enter the new dial-out command in the New Dial-out command column, then press **[Enter]**.

The Dial-out command is the only command that will be sent to the modem when dialing-out. If it’s dialing to a pager, the pager number and message (if applicable) have to be composed in this column. If it’s dialing to a remote terminal, the phone number of the remote modem has to be entered in this column. Refer to the manual of your modem for the AT command set.

Auto Dial-out on Initialization

Enable Auto Dial-out on Initialization ?	
Yes	No

Choose “Auto Dial-out on Initialization” from the Dial-out Function menu. A dialog box will appear. Choose **Yes** to confirm the change.

If the “Auto Dial-out on Initialization” has been enabled after the modem initializes, it will send the Dial-out Command to the modem automatically.

Dial-out Time out

Dial-out Command - Not Set	
Auto Dial-out on Initialization Disabled	
Dial-out Timeout - None	
D	Dial-out Timeout: 0 seconds
D	s

Dial-out Timeout(seconds):

Choose “Dial-out Timeout” in the Dial-out Function menu. The current setting in this column will appear. Press [**Enter**]. A dialog box will appear to input the Dial-out Timeout. Enter the desired dial-out timeout time (in seconds) in this column.

When the modem is dialing out, the controller will start to count the dial-out timeout period. If the connection cannot be established within the dial-out timeout period, the controller will send a “Rang-up” command to the modem to hang up the phone.

Dial-out Retry Count

Dial-out Command - Not Set	
Auto Dial-out on Initialization Disabled	
Dial-out Timeout - None	
Dial-out Retry Count - 3	
D	Dial-out Retry Count: 3
D	minutes Disabled

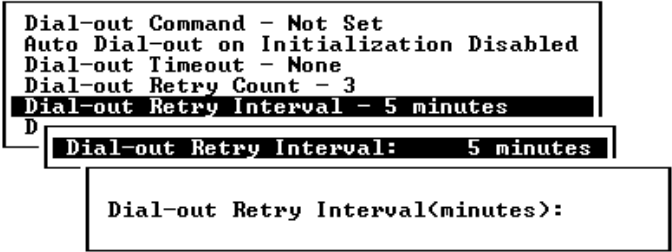
Dial-out Retry Count: _

Choose “Dial-out Retry Count” in the Dial-out Function menu. The current setting in this column will appear. Press **[Enter]**. A dialog box will appear for entering the Dial-out Retry Count. Enter the desired Dial-out Retry count in this column.

When the modem cannot establish the connection when dialing-out, the controller will retry another dial-out, that is, if the Dial-out Retry Count is not set as “0”. The default retry count is “3” - which means the controller will retry the dial-out process three times after the first dial-out process failed.

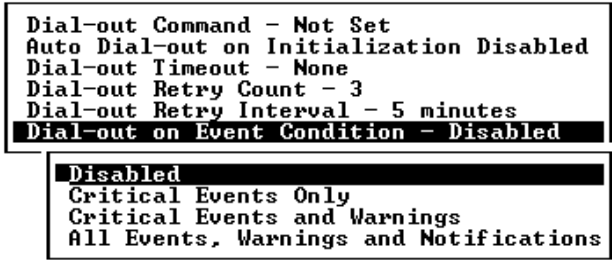
Dial-out Retry Interval

The Dial-out Retry Interval is the interval period between the dial-out retries.



Choose “Dial-out Retry Interval” in the Dial-out Function menu. The current setting in this column will appear. Press **[Enter]**. A dialog box will appear for entering the Dial-out Retry Interval. Enter the desired dial-out retry interval in this column (in minutes).

Dial-out on Event Condition

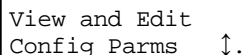


Choose “Dial-out on Event Condition” in the Dial-out Function menu. A list of selections will appear. Move the cursor bar on the desired selection, then press **[Enter]** to choose.

Choosing one of the options will enable the “Dial-out on Event Condition” (except “Disable”). The controller will send the “Dial-out command” to the modem when an event has occurred.

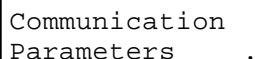
Setting Dial-out Function Through the Front Panel

Press **ENT** for two seconds to enter the Main Menu. Press ▼ or ▲ to select “View and Edit Config Parm”, then press **ENT**.



```
View and Edit
Config Parm  ↓.
```

Select “Communication Parameters ..”, then press **ENT**.



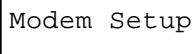
```
Communication
Parameters ..
```

Select “Modem Operation ..”, then press **ENT**.



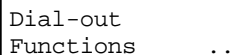
```
Modem Operation
..
```

Select “Modem Setup ..”, then press **ENT**.



```
Modem Setup
..
```

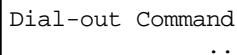
Select “Dial-out Functions ..”, then press **ENT**. Press ▼ or ▲ to see the Dial-out Functions menu.



```
Dial-out
Functions ..
```

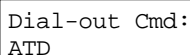
Dial-out Command

Select “Dial-out Command ..” in the Dial-out Functions menu, then press **ENT**.



```
Dial-out Command
..
```

Enter the Dial-out command in this column. Press ▼ or ▲ to change the current character, then press **ENT** to move the cursor to the next space. Press **ENT** for two seconds when finished.



```
Dial-out Cmd:
ATD
```

The Dial-out command is the only command that will be sent to the modem when dialing-out. If it's dialing to a pager, the pager number and message (if applicable) have to be composed in this column. If it's dialing to a remote terminal, the phone number of the remote modem has to be entered in this column. Refer to your modem manual for the AT command set.

Auto Dial-out on Initialization

Select “Auto Dial-out on Init ..” in the Dial-out Functions menu, then press **ENT**.

```
Auto Dial-out
on Init Disabled
```

Press **ENT** for two seconds to set.

```
Enable Auto
DialOut on Init?
```

Dial-out Timeout

Select “Dial-out Timeout ..” in the Dial-out Functions menu, then press **ENT**.

```
Dial-out Timeout
None          ..
```

Enter the Dial-out Timeout period in this column. Press ▼ or ▲ to change the current character, press **ENT** to move the cursor to the next space. Press **ENT** for two seconds when finished.

```
Dial-out Timeout
seconds      ?
```

When the modem is dialing out, the controller will start to count the dial-out timeout period. If the connection cannot be established within the dial-out timeout period, the controller will send a “Rang-up” command to the modem to hang up the phone.

Dial-out Retry Count

Select “Dial-out Retry Count ..” in the Dial-out Functions menu, then press **ENT**.

```
Dial-out Retry
Count - 3    ..
```

Enter the Dial-out retry count in this column. Press ▼ or ▲ to change the

```
Dial-out Retry
Count -      ?
```

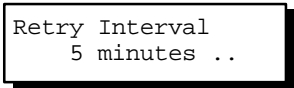

current character, then press **ENT** to move the cursor to the next space. Press **ENT** for two seconds when finished.

When the modem cannot establish the connection when dialing-out, the controller will retry another dial-out, that is, if the Dial-out Retry Count is not set as “0”. The default retry count is “3” - which means the controller will retry the dial-out process three times after the first dial-out process failed.

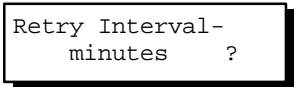
Dial-out Retry Interval

The Dial-out Retry Interval is the interval period between the dial-out retries.

Select “Retry Interval ..” in the Dial-out Functions menu, then press **ENT**.

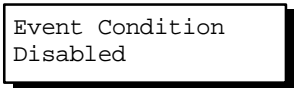


Enter the Dial-out Retry Interval in this column. Press ▼ or ▲ to change the current character, then press **ENT** to move the cursor to the next space. Press **ENT** for two seconds when finished.

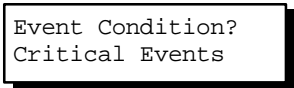


Dial-out on Event Condition

Select “Event Condition ..” in the Dial-out Functions menu, then press **ENT**.



Press ▼ or ▲ to change the setting, then press **ENT** for two seconds.



There are four options in this column:

- | | |
|------------------|--|
| Disabled | Disable |
| Critical Events | Critical Events Only |
| Critical&Warning | Critical Events and Warnings |
| All Events | All Events, Warnings and Notifications |

Choosing one of the options will enable the “Dial-out on Event Condition” (except “Disable”). The controller will send the “Dial-out command” to the modem when an event occurs.