

## Chapter 3: Using NetPower DDE Server

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### Overview

The NetPower DDE Server application enables communication between IMPACC devices and any Windows-based application that uses the DDE protocol. When you first run NetPower DDE Server, the system automatically tries to connect to all NetPower DeviceServers that are configured in the Master Configuration Database (which was developed with NetPower Configurator). If you do not immediately connect to all NetPower DeviceServers in the database, NetPower DDE Server allows you to manually connect to the NetPower DeviceServers. If NetPower DeviceServers are changed or added to the Master Configuration Database, you use database synchronization to update with the Master Configuration Database.

NetPower DDE Server establishes a DDE link when an application either requests data or sends a device control. Using NetPower DDE Server, you may control the following:

- ◆ Log on from NetPower Integrator
- ◆ Enable/disable display
- ◆ Connect to a NetPower DeviceServer
- ◆ Set the TCP/IP Timeout

**Note**

It is recommended that you install DDE Server on every computer that runs a DDE client application. This enables control of the application's access privilege through PowerNet's Security System.

### Logging on to NetPower DDE Server from NetPower Integrator

When third-party, Windows-based software is used to access the NetPower DDE Server, the software may have the capability to control NetPower DDE Server log on.

To log on to NetPower DDE Server as another user through a NetPower Integrator application, you create a custom Log On dialog box that displays input fields for the User Name and Password. These input fields are used as input strings to DDE code. For example:

USERID=string

PASSWORD=string

Where:

- ◆ USERID is the DDE tag for the corresponding User ID input field.
- ◆ PASSWORD is the DDE tag for the corresponding Password input field.
- ◆ String is what a user would type in the corresponding input field.

For example:

IMPACC|NodeName!USERID=ADMIN

IMPACC|NodeName!PASSWORD=ADMIN

## Connecting to a NetPower DeviceServer

When you run NetPower DDE Server, the system automatically tries to connect to all NetPower DeviceServers in the Master Configuration Database; however, you may need to manually connect to a NetPower DeviceServer for two reasons:

- ◆ If you run NetPower DDE Server and the system cannot connect to a NetPower DeviceServer (e.g., it is off-line), the system will try to connect to that NetPower DeviceServer in 5-minute intervals. In addition, you may try to manually connect to that NetPower DeviceServer.
- ◆ If NetPower DDE Server is running and a NetPower DeviceServer is taken off-line, the NetPower DDE Server will try to connect to that NetPower DeviceServer in 5-minute intervals. In addition, you may try to manually connect to that NetPower DeviceServer.

To manually connect to a NetPower DeviceServer, do the following:

1. In the NetPower DDE Server main window, click on the View/Connect icon.

NetPower DDE Server attempts to connect to all NetPower DeviceServers that are listed in the NetPower DDE Server/IP Address dialog box, and the NetPower DDE Server/IP Address dialog box displays.



The NetPower DDE Server/IP Address dialog box lists all NetPower DeviceServers in the Master Configuration Database that NetPower DDE Server has identified and connected. If a particular NetPower DeviceServer is not listed in the NetPower DDE Server/IP Address dialog box, then NetPower DDE Server has not connected to it.

**Note**

If NetPower DDE Server has not connected to a particular NetPower DeviceServer, then there may be a problem with a network connection. Locate the problem with the particular NetPower DeviceServer, then try to manually connect to it.

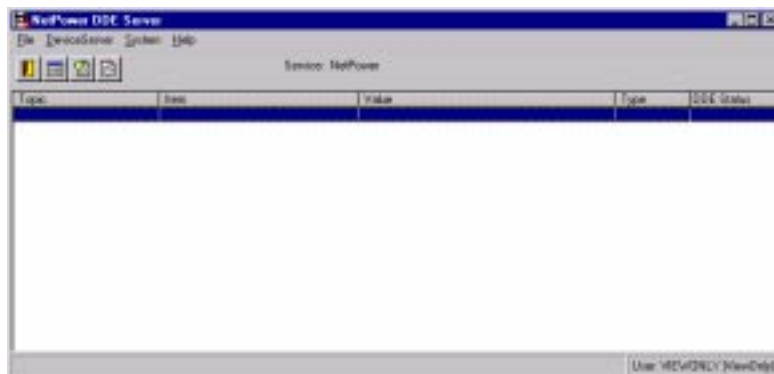
2. Click OK.

The system clears the NetPower DDE Server/IP Address dialog box.

## Enabling/Disabling Display

You may or may not wish to monitor the DDE items that pass through NetPower DDE Server.

To monitor DDE items and the resulting data that is passed back to an application, click the Enable/Disable Display icon to display the NetPower DDE Server main window.



When an application requests data, the corresponding DDE items and the returned values display in the corresponding columns of the NetPower DDE Server main window. The columns of the NetPower DDE Server main window are described in the following table.

Column	Description
Topic	The name of the NetPower DeviceServer.
Item	The device number and the name of the requested attribute.
Value	The value of the requested attribute that is passed back to the application.
Type	The format of the value that was passed to the application (for example: real, integer, etc.)
DDE Status	The status of the DDE item (Start, Stop). If the status displays a value of Start, then the data is being requested by the application. If the status displays a value of Stop, then the data is no longer being requested by the application.

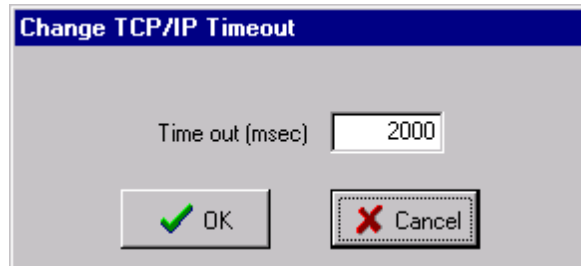
## Setting the TCP/IP Timeout

The TCP/IP Timeout is the maximum amount of time NetPower DDE Server will wait for a response from a NetPower DeviceServer for a given request.

To set the TCP/IP Timeout, do the following:

1. In the NetPower DDE Server main window, click the Change TCP/IP Network Timeout icon.

The Change TCP/IP Timeout dialog box displays.



2. In the Timeout input field, type the desired timeout value.
3. Click OK.

The TCP/IP Timeout is changed.

## Establishing a DDE Link

There are two ways to establish a DDE Link:

- ◆ When an application requests data through NetPower DDE Server, and the DDE item is recognized by the NetPower DDE Server (i.e., a valid NetPower DeviceServer, device number, and device attribute or special item name).
- ◆ When an application sends a valid device control command to NetPower DDE Server and the command and corresponding return code is returned to the application.

### Example 1: Requesting Data

You are logged on to NetPower DDE Server, which is communicating with a NetPower DeviceServer designated as NodeName1. A PC user running Microsoft Excel sends a request for the Status of device number 1 on that NetPower DeviceServer. The DDE code would be as follows:

**Impacc|nodename1!D1statn**

Where:

- ◆ IMPACC is the application.
- ◆ Nodename1 is the particular NetPower DeviceServer.
- ◆ D1 is the number of the device to be controlled.
- ◆ Statn is the desired device attribute.

**Note**

For more information on DDE codes, see *Appendix A: PowerNet Software and NetPower DDE*.

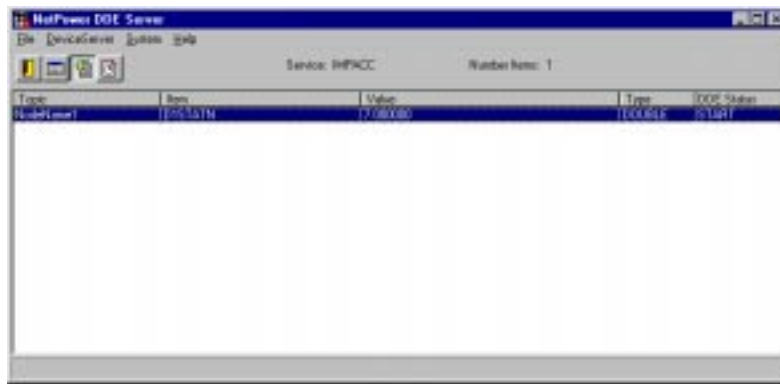
The requested information passes through NetPower DDE Server, which verifies that:

- ◆ The DDE code is valid.
- ◆ The requested attribute is a valid attribute.
- ◆ The device is configured on the specified NetPower DeviceServer.

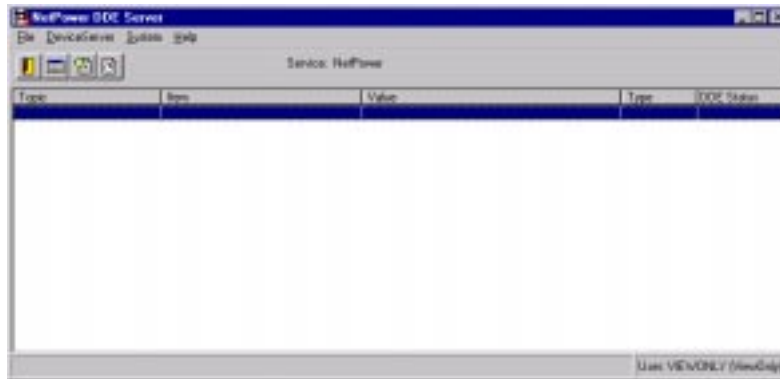
NetPower DDE Server then translates the DDE code and sends the request to the NetPower DeviceServer via the PowerNet protocol. The NetPower DeviceServer then translates the request, and sends the device attribute value back to the application through NetPower DDE Server. Subsequent values are returned to the application when the attribute value changes.

When the application receives the value of the device attribute, the link between NetPower DDE Server and the application is established.

Once the link is established, if the Display is enabled, then the NetPower DDE Server main window updates.



If the Display is disabled, then the NetPower DDE Server main window does not update.



## Example 2: Sending a Device Control

You are logged on to NetPower DDE Server, which is communicating with a NetPower DeviceServer designated as NodeName1. A PC user running a NetPower Integrator program selects a graphic element that displays on the PC monitor. This user action sends a device control to close a breaker on device number 1 on that NetPower DeviceServer. The corresponding DDE control code is as follows:

**Impacc|nodename1!D1close=1**

Where:

- ◆ IMPACC is the application.
- ◆ Nodename1 is the particular NetPower DeviceServer.
- ◆ D1 is the number of the device to be controlled.
- ◆ Close is the device control tag.
- ◆ 1 is the Value to allow the client request to write to the NetPower DeviceServer.

### Note

For more information on DDE codes, see *Appendix A: PowerNet Software and NetPower DDE*.

The information passes through NetPower DDE Server, which verifies that:

- ◆ The DDE code is valid.
- ◆ The requested attribute is a valid attribute.
- ◆ The device is configured on the specified NetPower DeviceServer.

NetPower DDE Server then translates the DDE code and sends the control request to the NetPower DeviceServer. The NetPower DeviceServer performs the device control and returns a code to both NetPower DDE Server and the NetPower Integrator program, indicating the status of the device control.

When the application receives the status of the device control, the link between NetPower DDE Server and the application is established.

Once the link is established, if the Display is enabled, then the NetPower DDE Server main window updates. If the Display is disabled, then the NetPower DDE Server main window does not update.

## NetPower DDE Server/NetPower DeviceServer Messaging

When NetPower DDE Server communicates with a NetPower DeviceServer, the NetPower DeviceServer sends a periodic TCP/IP message to NetPower DDE Server, indicating that the NetPower

DeviceServer is running. If NetPower DDE Server does not receive this message within a specified time, then a problem exists either with the NetPower DeviceServer or the network connection between the NetPower DeviceServer and NetPower DDE Server. Also, the quality tags associated with DDE commands update.

If you receive the quality tag “512” in any DDE application that requests data quality, then a problem exists with either the NetPower DeviceServer or with the network connection. Also, for each requested data attribute, the error message “QUALITY\_GATE\_DISCONNECT=512” displays in the Value column of the NetPower DDE Server main window.