Chapter 1: Overview

What is DDE?

DDE is Microsoft Windows' Dynamic Data Exchange, which is a communications protocol supported within the Microsoft Windows operating environment that allows cooperating Windows applications to share information. DDE involves a client-server relationship between two concurrently running applications. NetPower DDE Server in PowerNet Software acts as a DDE server to applications such as Microsoft Excel and NetPower Integrator.

How Does DDE Work?

To obtain data from another application, a client program opens a communication channel to a server application by specifying three things:

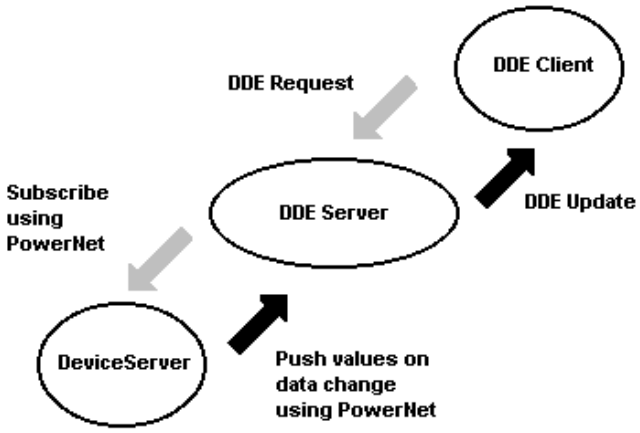
- Server application name. The name of the application that has access to the data element.
- Topic name. The application-specific subgroup of a data element.
- Specific item. A specific data element within a topic. Item names are predefined and device-dependent.

With PowerNet Software, the server application name is IMPACC, the topic name is the name of a particular NetPower DeviceServer, and the item is a specific device and its associated device attribute.

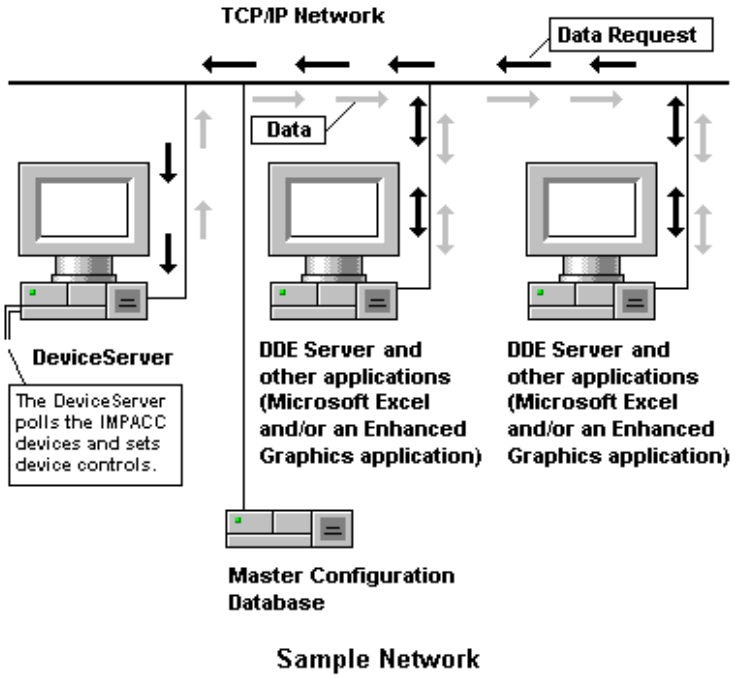
When an application sets up a link to another DDE program, it requests the NetPower DDE server application to advise the client whenever specific data changes. These data links remain active until either the client or server program terminates the common link. This process is a very efficient means of exchanging data, because once the link is established, no communication occurs until the specified data value changes. DDE is also used with NetPower Integrator applications to communicate with PowerNet Software applications.

What is NetPower DDE Server?

NetPower DDE Server is the server application in the PowerNet Software package. NetPower DDE Server acts as an interface between the DDE protocol and the PowerNet protocol, enabling Windows applications (Microsoft Excel, NetPower Integrator, etc.) to dynamically receive data from IMPACC devices and issue device commands. The Windows applications act as clients, which send requests to NetPower DDE Server using the DDE protocol. NetPower DDE Server subscribes to and receives information from the NetPower DeviceServer using the PowerNet protocol. This information is then passed to the DDE client.



How is DDE used with PowerNet Software?



Sample Network

Example 1: Data Request

Assume you are using a Windows-based application (Microsoft Excel) to obtain device data. NetPower DDE Server allows Microsoft Excel to:

- Access device readings (watts, current, etc.) from an IMPACC network through a NetPower DeviceServer. As the NetPower DeviceServer polls the IMPACC network devices, these readings are mapped to cells in an Excel spreadsheet and automatically updated.
- Perform calculations on the device readings and to produce reports and charts.

Before you can use Microsoft Excel to request information, you must first start the NetPower DDE Server application. (You will be logged on automatically as View Only.) If you will be executing control commands, you must log on with a user ID that includes device control privileges.

NetPower DDE Server acts as a server to an application (Microsoft Excel), which requests attributes from devices that connect to a NetPower DeviceServer. NetPower DDE Server receives the data request

in DDE code, verifies the request against the Master Configuration Database, and sends the information via the PowerNet protocol to the NetPower DeviceServer. NetPower DDE Server acts as a client to the NetPower DeviceServer when the data request is sent and received. The first time that the data request is made, the NetPower DeviceServer returns a value. As the NetPower DeviceServer polls the IMPACC network, subsequent data is returned only when there is a change in the device attribute. The request and the attribute value display with both the NetPower DDE Server and application.

Example 2: Device Control

Assume you are using a NetPower Integrator application to monitor and control IMPACC devices through custom displays. For example, a display depicting the layout of devices in a switchgear line can be created and used to monitor and control the devices.

Before you can use Microsoft Excel to request information, you must first start the NetPower DDE Server application. (You will be logged on automatically as View Only.) If you will be executing control commands, you must log on with a user ID that includes device control privileges.

NetPower DDE Server is a server to a client (e.g.,NetPower Integrator) that sends a device control to the NetPower DeviceServer. NetPower DDE Server receives the request in DDE code, verifies the request against the Master Configuration Database, and sends the information via the PowerNet protocol to the NetPower DeviceServer. NetPower DDE Server acts as a client to the NetPower DeviceServer when the device control command is sent and a status code for that request is received. The device control code and the status code display with both the NetPower DDE Server and the NetPower Integrator application.