

TECHNICAL BULLETIN

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N30 Supervisory Controller Quick Start

Introduction

The purpose of this document is to help get an N30 Supervisory Controller (N30) system up and running quickly by providing an overview and reference to how some of the system's tools work together. This document contains scenarios in the form of flowcharts and checklists, and provides references to other literature to describe:

- concepts related to setting up an N30 Supervisory Controller system
- initial setup of an N30 Supervisory Controller site
- steps to generate a typical N30 Supervisory Controller database
- steps to generate a database for networked N30s

This document also contains communications scenarios and information for N30 tasks using Project Builder software. These checklists include scenarios on how to:

- connect to an N30 using a VT100 Terminal Emulator
- use checklists for communication scenarios
- upload an N30 via direct serial connection
- download an N30 via direct serial connection
- upload an N30 via dial-up connection
- download an N30 via dial-up connection
- upload an N30 via Ethernet
- download an N30 via Ethernet

Note: This document applies to N30 and N31 Supervisory Controllers unless otherwise noted.

Key Concepts

Using This Document

Table 1 describes where to go in this document to accomplish specific tasks.

Table 1: Using This Document

For Information About	Refer To
Connecting to an N30 Using a VT100	<i>Connecting to an N30 Using a VT100 Terminal Emulator</i> procedure in the <i>Detailed Procedures</i> section
Getting an Overview of a Site Installation	<i>Site Installation Flowchart</i> in this <i>Key Concepts</i> section
Getting an Overview of Generating a Database	<i>Database Generation</i> in this <i>Key Concepts</i> section
Working through Checklists of Tasks for Uploading and Downloading	<i>Using Checklists for Communication Scenarios</i> in the <i>Detailed Procedures</i> section
Troubleshooting an N30	<i>Troubleshooting</i> section

Related Information

Refer to Table 2 to find related information in other documents.

Table 2: Related Information

For Information About	Refer To
Installing an N30	<i>N30 Supervisory Controller Installation Technical Bulletin (LIT-6891100)</i>
Networking an N30	<i>N30 Supervisory Controller Networking Technical Bulletin (LIT-6891300)</i>
Using Bootstrap Protocol (BOOTP) and Domain Name System (DNS) Protocol in an N30 Network	<i>N30 Supervisory Controller Networking Technical Bulletin (LIT-6891300)</i>
Working with Objects Using the VT100	<i>N30 Supervisory Controller User's Manual</i>
Working with Objects Using Project Builder	<i>Project Builder User's Guide</i>
Setting up Direct Serial or Dial-up Connections from a Personal Computer (PC) to an N30	<i>Direct Connect and Dial-up Connection on Windows 2000 and Windows XP Operating Systems Application Note (LIT-6893450)</i>
Using Site Book	<i>Site Book User's Guide</i>

Definition of Terms

N30 Database

Database where the N30 system is defined. Contains information about controllers, points, alarms, and other N30 objects.

N30 Device Object

The N30 Device object defines the attributes that represent the externally visible characteristics of an N30.

Site Manager

The N30 within a site that contains the Site object. The Site object is responsible for the synchronization of global objects, time synchronization, and device status monitoring within the site. There can be only one Site Manager per site.

Copy Holder

The device is designated to hold a copy of objects for a site. It is a backup for the Site Manager and takes over the Site Manager duties if the primary Site Manager device fails.

Site Object

The Site object maintains a list of devices on the site including supervisory controllers and workstations. The primary Site object for a site is located on the Site Manager device. A copy of it is located on the copy holder device.

Site Data Object (in the N30)

Holds information or data relating to the entire site, such as the site name. Acts as a repository for global data for the local device.

Flash Memory

A type of nonvolatile memory within the N30 device. The N30 stores configuration data, startup code, boot code, main code, and the archive database within this memory.

Firmware

The N30 program in flash memory is called firmware. The firmware can be updated through the Project Builder tool. When the Project Builder tool is purchased or upgraded, it contains the latest firmware version level of the N30.

Passwords

When working with N30 systems, there are several password-related items that you must understand.

- **Administrator Password:** The administrator of a site is the only user with the ability to create, modify, or delete operator objects. With the exception that the administrator cannot change an Operator password after its initial creation, the administrator has unrestricted access to and control over all other objects defined for the site. See the *Working with Operator Objects (LIT-6892050)* chapter of the *N30 Supervisory Controller User's Manual* for more details.

The administrator's login ID is ADMIN and the default password is 2468.

- **Operator Password:** The Operator Password is an attribute of the Operator object. The Minimum Password Length is an attribute of the Site Data object. The Operator Password is the password that an individual would use to log on to an N30. The access level of the user is controlled when the operator object is set up. There are seven defined access levels. See the *Working with Operator Objects (LIT-6892050)* chapter of the *N30 Supervisory Controller User's Manual* for more details.
- **Point-to-Point Protocol (PPP) Password:** This is the password used when establishing a Point-to-Point Protocol (PPP) connection to an N30 site or M3 Workstation. The PPP Password in Site Book **must** match the PPP Password in the N30 device object for the site you want to connect. Changing the PPP Password requires changing it in both Project Builder and the Site Book.

The default PPP login ID is jci and the default password is 2468.

Media Access Control (MAC) Address

Media Access Control Address. A hardware address of a device connected to a network, expressed as a 48-bit hexadecimal number. The MAC address uniquely identifies each node on a network.

Internet Protocol (IP)

The N30 supports several IP protocols including BOOTP, DNS, and Simple Mail Transfer Protocol (SMTP). These protocols can be used independently of one another. For example, a site may include a BOOTP server, but not a DNS server.

Notes: Check with your system administrator to verify whether the network uses these protocols.

Although BOOTP and DNS are supported with Release 5.0, their use is not required. Static IP addressing is still a viable option.

BOOTP

BOOTP allows a device (such as an N30) to obtain and configure its own IP information. The device sends a request to the BOOTP server and the BOOTP server responds by providing the device its IP information, such as its IP address and, if a DNS server is used also, its host name. For N30 networking, configure the BOOTP server to assign static IP addresses to devices.

A BOOTP server is not required in order to provide BOOTP protocol, however. Most Dynamic Host Configuration Protocol (DHCP) servers can be configured to accept and respond to BOOTP requests. To assign IP addresses using BOOTP protocol, configure the DHCP server to accept BOOTP requests. This allows a DHCP server to dynamically assign a specific IP address to a device based on its MAC address.

Note: In this document, the term “BOOTP server” refers both to BOOTP servers and to DHCP servers configured to accept BOOTP requests.

By setting the BOOTP Enabled attribute of an N30 to True, you allow the N30 to obtain and configure its IP address, IP mask, IP router address, host name, domain name, and DNS server IP address. See the *N30 Supervisory Controller Networking Technical Bulletin (LIT-6891300)*. Also, see the *N30 Device (LIT-694610)* chapter in the *Object Dictionary*.

Note: When a network includes both BOOTP and DNS servers, make certain that host names and IP addresses provided by the BOOTP server are consistent with those configured in the DNS server.

DNS

DNS allows the conversion of text-based names (such as a Web site address) into numeric IP addresses. With a DNS server, you can assign a host name (such as N30-Floor3) to an IP address (such as 172.16.68.243). An N30 uses the Object Name of the device object as its host name. A host name can be reassigned to different IP addresses as needed.

Note: When a network includes both BOOTP and DNS servers, make certain that host names and IP addresses provided by the BOOTP server are consistent with those configured in the DNS server.

A DNS server simplifies the work of identifying individual devices on a network. For example, when setting up Broadcast Management objects, you can elect to identify an object by its host name rather than entering its IP address. See the *N30 Supervisory Controller Networking Technical Bulletin (LIT-6891300)*.

SMTP

SMTP is the standard protocol for sending e-mail messages over an Ethernet connection between servers. The E-mail object uses SMTP to send e-mail notifications of alarms. See the *E-mail (LIT-1201115)* chapter in the *Object Dictionary*.

Broadcast Management (BM) Object

The Broadcast Management object (previously called BACnet® Broadcast Management Device [BBMD] object) maintains a list of designated devices on other Ethernet IP network segments. The device needs this information to determine where to forward N30 broadcast messages.

Note: In a standard configuration, only one Broadcast Management object is defined for each network segment.

The data in each Broadcast Management object must be the same in all devices that have an enabled Broadcast Management object.

See the *N30 Supervisory Controller Networking Technical Bulletin (LIT-6891300)* for further details.

Packet Internet Groper (PING)

A utility to determine whether a specific IP address is accessible. It works by sending a packet to the specified address and waiting for a reply. The PING utility is available whenever Windows Transmission Control Protocol/Internal Protocol (TCP/IP) protocol is installed on a computer.

Site Book

Program used to define and edit the set of physical or logical locations that can be connected in an N30/M3 Workstation network. Each site within the database has parameters needed to establish the connection. The Site Book configures sites for N30 devices. See the *Site Book User's Guide* for details.

Non-Segmented N30 Network

A non-segmented N30 network consists of either a standalone N30 or multiple N30s on a single network segment. These N30s are not separated by routers and do not require the use of a Broadcast Management object.

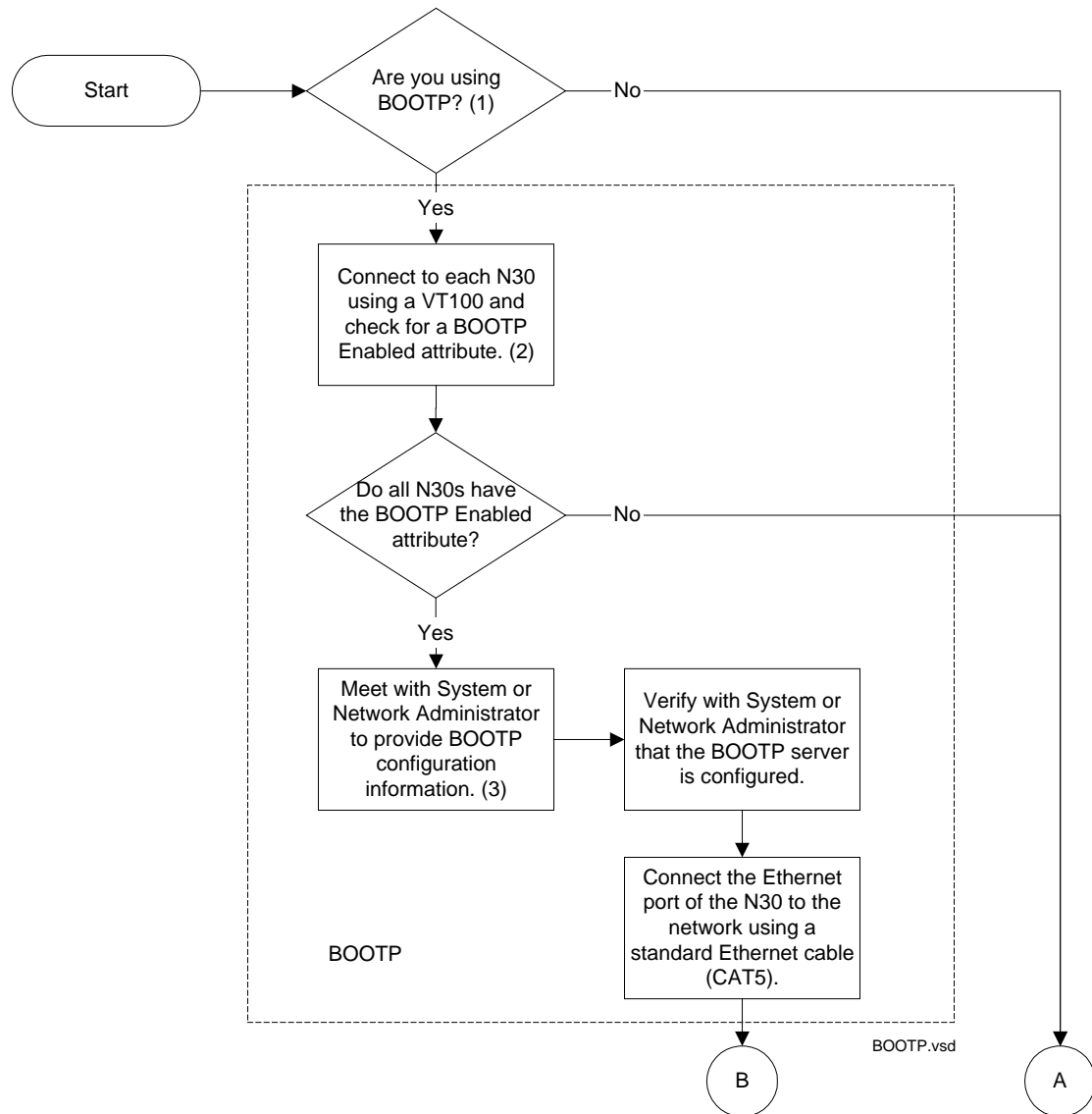
Segmented N30 Network

A segmented N30 network consists of N30s on different network segments separated by routers. In this kind of network, one N30 on each network segment must have a Broadcast Management object in order for communications across the segments to take place.

Site Installation Flowchart

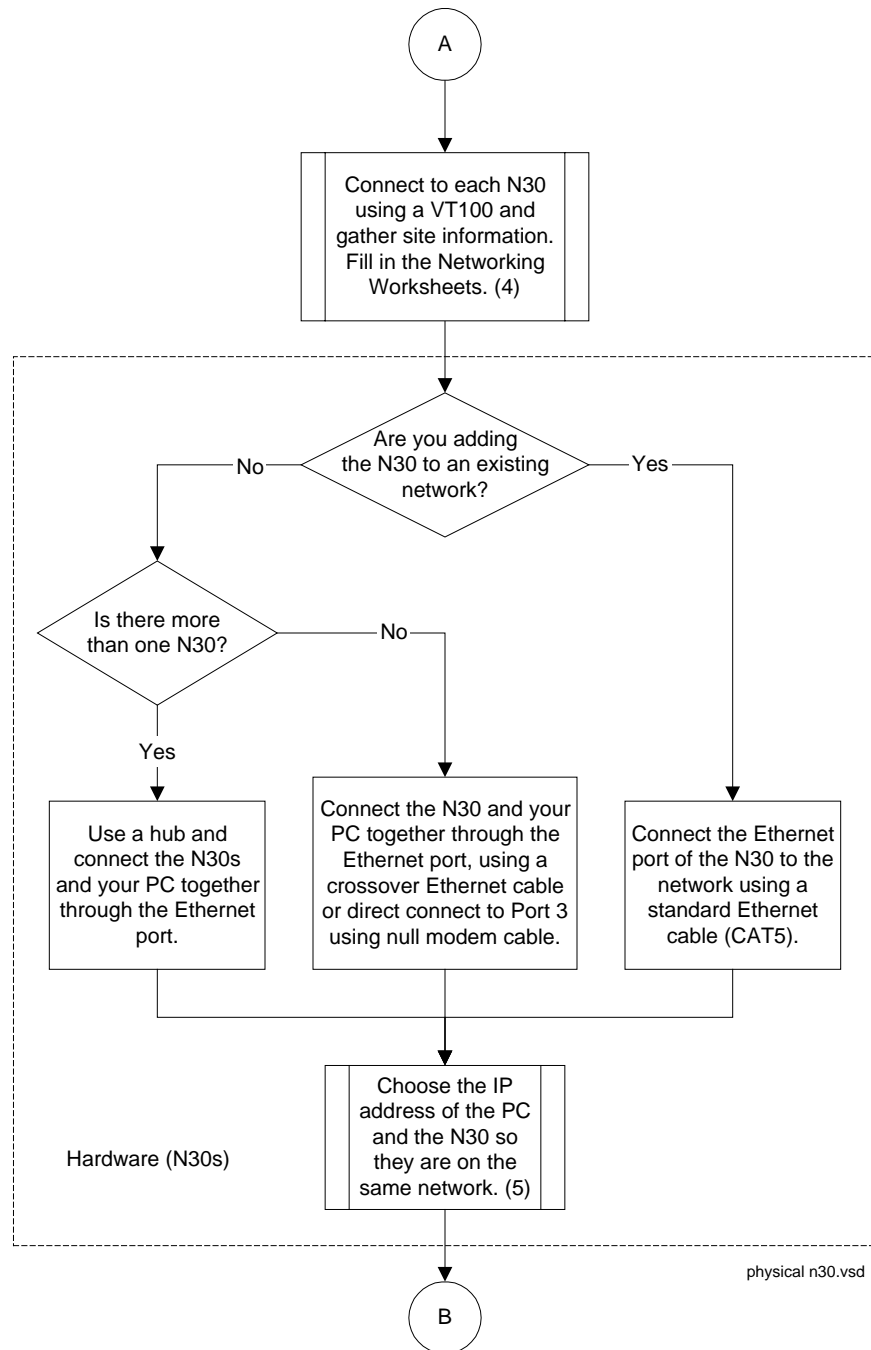
This flowchart (shown in four parts - Figure 1, Figure 2, Figure 3, and Figure 4) provides a high level view of the steps you use to set up an N30 site over Ethernet. The following materials are recommended to perform the actions in this flowchart:

- laptop PC with Project Builder and a VT100 Terminal Emulator installed
- NULL modem serial cable to connect to the VT100 object in the N30
- crossover Ethernet cable
- straight-through Ethernet cables
- Ethernet hub (optional)



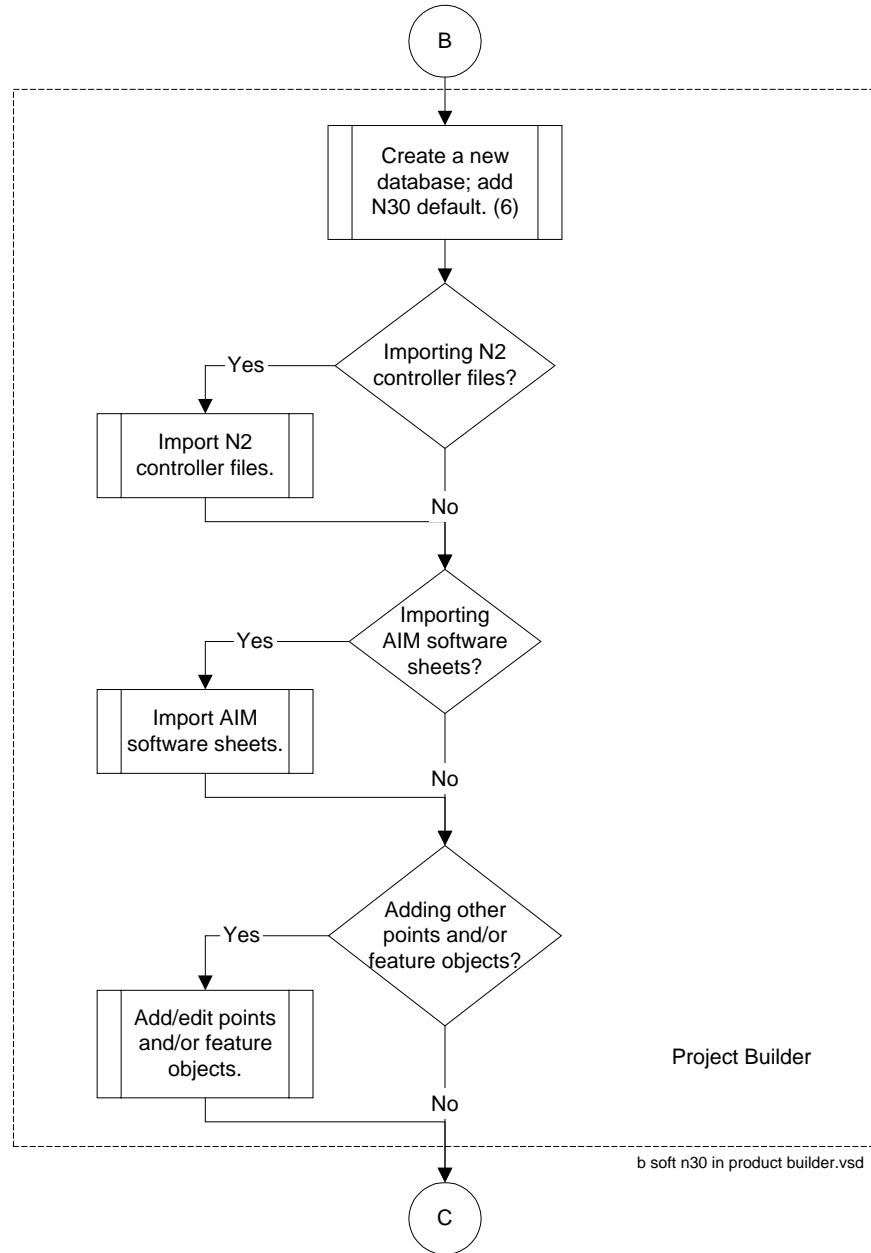
1. Although BOOTP is supported with Release 5.0, it is not required. Static IP addressing is still a viable option.
To use BOOTP, the network must contain a BOOTP server that can be configured to assign IP addresses to N30s. See the *N30 Supervisory Controller Networking Technical Bulletin (LIT-6891300)* for details.
2. See *Connecting to an N30 Using a VT100 Terminal Emulator* in this document.
If the N30s have a BOOTP Enabled attribute, the firmware supports BOOTP. If the N30s have a DHCP Enabled attribute instead of a BOOTP Enabled attribute, the firmware does not support BOOTP (it is Release 2.2 or earlier). You must download the updated firmware (Release 5.0 or later) to the N30s before using a BOOTP server to assign IP addresses.
3. You must provide information, including MAC addresses of the N30s and the desired host names for N30s (if a DNS server is used). The *N30 Supervisory Controller Networking Technical Bulletin (LIT-6891300)* provides an appendix with information to provide to the System or Network Administrator.

Figure 1: Site Installation Flowchart - Part 1



4. See *Connecting to an N30 Using a VT100 Terminal Emulator* in this document. The Networking Worksheets are found in the *N30 Supervisory Controller Networking Technical Bulletin (LIT-6891300)*.
5. If you are not using BOOTP, obtain unique IP address, IP mask, and IP router address from the Network Administrator. If there is no network at the installation site or if you must download updated firmware before using BOOTP, leave the N30 addresses at their factory-preset value. If using arbitrary IP addresses for the N30s, conflicts may occur if they are ever connected to other networks; in that case, the IP addresses have to be reassigned prior to linking the networks together.

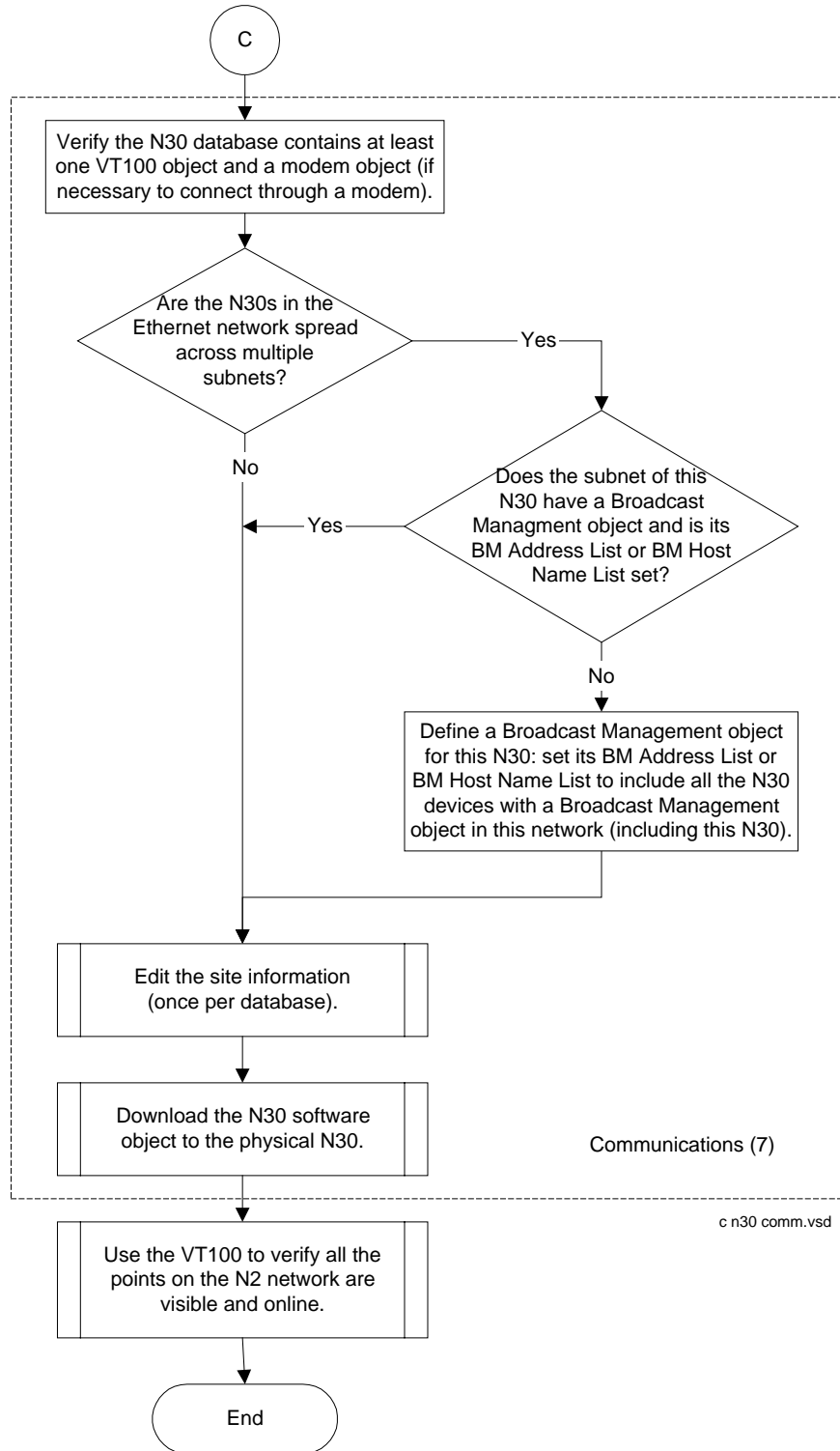
Figure 2: Site Installation Flowchart - Part 2



6. If you are not using BOOTP, or if you must download updated firmware before using BOOTP, set the address of the N30 determined in the previous step. If working in a local testing configuration (not at the site), remember to change the database after the N30 is installed at the site.

See the flowcharts in the *Database Generation* section in this document and the *Project Builder User's Guide* for more details on creating a new database.

Figure 3: Site Installation Flowchart - Part 3



7. There are several communications scenarios: Ethernet (shown), direct serial connection, and dial-up (modem). These are further differentiated by the PC's operating system. See the *Site Book User's Guide* for details on establishing communications with the N30 or M3 Workstation sites.

Figure 4: Site Installation Flowchart - Part 4

Database Generation

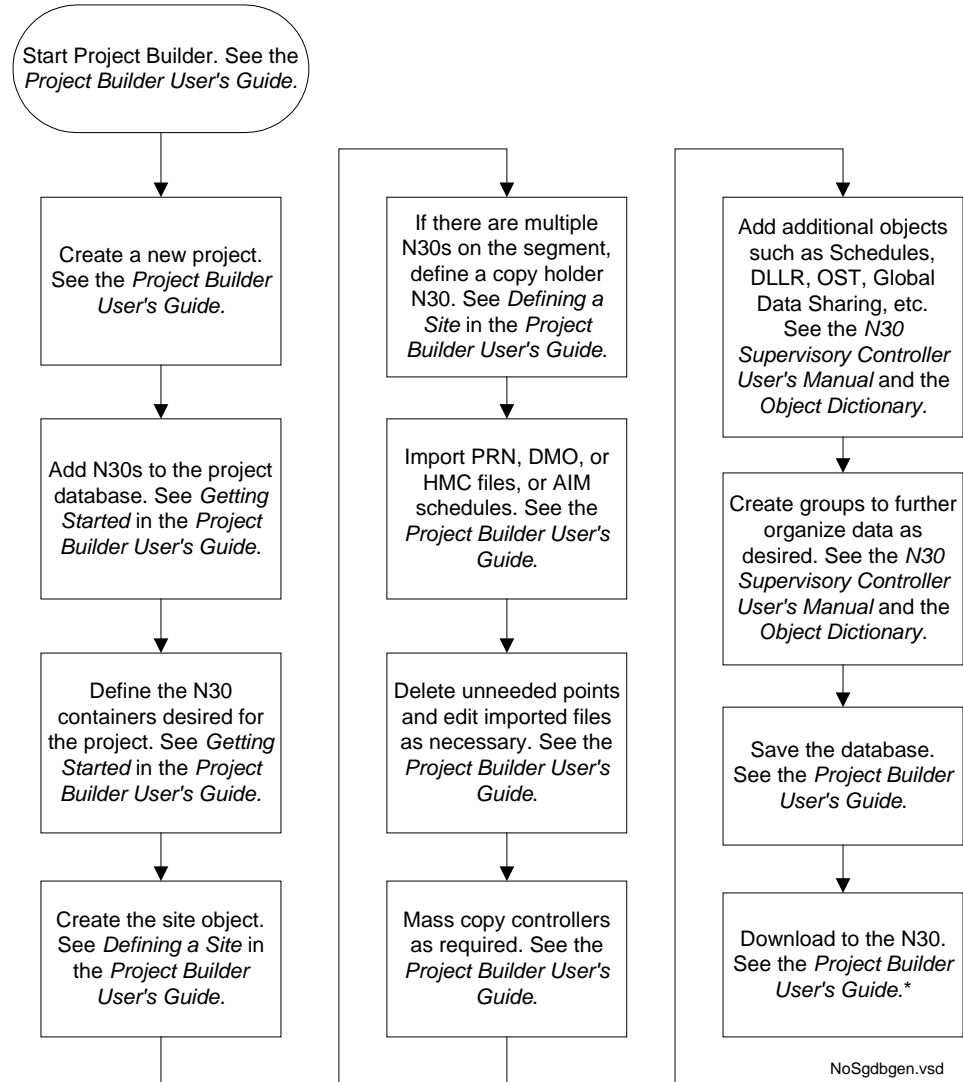
This section provides some sample scenarios for creating or editing databases for N30s. The purpose of this section is to provide an overview of real world operation to assist in setting up your own project databases.

Example Database

An example N30 database is supplied with M-Tool as a guide to creating objects for your N30 database. The N30 example database provides examples of how object attributes must be configured for objects such as the Local Display Terminal (LDT), Multiple Command Object (MCO), and Interlock objects. Use this database as a basis of design for any new project designed with Project Builder. The *N30 example database.mpb* file is located in the *C:\Documents and Settings\All Users\Application Data\Johnson Controls\M-Data\Database\N30 example database* directory.

Typical Database Generation for a Non-Segmented N30 Network

Figure 5 shows the steps typically used for a non-segmented N30 network database generation.

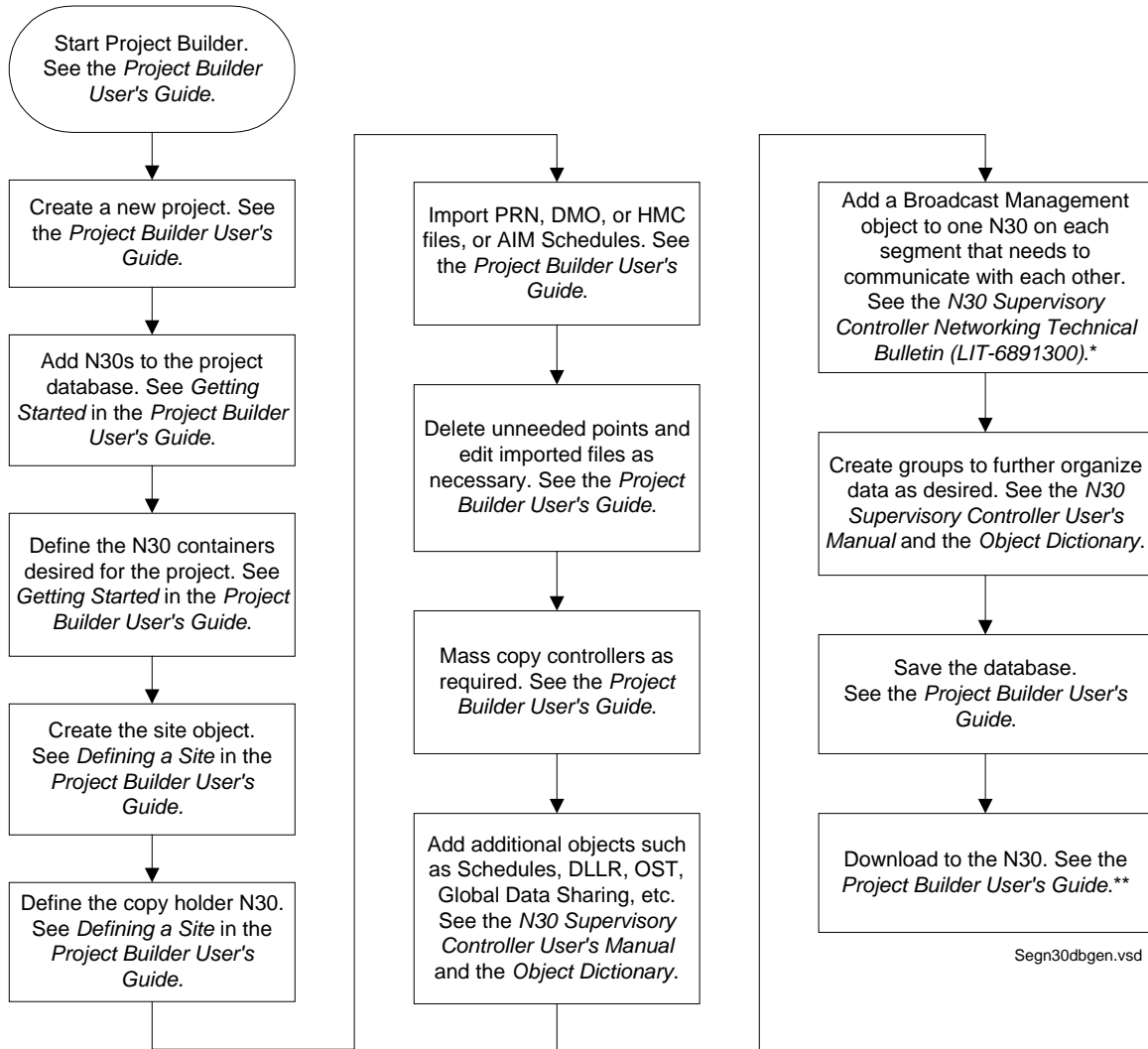


* See the *Detailed Procedures* section in this document for several downloading scenarios.

Figure 5: Typical Database Generation for a Non-Segmented N30 Network

Database Generation for a Segmented N30 Network

Figure 6 shows the general procedures necessary for setting up a segmented N30 network. Note that it is similar to the procedures used to set up a standalone N30. The main difference is the need to define a Broadcast Management (formerly BBMD) object.



Segn30dbgen.vsd

* In a standard configuration, only **one** Broadcast Management object is defined for each network segment. If the site has a DNS server, you can identify Broadcast Management objects by their host names rather than their IP addresses. See the *N30 Supervisory Controller Networking Technical Bulletin (LIT-6931300)* for more information.

** See the *Detailed Procedures* section in this document for several downloading scenarios.

Figure 6: Segmented N30 Network Database Generation

Checklists for Communication Scenarios

The *Detailed Procedures* section provides examples of communications scenarios and the steps typically required to perform them successfully. References to more detailed information are included where appropriate. Each scenario is independent and demonstrates the steps required to set up each task using Project Builder software. Detailed procedures for each step, including screen captures, are contained in the documents referred to in the steps. The main steps can be used as a checklist to track your progress while setting up a system. The substeps may vary slightly from job to job.

If you experience problems with these steps, please consult the *Troubleshooting* section of this document.

Detailed Procedures

Connecting to an N30 Using a VT100 Terminal Emulator

To connect to an N30 using a VT100 Terminal Emulator:

1. Connect a null modem cable to the N30.
2. Log in to the N30 using a VT100 Terminal Emulator on your PC. Enter the Login ID of ADMIN and Password of 2468.
3. Press F3 to Edit the N30.

Uploading an N30 via Direct Serial Connection

Uploading an N30 database through a direct serial connection is a multistep process. Table 3 provides a checklist to verify all steps are completed and provides references to further information about the processes.

Table 3: Uploading N30s via Direct Serial Connection Checklist

Step	Task	Done
1	<p>Create a new project in Project Builder.</p> <p>On the File menu, select New. Enter a name for the project.</p> <p>Note: The name of the project only applies to Project Builder and is not loaded into the N30.</p> <p>For further information, see the <i>Project Builder User's Guide</i>.</p>	<input type="checkbox"/>
2	<p>Add an N30 default object to the project database.</p> <ul style="list-style-type: none"> • From the Devices and Collections folder in the Object Library, drag the N30 default collection to your database. • Change the default name of the N30 in your database to match the name of the N30 that you are going to upload or download. <p>Notes: If you do not know the name of the N30, attempt a download using the name in your database. When Site Manager starts, it shows the name of the connected N30. Change the name of the N30 in your project database to match the name shown in Site Manager.</p> <p>Alternately, use a VT100 or VT100 Emulator to connect to the N30 and identify its name. See <i>Connecting to an N30 Using a VT100 Terminal Emulator</i> in this section.</p>	<input type="checkbox"/>
3	<p>Define a network connection icon for a direct serial connection.</p> <p>Refer to the <i>Direct Connect and Dial-up Connection on Windows 2000 and Windows XP Operating Systems Application Note (LIT-6893450)</i> for details.</p>	<input type="checkbox"/>
4	<p>Define a direct serial connection site in the Site Book.</p> <p>See <i>Configuring a Site</i> in the <i>Defining a Site</i> chapter of the <i>Project Builder User's Guide</i>.</p>	<input type="checkbox"/>

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Step (Cont.)	Task	Done
5	<p>Add the site to the project database.</p> <ul style="list-style-type: none">Select the Site Name from the drop-down list on Project Builder's Edit Site screen. <p>Note: If the Edit Site screen is not open from Step 4, click Edit Site on the Edit menu.</p> <ul style="list-style-type: none">Define the Site Manager device by selecting the N30 from the drop-down list.Define the Minimum Password length. <p>Note: The Site Manager and Minimum Password length are required fields. The Copy Holder device and Site Group object fields are optional.</p> <ul style="list-style-type: none">Click OK. <p>For further information, see the <i>Project Builder User's Guide</i>.</p>	<input type="checkbox"/>
6	<p>Upload the N30.</p> <ul style="list-style-type: none">Connect a Null Modem cable between the PC and an N30 port.Select the N30 device in Project Builder by clicking on the row number to highlight it.Right-click and select Upload Objects from the menu that appears.Click Yes to proceed.Look at the Loader window at the bottom of the screen for the upload status. <p>See the <i>Uploading and Downloading (LIT-693250)</i> chapter in the <i>Project Builder User's Guide</i> for more details.</p>	<input type="checkbox"/>

Downloading an N30 via Direct Serial Connection

Downloading an N30 database through a direct serial connection is a multistep process. Table 4 provides a checklist to verify that all steps are completed and provides references to further information about the processes.

Table 4: Downloading N30s via Direct Serial Connection Checklist

Step	Task	Done
1	<p>Create a new project in Project Builder.</p> <p>On the File menu, select New. Enter a name for the project.</p> <p>Note: The name of the project only applies to Project Builder and is not loaded into the N30.</p> <p>For further information, see the <i>Project Builder User's Guide</i>.</p>	<input type="checkbox"/>
2	<p>Add an N30 default object to the project database.</p> <ul style="list-style-type: none"> From the Devices and Collections folder in the Object Library, drag the N30 default collection to your database. Change the name of the N30 in your database to match the name of the N30 that you are going to download. <p>Notes: If you do not know the name of the N30, attempt a download using the name in your database. When Site Manager starts, it shows the name of the connected N30. Change the name of the N30 in your project database to match the name shown in Site Manager.</p> <p>Alternately, use a VT100 or VT100 Emulator to connect to the N30 and identify its name. See <i>Connecting to an N30 Using a VT100 Terminal Emulator</i> in this section.</p>	<input type="checkbox"/>
3	<p>Define a network connection icon for a direct serial connection.</p> <p>Refer to the <i>Direct Connect and Dial-up Connection on Windows 2000 and Windows XP Operating Systems Application Note (LIT-6893450)</i> for details.</p>	<input type="checkbox"/>
4	<p>Define a direct serial connection site in the Site Book.</p> <p>See <i>Configuring a Site</i> in the <i>Defining a Site</i> Chapter of the <i>Project Builder User's Guide</i>.</p>	<input type="checkbox"/>
5	<p>Add the site to the Project database.</p> <ul style="list-style-type: none"> Select the Site Name from the drop-down list on Project Builder's Edit Site screen. <p>Note: If the Edit Site screen is not open from Step 4, click Edit Site on the Edit menu.</p> <ul style="list-style-type: none"> Define the Site Manager device by selecting the N30 from the drop-down list. Define the Minimum Password Length. <p>Note: The Site Manager and Minimum Password length are required fields. The Copy Holder device and Site Group object fields are optional.</p> <ul style="list-style-type: none"> Click OK. <p>For further information, see the <i>Project Builder User's Guide</i>.</p>	<input type="checkbox"/>

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Step (Cont.)	Task	Done
6	<p>As an optional step, a database can be defined at this point. This is not required for a download to be successful.</p> <ul style="list-style-type: none">• Select the N30 device by clicking on the row number.• See the <i>Database Generation</i> section of this document for flowcharts on creating databases. <p>Note: If importing a .prn file, the .prn file must be Short form. Check by opening the file with Notepad.</p>	<input type="checkbox"/>
7	<p>Download the N30.</p> <ul style="list-style-type: none">• Connect a Null Modem cable between the PC and an N30 port.• Select the N30 device in Project Builder by clicking on the row number to highlight it.• Right-click and select Download Objects from the menu that appears.• Click Yes to proceed.• Look at the Loader window at the bottom of the screen for the download status. <p>See the <i>Uploading and Downloading (LIT-693250)</i> chapter in the <i>Project Builder User's Guide</i> for more details.</p>	<input type="checkbox"/>

Uploading an N30 via Dial-Up Connection

Uploading an N30 database through a dial-up connection is a multistep process. Table 5 provides a checklist to verify that all steps are completed and provides references to further information about the processes.

Table 5: Uploading an N30 via a Dial-Up Connection

Step	Task	Done
1	<p>Create a new project in Project Builder.</p> <ul style="list-style-type: none"> On the File menu, select New. Enter a name for the project. <p>Note: This name only applies to Project Builder and is not loaded in the N30.</p> <ul style="list-style-type: none"> All other fields are optional. <p>For further information, see the <i>Project Builder User's Guide</i>.</p>	<input type="checkbox"/>
2	<p>Add an N30 to the project.</p> <ul style="list-style-type: none"> Drag the N30 Default object into the project. Change the name of the N30 in Project Builder to match the name in the N30. <p>Notes: If you do not know the name of the N30, attempt a download using the name in your database. When Site Manager starts, it shows the name of the connected N30. Change the name of the N30 in your project database to match the name shown in Site Manager.</p> <p>Alternately, use a VT100 or VT100 Emulator to connect to the N30 and identify its name. See <i>Connecting to an N30 Using a VT100 Terminal Emulator</i> in this section.</p>	<input type="checkbox"/>
3	<p>Define a network connection icon for each site with which you want a dial-up connection.</p> <p>Refer to the <i>Direct Connect and Dial-up Connection on Windows 2000 and Windows XP Operating Systems Application Note (LIT-6893450)</i> for further information.</p>	<input type="checkbox"/>
4	<p>Define a Modem (Dial-Up) site in the Site Book.</p> <ul style="list-style-type: none"> Open the Site Book by selecting Edit > Edit Site in Project Builder and click on Directory. Click Add, Select Modem (Dial-Up), and click OK. Enter the Site Name. <p>Note: The Site Name is downloaded into the N30.</p> <ul style="list-style-type: none"> Define the Windows Phonebook Entry by selecting the name of the Network connection icon from the drop-down list. Enter the PPP Login ID and Password. <p>Note: The default PPP Login ID and Password are jci and 2468.</p> <ul style="list-style-type: none"> Leave the Network Number at the default value of 100. Click OK. Click Close to close the Site Book and return to the Edit Site window. 	<input type="checkbox"/>

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Step (Cont.)	Task	Done
5	<p>Add the Site to the project.</p> <ul style="list-style-type: none">Select the site name from the drop-down list on Project Builder's Edit Site screen. <p>Note: If the Edit Site screen is not open from Step 4, click Edit Site on the Edit menu.</p> <ul style="list-style-type: none">Define the Site Manager device by selecting the N30 from the drop-down list. <p>Note: The Site Manager is a required field. However, the Copy Holder and the Site Group object fields are optional.</p> <ul style="list-style-type: none">Define the Minimum Password length between a value of 1-8.Click OK. <p>For further information, see the <i>Project Builder User's Guide</i>.</p>	<input type="checkbox"/>
6	<p>Upload the N30.</p> <ul style="list-style-type: none">Connect a modem to the PC with a 9-25 pin modem cable.Select the N30 device by clicking on the row number to highlight it.Right-click and select Upload Objects from the menu.Click Yes to proceed.Look at the Loader window at the bottom of the screen for the upload status. <p>See the <i>Uploading and Downloading (LIT-693250)</i> chapter in the <i>Project Builder User's Guide</i>.</p>	<input type="checkbox"/>

Downloading an N30 via Dial-Up Connection

Downloading an N30 database through a dial-up connection is a multistep process. Table 6 provides a checklist to verify that all steps are completed and provides references to relevant information.

Table 6: Downloading an N30 via Dial-Up Connection

Step	Task	Done
1	<p>Create a new project in Project Builder.</p> <ul style="list-style-type: none"> On the File menu, select New. Enter a name for the project. <p>Note: This name only applies to Project Builder and is not loaded in the N30.</p> <ul style="list-style-type: none"> All other fields are optional. 	<input type="checkbox"/>
2	<p>Add an N30 to a project.</p> <ul style="list-style-type: none"> Drag the N30 Default object into the project. Change the name of the N30 in Project Builder to match the name in the N30. 	<input type="checkbox"/>
3	<p>Define a network connection icon for each site with which you want a dial-up connection.</p> <p>Refer to the <i>Direct Connect and Dial-up Connection on Windows 2000 and Windows XP Operating Systems Application Note (LIT-6893450)</i> for further information.</p>	<input type="checkbox"/>
4	<p>Define a Modem (Dial-Up) Site in the Site Book.</p> <ul style="list-style-type: none"> Open the Site Book by selecting Edit > Edit Site in Project Builder, and then click on Directory. Click Add, Select Modem (Dial-Up), and click OK. Enter the Site Name. <p>Note: The Site Name is downloaded into the N30.</p> <ul style="list-style-type: none"> Define the Windows Phonebook Entry by selecting the name of the Network connection icon from the drop-down list. Enter a Login ID of jci and a Password of 2468. <p>Note: This is the PPP Password and not the Operator Password. The default Operator Password, ADMIN, does not work for a Login ID.</p> <ul style="list-style-type: none"> Leave the Network Number at the default value of 100. Click OK. Click Close to close the Site Book and return to the Edit Site window. 	<input type="checkbox"/>
5	<p>Add the Site to the project.</p> <ul style="list-style-type: none"> Select the Site Name from the drop-down list. <p>Note: Select Edit > Edit Site in Project Builder to open the Edit Site window if not open from Step 4.</p> <ul style="list-style-type: none"> Define the Site Manager device by selecting the N30 from the drop-down list. <p>Note: The Site Manager is a required field. However, the Copy Holder and the Site Group object fields are optional.</p> <ul style="list-style-type: none"> Define the Minimum Password length between a value of 1-8. Click OK. 	<input type="checkbox"/>

Continued on next page . . .

Step (Cont.)	Task	Done
6	<p>As an optional step, a database can be defined at this point. This is not required for a download to be successful.</p> <ul style="list-style-type: none">• Select the N30 device by clicking on the row number.• See the <i>Database Generation</i> section of this document for flowcharts. <p>Note: If importing a .prn file, the .prn file must be Short form. Check by opening the file with Notepad.</p>	<input type="checkbox"/>
7	<p>Download the N30.</p> <ul style="list-style-type: none">• Connect a modem to the PC with a 9-25 pin modem cable.• Select the N30 device by clicking on the row number to highlight it.• Right-click and select Download Objects from the menu.• Click Yes to proceed.• Look at the Loader window at the bottom of the screen for the download status. Consult the <i>Troubleshooting</i> section of this document or Project Builder's online help for any errors that you experience.	<input type="checkbox"/>

Uploading an N30 via Ethernet

Uploading an N30 database through an Ethernet connection is a multistep process. Table 7 provides a checklist to verify that all steps are completed and provides references to further information.

Table 7: Uploading an N30 via Ethernet

Step	Task	Done
1	<p>Create a new project in Project Builder.</p> <ul style="list-style-type: none"> On the File menu, select New. Enter a name for the project. <p>Note: This name only applies to Project Builder and is not loaded in the N30.</p> <ul style="list-style-type: none"> All other fields are optional. 	<input type="checkbox"/>
2	<p>Add an N30 to a project.</p> <ul style="list-style-type: none"> Drag the N30 Default object into the project. Change the name of the N30 in Project Builder to match the name in the N30. 	<input type="checkbox"/>
3	<p>Define an Ethernet Site.</p> <ul style="list-style-type: none"> Open the Site Book by selecting Edit > Edit Site in Project Builder and then click on Directory. Click Add and Select Ethernet LAN. Enter the Site Name. <p>Note: The Site Name is downloaded into the N30.</p> <ul style="list-style-type: none"> Leave the Network Number at the default value of 1001. <p>Note: The Network Number must be unique from other Ethernet Sites.</p> <ul style="list-style-type: none"> The default BACnet IP Port value is 47808. <p>Note: 47808 is the decimal equivalent of BAC0 in hexadecimal. This value does not need to be changed unless multiple sites are on the same Ethernet network. If you change the value, be certain to document the new value.</p> <ul style="list-style-type: none"> Click OK. Click Close to close the Site Book and return to the Edit Site window. 	<input type="checkbox"/>
4	<p>Change the Site for the project.</p> <ul style="list-style-type: none"> Select Edit > Edit Site in Project Builder to open the Edit Site window if not still open from previous step. Select the Ethernet Site Name from the drop-down list. Verify the Site Manager device matches the N30 name listed in the project. <p>Note: The Site Manager is a required field. However, the Copy Holder and the Site Group object fields are optional.</p> <ul style="list-style-type: none"> Define the Minimum Password length between a value of 1-8. Click OK. 	<input type="checkbox"/>

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Step (Cont.)	Task	Done
5	<p>Determine the IP address of the N30 using a VT100 Terminal Emulator on your PC. The default IP address of the N30 is based on the N30's factory-set MAC address.</p> <ul style="list-style-type: none"> • Connect a Null Modem cable to the N30. • Log in to the N30 using a VT100 Terminal Emulator on your PC, and enter the Login ID of ADMIN and a Password of 2468. • Highlight the N30 name and press Enter. • Press F3 to Edit the N30. • Press the down arrow and then tab to the IP address. • Press Enter and write down the IP address. • Repeat the steps for the IP mask and IP router address. 	<input type="checkbox"/>
6	<p>Set the IP address of the N30 in Project Builder.</p> <ul style="list-style-type: none"> • Double-click on the N30 Device Object to open the object and view the communication info. <p>Note: If the site uses a BOOTP server, click the BOOTP Enabled drop-down list and click True. Because the BOOTP server allows the N30 to obtain its own IP address, you can skip the three steps below that explicitly set the IP address information and proceed to Step 7.</p> <ul style="list-style-type: none"> • Click on the Array Elements button next to the IP Address and type in the IP address. • Click on the Array Elements button next to the IP Mask and type in the IP mask. • Click on the Array Elements button next to the IP Router Address and type in the IP router address. 	<input type="checkbox"/>
7	<p>Set the IP address of the PC.</p> <ul style="list-style-type: none"> • Right-click on the Network Neighborhood and select Properties. • Select the TCP/IP Protocol that has the Ethernet card bound to it and click on Properties. • Select the IP Address tab and choose Specify an IP address. • Type in an IP address that matches that of the N30 except for the last octet. • Type in the Subnet Mask that matches that of the N30. • Click OK and restart the PC. • Check the current IP address of the PC. Use the following method: On the Windows Start menu, click Programs > Accessories > Command Prompt. Type <code>IPConfig</code>. Press the Enter key. Note the IP address. • Make sure the N30 is accessible by typing <code>PING xxx.xxx.xxx.xxx</code> from an MS-DOS prompt with the IP address of the N30. <p>Note: The <code>xxx.xxx.xxx.xxx</code> represents the IP address of the N30.</p>	<input type="checkbox"/>
8	<p>Upload the N30 using Ethernet.</p> <ul style="list-style-type: none"> • Connect the Ethernet cables between the PC and the N30. • Select the N30 device by clicking on the row number to highlight it. • Right-click and select upload objects. • Click Yes to proceed. • Look at the Loader window at the bottom of the screen for the upload status. Consult the <i>Troubleshooting</i> section of this document or Project Builder's online help for any errors that you experience. 	<input type="checkbox"/>

Downloading an N30 via Ethernet

Downloading an N30 database through an Ethernet connection is a multistep process. The following table provides a checklist to verify

that all steps are completed and provides references to further information about the processes.

Table 8: Downloading an N30 via Ethernet

Step	Task	Done
1	<p>Create a new project.</p> <ul style="list-style-type: none"> • Select File > New and enter the name of the project. <p>Note: This name only applies to Project Builder and is not loaded in the N30.</p> <ul style="list-style-type: none"> • All other fields are optional. 	<input type="checkbox"/>
2	<p>Add an N30 to a project.</p> <ul style="list-style-type: none"> • Drag the N30 Default object into the project. • Change the name of the N30 in Project Builder to match the name in the N30. <p>Notes: If you do not know the name of the N30, attempt a download using the name in your database. When Site Manager starts, it shows the name of the connected N30. Change the name of the N30 in your project database to match the name shown in Site Manager.</p> <p>Alternately, use a VT100 or VT100 Emulator to connect to the N30 and identify its name. See <i>Connecting to an N30 Using a VT100 Terminal Emulator</i> in this section.</p>	<input type="checkbox"/>
3	<p>Define an Ethernet Site.</p> <ul style="list-style-type: none"> • Open the Site Book by selecting Edit > Edit Site in Project Builder and then click on Directory. • Click Add and Select Ethernet LAN. • Enter the Site Name. <p>Note: The Site Name is downloaded into the N30.</p> <ul style="list-style-type: none"> • Leave the Network Number at the default value of 1001. <p>Note: The Network Number must be unique from other Ethernet Sites.</p> <ul style="list-style-type: none"> • The default BACnet IP Port value is 47808. <p>Note: 47808 is the decimal equivalent of BAC0 in hexadecimal. This value does not need to be changed unless multiple sites are on the same Ethernet network. If you change the value, be certain to document the new value.</p> <ul style="list-style-type: none"> • Click OK. • Click Close to close the Site Book and return to the Edit Site window. 	<input type="checkbox"/>
4	<p>Change the Site for the project.</p> <ul style="list-style-type: none"> • Select the Site Name from the drop-down list. <p>Note: Select Edit > Edit Site in Project Builder to open the Edit Site window if not open from Step 3.</p> <ul style="list-style-type: none"> • Verify the Site Manager device matches the N30 name listed in the project. <p>Note: The Site Manager is a required field. However, the Copy Holder and the Site Group object fields are optional.</p> <ul style="list-style-type: none"> • Define the Minimum Password length between a value of 1-8. • Click OK. 	<input type="checkbox"/>

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Step (Cont.)	Task	Done
5	<p>Determine the IP address of the N30 using a VT100 Terminal Emulator on your PC.</p> <ul style="list-style-type: none"> • Connect a Null Modem cable to port 1 of the N30. • Log in to the N30 using a VT100 Terminal Emulator on your PC. <p>Note: The default Login ID is ADMIN and the Password is 2468. The default baud rate for N30 Ports 1 and 2 is 9600 baud; the default baud rate for Port 3 is 57,600 baud.</p> <ul style="list-style-type: none"> • Highlight the N30 name and press Enter. • Press F3 to Edit the N30. • Press the down arrow and then tab over to the IP address. • Press Enter and write down the IP address. • Press F4 to back up. • Repeat the steps for the IP mask and IP router address. 	<input type="checkbox"/>
6	<p>Set the IP address of the N30 in Project Builder.</p> <ul style="list-style-type: none"> • Double-click on the N30 Device Object to open the object and view the communication information. <p>Note: If the site uses a BOOTP server, click the BOOTP Enabled drop-down list and click True. Because the BOOTP server allows the N30 to obtain its own IP address, you can skip the following three steps that explicitly set the IP address information and proceed to Step 7.</p> <ul style="list-style-type: none"> • Click on the Array Elements button next to the IP Address and type in the IP address. • Click on the Array Elements button next to the IP Mask and type in the IP mask. • Click on the Array Elements button next to the IP Router Address and type in the IP router address. 	<input type="checkbox"/>
7	<p>Set the IP address of the PC.</p> <ul style="list-style-type: none"> • Right-click on the Network Neighborhood and select Properties. • Select the TCP/IP Protocol that has the Ethernet card bound to it, and click on Properties. • Select the IP Address tab and choose Specify an IP address. • Type in an IP address that matches that of the N30 except for the last octet. • Type in the Subnet Mask that matches that of the N30. • Click OK and restart the PC. • Check the current IP address of the PC. Use the following method: On the Windows Start menu, click Programs > Accessories > Command Prompt. Type <code>IPConfig</code>. Press the Enter key. Note the IP address. • Make sure the N30 is accessible by typing <code>PING xxx.xxx.xxx.xxx</code> from an MS-DOS prompt with the IP address of the N30. <p>Note: The xxx.xxx.xxx.xxx represents the IP address of the N30.</p>	<input type="checkbox"/>

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Step (Cont.)	Task	Done
8	<p>As an optional step, a database can be defined at this point. This is not required for a download to be successful.</p> <ul style="list-style-type: none">• Select the N30 device by clicking on the row number.• See the <i>Database Generation</i> section of this document for flowcharts describing the steps required to generate databases. <p>Note: If importing a .prn file, the .prn file must be short form. Check by opening the file with Notepad.</p>	<input type="checkbox"/>
9	<p>Download the N30 using Ethernet.</p> <ul style="list-style-type: none">• Connect the Ethernet cables between the PC and the N30.• Select the N30 device by clicking on the row number to highlight it.• Right-click and select Download Objects from the menu that appears.• Click Yes to proceed.• Look at the Loader window at the bottom of the screen for the download status. Consult the <i>Troubleshooting</i> section of this document or Project Builder's online help for any errors that you experience.	<input type="checkbox"/>

Troubleshooting

Table 9: Troubleshooting a Single N30 System

Error/Condition	Problem	Solutions
Unable to upload from or download to an N30	N30 name in the project database does not match the name of the N30 with which you are trying to communicate.	<p>If you do not know the name of the N30, attempt a download using the name in your database. When Site Manager starts, it shows the name of the connected N30. Change the name of the N30 in your project database to match the name shown in Site Manager.</p> <p>Alternately, use a VT100 or VT100 Emulator to connect to the N30 and identify its name. See <i>Connecting to an N30 Using a VT100 Terminal Emulator</i> in the <i>Detailed Procedures</i> section.</p> <p>Also refer to the <i>Direct Connect and Dial-up Connection on Windows 2000 and Windows XP Operating Systems Application Note (LIT-6893450)</i>. These application notes contain further information about establishing communications with N30s.</p>
Unable to save project database	Invalid objects are in database.	See the status window in Project Builder for a list/description of errors.
Unable to upload from or download to an N30	Site not defined in Site Book.	Define the site in Site Book. See the <i>Site Book User's Guide</i> .
When creating a new project, the directory field is grayed out so you cannot change the location of the new project.	Integrate with AIM tools is checked in the System Tools Settings application.	If you are integrating with AIM tools, this is normal. The AIM tools determine the location of the database. Otherwise, launch System Tools Settings and uncheck Integrate with AIM tools.
Project Builder prompts for a User Name and Password and then fails the download.	The Site Book login ID, which refers to the PPP Password and ID in the N30, is incorrect. Typically, it is incorrectly set to the default login ID for accessing the N30, ADMIN.	The default PPP login ID for the N30 is jci. The Site Book login ID must match the PPP login ID so that Site Book can communicate with the N30. The default password in both cases is 2468.
Continued on next page . . .		

Error/Condition (Cont.)	Problem	Solutions
<p>When attempting to add a site to Site Book, you receive an Unable to read RAS entries error.</p>	<p>Dial-up Networking is not installed on the computer.</p>	<p>Install Dial-up Networking. Refer to the <i>Direct Connect and Dial-up Connection on Windows 2000 and Windows XP Operating Systems Application Note (LIT-6893450)</i>.</p>
<p>When attempting to upload or download an N30 with Project Builder, you receive an RAS 630 error code.</p>	<p>The port was disconnected due to hardware failure. This occurs when another application (for example, a VT100 Terminal Emulator) is open and accessing the port.</p>	<p>Close your VT100 Terminal Emulator, or any other program that is using the com port you want to use, before uploading or downloading with Project Builder.</p>
<p>When attempting to upload or download an N30 with Project Builder, you receive an RAS 650 error code on a PC running Windows 98 software or an RAS 651 error code on a PC running Windows NT software.</p>	<p>With a direct serial connection, the baud rate of the network connection icon does not match the baud rate of the N30 port.</p>	<p>Change the maximum speed setting of the network connection icon to match the speed of the N30 port. The default N30 port speeds: Port 1 - 9600, Port 2 and Port 3 - 57,600. It may be necessary to attempt different speeds to find the correct speed. N30 ports can be configured only at the speeds between 9600 and 57,600.</p>
<p>When attempting to upload or download an N30 with Project Builder, you receive an RAS 680 error code.</p>	<p>No dial tone. Can be caused by:</p> <ul style="list-style-type: none"> • The phone line is not plugged into the modem. • The wrong modem is selected in the network connection icon. • You are attempting Direct Serial communications and the connection type for the site in the Site Book is set to Modem (Dial-Up) when it should be set to Direct Serial connection. 	<p>Make sure that the phone line is plugged into the modem.</p> <p>Make sure the correct modem is selected in the network connection icon for the site with which you want to communicate:</p> <ul style="list-style-type: none"> • Open Dial-up Networking. • Right-click the network connection icon and select Properties. The Connect Using field should display the name of the modem you are using. <p>Make sure that the correct connection type is specified in the Site Book:</p> <ul style="list-style-type: none"> • Open Site Book. • Highlight the name of the site with which you are attempting to communicate. • Make sure the Connection Attribute is correct.

Troubleshooting an N30 Network

Please see *Troubleshooting in the N30 Supervisory Controller Networking Technical Bulletin (LIT-6891300)*.



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