# **TAC Vista**











# **LNS Networks**

Technical Manual



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# **INTRODUCTION**

1 About this Manual

# 1 About this Manual

This manual describes a particular process. For information on certain products, we refer you to the manual for the product in question.

For information on how to install software, we refer you to the instructions delivered with the software.

If you discover errors and/or unclear descriptions in this manual, please contact your TAC representative.



#### Note

• We are continuously improving and correcting our documentation. This manual may have been updated.

Please check our Docnet site at www.tac.com for the latest version.

### 1.1 Structure

The manual is divided into the following parts:

#### Introduction

The Introduction section contains information on how this manual is structured and how it should be used to find information in the most efficient way.

#### Getting Started

The Getting Started section contains a step-by-step description of how to engineer or carry out different tasks. It also gives you guided instructions on how to complete a sample project. If you want more information, see the corresponding chapter in the Reference section of the manual.

#### Reference

The Reference section contains more comprehensive information about various parts of the Getting Started section. It also provides you with information on alternative solutions not covered by the Getting Started section.

# 1.2 Terminology

#### 1.2.1 TAC Xenta Devices

- All programmable TAC Xentas, 280/300/401, will be called Xenta devices throughout this manual.
- When talking about the Xenta 511/527/555/911/913 and Xenta 901, we will use their proper names.
- The Xenta 422, 452 and so on will be referred to as I/O modules.

#### 1.2.2 LonWorks Devices

 All other devices will be called LonWorks devices, including the Xenta 100s.

#### 1.2.3 Classic Networks and LNS Networks

In TAC Vista, the networks connected to TAC Vista are divided into two main categories:

- Classic Networks. The term Classic Network refers to a TAC Vista system with a LonWorks network, TAC Xenta devices and/or LonWorks devices, using an LTA port connection/communication with the network and no LNS database. A Classic Network does not use any SNVT bindings. The term Classic Network also refers to any TAC System 7 system using directly connected or dial-up networks and devices.
- LNS Networks. The term LNS Network refers to a TAC Vista system with a LonWorks network, TAC Xenta devices and/or LonWorks devices, using an LTA port with a VNI as the NI (Network Interface) application, LonMaker 3 and an LNS database. This type of LTA port is referred to as an LNS port in TAC Vista.

#### 1.2.4 Modes Used in TAC Vista

**Engineering mode** and **Operating mode**. In TAC Vista the old terms offline and online have been replaced by the new terms Engineering mode and Operating mode.

#### 1.2.5 Computers

**Engineering PC** and **Site PC.** The term Engineering PC refers to the PC (computer) which the TAC Engineer uses to configure/program the system. The term site PC refers to the PC or PCs at the customer's site.



#### Note

• It is NOT possible to use both an LTA port and an LNS port on the same PC.

Trying to use two LTA communication cards in a PC and setting up one card as an LTA port and one card as an LNS will fail. The drivers for the LTA and LNS ports cannot run on the same PC at the same time.

# 1.3 Emphasized Text

Throughout the manual the following specially marked texts may occur.



#### Warning

• Alerts you that failure to take, or avoid, a specific action might result in physical harm to you or to the hardware.



#### Caution

 Alerts you to possible data loss, breaches of security, or other more serious problems.



#### **Important**

• Alerts you to supplementary information that is essential to the completion of a task.



#### Note

• Alerts you to supplementary information.



#### Tip

• Alerts you to supplementary information that is not essential to the completion of the task at hand.

# GETTING STARTED

- 2 Planning a Project
- 3 Creating a LonWorks Network
- 4 Configuring a TAC Xenta Device
- 5 Creating a TAC Vista Group
- 6 Binding a SNVT
- 7 Setting a Neuron ID
- 8 Creating a TAC Vista Database
- 9 Commissioning and Downloading
- 10 Commencing TAC Vista Communication
- 11 Backing up a LonWorks Network
- 12 Moving a Database to a Site PC

# 2 Planning a Project

Planning the LonWorks network in advance saves a lot of time and effort later on in the process. Issues like network structure (groups), device naming conventions, and so on should be considered before actually creating the network.

We strongly recommend that device names be consistent throughout the network design process. For example, if a device is named "Lobby" in the LonMaker database, the name "Lobby" should be assigned to that same device both in the TAC Menta application and in the TAC Vista Database.



#### Caution

 Naming a device differently during the design process can lead to serious complications. If you rename a device that has been downloaded, you must download that device and all other devices in the same group again. Renaming a group makes it necessary to download all the devices in the network.

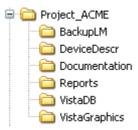
### 2.1 Folder Structure

You should also consider where files are to be stored on the hard disk. A well-organized project requires a well-organized file structure.

#### 2.1.1 Creating a Project Folder

When starting a new project, you should prepare a directory containing folders and subfolders as shown below. Our example is called project ACME.

#### A Brief Description of the Intended Use and Content:



- **BackupLM** When you have finished the LonWorks network within LonMaker, save your backup files in this subfolder.
- **DeviceDescr** Save .mta-files and .xif-files for the devices in the LonWorks network in this subfolder.
- Documentation In this subfolder you save general information such as useful manuals, data sheets and TPIs. You might also want to save I/O lists, functional descriptions, and other files created by TAC Design+ here.
- **Reports** This subfolder is for .xls files, that is the Vista reports.
- VistaDb This subfolder contains the Vista database.
- VistaGraphics TAC Vista .ogc files (graphics) are stored in this subfolder.

When the engineering work is finished, the complete project folder is transferred to the computer on site. Save the folder structure as a compressed file (\*.zip) to avoid problems with the read-only attribute, when storing on a CD.

To follow our example you must create the folders above.

### 2.2 Case Study

In the following chapters, we describe how to create a LonWorks network using LonMaker Integration Tool and Vista System Plug-In. Our network example is based on the case described below.

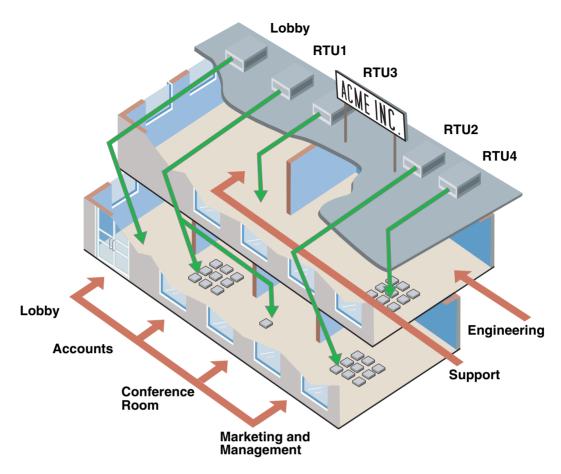
### 2.2.1 Description of Facility

We are going to create a system for a fictitious company that is called Acme Inc.

The facility is a typical, small two storey office building, served by packaged roof-top equipment. The first floor area serves Marketing, Accounts, Senior Management and the entrance Lobby. The second floor area serves Engineering and Customer Support.

Within the first floor area, the Accounts area is served by a constant volume, roof top air handling unit with nine dump dampers to the return air plenum. The air handling unit has central station cooling and heating. The space is divided into control zones – the Accounts area and a conference room with secondary air handling. The Marketing and Senior Management areas are served by a single roof-top variable air volume (VAV) air handling unit with nine terminals. The first floor lobby area is served by a roof-top constant volume, single zone air handling unit.

On the second floor, the Customer Support area is served by a single zone, constant volume air handling unit. The Engineering area is served by a roof-top VAV air handling unit with six terminals.



Lighting control is provided for the entire second floor using a Lonbased lighting controller. In the second floor conference room, the dimmable incandescent lights and the window blinds are automatically controlled. In the engineering area, there is a compressed air system that is monitored and controlled. There is also a neon sign on the roof controlled by a Lon-based push button.

The staff are able to supervise the system from a PC-based presentation system and from a web site on the intranet/Internet.

### 2.2.2 Device Description and Naming Conventions

Within the first floor area, the roof-top unit serving the Accounts area is controlled by a Xenta 301 called RTU1, and the nine dump dampers are controlled by LonWorks devices called RTU1 Damper 1 through 9.

The secondary air handling unit for the conference room is controlled by a Xenta 281, called Conf Room.

The roof-top unit serving Marketing and Senior Management is controlled by a Xenta 401, called RTU2, using four I/O modules. The nine terminals are controlled by nine Xenta 102 AXs, called VAV\_2\_1 through 9.

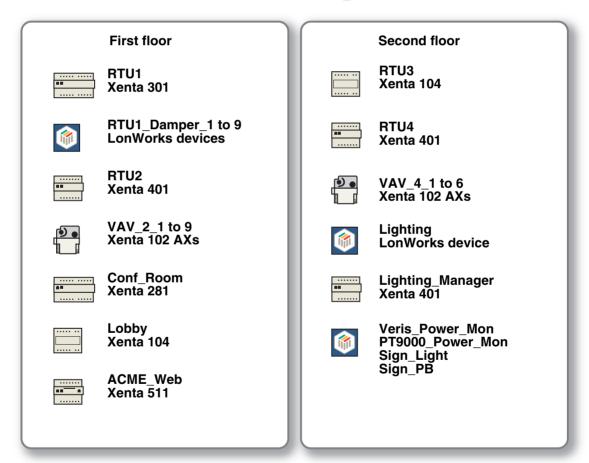
The air handling unit serving the lobby area is controlled by a Xenta 104, called Lobby.

On the second floor, the roof-top unit serving the Customer Support area is controlled by a Xenta 104, called RTU3.

The roof-top unit serving the Engineering area is controlled by a Xenta 401, called RTU4. The six terminals are controlled by six Xenta 102 AXs called VAV 4 1 through 6.

The Lon-based lighting controller is called Lighting and uses a Xenta 401 as a lighting manager, called Lighting\_Manager. The compressed air system is controlled by two LonWorks devices called Veris\_Power\_Mon and PT9000\_Power\_Mon. The neon sign is controlled by two LonWorks devices called Sign\_Light and Sign\_PB.

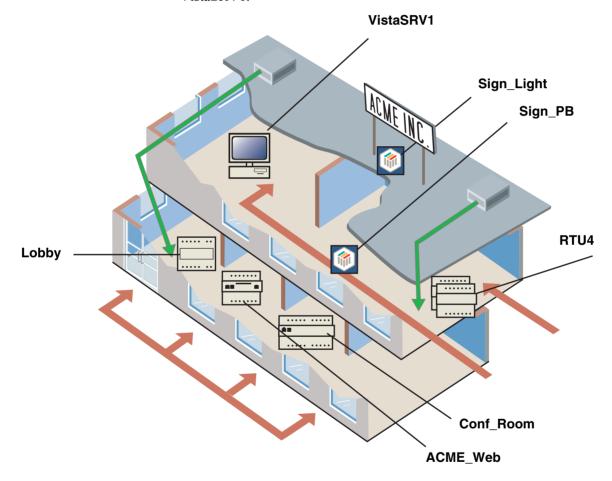
The PC on which the presentation system is installed is called VistaSRV1 and is located in the Support area. The web site is created on a Xenta 511 called ACME\_Web, and is located in the Accounts area.



### 2.2.3 Devices in the Example

In our example, we use part of the above network to illustrate how a network is created. On the first floor, we select the roof-top unit, Lobby, to illustrate how to install a Xenta 104 controller, as well as the secondary air handling unit in the conference room to illustrate how to install a Xenta 281. We also describe how to install the Xenta 511 ACME\_Web in the LonWorks Network.

On the second floor, we select the roof-top unit RTU4 to illustrate how to install a Xenta 401 with I/O modules, and the LonWorks devices Sign\_light and Sign\_PB. We also show you how to create the device database in the presentation system installed on the computer VistaSRV1.



We work with the following devices:

First floor



Conf\_Room Xenta 281



Lobby Xenta 104



ACME\_Web Xenta 511 **Second floor** 



RTU4 Xenta 401



I/O-Modules Xenta 422 Xenta 452

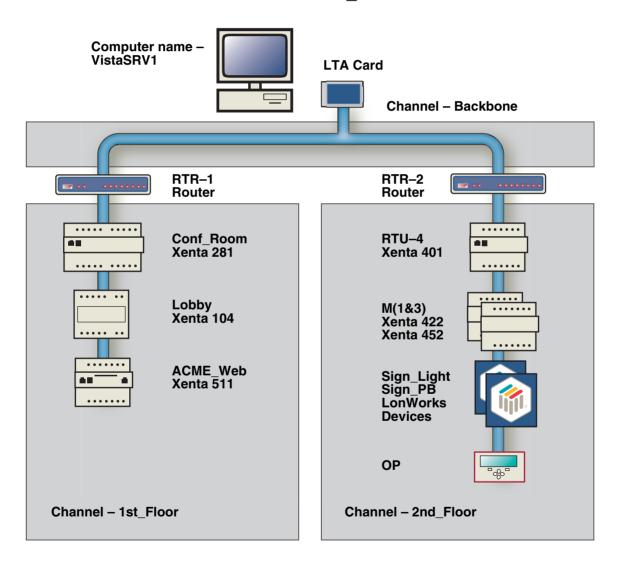


Sign\_Light Sign\_PB LonWork devices

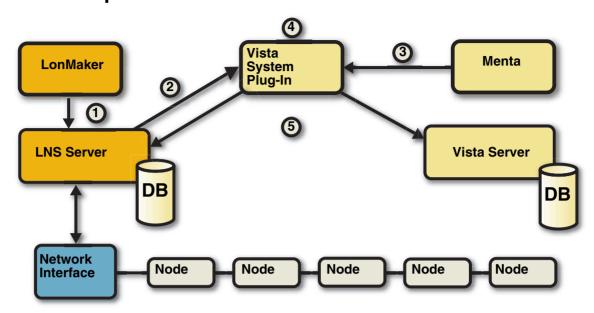
### 2.2.4 Network Structure and Naming Conventions in the Example

When building the network in LonMaker, the name of the network is the name of the company; ACME\_Inc. Since the building has two floors, the network is built with a backbone and two additional channels called 1st\_Floor and 2nd\_Floor. The backbone and the channels are of the FTT-10A type. The routers used to create the two channels are called RTR-1 and RTR-2. The devices located on the first floor are therefore installed on the 1st\_Floor channel, and the devices located on the second floor are installed on the 2nd\_Floor channel.

#### Network - ACME\_Inc



# 2.3 Simplified Workflow



- 1 Create the LonWorks network structure in LonMaker. LonMaker will store the network information in the LNS database.
- 2 Start TAC Vista System Plug-In. The plug-in will read the network information from the LNS database.
- **3** Assign the application (\*.mta) for the Xenta device(s).
- **4** Assign I/O-modules and Neuron IDs. Create Xenta groups for Xenta devices and LonWorks groups for LonWorks devices, e.g. the Xenta 100s.
- 5 Save new information in the LNS database and update the Vista database

For more information on these procedures, follow the Getting Started section of this manual.

# 3 Creating a LonWorks Network

In this chapter, you are guided through the process of setting up a Lon-Works network using LonMaker.

LonMaker is used as the network management tool when the LonWorks networks have bound SNVTs. When no bound SNVTs are used, you use Vista Workstation Pro as the network management tool. For more information on LonWorks networks with no bound SNVTs, see the *Engineering Classic Networks* manual.

In the example, both the engineering PC and the site PC use LonTalk adapter cards from Echelon or Loytec.

If the site PC uses another type of network adapter, see the following chapters:

- Chapter 21, "TAC Xenta 511/527/555", on page 201
- Chapter 22, "TAC Xenta 911", on page 219
- Chapter 23, "TAC Xenta 901", on page 235

# 3.1 Engineering PC Requirements

A number of things need to be in place on the engineering PC before you can start creating your network.

- LonMaker Integration Tool, plus the latest service pack.
- The latest LNS Server service pack.

For more information on how to install the software, see the Echelon documentation.

- The latest TAC Vista Config.
- The latest TAC Vista Workstation Pro.
- The latest TAC ToolPack.

For more information on how to install the software, see the *Installing TAC Software* manual.

# 3.2 Installing the Privilege Licenser

The Privilege Licenser consists of a server that runs as a service and an administrator tool for license management.

A Privilege Licenser needs to be installed on every computer with Vista Server in order for the engineering hardware key to work.

#### To install the Privilege Licenser

- 1 Install the license server according to the *Installing TAC Software* manual.
- 2 Insert the hardware key on the Engineering PC.

# 3.3 Creating a Network Template

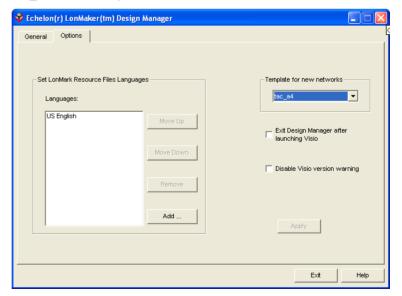
Before creating the new network in LonMaker, we recommend that you create a template to use with this and future networks. In the template you can register the desired plug-ins and set the parameters that you want to reuse when creating new networks. This saves you the trouble of having to go through this time-consuming process when creating new networks. You will then be able to open this template as a copy when creating future networks.

#### To create a network template

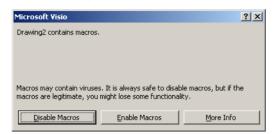
1 On the **Start** menu, point to **Programs**, point to **Echelon Lon-Maker for Windows**, and then click **LonMaker for Windows**. Echelon LonMaker Design Manager appears.



2 On the Options tab, in the Template for new networks box, select the desired page format (tac\_a4 for drawing in A4 and tac\_US for drawing in US Letter).



- 3 Click Apply.
- 4 On the **General** tab, click **New Network** to launch the Network Wizard.
- 5 In the message box, click **Enable Macros**.





#### Tip

 To avoid the "enable/disable macros" dialog each time you open a drawing, change your security level in Microsoft Visio. In Visio, on the Tools menu, point to Macros, and then click Security. On the Security Level tab, select Low, click OK.

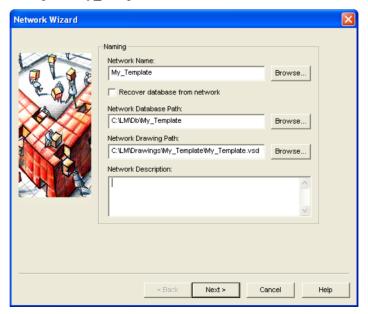


#### Note

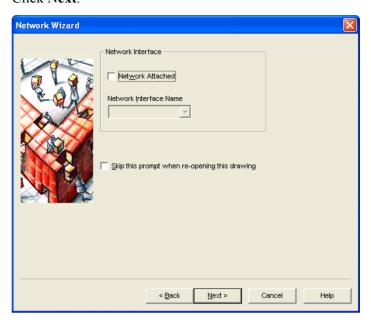
 Setting the security level to low makes your PC vulnerable to macros containing viruses. Only accept files from trusted sources. If you do choose to change the security level, make sure that you always update the virus protection software installed.

The Network Wizard opens.

6 In the **Network Name** box, type the name of the network. In the example, "My Template".



#### 7 Click Next.

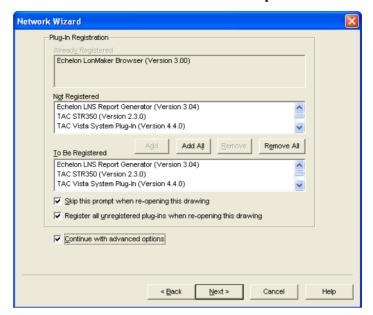


- 8 Click **Next** without making any changes to the dialog.
- 9 In the **Plug-In Registration** area, edit the list of plug-ins to be registered. In the example, agree with the plug-ins in the **To Be Registered** list box, and do not edit the list.



#### Note

- TAC Xenta Device Plug-In and TAC Vista System Plug-In have to both be registered. It should be noted that we recommend registering all plug-ins to the template.
- To deselect the plug-ins you do not need, select them and click Remove. If you want to add plug-ins later on, select the plug-ins you want to add from the To Be Registered drop-down list box and click Add, or click Add All to register all of them.



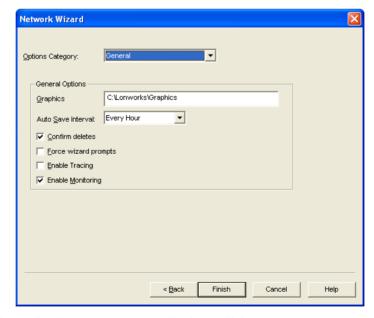
10 Select the Continue with advanced options check box.

11 Click Next.



#### Tip

- If you want to check which plug-ins you have registered or if you want to register new plug-ins at a later stage, access the Plug-In Registration dialog by clicking the LonMaker menu and then selecting Network Properties.
- 12 Click Next repeatedly until you reach the following dialog:



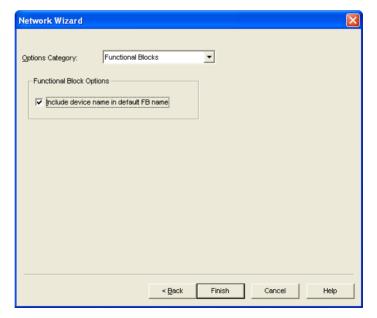
13 In the Options Category list box, click Device.

14 In the New Device State area, set App Devices to Online mode to make the online option the default when commissioning later on.



- 15 In the Options Category list, click Functional Blocks.
- 16 Click to select the Include device name in default FB name check box to automatically get the device names in the function blocks.

This makes it easier to keep track of the function blocks that belong to the different devices



17 Click Finish to save the settings in the template.

**18** Wait until the **TAC Xenta 100 Plug-in** dialog box appears. This may take some time. The dialog will only appear if you chose to register the Xenta 100 Plug-in.



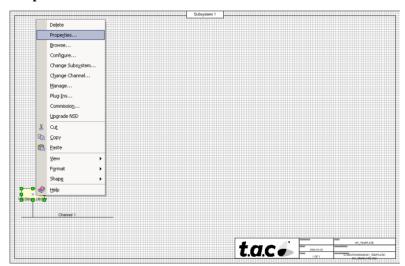
#### 19 Click OK.

The Xenta 100 Plug-in is now registered. This may also take some time.

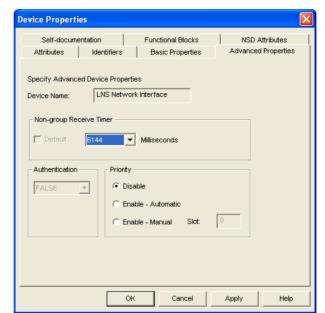


#### Note

- If the TAC Devices stencil is not open: on the **File** menu, point to **Stencils** and then click **TAC Devices**. This will add the stencil to the shapes pane on the left.
- **20** Right-click the network interface symbol in the drawing and click **Properties**.



21 Click the Advanced Properties tab.



22 In the Non-group Receive Timer list, click 6144 ms.

### 23 Click OK.

## $\checkmark$

### Caution

- The receive timer value has to be changed to ensure that communication between the devices and the TAC Vista Server works properly.
- **24** Save the template.
- **25** Quit Visio and return to the Echelon LonMaker Design Manager.

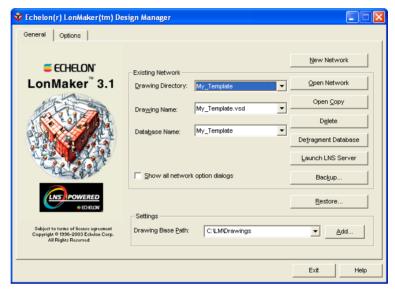
# 3.4 Using a Template

When starting to work with a new LonMaker network in LonMaker it is recommended to use a template.

In the example, you use the template My\_Template to create the Lon-Works network ACME\_Inc.

# To use a template

1 In the **Existing Network** area, in the **Drawing Directory** list, select the template. In the example, My\_Template.

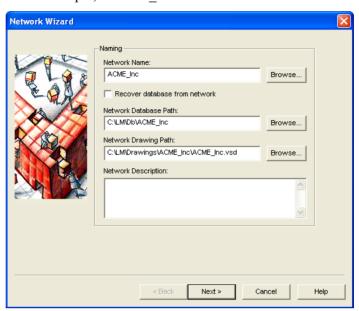


2 Click Open Copy.

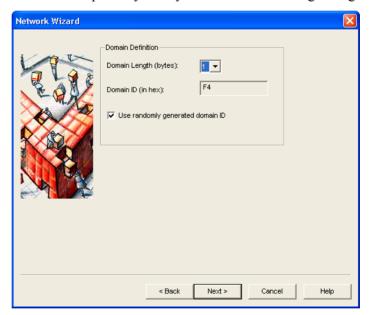


3 Click Yes.

4 In the **Network Name** box, type the name of the new network. In the example, "ACME Inc".

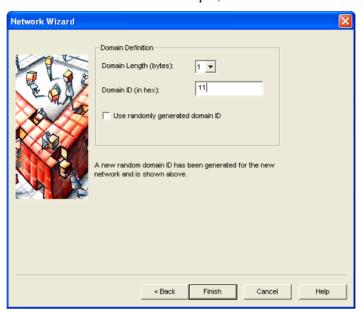


**5** Click **Next** repeatedly until you reach the following dialog:



6 Clear the Use randomly generated domain ID check box.

7 In the **Domain ID (in hex)** box, enter the domain ID that will be used in the network. In the example, "11".





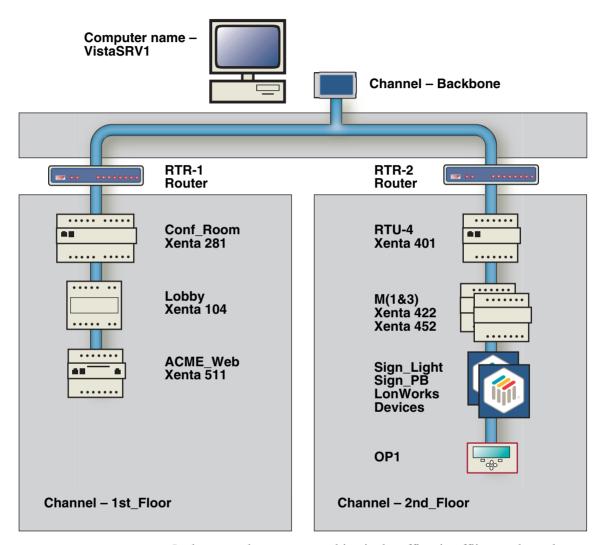
# Note

You can use a randomly generated domain ID if there are no requirements stating which domain ID to use.

# 3.5 Creating a LonWorks Network Structure

The structure of the networks should be based on the location of the devices in the building.

# Network - ACME\_Inc



In the example, we start working in the office, in offline mode, and complete as many of the tasks as we can before going on-site.

# 3.5.1 Naming a Drawing in Microsoft Visio

# To name a drawing in Microsoft Visio

- 1 Right-click anywhere in the LonMaker drawing and click **Sub**system **Properties**.
- 2 In the Name box, type the name of the system. In the example, "Network Overview".
- 3 Click OK.



### Tip

• Alternatively, double-click on the **Subsystem 1** tab at the bottom of the drawing and type in the new name.

# 3.5.2 Renaming a Channel

If you are using a LonTalk adapter of the type Loytec NIC709, a Phantom Router has to be inserted. For more information, see Chapter 20.1, "Creating a Phantom Router", on page 187.

#### To rename a channel

- Double-click the channel. In the example, Channel 1.
- Type the new name. In the example, "Backbone".

# 3.5.3 Creating a Channel

If routers are used in the Lonworks network, you will need more than one channel.

In the example, we need two additional channels named 1st\_Floor and 2nd Floor.

#### To create a channel

1 From the LonMaker Basic Shapes stencil, drag a channel shape to the drawing.



- 2 In the Channel Definition dialog box, in the Channel Name box, type the name of the channel. In the example, "1st\_Floor".
- 3 In the **Transceiver Type** box, specify transceiver type. In the example, "TP/FT-10".



#### 4 Click OK.

Repeat the procedure above to add the required number of channels. In the example, create a second channel named 2nd Floor.

# 3.5.4 Adding a Router

When the channels are added to the drawing, you add routers between the backbone channel and the added channels.

In the example, we add the router RTR- 1 between the backbone channel and the 1st\_Floor channel, and add the router RTR- 2 between the backbone channel and the 2nd\_Floor channel.

#### To add a router

1 From the LonWorks Basic Shapes stencil, drag a router shape to the drawing.

The New Router Wizard starts.

2 In the **Router Name** box, enter the name of the router. In the example, RTR-1.



- 3 Click Next.
- 4 In the **Channel A** area, in the **Name** list, select the channel closest to the network interface. In the example, Backbone.

New Router Wizard

Specify Router Channels
Router Name: RTR-1

Channel A

Xcvr Type: <All>
Name: Backbone

Channel B

Xcvr Iype: <All>
Name: 1st\_Floor
2nd\_floor
Backbone

5 In the **Channel B** area, in the **Name** list, select the other channel that the router is connected to. In the example, 1st\_Floor.

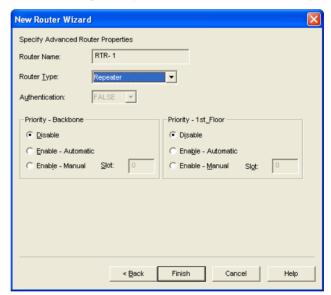
6 Click **Next** repeatedly until you reach the following dialog:

< Back

<u>N</u>ext >

Cancel

Help



- 7 In the Router Type list, click Repeater.
- 8 Click Finish.



#### Note

Always commission routers in Repeater Mode first. Wait until all
nodes on the network are commissioned before setting the router
in Configured Mode. This ensures that you do not have any
nodes with the same subnet address on both sides of a router.
Configured routers cannot cope with this situation and will be
destroyed.

Repeat the procedure to add the required number of routers.

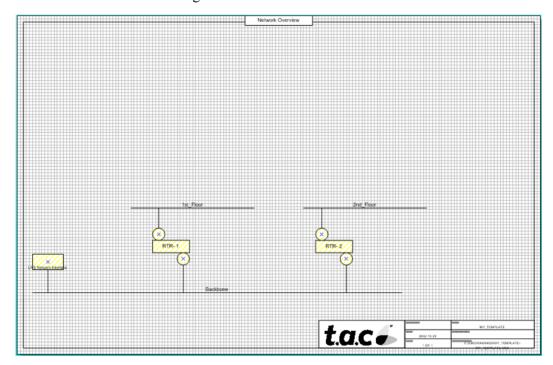


# Tip

 Do not forget to save every time you have added to or changed the drawing.

In the example, add a second router, RTR-2, between the Backbone channel (Channel A) and the 2nd\_Floor channel (Channel B).

The drawing looks similar to this:



# 3.5.5 Creating a Subsystem

One reason for dividing the network into subsystems is to limit the number of devices per drawing.

For more information on subsystems, see Chapter 25, "Using Subsystems", on page 257.

As the project example is simple, this is not necessary. However, the technique is used in the example to demonstrate how it is done.

In the project example, there are three subsystems: Various, RTU4, and Lighting.

#### The 1st\_Floor channel:

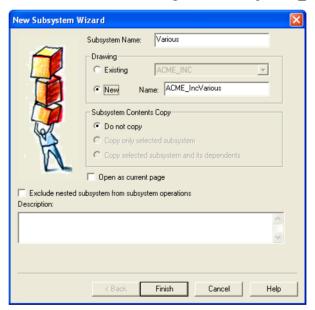
• "Various", containing one Xenta 281, one Xenta 511, and one Xenta 104.

#### The 2nd\_Floor channel:

- "RTU4", containing one Xenta 401 with I/O modules (422 and 452) and a Xenta OP.
- "Lighting", containing one push-button and one sign.

# To create a subsystem

1 From the **LonMaker Basic Shapes box**, drag a subsystem shape to the channel in the drawing. In the example, 1st Floor.





# Tip

- For easy channel setting, drop the subsystem onto the channel.
- 2 In the **Subsystem Name** box, type the name of the subsystem. In the example, "Various".

- 3 In the **Drawing** area, select **New**.
- 4 Click Finish.

Repeat the procedure above to add the required number of subsystems. In the example, add two more subsystems:

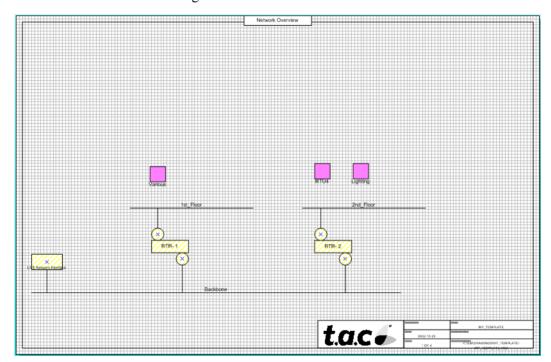
- RTU4 for the 2nd Floor channel
- Lighting for the 2nd Floor channel



# Tip

• Do not forget to save every time you have added to or changed the drawing.

The drawing looks similar to this:



# 3.5.6 Adding a Device

When the channels and the subsystems are added to the drawing, the devices are then added. When adding a device, do so by using the shapes in the stencils. That way you get the right .xif file for the device. If no shape is available, use the Device shape found in the LonMaker Basics shapes stencil and browse to the .xif file.



## **Important**

- For Xenta devices, you have to use the shapes found in the TAC Devices stencil.
- The shapes for Xenta devices contains dummy .xif files. This is because the Xenta devices are freely programmable and the xif. file will differ from Xenta device to Xenta device. The .xif file that matches the specific application is added to the LNS database when you configure the device later on in the procedure.

In the example, a Xenta 281 named Conf\_Room is added to the subsystem Various.

#### To add a TAC Xenta device

- 1 Double-click the subsystem icon. In the example, Various.
- 2 From the **TAC Devices** stencil, drag the device shape to the channel. In the example, the Xenta 281 shape.



#### Note

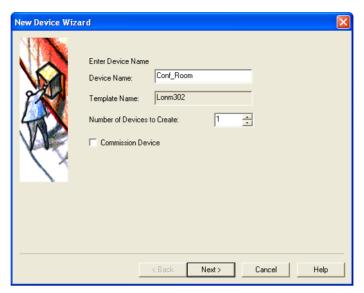
- You can open and close the stecils in LonMaker. To open a stencil, point to Stencils on the File menu and then click Open Stencils.
- 3 In the **Device Name** box, type the name of the device. In the example "Conf Room".



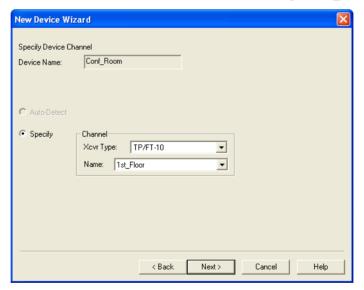
#### Note

 A TAC Xenta 280 can be configured to act as a LonWorks device, this means that it only communicates using SNVTs.
 When adding the Xenta 280 as a LonWorks device in the Lon-Maker drawing, use the Device shape from the LonMaker Basic Shapes stencil and then load the external interface file (\*.xif) generated by TAC Menta.

In this case, the Xenta 280 application files (\*.mta) have to be downloaded via the RS-232 port, using TAC Menta.



- 4 Click Next.
- 5 Click Specify.
- 6 In the Name list, click the channel. In the example, 1st\_Floor.



- 7 Click Next.
- **8** Click **Finish** to create the device in the subsystem.

Repeat the procedure above to add the required number of Xenta devices.

In the example, add the following devices to the subsystem Various (1st\_Floor):

• A Xenta 511 named 511.

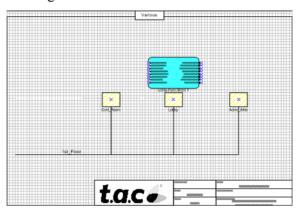
A Xenta 104 named Lobby.



## Tip

• Do not forget to save every time you have added to or changed the drawing.

The drawing looks similar to this:





# Tip

• Double-click on the subsystem name at the top of the drawing to return to the main drawing.

# 3.5.7 Working Subsystem by Subsystem

When adding devices in LonWorks network, you will start by adding channels, routers, and subsystems. Focus on one subsystem at a time and add the required LonWorks devices and Xenta devices.

In the example, you have to complete the RTU4 subsystem by adding the Xenta device RTU4 and the Xenta OP, and the Lighting subsystem by adding the LonWorks devices Sign\_PB and Sign\_Light. Follow the example to get an idea of the typical workflow, and of how to handle typical difficulties you might run into.

### To work with the subsystem RTU4

**1** Add a Xenta 401:

• Stencil: TAC Devices

• Shape: Xenta 401

Name: RTU4

• Channel: 2nd Floor

**2** Add a Xenta OP:

Stencil: TAC Devices

Shape: Xenta OP

Name: OP1

• Channel: 2nd\_Floor

OP Mode: INST

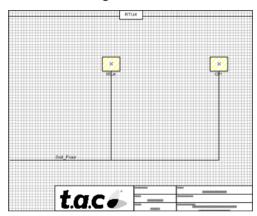
For more information on OP modes, see Chapter 18, "TAC Xenta OP Configuration", on page 181.



### Note

• Do not add the I/O modules at this stage. The I/O modules are added later in the process.

The drawing looks similar to this:





# Tip

• Double-click on the subsystem name at the top of the drawing to return to the main drawing.

# Working with the Subsystem Lighting

1 Add a LonWorks push-button device:

Stencil: LonMaker Basics Shapes

Shape: DeviceName: Sign\_PB

Help

New Device Wizard Specify Device Template Current Template: Device Name(s): Sign\_PB External Interface Definition C Upload From Devi Load XIF File: C:\Project\_ACME\DeviceDescr\PB.XIF Browse... Template Name: 102AX101 C Existing Template < Back Next> Cancel

Load .xif file: PB.xif

- Channel: 2nd Floor
- Add LonWorks light-fitting device:
  - Stencil: LonMaker Basics Shapes
  - Shape: Device
  - Name: Sign Light
  - Load .xif file: Light.xif
  - Channel: 2nd Floor



# Tip

Do not forget to save every time you have added to or changed the drawing.

T.a.c.

The drawing looks similar to this:.



# Tip

• Double-click on the subsystem name at the top of the drawing to return to the main drawing.

# 4 Configuring a TAC Xenta Device

When all the devices are added to the LonMaker drawing, you need to configure the Xenta devices. Do this by assigning the application files (\*.mta) to the Xenta devices. The application file is also checked for I/O modules and the corresponding I/O modules are added to the LonMaker drawing.



#### Note

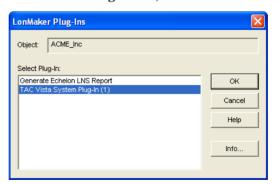
If a Xenta device is programmed to act as a LonWorks device, do not assign the application file (\*.mta) in Vista System Plug-In. Instead, download the application file via the RS-232 port, using Menta. In Vista System Plug-In, in the LNS network pane, select the device. On the LNS Networks menu, point to Act as Lon-Works Device and then click Enable.

# 4.1 Starting the TAC Vista System Plug-In

The configuration of the Xenta devices is made using the Vista System Plug-In.

# To start the TAC Vista System Plug-In

- 1 In LonMaker, on the **LonMaker** menu, click **System Plug-Ins**.
- 2 In the Select Plug-In list, select TAC Vista System Plug-In (1).



3 Click OK.

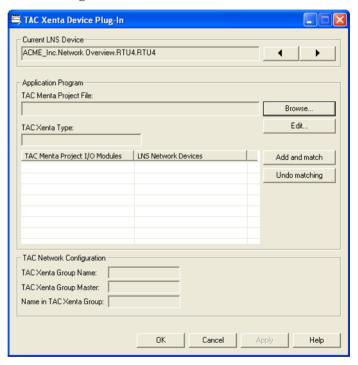
# 4.2 Assigning an Application File

You have to assign an application file to each Xenta device in the Lon-Works network. An .xif file is automatically generated and saved in the LNS database replacing the dummy .xif file from the shape. The application is downloaded to the Xenta device later on in the process.

In the example, the application file RTU.mta is assigned to the Xenta device RTU4, and the application file Conf\_Room.mta is assigned to the Xenta device Conf\_Room.

# To assign an application file

- In the LNS Network pane, right-click the device object you want to configure. In the example, ACME\_Inc-2nd\_Floor-RTU4.
- 2 Click Configure.

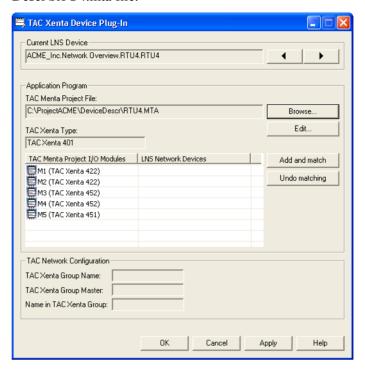




#### Tip

• For more information on Xenta Device Plug-In, see Help.

3 In the TAC Menta Project File box, browse to the application file for the device. In our example, the C:\ProjectACME\Device-Descr\RTU4.mta file.



# 4.3 Assigning a TAC Xenta I/O Module

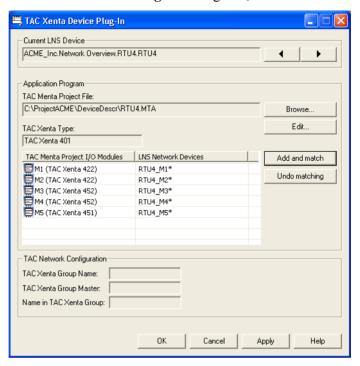
When you have assigned the application to the Xenta device in the **TAC Xenta Device Plug-In** dialog box, you can see the types of I/O modules specified in the application, in the **TAC Menta Project I/O Modules** list. box. If the application does not have any I/O modules specified, the text **No I/O modules** is displayed.

You can allow the Xenta Device Plug-In to add the I/O modules to the drawing or you can add them yourself and then assign them to the I/O modules specified in the application. For information on alternative ways of assigning I/O modules, see Chapter 16, "Assigning I/O Modules", on page 177.

In the example, you will allow the Xenta Device Plug-In to add the I/O modules to the drawing.

# To assign a TAC Xenta I/O module

1 In the Xenta Device Plug-In dialog box, click Add and match.





#### Note

- The Device Plug-In suggests names for the I/O modules, for example, RTU4\_M1, where the RTU4 is the name of the Xenta device and M1 is the name of the I/O module specified in the application.
- An asterisk indicates that the I/O module is not added to the LNS database.
- 2 Click OK.



#### Note

 The asterisks disappear when the I/O modules are added to the LNS database.



#### 3 Click Yes



#### Note

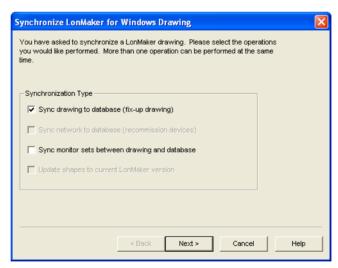
- The Device Plug-In only adds the I/O modules to the LNS database. To make them visible in the LonMaker drawing, a resynchronization of the drawing is needed.
- It is possible to do a resynchronization from LonMaker later on by clicking LonMaker – Resynchronize. You might want to configure all of the devices and then do a resync once this has been completed.





## **Important**

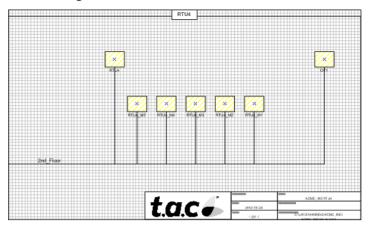
- If you have a large network, follow Echelons advice and perform a backup of the database and the drawing before you continue.
- 4 Click **Yes** to continue.
- 5 Select the **Sync drawing to database (fix-up drawing)** check box.



- 6 Click **Next** repeatedly in the dialogs that follow, and then click **Finish**.
- 7 Click **OK** in the **Synchronization Status** dialog box.
- **8** In the LonMaker drawing, verify that the I/O modules are added to the drawing. In the example, the subsystem RTU4.

Arrange the I/O modules in a way that associates them with the TAC Xenta device to which they belong.

The drawing looks similar to this:



Repeat the procedure above to configure all the Xenta devices in the LonWorks network.

In the example, configure the Xenta device Conf\_Room:

- Application:
   C:\ProjectACME\DeviceDescr\Conf Room.mta.
- I/O modules: None.

# 5 Creating a TAC Vista Group

When Vista communicates with devices on a LonWorks network, the devices have to be grouped. Xenta devices are assigned to the Xenta groups and group masters are established. LonWorks devices are assigned to LonWorks groups.

You need to create a network structure in the TAC network pane in the TAC Vista System Plug-In. The structure of the Vista database is based on this structure.

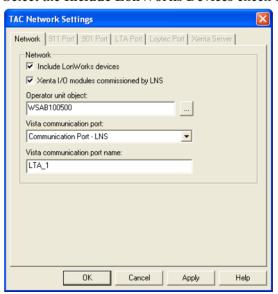
# 5.1 Including LonWorks Devices

You can choose whether to include LonWorks devices in the TAC network pane or not. If you choose to include the LonWorks devices, they will be visible in Vista Workstation later on in the process.

In the example, you will include the LonWorks devices.

#### To include LonWorks devices

- 1 In Vista System Plug-In, on the **TAC Network** menu, click **Settings**.
- 2 Click the **Network** tab.
- 3 Select the **Include LonWorks Devices** check box.



4 Click OK.



# Note

In the LNS network pane, you have the ability to decide whether or not a device will appear in the TAC network pane by right-clicking on the device and choosing **Move to TAC Network/Disable** or **Enable**. All devices are enabled by default except Xenta OPs and I/O modules. I/O modules cannot be enabled.

# 5.2 Updating a TAC Network

By updating the TAC network, you build the tree structure that will be shown in Vista Workstation. The tree structure in the TAC Network pane will be based on the tree structure in the LNS network, pane. You can choose to structure the LNS network tree according to the channels or the subsystems in the LonWorks drawing. If you structure the LNS network tree according to the channels, the Xenta groups and the LonWorks groups in the TAC network will be named according to the channels. If you structure according to the subsystems, the Xenta groups and the LonWorks groups in the TAC network will be named according to the subsystems.

The TAC network tree structure pane can be rearranged and the network, the groups, and the devices can be renamed after the update.



#### Caution

- If you rename a Xenta device after downloading the applications and parameters to the devices, you will have to download the application and parameters to the device and all the other devices in the Xenta group again.
- If you rename a group after downloading the applications and parameters to the devices, you will have to download the applications and parameters to all the devices in the network.



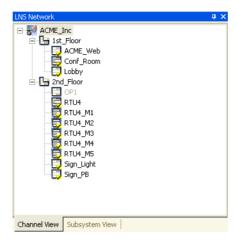
#### Note

• It is possible to delete devices from the TAC network pane after the update. However, removing TAC Xenta devices could result in communication issues between devices.

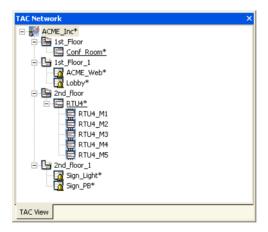
In the example, you will structure the LNS network according to the channels in the network drawing.

# To update a TAC network

1 In the LNS network pane, click the Channel View tab or the Subsystem View tab to structure the tree. In the example, click the Channel View tab.



- 2 On the TAC Network menu, click Update TAC Network.
- 3 In the TAC Network pane, right-click the network object. In the example, ACME Inc.
- 4 Click Expand Branch.
- **5** Check the TAC network tree structure.





#### Note

 You can change the Xenta that is acting as group master. In the TAC network pane, right-click the desired Xenta device object and then click Set As Master.

# 5.3 Renaming a Group

The Xenta groups and the LonWorks groups in the TAC pane can be rearranged and renamed after the TAC network is updated.



## **Important**

• Xenta and LonWorks devices should not be renamed.

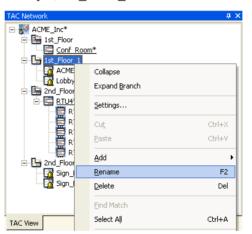
In the example, the following LonWorks groups are renamed:

- 1st Floor 1 is renamed to1st Floor LW
- 2nd\_Floor\_1 is renamed to 2nd\_Floor\_LW.

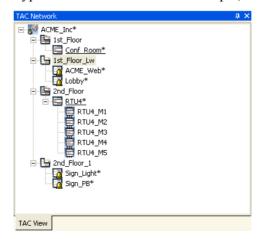
LW stands for LonWorks.

# To rename a TAC Vista Group

1 In the TAC Network pane, right-click the group object. In the example, 1st Floor 1.

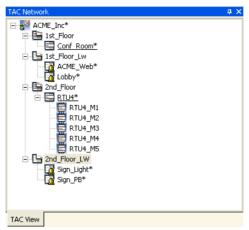


- 2 Click Rename.
- **3** Type in the new name. In the example, "1st Floor LW".



Repeat the procedure above to rename all groups that need a new name.

In the example, rename the LonWorks group 2nd\_Floor\_1 to 2nd\_Floor\_LW.



# $\checkmark$

### Caution

- If you rename a Xenta device after downloading the applications and parameters to the devices, you will have to download the application and parameters to the device and all the other devices in the Xenta group again.
- If you rename a group after downloading the applications and parameters to the devices, you will have to download the applications and parameters to all the devices in the network.



#### Note

• The group and device names defined in the TAC network pane will appear in the Xenta OP when the complete structure is downloaded to the Xenta devices later on in the process.

# 5.4 Creating TAC and TAC Xenta Group Bindings

All Xenta devices in the Lonworks network have to belong to a TAC group binding, and all Xentas in a group have to belong to a Xenta group binding. The group bindings are created in the LNS database using the Vista System Plug-in. You will need to re-synchronize the LonMaker drawing in order to make the group bindings visible in the drawing.

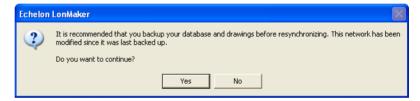
For more information on TAC and Xenta group bindings, see Chapter 17, "TAC Vista Group Bindings", on page 179.

# To create TAC and TAC Xenta group bindings

- 1 In the Vista System Plug-In, on the LNS Network menu, click Create Group Bindings.
- 2 Wait while Vista System Plug-In creates the group bindings.



3 Click Yes.

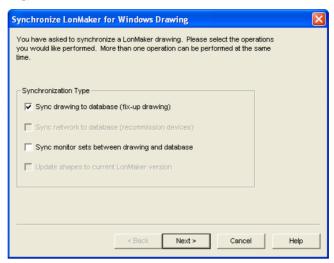


# 1

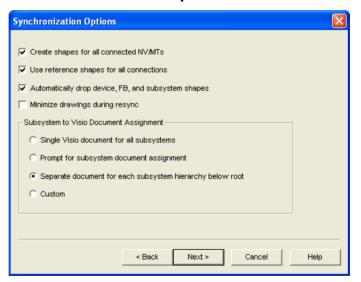
# **Important**

- If you have a large network, follow Echelons advice and perform a backup of the database and the drawing before you continue.
- 4 Click **Yes** to continue.

5 Select the check box Sync drawing to database (fix-up drawing).

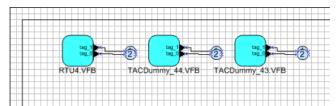


- 6 Click **Next** repeatedly until you reach the **Synchronization Option** dialog box.
- 7 Select the Use reference shapes for all connections check box.



- 8 Click Next and then click Finish.
- **9** Wait while LonMaker synchronizes the LonMaker drawing.
- 10 Click **OK** in the **Synchronization Status** dialog box.

**11** Verify that the group bindings have been created in the LonMaker drawing.





#### Note

- The group bindings are visible in the upper-right corner of the LonMaker drawings containing Xenta devices.
- After the devices are commissioned, it is possible to confirm TAC and Xenta group addresses in the Xenta device's address table within LonMaker.



## Tip

At this point it is possible to update the Vista database and work on Vista graphics and the appearance of reports and charts before you are on-site. For more information on how to update the Vista database, see Chapter 8, "Creating a TAC Vista Database", on page 77.

# 6 Binding a SNVT

When the Vista group bindings are created, you also create bindings for all of the devices in the LonWorks network that contain SNVTs that are used in the system.

In the example, you will bind a SNVT from the push-button to the light fitting in order to get the neon sign working.

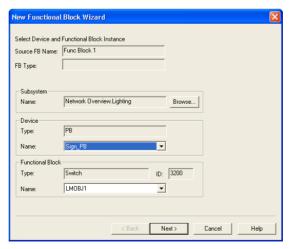
# 6.1 Adding a Functional Block

Before you can start to bind SNVTs, the SNVTs have to be added to the LonMaker drawing. This is done by adding a functional block for the device which shows all the SNVTs available in the external interface file (.xif) of the device.

In the example, you have to add functional blocks for the Sign\_PB and the Sign Light devices.

#### To add a functional block

- 1 In LonMaker, open the drawing containing the devices. In the example, the subsystem Lighting.
- **2** From the **LonMaker Basic Shapes** stencil, drag the Functional Block shape to the drawing.
- 3 In the **Device** area, in the **Name** list, click the device to which the functional block belongs. In the example, Sign\_PB.



4 Click Next.

In the **FB Name** box, type the function block name. In the example, "FB".

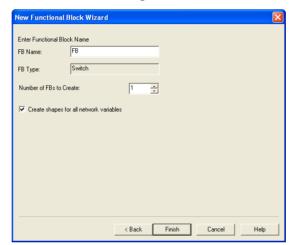


### Tip

 If you have selected the option to include the device name in the default functional block name, it is a good to assign short names to the function blocks.

For more information on how to include the device name in the default functional block name, see Section 3.3, "Creating a Network Template", on page 31.

6 Select the Create shapes for all network variables check box.



### 7 Click Finish.

Repeat the procedure for all devices that will have SNVT bindings.

In the example, add a functional block for the device Sign\_Light and name it FB.

## 6.2 Adding a Connector

When you have made the SNVTs available in the drawing, you will then need to add connectors to bind the SNVTs.

For information on how to bind a host SNVT, see Chapter 20.2, "Creating a Host SNVT", on page 191.

For more information on how to bind SNVTs for devices that are located on different LonMaker subsystem drawings, see Chapter 13.5.3, "Adding a SNVT", on page 140.

In the example, you add a connector between Sign PB and Sign Light.

- 1 In LonMaker, open the drawing containing the devices. In the example, the subsystem Lighting.
- 2 From the **LonMaker Basic Shapes** stencil, drag the Connector shape to the required output of the function block. In the example, the nvo01Switch output in the Sign\_PB.FB block.



Click the other end of the connector shape and drag it to the required input in the other function block. In the example, the nvi01Value input in the Sign Light.FB block.



Repeat the procedure above to add connectors for all required SNVT bindings.

## 7 Setting a Neuron ID

Neuron IDs are identifiers for each device on the LonWorks network.

Neuron IDs can be entered in three ways:

- By typing them in manually.
- By reading the bar code on the label on the device.
- By pressing the service pin when you are actually on-site.

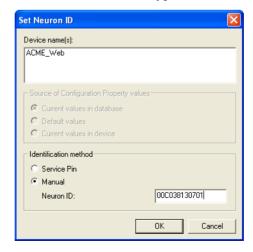
## 7.1 Setting a Neuron ID Manually

Before going on-site, we recommend that you enter as many neuron IDs as possible in offline mode. This saves time during commissioning, since you do not have to physically press the service pin on all the devices when on-site.

In the example, we enter all the neuron IDs of the devices in offline mode by typing them in manually.

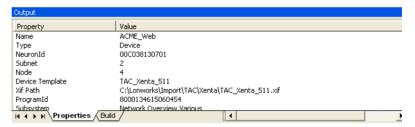
#### To set a neuron ID manually

- 1 In Vista System Plug-In, in the LNS network pane, right-click the device object for which you want to set a neuron ID. In the example, ACME Inc-1st Floor-ACME Web.
- 2 Click Set Neuron ID.
- 3 In the **Identification method** area, select **Manual**.
- 4 In the **Neuron ID** box, type the neuron ID of the device.



#### 5 Click OK.

In the output pane, on the **Properties** tab, you can see the neuron ID of the device.



Repeat the procedure above to set the neuron IDs for all the devices in the LonWorks network.

In the example, set the neuron ID for the following devices:

- Conf\_Room
- Lobby
- OP1
- RTU4
- RTU4 M1
- RTU4 M2
- RTU4\_M3
- RTU4 M4
- RTU4\_M5
- Sign\_Light
- Sign PB

# 8 Creating a TAC Vista Database

We have now entered all the necessary information into the LNS database. The next step is to create and update the Vista database with the information before going on-site.

## 8.1 Selecting a TAC Vista Database Folder

Before updating the Vista database, you will need to select the Vista database folder.

In the example, select the C:\ProjectACME\VistaDb folder that was created in the planning-the-project phase.

#### To select a TAC Vista database folder

- 1 In Vista Server Setup, click the **Vista Database** tab.
- 2 In the **Database folder path** box, browse to the Vista database folder. In the example: C:\ProjectACME\VistaDb.



3 Click OK.

## 8.2 Creating a Communication Port for Echelon

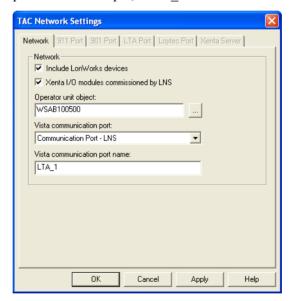
You have to specify what type of port you will use later on in the process when you download the applications to the Xenta devices and commission the devices. You need a LonTalk adapter from either Echelon or Loytec. For more information on which types of LonTalk adapters Vista supports, see the TAC Vista Server datasheet.

If you are using a LonTalk adapter from Loytec, see Chapter 20.3, "Creating a Communication Port – Loytec", on page 194.

In the example, we use a LonTalk adapter card from Echelon.

#### To create a communication port for Echelon

- 1 In Vista System Plug-In, in the TAC network pane, right-click the network object. In the example, ACME Inc.
- 2 Click Settings.
- 3 In the Vista communication list, click Communication Port LNS.
- 4 In the **Vista communication port name** box, type the name of the port. In the example, "LTA 1".



5 Click OK.

## 8.3 Configuring Time Settings in a TAC Xenta Device

Normally you do not need to configure the time settings in the Xenta devices. The time zone matches by default the Windows operating system time zone. The daylight saving mode matches the selected time zone (European or US and Canada). It is a good idea, though, to check the time settings for all Xenta devices in the LonWorks network.

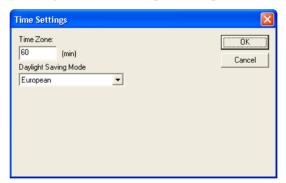
If no match is found, Manual mode is preselected and the daylight saving parameters will have to be configured manually. When set to **Not active**, the Xenta's time function ignores daylight saving.

If one or more Xenta devices are located in a different time zone, select the Xenta device, or relevant group of Xenta devices, and set the correct time zone and the correct daylight savings mode for the Xenta device(s).

In the example, all Xenta devices are located in the same time zone (60 min.) as the computer.

#### To configure time settings in a TAC Xenta device

- 1 In the TAC network pane, right-click the network object. In the example, ACME\_Inc.
- 2 Click Configure Time Settings.
- 3 In the **Time zone** box, type the number of minutes to GMT. In the example, "60".
- In the **Daylight saving mode** list, select the mode that applies to your region. In the example, **European**.



#### 5 Click OK.

Repeat the procedure for all Xenta devices that do not use the same time settings as the computer by right-clicking the Xenta device instead of the network.

## 8.4 Checking a TAC Network

Before updating the Vista database it is a good idea to check the TAC network. If there are errors in the TAC network, you need to correct them, otherwise you cannot update the Vista database. Warnings will pass through when updating the database, but you will have to update it again later on when the missing information is added.

#### To check a TAC network

- 1 In the TAC network pane, right-click the network object. In the example, ACME Inc.
- 2 Click Check TAC Network.

In the output pane, you can see the log for the TAC network check. Look for errors and warnings.



## 8.5 Updating a TAC Vista Database

When the TAC network is checked, you will update the Vista database with the information in the LNS database.

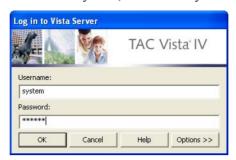
#### To update a TAC Vista database

- 1 Start TAC Vista Server.
- 1 In the Vista System Plug-In, in the TAC network pane, right-click the network object. In the example, ACME\_Inc.
- 2 Click Update TAC Vista database.



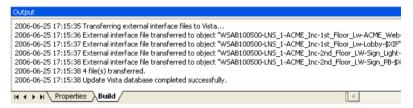
3 Click Yes.

4 Log in to TAC Vista with the highest authority account level, System manager. In the example, the default system manager account, Username: system, Password: system.



#### 5 Click OK.

In the output pane, you can see the log for the Vista database update.



- **6** Start Vista Workstation.
- 7 Log in to TAC Vista with the highest authority account level, System manager. In the example, the default system manager account, Username: system, Password: system.
- 8 Click OK.
- 9 In the folder pane, expand the tree structure and check that all devices are created in their proper groups.





#### Note

Objects representing physical devices and signals are protected in TAC Vista Workstation. You are not allowed to modify any of these attributes in the Vista database. If you want to make additions or changes, you have to make them from Vista System Plug-In.

#### 10 Quit TAC Vista Workstation.



#### Note

In the TAC Xenta Device Plug-In (see page 120), the TAC

Menta Project File box now shows the object of the Xenta
device in the Vista database to which the application is assigned.
This changes when the Vista database is updated for the first
time. The application file in the project folder is no longer valid.

# 9 Commissioning and Downloading

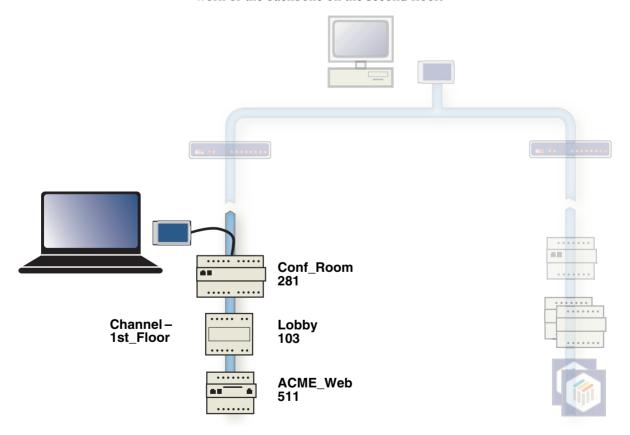
To perform the following steps, the engineering PC has to be connected to the LonWorks network. These steps are achieved on-site. When you arrive on-site, it is not unusual that only parts of the network are installed.



#### Note

If the whole LonWorks network is installed at the site, it is best practice to commission the routers first. For more information, see Chapter 9.7, "Commissioning a Router", on page 94.

In the example, we start commissioning and downloading the devices on the first floor because the electricians have not yet installed the network or the backbone on the second floor.



## 9.1 Configuring a LonTalk Adapter from Echelon

You have to configure the LonTalk adapter before you download the applications to the Xenta devices and commission the devices. You need a LonTalk adapter from either Echelon or Loytec. For more information on which types of LonTalk adapters Vista supports, see the TAC Vista Server datasheet.

If a LonTalk adapter from Loytec is used, see Chapter 20.4, "Configuring a Network Interface Card", on page 196.

In the example, a LonTalk adapter from Echelon is used.

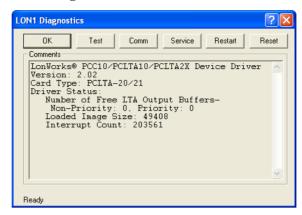
#### To configure a LonTalk adapter from Echelon

- 1 Quit LonMaker, Vista System Plug-In, Vista Workstation, and Vista Server.
- 2 Install the LonTalk adapter card. For more information, see the Echelon documentation.
- 3 On the Start menu, point to Settings, and then click Control Panel.
- 4 Double-click LonWorks Plug 'n Play.
- 5 In the NI Application list, click PCL10VNI.

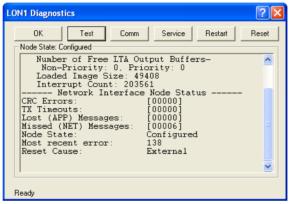


6 Click Apply.

7 Click Diagnostics.



8 Click Test.



If the test runs and a similar diagnostic dialog appears, then the LonTalk adapter card is communicating properly.

- 9 In the LON1 Diagnostics dialog box, click OK.
- 10 In the LonWorks Plug 'n Play dialog box, click OK.
- 11 Close the Control Panel window.

#### Caution

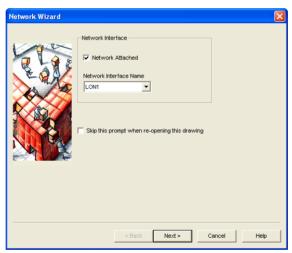
• If the card was not installed when updating the Vista database, you have to define the port address in the **Properties** dialog of the LNS port object in TAC Vista Workstation. If the card was installed when the database was updated, Vista finds the address of the card automatically.

## 9.2 Attaching a Lonworks Network

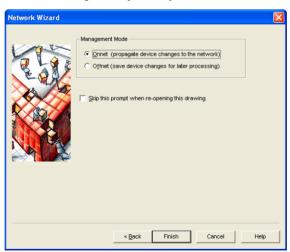
To be able to download and commission the devices, the LNS database has to be attached to the LonWorks network. When the LNS database is attached to the LonWorks network, it will communicate with the devices on the LonWorks network.

#### To attach a LonWorks network

- 1 Start LonMaker and open the LonMaker drawing for the Lon-Works network. In the example, the ACME\_Inc network.
- 2 In the Network Wizard, select the **Network Attached** check box.
- 3 In the **Network Interface Name** list, select the required network interface. In the example, "LON1".



4 Click **Next** repeatedly until you reach the following dialog:



- 5 Click Onnet.
- 6 Click Finish.

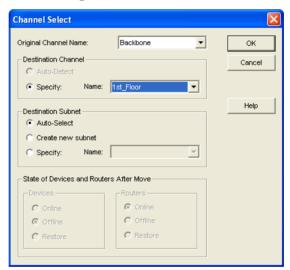
## 9.3 Moving a Network Interface

If only parts of the network are installed on the site, you have to move the network interface device in the LonMaker drawing to be able to download applications to the devices and commission the devices. Lon-Maker reassigns the appropriate subnet address to the LonTalk adapter. This prevents any address conflicts.

In the example, 2nd\_Floor is not complete. To be able to connect just with 1st\_Floor, you need to move the network interface device to the 1st\_Floor channel.

#### To move a network interface

- 1 Open the LonMaker drawing containing the LNS Network Interface device. In the example, the Network Overview drawing.
- 2 Right-click the LNS Network Interface device.
- 3 Click Change Channel.



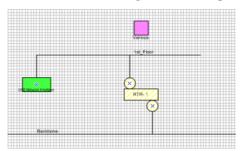
- 4 In the **Destination Channel** area, in the **Name** box, select the channel. In the example, 1st Floor.
- 5 Click OK.



6 Connect the engineering PC via the LonTalk adapter to the channel you specified. In the example, the 1st\_Floor channel.

#### 7 Click OK.

The LNS Network Interface device is now connected to the new channel in the drawing. In the example, the 1st\_Floor channel.



## 9.4 Downloading Application and Parameters

When the Vista database has been updated, you will then download the application files to the Xenta devices. The parameters, which Xenta group the Xenta device belongs to, and whether or not it is the group master, are all downloaded at the same time as the application.



#### **Important**

 It is important that the neuron IDs of the Xenta devices and the I/O modules are set in the Vista database. Vista Server will locate the Xenta devices using the neuron ID when downloading the applications and the parameters.



#### Note

 Make sure the OP tree has been generated in Menta before you continue. For more information on how to generate the OP tree, see Chapter 13.1.1, "Generating a Default OP Menu Tree", on page 121.

In the example, you only download the application and the parameters to the Xenta device Conf Room in the Xenta group 1st Floor.

#### To download application and parameters

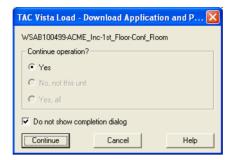
- Start TAC Vista Server.
- **2** From LonMaker, start TAC Vista System Plug-In.
- 3 In the TAC network pane, right-click the LonWorks Network or a Xenta group object. In the example, the Xenta group 1st\_Floor.



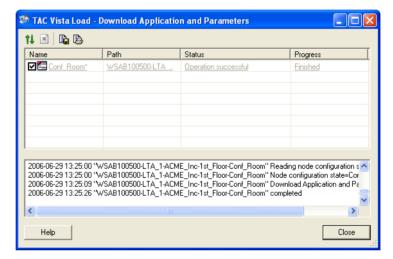
#### Note

- If you are connected to the entire LonWorks network, select the LonWorks. If you are only connected to a part, select the Xenta group representing that part of the network.
- If you did not set the Neuron IDs for the Xenta devices earlier on, you have to do so before performing the download. When you have completed the download, you need to then update the Vista database. Vista Server uses the neuron IDs to locate the Xenta devices on the network.
- 4 Click Download Application and Parameters.
- 5 Log in to TAC Vista with the highest authority account level, System manager. In the example, the default system manager account, Username: system, Password: system.

In the **Download Application and Parameters** dialog box, click



7 Click Continue.



- 8 Wait until the operation is completed.
- **9** Check the log.
- 10 Click Close.

The asterisk beside the Xenta device in the TAC network pane (indicating that the device needs an application download) disappears when the download is completed.



#### **Note**

- The application file (.mta) downloaded to the Xenta device is the application file stored in the Vista database. It is the most current copy. The application file in the project folder is no longer valid. Changes should be made to the .mta by accessing it via TAC Xenta Device Plug-In.
- The parameters sent to the Xenta device contain information about which Xenta group the Xenta device belongs to and whether or not it is the group master. It is no longer safe to change the group or node names in the TAC network pane.

## 9.5 Commissioning a Device

You have to commission all devices in LonMaker to send the subnet/node addresses and the SNVT bindings information to the devices.

In the example, all devices on the 1st Floor channel are commissioned.

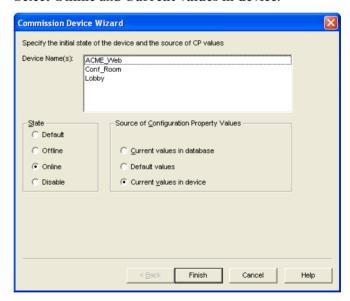
#### To commission a device

1 Select the devices to be commissioned. In the example, ACME\_Web, Conf\_Room and Lobby in the subsystem Various on the 1st Floor channel.



#### Note

- If you are connected to the entire LonWorks network, select all
  devices. If you are only connected to a part, select the devices in
  the subsystem representing that part of the network.
- 2 Right-click any of the selected devices and click **Commission**.
- 3 Select Online and Current values in device.



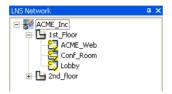
4 Click Finish.



#### Note

• If one or more devices have no neuron ID specified, LonMaker asks for the neuron ID. Type it in manually or click **SP** and press the service pin on the device.

In Vista System Plug-In, in the LNS network pane, a yellow square containing a C now indicates that the devices have been commissioned.





#### Note

• If you receive the message; "Program IDs do not match. There is an incorrect or out-of-date program version", you have a device with another external interface file (\*.xif) than the external interface file defined in the current LonMaker drawing shape. In Vista System Plug-In, in the LNS network pane, right-click the device and click **Replace**. Load the correct file, or upload the file from the device.

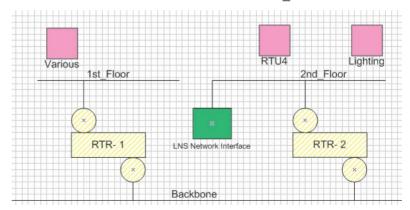
## 9.6 Working Channel-by-Channel

If the electricians complete the network channel-by-channel and you do not want to wait until the whole network is completed, you can commission and download the network channel-by-channel. Focus on one channel at a time and move the network interface to the channel you are working on. You will need to download the applications and the parameters to the Xenta devices on the channel and then commission all devices on the channel.

In the example, you have to commission and download the 2nd\_Floor channel. Follow the example to get an idea of the typical workflow, and of how to handle typical difficulties you might run into.

#### Working with the 2nd\_Floor channel

1 Move the Network Interface device to the 2nd Floor channel.



For more information on how to move a network interface, see Section 9.3, "Moving a Network Interface", on page 87.

RTU4
401

M(1&3)
422
452
Sign\_Light
Sign\_PB
LW Devices

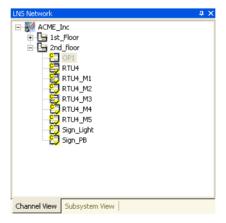
Channel - 2nd\_Floor

**2** Connect the engineering PC to the 2nd Floor channel.

**3** Download the application and the parameters to the Xenta device RTU4 on the 2nd Floor.

For more information on how to download the application and the parameters, see Section 9.4, "Downloading Application and Parameters", on page 89.

4 Commission all the devices on the 2nd Floor.



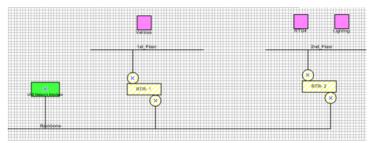
For more information on how to commission, see Chapter 9.5, "Commissioning a Device", on page 91.

## 9.7 Commissioning a Router

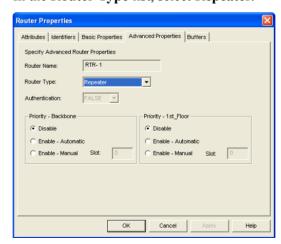
Up to this point in the commissioning process, the network interface has been located on the 1st\_ Floor and 2nd\_ Floor channels in the LonMaker drawing. This was done to allow commissioning of the network during construction before the planned architecture of the job was complete. We are now at the stage of the project when construction of the network is complete, and we need to move the Network Interface device to the Backbone channel on the drawing. This is the location where the site PC resides in the final network architecture.

#### To commission a router

1 In LonMaker, make sure network interface device is on the backbone channel. For more information on how to move a channel, see Section 9.3, "Moving a Network Interface", on page 87.



- **2** Connect the engineering PC to the Backbone channel.
- **3** Right-click the router device. In the example, RTR-1.
- 4 Click Properties.
- 5 Click the **Advanced Properties** tab.
- 6 In the Router Type list, select Repeater.

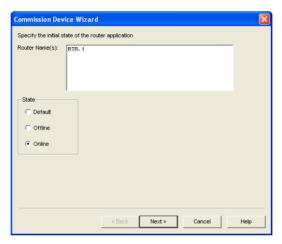


7 Click OK.

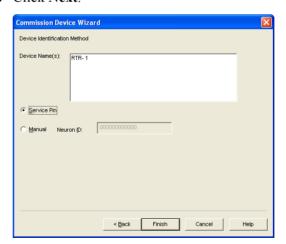


#### Note

- Always commission routers in Repeater Mode first. Wait until all
  the devices on the network are commissioned before you set the
  router to configured mode. Do this to ensure that you do not have
  any nodes with the same subnet address on both sides of a router.
  Configured routers cannot cope with this situation and will be
  destroyed.
- **8** Right-click the router device. In the example, RTR-1.
- 9 Click Commission.



10 Click Next.



11 Click Service Pin and then click Finish.



**12** Press the service pin on router RTR-1.



#### **Important**

- If you are using more than one Engineering PC during the down-loading and commissioning procedure, you have to merge your LonWorks network in LonMaker. For more information on how to merge LonWorks networks, see Chapter 27, "Network Communication", on page 263.
- When all the devices and routers are commissioned, it is a good idea to connect a network analyzer to the network to check the network communication. For more information on how to check the communication, see Chapter 27, "Network Communication", on page 263.



#### Note

• If you are commissioning and downloading the whole network at once and started by commissioning the routers, you shall now download the applications and the parameters to the Xenta devices, see Chapter 9.4, "Downloading Application and Parameters", on page 89, and then commission all the devices on the LonWorks network, see Chapter 9.5, "Commissioning a Device", on page 91.

Repeat the procedure above for all routers on the LonWorks network. In the example, commission the router RTR- 2.

## 9.8 Setting a Router as Configured

When all of the devices on the network are commissioned, you will need to change the router mode to configured.

#### To set a router as configured

- 1 In LonMaker, right-click the router. In the example, RTR-1
- 2 Click Properties.
- 3 Click the **Advanced properties** tab.
- 4 In the Router Type list, select Configured.



#### 5 Click OK.

Repeat the procedure above to set all routers on the LonWorks network as configured.

In the example, set RTR- 2 as configured.

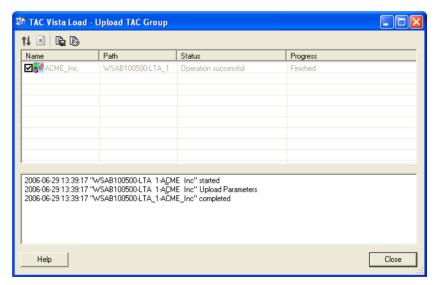
# 10 Commencing TAC Vista Communication

Before you can connect to the devices from the Vista Workstation, the TAC group binding address (located in the address table of the Xenta devices) needs to be imported into the Vista database. This allows Vista to communicate with the devices.

Upon selecting **Commence Communication**, all parameters from Lon-Works devices (including Xenta 100 devices) are automatically uploaded to Vista. This synchronizes the content of the parameters between Vista and the devices, and prevents TAC Vista from re-writing incorrect values/parameters to LonWorks devices.

#### To commence TAC Vista communication

- 1 In Vista System Plug-In, in the TAC network pane, right-click the network object. In the example, ACME\_Inc.
- 2 Click Commence Communication.



- 3 Click Close when finished.
- 4 Start TAC Vista Workstation.

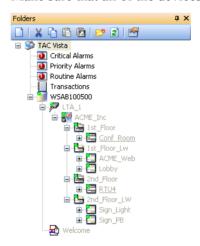
5 In the toolbar, in the **Mode** list, select **Operating**.





#### Note

- **Engineering Mode.** This mode is used when working offline. Values displayed in Vista Workstation are read from the Vista database.
- **Operating Mode.** This mode is used when working online. Values displayed in Vista Workstation are read from the devices containing the values.
- **6** In the folders pane, select the network object. In the example, ACME Inc.
- 7 Right-click the network object and click **Refresh**.
- **8** Make sure that all of the devices are online.



Note the color of the objects for the devices. They should now be green, indicating that they are online and that all signals are available. The screen tip should show **Online** and **Commissioned** for each device and the asterisks should have disappeared.

# 11 Backing up a LonWorks Network

When the LonWorks network is commissioned in LonMaker, the Lon-Maker drawings and the LNS database are backed up.

If an LNS Server is installed on the site PC, you will back up the Lon-Maker drawings and the LNS database in two separate files. If Lon-Maker is installed on the site PC or if a Xenta 501/527/901/911/913 is used as a LonTalk adapter on the site PC, you will back up the Lon-Maker drawings and the LNS database in a common file.

If LonMaker is installed on the site PC or if a Xenta 501/527/901/911/913 is used as LonTalk adapter, see Section 24.1, "Backing Up a LonWorks Network", on page 253.

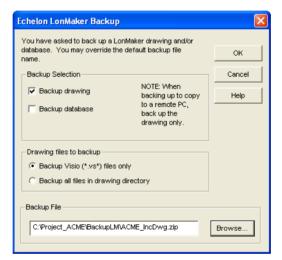
In the example, an LNS Server is installed on the site PC.

## 11.1 Backing Up a LonMaker Drawing

Back up the LonMaker drawings.

#### To back up a LonMaker drawing

- 1 Quit Vista Workstation, Vista Server, and Vista System Plug-In.
- **2** In LonMaker, close the LonWorks network. In the example, ACME Inc.
- 3 In the LonMaker Design Manager dialog box, click Backup.
- 4 In the **Backup Selection** area, select the **Backup drawing** check box.
- 5 In the **Backup File** box, browse to the folder where you want to save the drawing. In the example, C:\ProjectAcme\BackupLM folder.



6 Click OK.



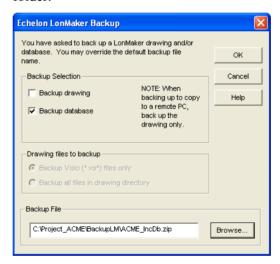
7 Click OK.

## 11.2 Backing Up an LNS Database

Back up the LNS database.

#### To back up an LNS database

- 1 Quit Vista Workstation, Vista Server, and Vista System Plug-In.
- 2 In LonMaker, close the LonWorks network drawings. In the example, ACME Inc.
- 3 In the LonMaker Design Manager dialog box, click Backup.
- 4 In the **Backup Selection** area, select the **Backup database** check box.
- 5 In the **Backup file** box, browse to the folder where you want to save the database. In our example, C:\ProjectAcme\BackupLM folder.



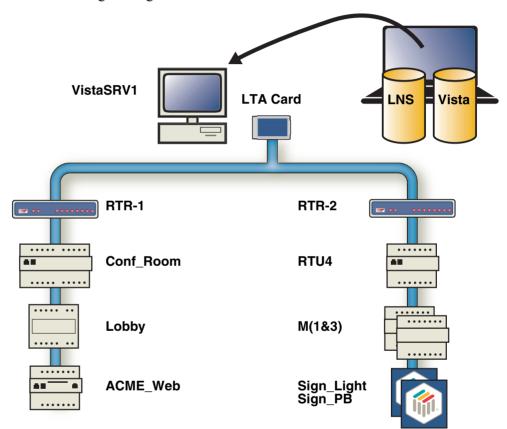
6 Click OK.



7 Click OK.

# 12 Moving a Database to a Site PC

When the LonMaker drawings and the LNS database are backed up, the LNS database and the Vista database are moved from the engineering PC to the site PC.



In the example, the site PC use a LonTalk adapter from either Echelon or Loytec.

If the site PC uses another type of network adapter, see the following chapters:

- Chapter 21, "TAC Xenta 511/527/555", on page 201
- Chapter 22, "TAC Xenta 911", on page 219
- Chapter 23, "TAC Xenta 901", on page 235



#### Caution

 The engineering PC must be physically disconnected from the LonWorks network before the site PC is connected in order to avoid an address conflict

### 12.1 Site PC Requirements

A number of things need to be in place before you can move the databases to the site PC:

- LNS Server or LonMaker Integration Tool, plus the latest service pack.
- The latest LNS Server service pack.

For more information on how to install the software, see the Echelon documentation.

- The latest TAC Vista Config.
- The latest TAC Vista Workstation Pro.
- Privilege License Server-

For more information on how to install the software, see the *Installing TAC Software* manual.

## 12.2 Preparing a Site PC

Before moving the databases, the LonTalk adapter on the site PC needs to be configured and the project folder must be available.

#### To prepare a site PC

- 1 Configure the LonTalk adapter card. For more information, see Section 9.1, "Configuring a LonTalk Adapter from Echelon", on page 84.
- **2** Copy the ProjectACME folder from the engineering PC to the site PC.



#### Tip

- If possible, paste the project folder using the same folder path as that used on the engineering PC to obviate having to re-enter paths to Microsoft Word or Excel documents in the Vista graphics.
- **3** Insert the hardware key on the Vista Server computer on-site.

## 12.3 Moving an LNS Database to a Site PC

If an LNS Server is installed on the site PC, you will move the LNS database to the site PC by using LNS Object Browser to restore the backup. If LonMaker is installed on the site PC, you will move the LNS database to the site PC by using LonMaker to restore the LonMaker network backup.

If LonMaker is installed on the site PC, see Section 24.2, "Moving an LNS Database to a Site PC", on page 254.

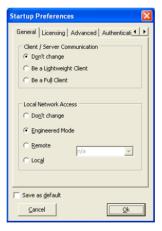
In the example, an LNS Server is installed on the site PC.

#### 12.3.1 Registering an LNS Database on a Site PC

You have to register the LNS database in the LNS Server on the site PC.

#### To register an LNS database on a site PC

- 1 In Windows explorer, double-click the LNS database backup file. In the example, C:\ProjectACME\BackupLM\ACME IncDB.zip.
- 2 In WinZip, extract the file to the root folder of the hard disk where the LNS Server is installed.
- 3 Check that the WinZip program has created the folder structure Lm\Db\[ProjectName] on the root folder. In the example, C:\Lm\Db\ACME Inc.
- 4 Start LNS Object Browser.





#### Note

The LNS Object Browser program (LnsObjectBrowser.exe) is found in the root folder, in the Lonworks\bin folder.

- **5** Leave the defaults as they are and click **OK**.
- 6 On the **Options** menu, click **Allow Modifications**.

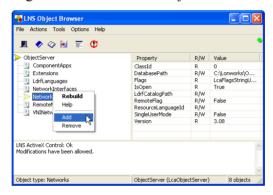
File Actions Tools Options Help

ObjectServer

ComponentApps
Extensions
Extensions
Ucfft anguages
NetworkInterfaces
Networks
RemoteNetworks
RemoteNetworks
VillNetworks
VillNe

7 Double-click the **ObjectServer** object to expand the tree structure.

8 Right-click the Networks object and click Add.



**9** Enter the name of the network in the name box. In our example: ACME Inc.



#### Caution

- The network name in the name box must be exactly the same as the one in LonMaker. Case sensitive.
- **10** Click the button and browse to Lm\Db\ACME\_Inc.





#### Note

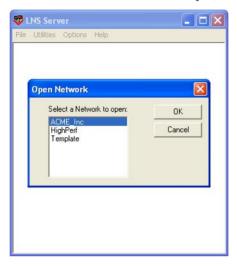
- CreateFlag is set to False due to the fact that the database already exists. If you register a new network which is to be created at a later stage, the CreateFlag is set to True.
- 11 Click OK.
- **12** Quit the LNS Object Browser.

# 12.3.2 Configuring an LNS Server on a Site PC

You have to configure the LNS Server on the site PC.

## To configure an LNS Server on a site PC

- 1 Start the LNS Server.
- **2** Select the network. In the example, ACME Inc.



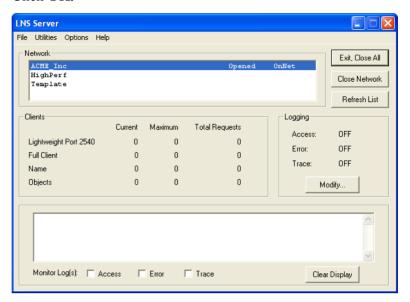
- 3 Click OK.
- 4 In the **Network Interfaces** dialog box, select the network interface. In the example, LON1.



- 5 Click OK.
- 6 On the Utilities menu, click Management Mode.
- 7 In the Network Management Mode dialog box, click Set the Management Mode ONNET.



#### 8 Click OK.

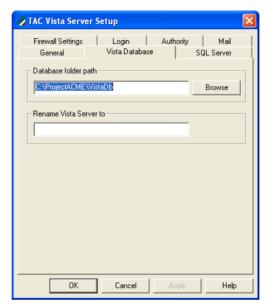


**9** Quit the LNS Server.

# 12.4 Moving a TAC Vista Database to a Site PC

#### To move a TAC Vista database to a site PC

- 1 On the site PC, start Vista Server Setup.
- 2 On the **Vista Database** tab, in the **Database folder path** box, browse to the database folder. In the example C:\ProjectACME\VistaDb.



- 3 Click OK.
- **4** Start Vista Server and Vista Workstation and log in to Vista Workstation.
- 5 In the toolbar, in the **Mode** list, select **Operating**.

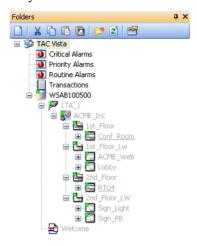




#### Note

- **Engineering Mode.** This mode is used when working offline. Values displayed in Vista Workstation are read from the Vista database.
- **Operating Mode.** This mode is used when working online. Values displayed in Vista Workstation are read from the devices containing the values.

6 Check all of the devices that are in operating mode to ensure that they are online.



Note the color of the objects for the devices. They should now be green, indicating that they are online and that all signals are available. Note that it can take some time to restart the devices. The screen tip should show **Online** and **Commissioned** for each device.



#### Note

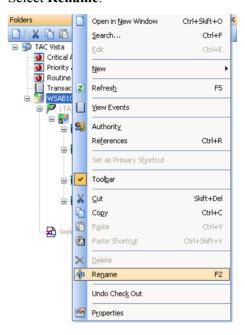
• To ensure that Vista is always able to access the LNS database and network, Vista automatically starts the LNS Server in the background.

# 12.5 Renaming a TAC Vista Server

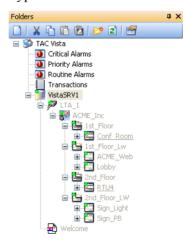
The default name of the Vista Server is the same as the engineering PC's network identification. The Vista Server can be renamed to a more appropriate name.

#### To rename a TAC Vista Server

- 1 In Vista Workstation, in the folders pane, right-click the Vista Server object.
- 2 Select Rename.



**3** Type in the name of the site PC. In the example, VistaSRV1.



# **MAINTENANCE**

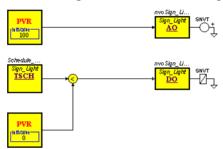
- 13 Changing a TAC Xenta Application
- 14 Adding a Device
- 15 Replacing an .xif File

# 13 Changing a TAC Xenta Application

Below we will describe how to maintain a running system. It is assumed that the site PC has an Echelon or Loytec LonTalk adapter card installed.

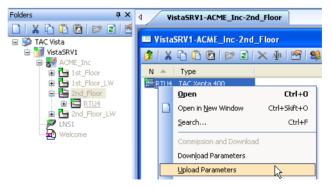
# 13.1 Modifying a TAC Xenta Application

In the example, the application of the Xenta 401 called RTU4 will be changed so that the Xenta time schedule controls the neon sign on the roof. The sign will be lit between 8 pm and 7 am.



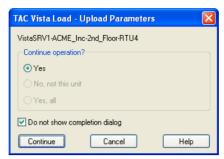
#### To modify a TAC Xenta application

- 1 Start Vista Server and Vista Workstation on the site PC.
- 2 In Vista Workstation, select 2nd\_Floor and right-click the RTU4 device in the object view window.
- 3 Click Upload Parameters.

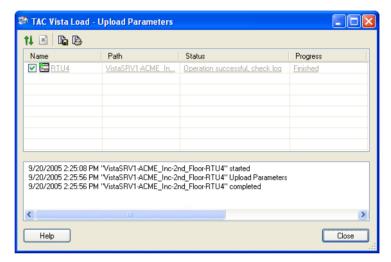


The upload is done to update the application file (.mta) in the Vista database with changes made using the Xenta OP, for example set points.

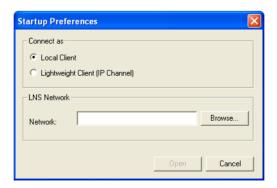
4 Click the **Start the selected operation** button (1).



5 Click Continue.



- 6 Click Close.
- 7 Start Vista System Plug-In on the site PC.
- 8 Select Local Client.
  - Local Client. Used when the LNS Server containing the network, in our case ACME\_Inc, is located on the same PC as Vista System Plug-In.
  - Lightweight Client (IP Channel). Used when the LNS Server containing the network to be used is located on another PC on the TCP/IP network.



Click Browse.

10 Select LNS Network, in our example: ACME Inc.



- 11 Click Select.
- 12 In the Startup Preferences dialog, click Open.
- **13** In the LNS network pane, right-click the Xenta device you want to change (in our example: RTU4).

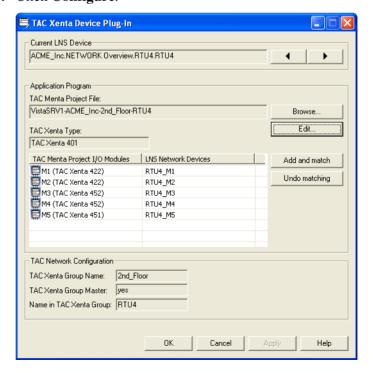


#### Note

• If you previously have changed the node (Vista Server) name in Vista Workstation (see Section 12.4, "Moving a TAC Vista Database to a Site PC", on page 111) you will have to do some additional steps in order to be able to edit the application file.

Right-click the network object in the TAC network pane (in our example: ACME\_Inc.), point to **Settings** and browse to the correct Vista Server. Save the changes.

## 14 Click Configure.



15 In the TAC Xenta Device Plug-In dialog, click Edit to open the application file in Menta.

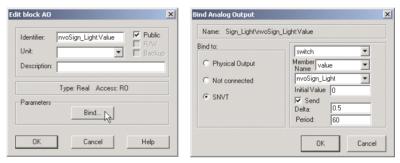


#### Note

• If you want to replace the existing Xenta application (.mta file) browse to the new application in the project folder.

When the Vista database is updated later on, the application file is copied to the Xenta device object in the Vista database. Then the TAC **Menta Project File** box will show the object path of the Xenta device in the Vista database. The application file in the project folder is no longer valid.

**16** Name the AO SNVT output block nvoSign Light: Value.



- 17 In the same way, name the DO SNVT output block nvoSign Light:State.
- **18** Name the Structured SNVT nvoSign Light.
- **19** Name the TSCH block Schedule\_Sign and add a week chart that starts at 8 pm and stops at 7 am daily.
- **20** Put all of the signals in a module called Sign Light.



The application will be generated automatically when we download it later on. The binding of the SNVTs will be made in LonMaker, see section Section 13.5, "Adding a SNVT in LonMaker", on page 134.

## 13.1.1 Generating a Default OP Menu Tree

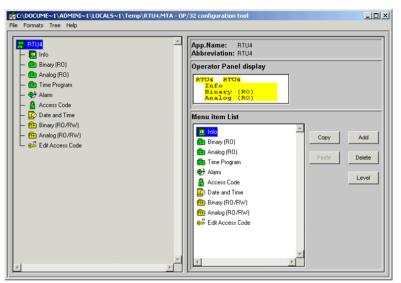
The default menu tree must be rebuilt to include the new signal in the changed application. The menu tree also has to be manually generated.

The Xenta application is generated automatically when commissioning and downloading.

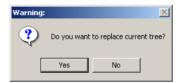
For more information on customized OP menu trees, see the *Engineering Applications in TAC Menta* manual.

### To generate a default OP menu tree

1 In Menta, on the **Tools menu**, click **OP Configuration**.



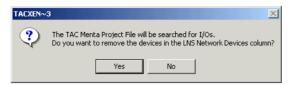
2 On the **Tree** menu, click **Build**.



- 3 Click Yes.
- 4 On the **Tree** menu, click **Generate**.
- **5** Save the changes.
- **6** Quit the OP Configuration Tool.
- 7 Click Yes.
- 8 Quit Menta.
- 9 Click Yes.

The application file (\*.mta) was opened from, and will be saved back into, the Vista database.

Xenta Device Plug-In will now search the application for I/O modules.



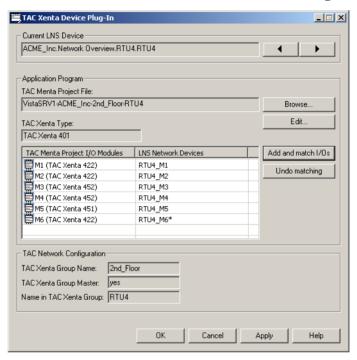
10 Click **Yes** if the changes of the application file (\*.mta) required adding, deleting or renaming I/O modules. If your changes did not involve I/O modules, like in our example, click **No** and then **OK** to exit the **TAC Xenta Device Plug-In** dialog.

# 13.2 Adding an I/O Module

This is a description of the procedure to use if you have made changes to an application that requires that you add new I/O modules. If you did not add new I/O modules, skip this section and move on to Section 13.4, "Downloading an Application", on page 131.

#### To add a new I/O module

Click Add and Match in the TAC Xenta Device Plug-In dialog.



TAC Xenta Device Plug-In will give the new I/O module a name and mark it with an asterisk in the LNS Network Devices. The asterisk indicates that the device does not exist in the LNS database.

2 Click **OK** to exit the **TAC Xenta Device Plug-In** dialog.

Xenta Device Plug-In will create the new I/O module in the LNS server and the asterisk will disapear.



3 Click No.

We will resynchronize the LonMaker drawing later in the process.

4 In Vista System Plug-In, select the new I/O module in LNS network pane.

## 13.2.1 Setting a Neuron ID

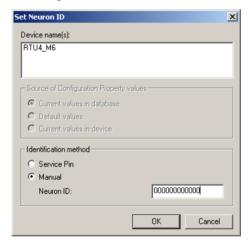
Neuron IDs are identifiers for each device on the LonWorks network.

Neuron IDs can be entered in three ways:

- By typing them in manually.
- By reading the bar code on the label on the device.
- By pressing the service pin when you are actually on site.

#### To set a neuron ID

- 1 Select the new I/O module in the LNS network pane.
- 2 Right-click and click **Set Neuron ID**.
- 3 In the **Identification method** box, click **Manual** if you will type in the neuron ID manually or read the bar code on the label on the device. To press service pin click Service Pin. Click OK and press service pin on the device.



4 Click OK.

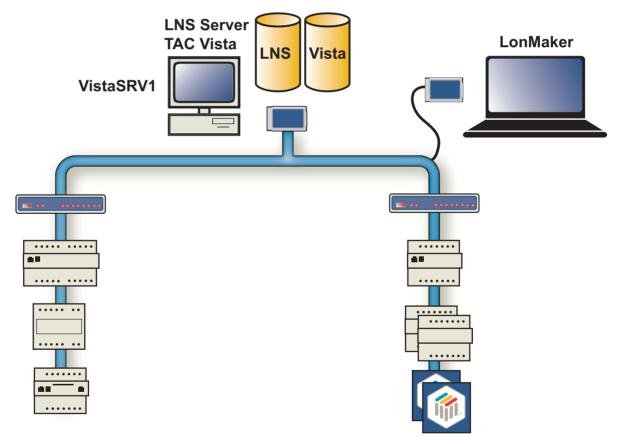
# 13.3 Adding an I/O Module to a LonMaker Drawing

Now we will resynchronize the LonMaker drawing in order to add the I/O modules to the LonMaker drawing. You will also have to commission the I/O module in LonMaker to initiate the communication.

# 13.3.1 Connecting LonMaker to a Site PC with Only an LNS Server Installed

This is a description of the procedure to use if you only have the LNS server installed on the site PC. If you have LonMaker installed on the site PC, skip this section and move on to Section 13.3.2, "Resynchronizing a LonMaker Drawing", on page 128.

For customers who do not have LonMaker installed on their site PC, it will be necessary to connect the Engineering PC that has LonMaker installed on it with the LonWorks network. From there, open the LonMaker network drawing and connect remotely to the LNS database on the site PC via the LonWorks network.



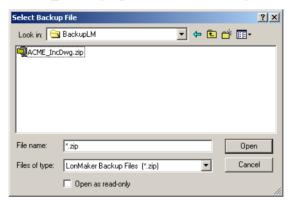
# To connect LonMaker to a site PC with only an LNS Server installed

- 1 Start the LNS Server on the site PC.
- 2 Copy the backed up LonMaker drawing file C:\ProjectAcme\BackupLM\ ACME\_IncDwg.zip to the Engineering PC that has LonMaker installed on it.
- 3 Start LonMaker and click the **Restore** button in the LonMaker Design Manager.

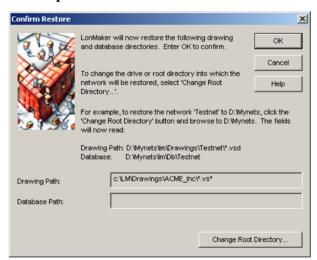


#### Note

- Make sure you do not already have a network with the same name as the one you will now be restoring.
- **4** Select the LonMaker backup file C:\ProjectAcme\BackupLM\ ACME IncDwg.zip in the browse dialog.



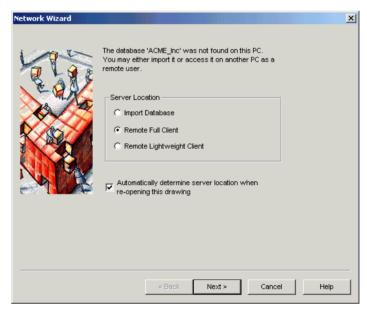
5 Click Open.



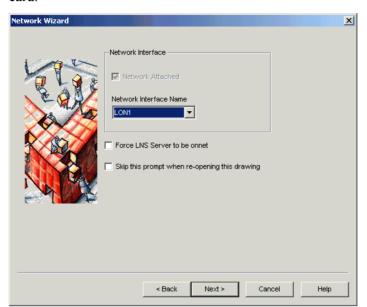
#### 6 Click OK.



- 7 Click OK.
- 8 In the LonMaker Design Manager, select the network drawing you just restored. In our example ACME Inc.
- 9 Click Open Network.
- 10 Select Remote Full Client.
  - **Import Database.** Used to register a network database on the local LNS server.
  - **Remote Full Client.** Used to connect the remote LNS server via the LonWorks network.
  - **Remote Lightweight Client.** Used to connect the remote LNS server via the TCP/IP network.



#### 11 Click Next.



**12** Select the **Network Interface Name** of the Engineering PC's LTA card.

#### 13 Click Next.

Wait for LonMaker to locate the LNS database.

When done, click **Next** repeatedly and then **Finish**.

# 13.3.2 Resynchronizing a LonMaker Drawing

Now we will resynchronize the LonMaker drawing so the new I/O modules will be shown in the drawing.

### To resynchronize a LonMaker drawing

- 1 Open the network in LonMaker, if it is not already open.
- **2** Go to the subsystem that contains the Xenta device you made changes to. In our example, the RTU4 subsystem.
- 3 Select LonMaker from the menu and click **Resynchronize**.

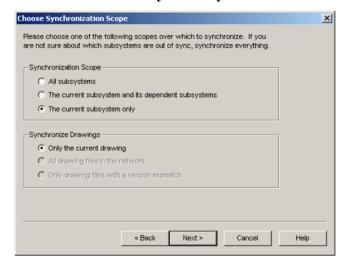


4 Click Yes.

5 Click Sync drawing to database (fix-up drawing.)



- 6 Click Next.
- 7 Click The current subsystem only.



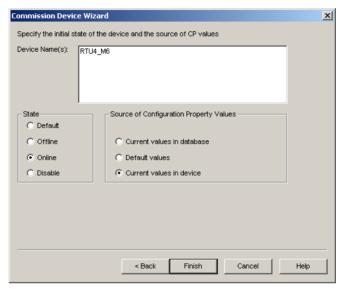
- 8 Click **Next** repeatedly and then **Finish**.
- 9 Click **OK** in the Synchronization Status dialog.

# 13.3.3 Commissioning a New I/O Module

The new I/O module will now appear in the LonMaker drawing.

### To commission a new I/O module

- 1 Right-click the I/O module device in the LonMaker drawing and click **Commission**.
- 2 Click Online and Current values in device.



3 Click Finish.

# 13.4 Downloading an Application

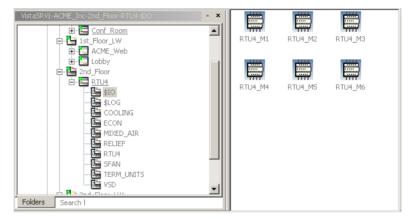
Now we have to update the Vista database with the new application file (\*.mta) and then download it to the Xenta device.

### To download an application

1 Select **TAC Network** in the menu bar and click **Update TAC Network**.

The new I/O module will appear underneath the Xenta device it belongs to in the TAC network pane.

- 2 Make sure Vista Server is running.
- 3 Select **TAC Network** in the menu bar and click **Update TAC Vista Database**.
- 4 Check that the new I/O module is visible in Vista Workstation.



The application file (\*.mta) for the RTU4 device has now been changed in the Vista database, but it has not been downloaded to the device.



#### Caution

- If you make changes requiring that you add one or more I/O modules, you will have to set the routers between the site PC and the device to repeater mode when downloading application and parameters for the first time.
- 5 In TAC Vista System Plug-In, the TAC network pane, select the Xenta device in whose application file you made the change. In our example: RTU4. The asterisk beside the Xenta device indicates that the application of the device has been modified and a download is needed
- 6 Select **TAC Network** in the menu bar and click **Download Applications and Parameters**.

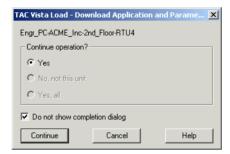
TAC Vista Load - Download Application and Parameters

Name Path Status Progress

Name RTU4\* VistaSRV1-ACME...

7 Log in to TAC Vista Server, if necessary.

8 Click the **Start the selected operation** button **button** to start the download.

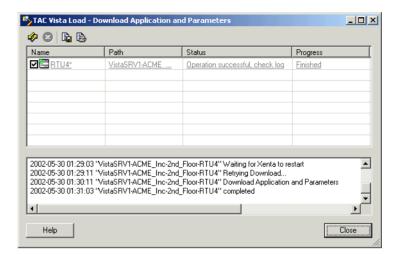


- 9 Click Continue.
- **10** Wait until the operation has completed.

If you have added SNVTs to your application, the following dialog will appear.



#### 11 Click OK.



#### 12 Click Close.

The asterisk beside the RTU4 device in the TAC network pane (indicating that the device needed a download) has now disappeared.



#### Note

• Do not forget to set the router in Configured mode if you changed it to Repeater mode.

# 13.5 Adding a SNVT in LonMaker

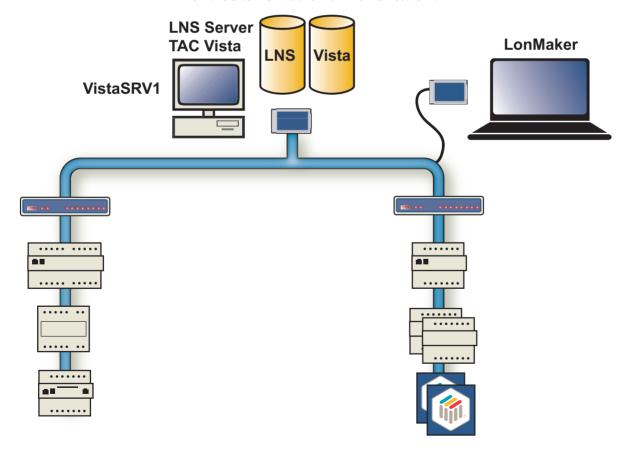
If no new SNVTs were added to the application file, skip the following sections and move on to Section 13.6, "Backing Up a LonWorks Network", on page 145.

The application file (\*.mta) has now been downloaded to the Xenta device, RTU4 in our example. If the changes include new SNVTs, as in our example nvoSign\_Light, you will have to resynchronize the LonMaker drawing.

# 13.5.1 Connecting LonMaker to a Site PC with Only an LNS Server Installed

This is a description of the procedure to use if you only have the LNS server installed on the site PC. If you have LonMaker installed on the site PC, skip this section and move on to Section 13.5.2, "Resynchronizing a LonMaker Drawing", on page 138.

For customers who do not have LonMaker installed on their site PC, it will be necessary to connect the Engineering PC that has LonMaker installed on it with the LonWorks network. From there, open the LonMaker network drawing and connect remotely to the LNS database on the site PC via the LonWorks network.



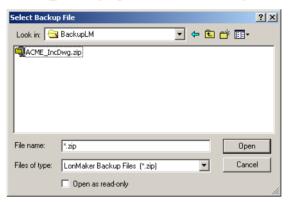
# To connect LonMaker to a site PC with only an LNS Server installed

- 1 Start the LNS Server on the site PC.
- 2 Copy the backed up LonMaker drawing file C:\ProjectAcme\BackupLM\ ACME\_IncDwg.zip to the Engineering PC that has LonMaker installed on it.
- 3 Start LonMaker and click the **Restore** button in the LonMaker Design Manager.

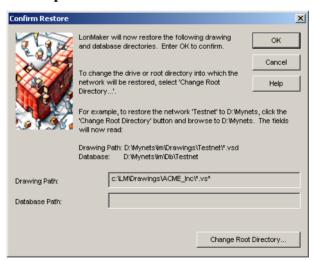


#### Note

- Make sure you do not already have a network with the same name as the one you will now be restoring.
- 4 Select the LonMaker backup file C:\ProjectAcme\BackupLM\ ACME IncDwg.zip in the browse dialog.



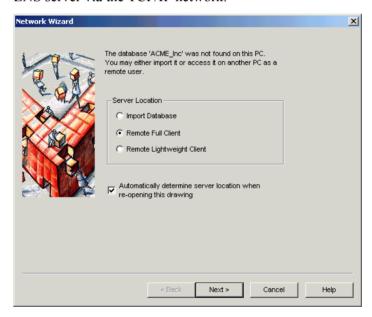
5 Click Open.



#### 6 Click OK.

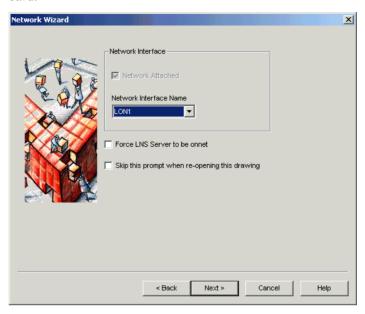


- 7 Click OK.
- **8** In the LonMaker Design Manager, select the network drawing you just restored. In our example ACME Inc.
- 9 Click Open Network.
- 10 Select Remote Full Client.
  - Import Database. Used to register a network database on the local LNS server.
  - **Remote Full Client.** Used to connect the remote LNS server via the LonWorks network.
  - **Remote Lightweight Client.** Used to connect the remote LNS server via the TCP/IP network.



11 Click Next.

**12** Select the **Network Interface Name** of the Engineering PC's LTA card.



### 13 Click Next.

Wait for LonMaker to locate the LNS database.

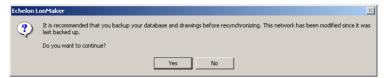
When done, click **Next** repeatedly and then **Finish**.

## 13.5.2 Resynchronizing a LonMaker Drawing

Now we will resynchronize the LonMaker drawing so that the new SNVTs will be shown in the drawing.

### To resynchronize a LonMaker Drawing

- 1 Open the network in LonMaker, if it is not already open.
- **2** Go to the subsystem that contains the Xenta device you made changes to. In our example, the RTU4 subsystem.
- **3** Select LonMaker from the menu and click **Resynchronize**.



- 4 Click Yes.
- 5 Select Sync drawing to database (fix-up drawing)



6 Click Next.

7 Click The current subsystem only.



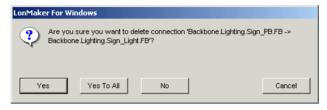
- 8 Click **Next** repeatedly and then **Finish**.
- 9 Click **OK** in the Synchronization Status dialog.

## 13.5.3 Adding a SNVT

Before we add the new bindings, we have to delete the unwanted bindings. In our example, this is the binding between the LonWorks devices Sign PB and Sign Light in the Lighting subsystem.

#### To add a SNVT

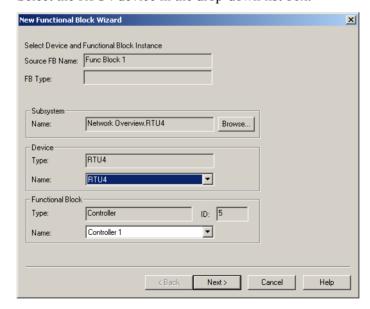
- 1 Go to the subsystem where the binding to be deleted is located.
- 2 Right-click on the binding connector and click **Delete**.



#### 3 Click Yes To All.

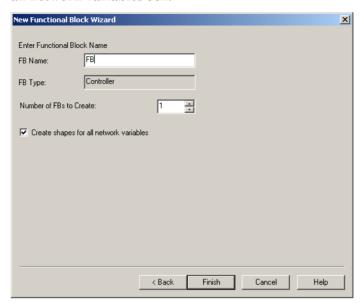
Now it is time to bind the new SNVTs, in our example these are the SNVT nvoSign\_Light in RTU4 and the SNVT in the Sign\_Light device. Use the Network Variables Connection dialog, since the two devices used are located in two different subsystems.

- **4** Return to the RTU4 subsystem drawing.
- 5 Add a functional block for the Xenta device that has been changed, RTU4 in our example, by dragging a functional block shape onto the drawing and dropping it next to the device.
- **6** Select the RTU4 device in the drop-down list box.

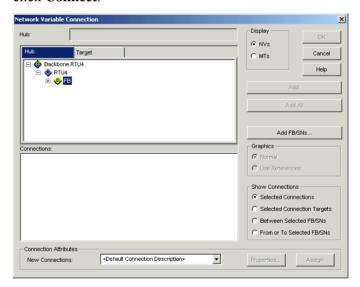


7 Click Next.

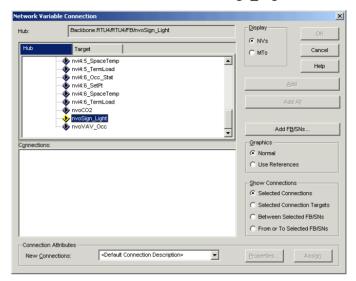
8 Name the functional block FB and select the **Create shapes for** all network variables box.



- 9 Click Finish.
- **10** Right-click on the functional block of RTU4 in the drawing and click **Connect**.



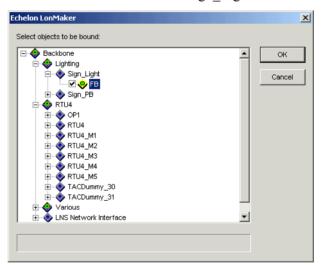
11 Double-click on the functional block of RTU4 called FB.



**12** Select the network variable nvoSign Light

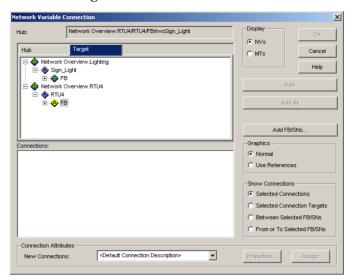
Now we have to define the device containing the network variable we will connect the Sign Light SNVT to.

- 13 Click the Add FB/SNs button.
- **14** Double-click on Lighting and Sign\_Light and select the check box beside the functional block of Sign\_Light called FB.

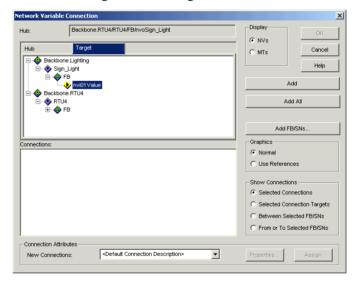


15 Click OK.

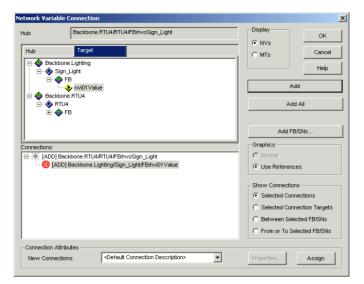
**16** Click the **Target** tab.



17 Double-click the FB for Sign\_Light and select the network variable that will light the neon sign.



#### 18 Click Add.

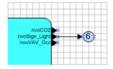




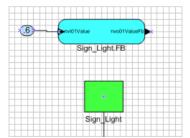
#### Note

- The name of the input depends on the equipment selected for controlling the neon sign.
- **19** Click **OK** to bind the connection.

LonMaker will automatically show the binding as a reference since the two network variables are located in two different subsystems.



**20** Go to the Lighting subsystem drawing and check the binding.



**21** Close the LonMaker drawing and save the changes.

### 13.6 Backing Up a LonWorks Network

If you have not added any SNVTs and/or I/O modules skip this section and move on to Section 13.7, "Checking a Value", on page 147.

Now we have to back up the changes made to the LonMaker network.

#### To back up a new LonWorks network

- 1 Close Vista System Plug-In and Vista Server.
- **2** Make sure the LonMaker drawing, ACME\_Inc in our example, is closed.
- 3 Use Windows Explorer to browse to the folder C:\ProjectAcme\BackupLM and rename the existing ACME\_IncDwg.zip to, for instance, ACME\_IncDwg\_01.zip. This will enable you to revert to the previous database if something goes wrong during the following steps.
- 4 In the LonMaker Design Manager click the Backup button.

### 13.6.1 Backing Up with Only an LNS Server Installed on a Site PC

This is a description of the procedure to use if you only have the LNS server installed on the site PC. If you have LonMaker installed on the site PC, skip this section and move on to Section 13.6.2, "Backing Up with LonMaker Installed on a Site PC", on page 146.

#### To back up with only an LNS Server installed on a site PC

1 Define the path C:\ProjectAcme\BackupLM



- 2 Click OK.
- 3 Close the LNS Server on the site PC.
- 4 Use Windows Explorer to browse to the C:\ProjectAcme\BackupLM folder and rename the existing ACME IncDb.zip to, for instance, ACME IncDb 01.zip. This

will enable you to revert to the previous database if something goes wrong during the following steps.

5 Use WinZip on the site PC to backup the LNS database \Lm\Db\Acme\_Inc. Save it as C:\ProjectACME\BackupLM\ACME\_IncDb.zip.

Skip Section 13.6.2, "Backing Up with LonMaker Installed on a Site PC", on page 146 and move on to Section 13.7, "Checking a Value", on page 147.

#### 13.6.2 Backing Up with LonMaker Installed on a Site PC

#### To back up with LonMaker installed on a site PC

1 Under **Backup Selection**, leave both boxes selected and browse to the file C:\ProjectACME\BackupLM\ACME inc.zip.



2 Click OK.



3 Click Yes.

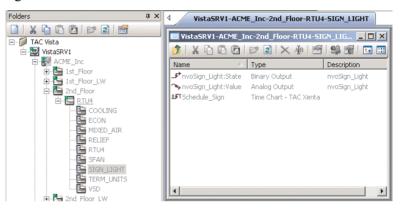


4 Click OK.

## 13.7 Checking a Value

#### To check a value

- 1 Start Vista Server and Vista Workstation on the site PC.
- **2** Expand the tree structre in the folders pane and check that the new signals have been added to the tree structure.



In our example, the signals nvoSign\_Light:Value, nvoSign\_Light:State and Schedule Sign in the module SIGN LIGHT have been added.

## 14 Adding a Device

Below we will describe how to maintain a running system. The site PC has an LTA card installed as a LonTalk Adaptor.

### 14.1 Adding a TAC Xenta Device

In our example, we will add the Xenta 401 serving Marketing and Senior Management, called RTU2, using 4 I/O modules.

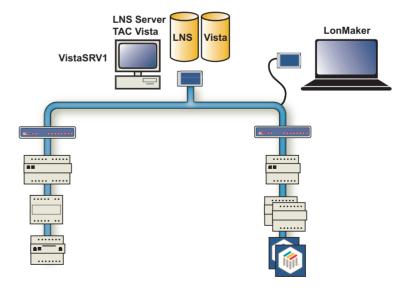
#### To add a TAC Xenta device

Start LonMaker on the site PC.

## 14.1.1 Connecting LonMaker to a Site PC with Only an LNS Server Installed

This is a description of the procedure to use if you only have the LNS server installed on the site PC. If you have LonMaker installed on the site PC, skip this section and go to Section 14.1.2, "Adding a TAC Xenta Device in LonMaker", on page 152.

For customers who do not have LonMaker installed on their site PC, it will be necessary to connect the Engineering PC that has LonMaker installed on it with the LonWorks network. From there, open the LonMaker network drawing and connect remotely to the LNS database on the site PC via the LonWorks network.



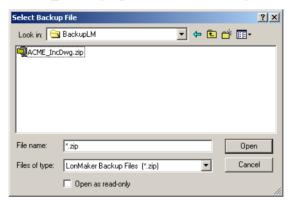
## To connect LonMaker to a site PC with only an LNS Server installed

- 1 Start the LNS Server on the site PC.
- 2 Copy the backed up LonMaker drawing file C:\ProjectAcme\BackupLM\ ACME\_IncDwg.zip to the Engineering PC that has LonMaker installed on it.
- 3 Start LonMaker and click the **Restore** button in the LonMaker Design Manager.

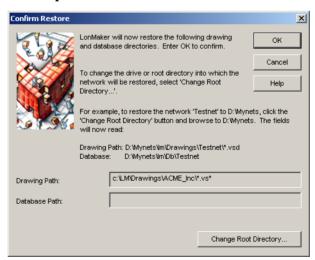
#### $\checkmark$

#### Caution

- Make sure you do not already have a network with the same name as the one you will now be restoring.
- **4** Select the LonMaker backup file C:\ProjectAcme\BackupLM\ ACME IncDwg.zip in the browse dialog.



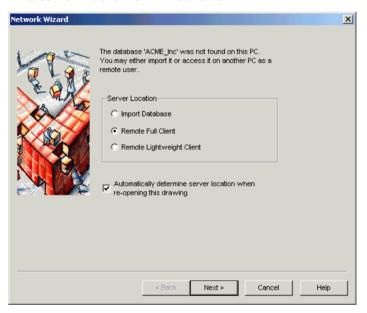
5 Click Open.



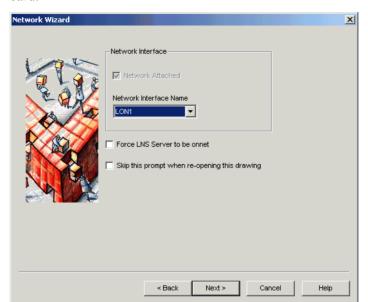
#### 6 Click OK.



- 7 Click OK.
- **8** In the LonMaker Design Manager, select the network drawing you just restored. In our example ACME Inc.
- 9 Click Open Network.
- 10 Select Remote Full Client.
  - **Import Database.** Used to register a network database on the local LNS server.
  - **Remote Full Client.** Used to connect the remote LNS server via the LonWorks network.
  - **Remote Lightweight Client.** Used to connect the remote LNS server via the TCP/IP network.



#### 11 Click Next.



**12** Select the **Network Interface Name** of the Engineering PC's LTA card.

#### 13 Click Next.

Wait for LonMaker to locate the LNS database.

When done, click **Next** repeatedly and then **Finish**.

#### 14.1.2 Adding a TAC Xenta Device in LonMaker

#### To add a TAC Xenta device in LonMaker

- 1 Open the LonWorks network you will add the new Xenta device to, if not already open. In our example: ACME Inc.
- 2 Create a new subsystem for the new device and name it. In our example, RTU2. You can also add the new device in an already existing subsystem, depending on the structure of the network.
- Add a Xenta 401 device to the drawing by dragging the device shape from the TAC Devices stencil onto drawing. For easy channel setting, drop the device shape onto the channel.
- 4 Name the device. In our example, RTU2.
- 5 Specify the channel in which the device will be located in this case 1st\_Floor.

#### 14.1.3 Configuring a New TAC Xenta Device

Now we need to assign the application file (\*.mta) for the new Xenta device. We will also be using the application file to see which I/O modules are needed which we then add to the LonMaker drawing.

#### To configure a new TAC Xenta device

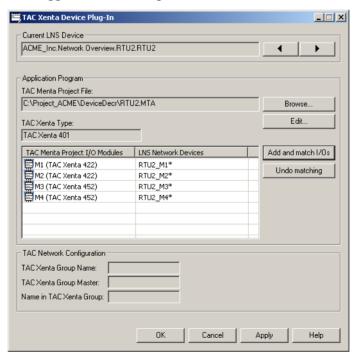
- 1 Open Vista system Plug-In on the site PC.
- 2 Right-click the new Xenta device RTU2, in the LNS network pane, and click configure.
- 3 Click Browse to locate the application file for the new device. In our example it is in the C:\ProjectACME\DeviceDescr folder.

In the **TAC Menta Project I/O Modules** list to the left, you can see the types of I/O modules included in the application, provided the application contains I/O modules.

If the application does not contain any I/O modules, the text "No I/O modules." will be displayed.

4 If the application file contains I/O modules click **Add and match** I/Os.

For the I/O modules that will be created in the drawing, the plug-in will suggest names ending with an asterisk.



5 Click **OK** to create the devices for the I/O modules in the LNS database.

As the asterisks disappear, the I/O modules will be added to the LNS database.

You will be asked if you want to resynchronize your LonMaker drawing. Resynchronization will make the I/O modules visible in the LonMaker drawing.

#### 6 Click No.

We will resynchronize the drawing later on during the process.

#### 14.1.4 Setting a Neuron ID

Neuron IDs are identifiers for each device on the LonWorks network.

Neuron IDs can be entered in three ways:

- By typing them in manually.
- By reading the bar code on the label on the device.
- By pressing the service pin when you are actually on site.

#### To set a neuron ID

- 1 Start Vista System Plug-In on the site PC.
- **2** Select the new Xenta device in the LNS network pane.
- 3 Right-click and click **Set Neuron ID**.
- 4 In the **Identification method** box, select **Manual** if you will type in the neuron ID manually or read the bar code on the label on the device. To press service pin select Service Pin. Click OK and press service pin on the device.
- **5** Set neuron ID for associated I/O modules as well.

### 14.1.5 Adding a New TAC Xenta Device to a TAC Xenta Group

When Vista communicates with devices on a LonWorks network, it requires that the devices be grouped. The Xenta devices will belong to the Xenta groups and group masters will be established.

#### To add a new TAC Xenta device to a TAC Xenta group

1 In Vista System Plug-In, add the new Xenta device to a Xenta group by dragging and dropping the device from the LNS network pane to the TAC network pane.

In our example, add the Xenta device RTU2 to the Xenta group 1st Floor.

I/O modules associated with the Xenta device will automatically be added beneath the Xenta device in the TAC network structure.



#### Note

• If the Xenta group does not exist in the existing tree structure, create it by right-clicking the Network object in the TAC network pane and point to Add and Group and then TAC Xenta Group.

2 On the LNS Network menu click Create Group Bindings.

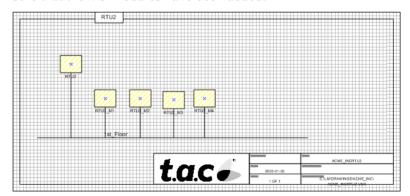
You will be asked if you want to resynchronize your LonMaker drawing. Resynchronization will make the group bindings visible in the LonMaker drawing.

- 3 Click **Yes** to resynchronize the drawing if you have LonMaker installed on the site PC. If you only have LNS Server installed on the site PC click No, and resynchronize the drawing from LonMaker on the Engineering PC instead.
- 4 Click Sync drawing to database (fix-up drawing)



You have to resynchronize all subsystems to get the group bindings right.

- 5 Click **Next** repeatedly and then **Finish**.
- 6 Click **OK** in the Synchronization Status dialog. Check the drawing. In our example, verify the RTU2 subsystem in LonMaker to make sure that the I/O modules have been added.



#### 14.1.6 Binding a SNVT in LonMaker

#### To bind a SNVT in LonMaker

Bind the SNVTs in LonMaker if the new device use SNVTs.

#### 14.1.7 Configuring Time Settings

#### To configure time settings

- 1 Right-click the new Xenta device in the TAC network pane in Vista System Plug-In.
- 2 Click Configure Time Settings.
- Make sure that the correct time zone and daylight saving mode are selected.
- 4 Click OK.

#### 14.1.8 Updating a TAC Vista Database

Now we need to send the information of the new Xenta device to the Vista database.

#### To update a TAC Vista database

- 1 Start TAC Vista Server if not already started.
- **2** On the TAC Network menu click Update TAC Vista Database.
- **3** Start Vista Workstation.
- **4** Expand the tree structure and check that the new device has been created in its proper group.

#### 14.1.9 Downloading an Application and Parameters

Looking in Vista System Plug-In, all Xenta devices in the Xenta group, where the new Xenta device was added, will now be marked with an asterisk. The asterisk indicates that they need a download of application and parameters. This to get the Xenta devices information of the new Xenta device now belonging to the group.

#### $\checkmark$

#### Caution

 When adding a new Xenta device you will have to set the routers between the site PC and the device to repeater mode when downloading application and parameters for the first time.

If you added a new Xenta group as well all Xenta devices in the network will need a download of applications and parameters. This to get them information of the new Xenta group and the new group master.

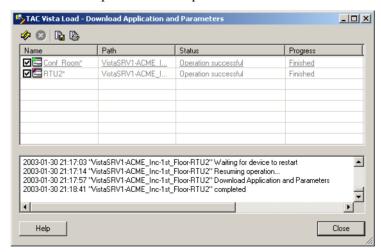
#### V

#### Caution

Naming a device differently during the design process can lead
to serious complications. Renaming a device that has been downloaded makes it necessary to download the device, and all the
other devices in the group, again. Renaming a group makes it
necessary to download all the devices in the network.

#### To download an application and parameters

- 1 Select all Xenta devices marked with an asterisk in the TAC network pane.
- 2 Right-click and click **Download Applications and Parameters.**
- 3 Click the Start the Selected Operation button to start the down-load.
- 4 Click Yes, all and Continue.
- **5** Wait until the operation is completed.



#### 6 Click Close.



#### Note

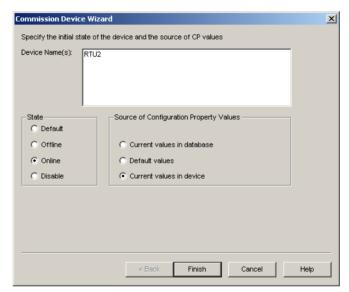
• Do not forget to set the router in Configured mode if you changed it to repeater mode.

#### 14.1.10 Commissioning a New TAC Xenta Device

The new Xenta device has to be commissioned in LonMaker so it will get subnet and node address information.

#### To commission a new TAC Xenta device

- 1 Right-click the new Xenta, in the LonMaker drawing, and click Commission.
- 2 Click Online and Current Values in Device.



- 3 Click Finish.
- 4 Commission associated I/O modules as well.

#### 14.1.11 Commencing Communication

Since we had to recreate the group bindings the TAC group binding has change. To get the new TAC Group information to Vista we have to commence the communication.

#### To commence communication

- 1 On the TAC Network menu click Commence Communication.
- **2** When completed click **Close** to exit the dialog.

### 14.1.12 Backing Up a New LonWorks Network

Now we have to back up the changes made to the LonMaker network.

#### To back up a new LonWorks network

- 1 Close Vista System Plug-In and Vista Server.
- **2** Make sure the LonMaker drawing, ACME\_Inc in our example, is closed.
- 3 Use Windows Workstation to browse to the C:\ProjectAcme\BackupLM folder and rename the existing ACME\_IncDwg.zip to, for instance, ACME\_IncDwg\_01.zip. This will enable you to revert to the previous database if something goes wrong during the following steps.
- 4 In the **LonMaker Design Manager** click the **Backup** button.

#### 14.1.13 Backing Up with Only an LNS Server Installed on a Site PC

This is a description of the procedure to use if you only have the LNS server installed on the site PC. If you have LonMaker installed on the site PC, skip this section and move on to Section 14.1.4, "Setting a Neuron ID", on page 154.

#### To back up with only an LNS Server installed on a site PC

1 Define the path C:\ProjectAcme\BackupLM.



- Click OK.
- 3 Close the LNS Server on the site PC.
- 4 Use Windows Workstation to browse to the C:\ProjectAcme\BackupLM folder and rename the existing ACME\_IncDb.zip to, for instance, ACME\_IncDb\_01.zip. This will enable you to revert to the previous database if something goes wrong during the following steps.
- 5 Use WinZip on the site PC to backup the LNS database \Lm\Db\Acme\_Inc.
  Save it as C:\ProjectACME\BackupLM\ACME\_IncDb.zip.

Skip Section 14.1.14, "Backing Up with LonMaker Installed on a Site PC", on page 161 and move on to Section 14.1.15, "Checking a New Device in TAC Vista Workstation", on page 162.

#### 14.1.14 Backing Up with LonMaker Installed on a Site PC

#### To back up with LonMaker installed on a site PC

- 1 Use Windows Workstation to browse to the C:\ProjectAcme\BackupLM folder and rename the existing ACME\_Inc.zip to, for instance, ACME\_Inc\_01.zip. This will enable you to revert to the previous database if something goes wrong during the following steps.
- 2 Under Backup Selection, leave both boxes selected and save the backup as ACME\_Inc.zip in the C:\ProjectAcme\BackupLM folder.

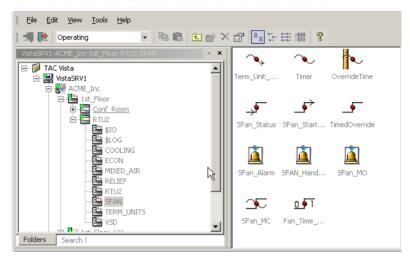


3 Click OK.

#### 14.1.15 Checking a New Device in TAC Vista Workstation

#### To check a new device in TAC Vista Workstation

- 1 Start Vista Server and Vista Workstation on the site PC.
- **2** Expand the tree structure in the folders pane and check that the new Xenta device has been added to the tree structure.



In our example, the Xenta device RTU2.

## 14.2 Adding a LonWorks Device

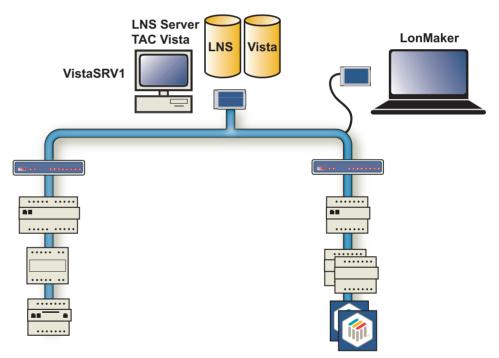
In our example, we will add the Xenta 104, serving the customer support area, called RTU3.

• Start LonMaker on the site PC.

## 14.2.1 Connecting LonMaker to a Site PC with Only an LNS Server Installed

This is a description of the procedure to use if you only have the LNS server installed on the site PC. If you have LonMaker installed on the site PC, skip this section and move on to the next Section 14.2.2, "Adding a LonWorks Device in LonMaker", on page 166.

For customers who do not have LonMaker installed on their site PC, it will be necessary to connect the Engineering PC that has LonMaker installed on it with the LonWorks network. From there, open the LonMaker network drawing and connect remotely to the LNS database on the site PC via the LonWorks network.



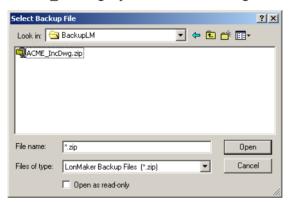
## To connect LonMaker to a site PC with only an LNS Server installed

- 1 Start the LNS Server on the site PC.
- 2 Copy the backed up LonMaker drawing file C:\ProjectAcme\BackupLM\ ACME\_IncDwg.zip to the Engineering PC that has LonMaker installed on it.
- 3 Start LonMaker and click the **Restore** button in the LonMaker Design Manager.

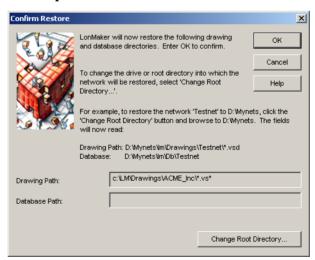
#### $\checkmark$

#### Caution

- Make sure you do not already have a network with the same name as the one you will now be restoring.
- **4** Select the LonMaker backup file C:\ProjectAcme\BackupLM\ ACME IncDwg.zip in the browse dialog.



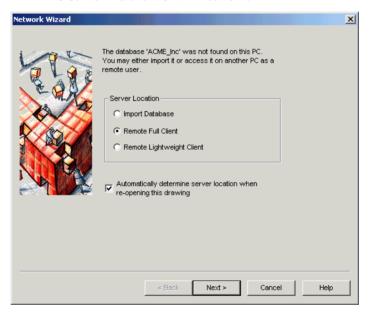
5 Click Open.



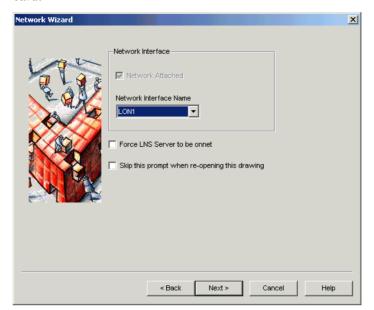
#### 6 Click OK.



- 7 Click OK.
- 8 In the LonMaker Design Manager, select the network drawing you just restored. In our example ACME Inc.
- 9 Click Open Network.
- 10 Select Remote Full Client.
  - **Import Database.** Used to register a network database on the local LNS server.
  - **Remote Full Client.** Used to connect the remote LNS server via the LonWorks network.
  - **Remote Lightweight Client.** Used to connect the remote LNS server via the TCP/IP network.



#### 11 Click Next.



**12** Select the **Network Interface Name** of the Engineering PC's LTA card.

#### 13 Click Next.

Wait for LonMaker to locate the LNS database.

When done, click **Next** repeatedly and then **Finish**.

#### 14.2.2 Adding a LonWorks Device in LonMaker

#### To add a LonWorks device in LonMaker

- 1 Open the LonWorks network you will add the new LonWorks device to, if not already open. In our example: ACME Inc.
- **2** Create a new subsystem for the new device and name it. In our example, RTU3. You can also add the new device in an already existing subsystem, depending on the structure of the network.
- Add a Xenta 104 device to the drawing by dragging the device shape from the TAC Devices stencil onto drawing. For easy channel setting, drop the device shape onto the channel.
- 4 Name the device. In our example, RTU3.
- 5 Specify the channel in which the device will be located in this case 2nd\_Floor.

#### 14.2.3 Setting a Neuron ID

Neuron IDs are identifiers for each device on the LonWorks network.

Neuron IDs can be entered in three ways:

- By typing them in manually.
- By reading the bar code on the label on the device.
- By pressing the service pin when you are actually on site.

#### To set a neuron ID

- 1 Start Vista System Plug-In on the site PC.
- 2 Select the new LonWorks device in the LNS network pane.
- 3 Right-click and click **Set Neuron ID**.
- 4 In the **Identification method** box, select **Manual** if you will type in the neuron ID manually or read the bar code on the label on the device. To press service pin select Service Pin. Click OK and press service pin on the device.

#### 14.2.4 Adding a New LonWorks Device to a LonWorks Group

When Vista communicates with devices on a LonWorks network, it requires that the devices be grouped. The LonWorks devices will belong to the LonWork groups.

#### To add a new LonWorks device to a LonWorks group

- 1 Start Vista System Plug-In on the site PC.
- Add the new LonWorks device to a LonWorks group by dragging and dropping the device from the LNS network pane to the TAC network pane. In our example, add the LonWorks device RTU3 to the Xenta group 2nd Floor LW.



#### Note

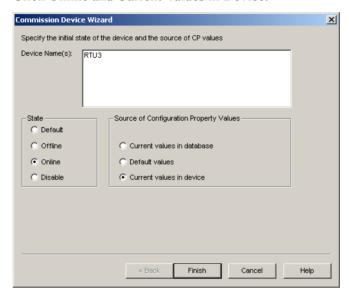
If the LonWorks group does not exist in the existing tree structure, create it by right-clicking the Network object in the TAC network pane and point to Add and Group and then LonWorks Group.

#### 14.2.5 Commissioning a New LonWorks Device

The new LonWorks device has to be commissioned in LonMaker so it will get subnet and node address information.

#### To commission a new LonWorks device

- 1 Right-click the new LonWorks device, in the LonMaker drawing, and click Commission.
- **2** Click Online and Current Values in Device.



3 Click Finish.

### 14.2.6 Updating a TAC Vista Database

Now we need to send the information of the new LonWorks device to the Vista database.

#### To update a TAC Vista database

- 1 Start TAC Vista Server if not already started.
- 2 On the TAC Network menu click Update TAC Vista Database.
- **3** Start Vista Workstation.
- Expand the tree structure and check that the new LonWorks device has been created in its proper group.

#### 14.2.7 Binding a SNVT

#### To bind a SNVT

Bind the SNVTs in LonMaker if the new device use SNVTs.

#### 14.2.8 Backing Up a New LonWorks Network

Now we have to back up the changes made to the LonMaker network.

#### To back up a new LonWorks network

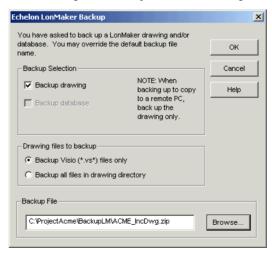
- 1 Close Vista System Plug-In and Vista Server.
- 2 Make sure the LonMaker drawing, ACME\_Inc in our example, is closed.
- 3 Use Windows Workstation to browse to the C:\ProjectAcme\BackupLM folder and rename the existing ACME\_IncDwg.zip to, for instance, ACME\_IncDwg\_01.zip. This will enable you to revert to the previous database if something goes wrong during the following steps.
- 4 In the **LonMaker Design Manager** click the **Backup** button.

#### 14.2.9 Backing Up with Only an LNS Server Installed on a Site PC

This is a description of the procedure to use if you only have the LNS server installed on the site PC. If you have LonMaker installed on the site PC, skip this section and move on to Section 14.2.10, "Backing Up with LonMaker Installed on a Site PC", on page 170.

#### To back up with only an LNS Server installed on a site PC

1 Define the path C:\ProjectAcme\BackupLM.



- 2 Click OK.
- 3 Close the LNS Server on the site PC.

- 4 Use Windows Workstation to browse to the C:\ProjectAcme\BackupLM folder and rename the existing ACME\_IncDb.zip to, for instance, ACME\_IncDb\_01.zip. This will enable you to revert to the previous database if something goes wrong during the following steps.
- 5 Use WinZip on the site PC to backup the LNS database \Lm\Db\Acme\_Inc.
  Save it as C:\ProjectACME\BackupLM\ACME IncDb.zip.

Skip the next section and move on to Section 14.2.11, "Checking a New Device in TAC Vista Workstation", on page 171.

#### 14.2.10 Backing Up with LonMaker Installed on a Site PC

#### To back up with LonMaker installed on a site PC

1 Under **Backup Selection**, leave both boxes selected and browse to the file C:\ProjectACME\BackupLM\ACME inc.zip.



2 Click OK.



3 Click Yes.

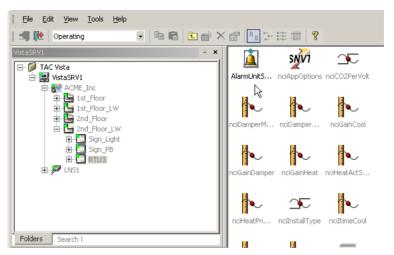


4 Click OK.

### 14.2.11 Checking a New Device in TAC Vista Workstation

#### To check a new device in TAC Vista Workstation

- 1 Start Vista Server and Vista Workstation on the site PC.
- **2** Expand the tree structure in the folders pane and check that the new Xenta device has been added to the tree structure.



In our example, the Xenta device RTU3.

## 15 Replacing an .xif File

The external interface file (.xif) can be replaced for a LonWorks device. This is done when the wrong version of the .xif file is used or when the numbers/types of SNVTs in the file are changed. For example when SNVTs has been added to a Xenta 511/527/555/913.

For a Xenta device the .xif file is automatically changed when replaced when the application is changed. for more information on how to change an application, see Chapter 13, "Changing a TAC Xenta Application", on page 117.

In the example, we will replace the .xif file for a Xenta 511, named ACME Web.

#### To replace an .xif file

- 1 Ensure that Vista Server is running.
- 2 In Vista System Plug-In, in the LNS Network pane, right-click the LonWorks device object. In the example, ACME\_Inc-1st\_Floor-ACME Web.
- 3 Click Replace.
- 4 Click Next.
- **5** Keep default neuron ID.



6 Click Next.

**7** Select **Upload From Device**.



- 8 Click Next.
- 9 Click OK.
- **10** Select the LonWorks device object and check that the SNVTs are available in the object view window.

## REFERENCE

- 16 Assigning I/O Modules
- 17 TAC Vista Group Bindings
- 18 TAC Xenta OP Configuration
- 19 Echelon
- 20 Loytec
- 21 TAC Xenta 511/527/555
- 22 TAC Xenta 911
- 23 TAC Xenta 901
- 25 Using Subsystems
- 26 Merging LonWorks Networks
- 27 Network Communication

## 16 Assigning I/O Modules

There are two different methods of adding and assigning I/O modules.

## 16.1 Using TAC Vista System Plug-In

Use the **Configure** dialog box in Vista System Plug-In to add the I/O modules to the drawing and name them according to the application (\*.mta), device name I/O module name, for example RTU4 M1.

For further information on how to add I/O modules using Vista System Plug-In, please refer to Chapter 4, "Configuring a TAC Xenta Device", on page 55 of the Getting Started section of this manual.

If the I/O module names are not appropriate, you will need to change them in the application (\*.mta). Open the application in TAC Menta, preferably using the **Edit** button in the **Configure** dialog box. In the **Options** menu, click **Device Configuration**. Select the I/O module you want to rename, click **Edit** and rename the I/O module. The default name of I/O modules in Menta is M1, M2, M3... and so on.

### 16.2 Using an I/O Module Shape

Adding and assigning I/O modules is adding and naming the devices in LonMaker manually using I/O module shapes in the TAC Devices stencil. When assigning the application to a Xenta device in the **TAC Xenta Device Plug-In** dialog, the **TAC Menta Project I/O Modules** column will display the number and type of modules defined in the application. Click in the **LNS Network Device** column and a list of all the I/O modules available on the channel will appear. Select the I/O module you are going to use from the I/O modules listed in the table.

## 17 TAC Vista Group Bindings

When installing a Xenta device in a LonWorks network, you must create two group bindings in the Xenta. These two group bindings are called the TAC Group binding and the TAC Xenta Group binding.

## 17.1 The TAC Group Binding

The TAC group binding includes all the Xenta devices in the network.

It is used by Vista when resolving subnet\node addresses for the Xenta devices in the LonWorks network. Heartbeat information and time synchronization will also be handled by the TAC Group binding.

All Xenta group masters will send a heartbeat via the TAC group binding. This allows the Xenta OP to display Xenta devices in all Xenta groups, depending on the OP mode selected.

If an alarm is reported from a Xenta group member to the TAC Xenta group master, the group master will include the alarm indication in the heartbeat handled by the TAC group binding. If the Xenta 901 (master) is used, this will enable it to know when to dial Vista.

The initialization of TACNVs between Xenta groups will also use the TAC group binding when asking for a Xenta device not found in its own Xenta group.

### 17.2 The TAC Xenta Group Binding

The Xenta group binding includes all the Xenta devices within a Xenta group.

All the Xenta devices within a Xenta group, including the group master, send their heartbeats via the Xenta group binding. The heartbeat will be used by the master to indicate the online/offline status of the Xenta group members.

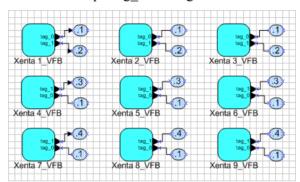
If a Xenta triggers an alarm, it will send the alarm indication with the heartbeat. When the group master receives it, the message will be forwarded via the TAC group binding for the Xenta 901.

The heartbeat also enables the Xenta OP to display the Xentas in the Xenta group and TACNVs use the heartbeat to initialize subscriptions within the Xenta group.

# 17.3 Creating TAC Vista and TAC Xenta Group Bindings

When you create a LonWorks network in LonMaker, you can create the group bindings using Vista System Plug-In. The plug-in will create the group bindings using the Virtual Function Block, with the message outputs tag 0 and tag 1.

Each Xenta device within the network will be bound by tag\_0 to form the TAC Group. Tag\_1 bindings are used within each Xenta group.

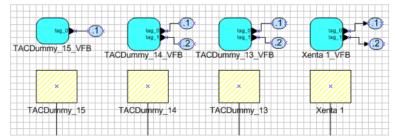


The two group bindings, TAC group and Xenta group, will each use one entry in the address table in all Xenta devices.

Vista requires that the TAC Group and the TAC Xenta group differ in the number of devices. If you only have one Xenta group in your system, TAC Vista System Plug-In will create a dummy device and use its tag\_0 in the group binding for the TAC Group. This will allow Vista to differentiate between the TAC and Xenta groups.

Xenta Groups must consist of at least three Xenta devices. If you only have two Xentas in a Xenta group, TAC Vista System Plug-In will also use a dummy device, since a binding between just two devices is not considered a group binding. To create a group binding, a third device is needed. Consequently, you will need two dummy devices if you only have one Xenta in your Xenta group.

Thus, if just one Xenta device exists in a single Xenta group, three dummy devices will be needed: one to separate the TAC group binding from the Xenta group binding and two more to form a Xenta group.



For more information on how to create TAC and Xenta group bindings in Vista System Plug-In, please refer to Chapter 5, "Creating a TAC Vista Group", on page 61 of the Getting Started section of this manual.

# 18 TAC Xenta OP Configuration

In a Xenta OP service menu, there are three different options as regards how to install a Xenta OP in a LonWorks network: INST, MAN and TAC.

In a LonWorks network, where you are using LonMaker and TAC Vista System Plug-In as network management tools, you can use the Xenta OP in two different ways: MAN or INST. The recommended way to use the Xenta OP is in INST mode, installing it like any other LON device. The TAC mode is only for Classic networks and is not described in this manual.

### 18.1 INST Mode

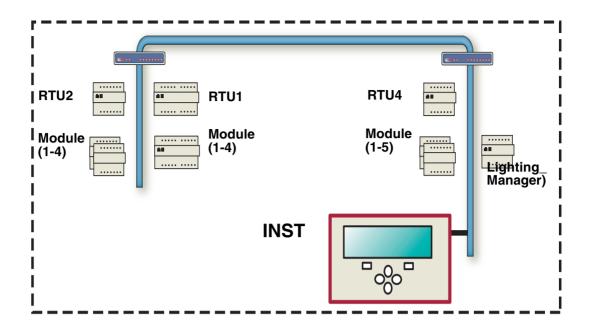
Installing the Xenta OP in INST mode will enable it to view all the Xenta devices on a network. Because the Xenta OP is installed in Lon-Maker and has been assigned a specific subnet/node address, it is no longer mobile.

For more information on how to install a Xenta OP in LonMaker, please refer to Chapter 3



#### Warning

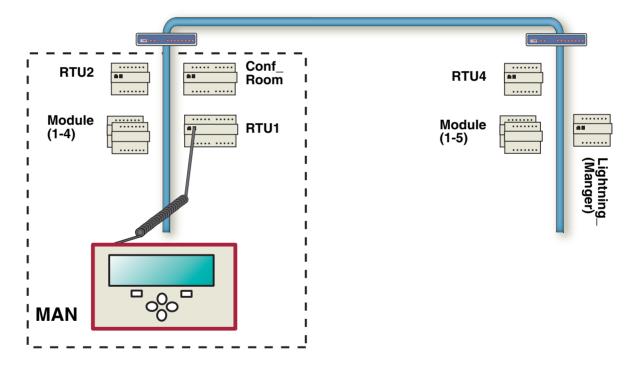
 It is very important to install the Xenta OP physically on the LonWorks network since the routers will be destroyed if it is moved around and connected to the wrong side of a router. Routers cannot handle the same subnet address on both sides.



### 18.2 MAN Mode

MAN mode will make the Xenta OP movable in the network and will show all the Xentas in the network channel by channel. This means that the Xenta OP will be able to view devices on a single channel and then be moved to another channel for viewing the devices. The Xenta OP obtains subnet address 255 and node address 70. If this address is already taken, the Xenta OP will use node address 71, 72... until it finds a node address that is free. Subnet 255 is reserved for Echelon's routers and the router won't be destroyed even if nodes on both sides of the routers have this subnet address. On the other hand, the router will filter the info on subnet 255, so you will only be able to work with one channel at a time.

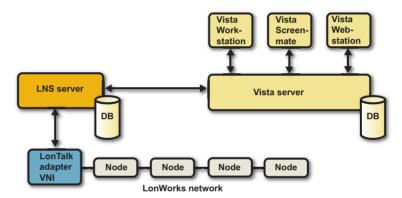
In addition, to be able to use MAN mode, you must ensure that the Xenta OP has the same Domain ID as the other nodes on the LonWorks network. To do this, check LonMaker to see the Domain ID for your network, then in the Xenta OP's service menu, select the same Domain ID for the Xenta OP.



## 19 Echelon

### 19.1 PCC and PCLTA

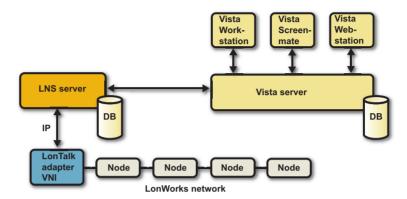
When using LonTalk adapters from Echelon, Vista Server communicates with the LNS server using a Communication Port – LNS object in the Vista database. The LNS server communicates with the LonWorks network via the LonTalk adapter using the network interface application VNI.



For more information on how to engineer an LNS network, see the Getting Started part of this manual.

### 19.2 i.LON Routers

When using the LonTalk adapters i.LON routers, Vista Server communicates using a Communication Port – LNS object in the Vista database with the LNS server. The LNS server communicates via the LonTalk adapter using IP. The i.LON router uses the network interface application VNI to communicate with the LonWorks network.

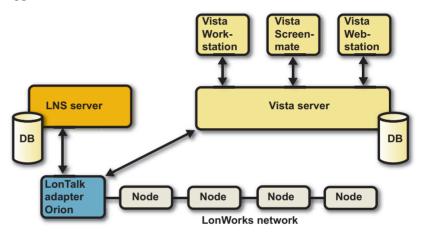


The engineering procedure in Vista System Plug-In is the same as when a LonTalk adapter from Echelon is used.

For more information on how to engineer an LNS network, see the Getting Started part of this manual.

# 20 Loytec

When using a LonTalk adapter from Loytec, Vista Server communicates, using a Communication Port – Loytec object in the Vista database, with the LonWorks network via the LonTalk adapter. The LNS server also communicates with the LonWorks network via the LonTalk adapter. Both Vista Server and the LNS server use the network interface application Orion.



As LonTalk adapters from Loytec have up to 8 multi-network interface (MNI) devices, both Vista Server and the LNS server can communicate via the LonTalk adapter at the same time. Vista automatically uses the last available MNI device. Loytec recommends the use of the first MNI device in LonMaker.

For more information on how to engineer an LNS network, see the Getting Started part in this manual.

## 20.1 Creating a Phantom Router

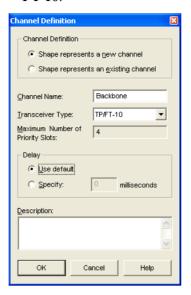
If you are using Loytec NIC709 (NIC-USB, NIC-PCI, or NIC-IP), the LNS application might change the channel type back to the default value (IP-10L) under certain conditions, for example when changing between on-net and off-net. To avoid this problem, a Phantom Router must be inserted between the NIC709 and the LNS network channel.

### To create a phantom router

When adding a phantom router an additional channel must be created.

- 1 Drag a channel shape onto the drawing.
- **2** Name the channel. In the example, Backbone.

3 In the **Transceiver Type** box select the type. In the example, **TP/ FT-10**.



- 4 Click OK.
- **5** Drag a router shape onto the drawing.
- 6 Name the router. In the example, Phantom. Do not check Commission Device



New Router Wizard

Specify Router Channels

Router Name: Phantom

Channel A

Xcvr Type: <All>
Name: Channel 1

Channel B

Xcvr Iype: <All>
Name: Pasity as a limit of the second second

7 Click Next. The New Router Wizard dialog opens.

**8** Set **Channel A** as Channel 1 and **Channel B** as Backbone.

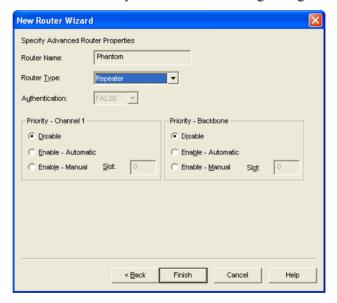
<u>N</u>ext >

Cancel

Help

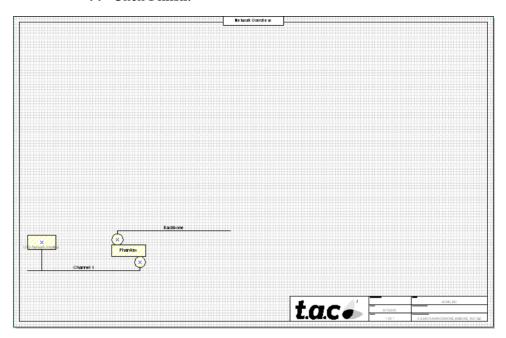
9 Click **Next** until you reach the following dialog:

< <u>B</u>ack



10 In the Router Type box, select Repeater.

### 11 Click Finish.



If you are following the example, return to Chapter 3.5.3, "Creating a Channel", on page 43 and proceed with the engineering process. Note that your drawing differs slightly from the example.

## 20.2 Creating a Host SNVT

If using a Loytec card it is possible to bind SNVTs directly to the Lon-Talk adapter (host).

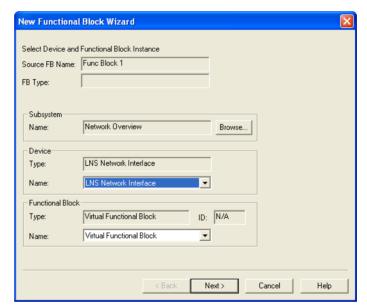


### **Important**

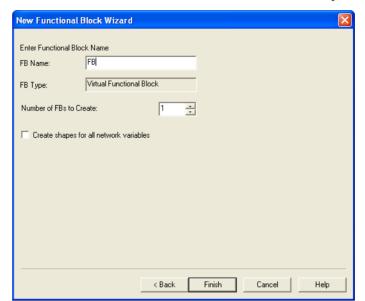
Do not use group bindings when binding to the host.

#### To create a host SNVT

- 1 In LonMaker, open the drawing where the LNS Network Interface is located. In the example, Network Overview.
- 2 Drag a Function Block shape onto the drawing.
- 3 In the Device area, in the Name list, select LNS Network Interface.

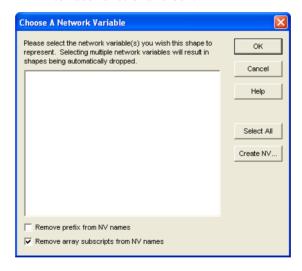


4 Click Next.



5 In the **FB Name** box, enter the name. In the example, FB.

- 6 Click Finish.
- 7 Drag an **Input Network Variable** shape onto the LNS network interface functional block.



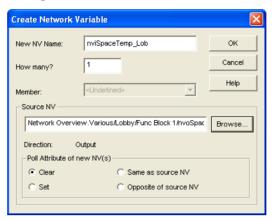
- 8 Click Create NV.
- 9 In the New NV box, enter the name. In the example, nviSpaceTemp\_Lob as the signal is sent from the device named Lobby.



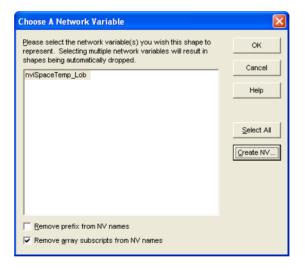
### **Important**

• Name the signal so it is easy to understand what type of signal it is and from which device it is sent. 16 characters are available.

- **10** In the **Source NV** box, browse to the source SNVT. In the example:
  - Network Overview. Various/Lobby/Func Block 1/nvoSpaceTemp.
- **11** Ensure that **Clear** is selected, to disable poll and enable SNVT update.



#### 12 Click OK.



#### 13 Click OK

**14** Bind the SNVTs. In the example, nvoSpaceTemp in the Lobby device to nviSpaceTemp in the LNS Network Interface.



### **Important**

 To make the host SNVTs available in the Vista database, the check box Export Host Bindings to TAC Vista Database must be selected. The check box is found in Vista System Plug-In in the Settings dialog on the TAC Network menu.



#### Note

Digital and multistate SNVTs should be sent as soon as a change
of state occurs and analog SNVTs should be sent as soon as they
reach a defined limit. All SNVTs should be sent with a heartbeat
determined by the priority of the information. For more information about how to set these parameters, see the LonWorks device
documentation.

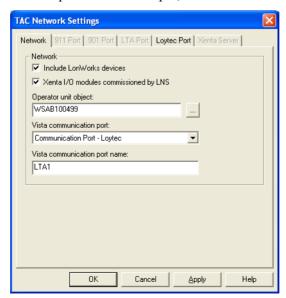
If you are following the example, return to Chapter 7, "Setting a Neuron ID", on page 75, and proceed with the engineering process. Note that your drawing will differ slightly from the example.

## 20.3 Creating a Communication Port – Loytec

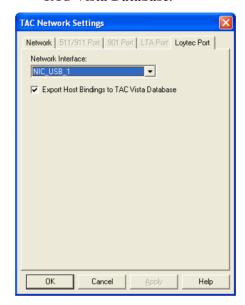
If you are using a LonTalk adapter from Loytec you have to create a communication port of the type Loytec. If you have several network interface cards installed on the computer, you have to specify which one to use. Vista automatically uses the last MNI (Multiplexed Network Interface) device available.

### To create a communication port – Loytec

- 1 Open the Vista System Plug-In.
- 2 In the TAC network pane, right-click the TAC network object. In the example ACME Inc.
- 3 Click Settings.
- 4 In the Vista communication port list select Communication Port Loytec.
- 5 In the **Vista communication port name** box, enter the name of the port. In the example, LTA1.



- 6 Click the **Loytec Port** tab.
- 7 Log in to Vista Server.
- 8 In the **Network Interface** box, select the required network interface card. In the example, NIC USB 1
- 9 If host bound SNVTs are used, select **Export Host Bindings to TAC Vista Database**.



#### 10 Click OK.

If the Loytec card is not installed on the computer you have to select the network interface from the **Communication Port** – **Loytec** Properties dialog in Vista when the Vista database is created.

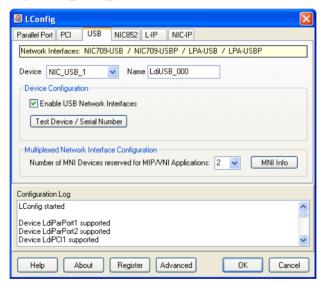
If you are following the example, return to Section 8.3, "Configuring Time Settings in a TAC Xenta Device", on page 79. Note that the name of the communication port differs from the example.

## 20.4 Configuring a Network Interface Card

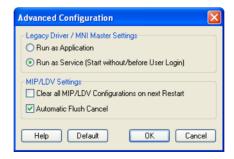
Loytec network interface cards can be used for communication between the computer and the network.

### To configure a network interface card

- 1 Quit the following programs:
  - LonMaker
  - Vista System Plug-In
  - Vista Server.
- 2 Install the LonTalk adapter from Loytec. For more information see the Loytec documentation.
- 3 On the **Start** menu, point to **Programs**, point to **LOYTEC Network Interfaces**, and then click **LConfig**.
- 4 In LConfig, click the NIC connection tab.
- 5 In the **Device** box, select the network interface card. In the example NIC USB 1.



6 Click Advanced.

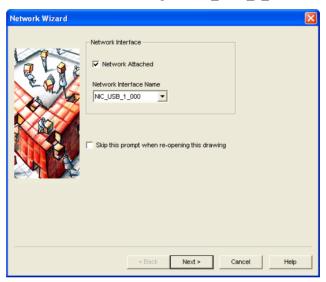


7 Select Run as Service (Start without/before User Login).

- 8 Click OK.
- 9 Click Test Device / Serial Number.



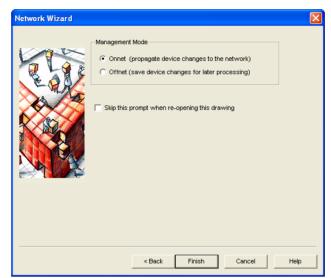
- **10** Click **OK** in both dialogs to exit LConfig.
- **11** Start LonMaker and open the ACME Inc network.
- 12 Select Network Attached check box.
- **13** In the **Network Interface Name** list select the required network interface. In the example, NIC USB 1 000.





### **Important**

Use the first MNI device available to avoid conflicts with Vista.
 The three last digits represent the MNI device. For example NIC\_USB\_1\_000 is MNI device 000.



### 14 Click Next repeatedly until you reach the following dialog:

- 15 Select Onnet.
- 16 Click Finish.

If you are following the example, return to Section 9.3, "Moving a Network Interface", on page 87. Note that the name of the network interface differs from the example.

## 20.5 Changing from Echelon to Loytec

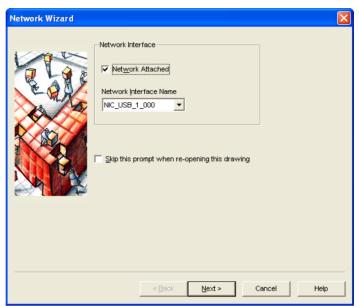
It is possible to change from a LonTalk adapter from Echelon to a LonTalk adapter from Loytec on the site PC when the system is running. The Vista server will then communicate directly with the LonTalk adapter instead of communicating via the LNS server.

If you are using Loytec NIC709 (NIC-PP, NIC-USB, NIC-PCI, or NIC-IP), the LNS application might change the channel type back to the default value (IP-10L) under certain conditions, for example when changing between on-net and off-net. To avoid this problem, a Phantom Router must be inserted between the NIC709 and the LNS network channel.

### To change from Echelon to Loytec

- 1 Install the LonTalk adapter from Loytec. For more information see the Loytec documentation.
- 2 In Vista Workstation, unprotected the Communication Port LNS object.
- 3 Delete the Communication Port LNS object.
- 4 Open the LonWorks network in LonMaker.

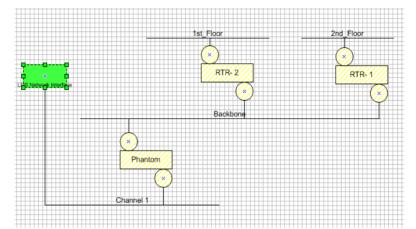
5 In the network **Interface Name** box, select the required network interface. In the example, NIC\_USB\_1\_000.



### **Important**

- Use the first MNI device available to avoid conflicts with Vista.
   The three last digits represent the MNI device. For example
   NIC USB 1 000 is MNI device 000.
- **6** Add a new channel to the drawing.
- 7 Name the channel. In the example, Channel 1.
- **8** Add a router between the backbone and the new channel.
- **9** Name the router. In the example, Phantom.
- 10 Right-click the LNS Network Interface and click Change Channel.
- 11 In the **Destination Channel** box, in the **Name** list, select the new channel. In the example, Channel 1.

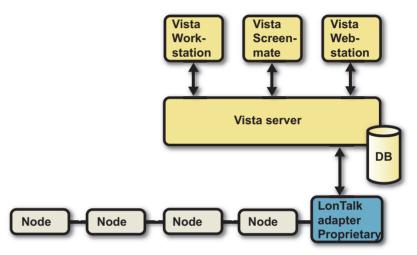
#### 12 Click OK.



- **13** In Vista System Plug-In, on the **TAC Network** menu click **Settings**.
- 14 In the Vista communication port list, select Communication Port Loytec.
- 15 In the Vista communication port name box, name the port.
- **16** Click the **Loytec Port** tab.
- **17** Log in to Vista Server.
- **18** In the **Network Interface** list, select an available network interface.
- 19 Click OK.
- 20 On the TAC Network menu, click Update TAC Vista Database.
- 21 Click Yes.

## 21 TAC Xenta 511/527/555

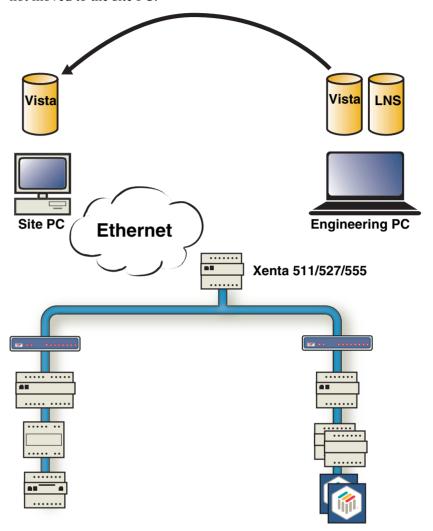
When using the LonTalk adapters Xenta 511/527/555, Vista Server communicates with the LonWorks network by using the Xenta Server 511/527/555 object. The Xenta 511/527/555 uses a proprietary network interface application and thus the LNS server can not communicate via the Xenta 511/527/555.



## 21.1 Installing a New LonWorks Network

When using a TAC Xenta 511/527/555 as a LonTalk adapter, the Lon-Works network and the Vista database are created on the engineering PC using LonMaker and Vista System Plug-In.

When the Vista database is moved to the site PC, the type of communication port in the Vista database must be changed. The LNS database is not moved to the site PC.



The engineering PC must have an Echelon or Loytec LonTalk adapter card installed.

### 21.1.1 Creating a LonWorks Network

LonMaker is used to create a LonWorks network.

#### To create a LonWorks network

On the engineering PC, create the LonWorks network.
 For more information, see Chapter 3, "Creating a LonWorks Network", on page 29.

### 21.1.2 Setting a TAC Network Interface

The Xenta 511/527/555 must be set as the network interface in the Vista System Plug-In. This is to prevent it from appearing in the Vista database. It also make the Xenta 511/527/555 a member of the TAC group binding later in the process.

### To set a TAC network interface

- 1 In the Vista System Plug-In, in the LNS network pane, right-click the Xenta 511/527/555 to be used as a LonTalk adapter.
- 2 Click Set as TAC Network Interface.

### 21.1.3 Creating a Vista Database

When the Xenta 511/527/555 is set as the network interface you can create a Vista database.

#### To create a Vista database

1 Configure the Xenta devices.

For more information, see Chapter 4, "Configuring a TAC Xenta Device", on page 55.

**2** Update the TAC network.

For more information, see Section 5.2, "Updating a TAC Network", on page 63

**3** Create TAC and TAC Xenta Group Bindings.

For more information, see Section 5.4, "Creating TAC and TAC Xenta Group Bindings", on page 67.

4 Bind SNVTs.

For more information, see Chapter 6, "Binding a SNVT", on page 71.

**5** Set neuron IDs.

For more information, see Chapter 7, "Setting a Neuron ID", on page 75.

**6** Create the Vista database.

For more information, see Chapter 8, "Creating a TAC Vista Database", on page 77.

7 Download and commission.

Fore more information, see Chapter 9, "Commissioning and Downloading", on page 83.

**8** Commence TAC Vista communication.

Fore more information, see Chapter 10, "Commencing TAC Vista Communication", on page 99.

**9** Back up the Lonworks network. This includes both drawing and database.

### 21.1.4 Changing a Communication Port Type

Before the Vista database is moved to the site PC, the type of communication port in the Vista database must be changed.

### To change a communication port type

- 1 In the System Plug-In, in the TAC network pane, right-click the network object.
- 2 Click Settings.
- 3 In the **Vista communication port** list, click the required communication port.
- 4 In the **Vista communication port name** box, type an appropriate name
- 5 Click the **Xenta Server** tab.
- 6 In the IP/DNS Address box, type the IP address.



#### Note

- The user name must always be "root". The password must be the same as in the Xenta server. If the password is changed using the configuration page on the Xenta server web site, the same information must be typed in the **Password** box, if it is not, it is not possible to send the project from XBuilder to the Xenta server.
- 7 In the **Password** box, type the password.
- 8 Click OK.

For more information on how to configure a Xenta 511/527/555, see the *Engineering TAC Xenta Server – TAC Xenta 511/527/555*.

- 9 On the TAC Network menu, click Update TAC Vista Database.
- 10 Click OK.
- **11** Log in to Vista Server if required.
- **12** Start TAC Vista **Workstation**, refresh the tree structure and check that the port has been created.



#### Note

• The LonWorks network is now offline.

### 21.1.5 Deleting a Port

The unused Communication Port – LNS/Loytec object in the Vista database should be deleted. This is done in Vista Workstation.

### To delete a port

- 1 In Vista Workstation, in the folders pane, right-click the Communication Port LNS/Loytec object and click **Authority**.
- 2 Clear the **Protected database object** box and click **OK**.
- 3 Select the Vista Server object and refresh the tree structure to make the port name turn black.
- 4 Right-click the Communication Port LNS/Loytec object in the folders pane, and click **Delete**.
- 5 Click **Yes** to delete the Communication Port LNS/Loytec.

### 21.1.6 Moving a Vista Database to a Site PC

Once the type of communication port is changed the Vista database is moved to the site PC and Vista starts communicating with the devices via the Xenta 511/527/555. The LNS database is not transferred to the site PC.

#### To move a Vista Database to a site PC

- 1 On the engineering PC, quit the following programs:
  - Vista Workstation
  - Vista Server
  - Vista System Plug-In
  - LonMaker
- **2** Disconnect the engineering PC from the LonWorks network.
- 3 Copy the project folder, containing the Vista database, from the engineering PC to the site PC.
- 4 On the site PC, install the following software:
  - Privilege License Server
  - The customer's license file
  - TAC Vista Server/Workstation
- Connect the site PC to the LonWorks network via the Xenta 511/527/555.

For more information on cables, see the TAC Xenta – Cable Guide.

- **6** Start TAC Vista Server Setup.
- 7 Click the **Vista Database** tab.

- **8** In the **Database folder path** box, browse to the Vista database folder.
- 9 Click OK.

### 21.1.7 Saving the TAC XBuilder Project

The XBuilder project must be saved in the Vista database using XBuilder. For more information about saving the project in the Vista database, see the *Engineering TAC Xenta Server* manual.

### To save the TAC XBuilder project

- 1 Start Vista Server and Vista Workstation.
- **2** Set Vista Workstation to operating mode.
- **3** In the folders pane, right-click the Xenta Server object. In the example, ACME Web.
- 4 Click Edit.



#### **Notes**

- If the devices on the LonWorks network contains units unrecognized by XBuilder, you have to associate them to categories representing units known to the Xenta server.
- If the signal has a unit that is not known to the Xenta Server, set the category to **No Category**. For more information about units and categories, see the *Engineering TAC Xenta Server* manual.
- 5 In XBuilder, on the **Vista Database** menu, click **Save**.

### 21.1.8 Sending the TAC XBuilder Project to Target

The XBuilder project must be sent to the Xenta Server. For more information about sending the project to the Xenta Server, see the *Engineering TAC Xenta Server* manual.

### To send the TAC XBuilder project to target

- 1 In XBuilder, on the **Project** menu, click **Send to target.**
- 2 After the project has been sent to the Xenta Server, quit XBuilder.
- 3 In Vista Workstation, in the folders pane, click the Xenta Server. In the example, ACME\_Web.
- 4 On the toolbar, click **Refresh**.

5 In the folders pane, expand the network to check that the devices are online.



#### Note

- It may take a while for the Xenta 511/527/555 to establish contact with LonWorks network the first time. Refresh the tree structure if necessary.
- To change the connection parameters, in the folders pane, rightclick the LonWorks Network object, click Properties and click the Connection Parameters tab. For more information on the connection parameters, see the help.

## 21.2 Adding a Device to a LonWorks Network

When using a TAC Xenta 511/527/555 as a LonTalk adapter, devices are added to the LonWorks network and the Vista database on the engineering PC. LonMaker and the Vista System Plug-In are used for this work.

Port changes in the Vista database are needed when the database is moved from the site PC to the engineering PC and vice versa. The database is moved using the Export/Import function in Vista Workstation. The LNS database is not installed on the site PC.

The engineering PC must have an LTA card from Echelon or Loytec installed as a LonTalk adaptor.

### 21.2.1 Classifying a Site PC

The PC needs to be classified to get the right settings in the Export/Import function.

### To classify a site PC

- 1 Quit Vista Server and Vista Workstation.
- 2 Start Vista Server Setup.
- 3 In the PC Classification area, click Site PC.
- 4 Click OK.

### 21.2.2 Exporting from a Site PC

The network the devices are added to, need to be exported from the site PC. This is in order to be able to:

- upload parameters from the Xenta devices in the LonWorks network
- indicate all objects on the LonWorks network as checked out for maintenance work
- move all the objects of the LonWorks network to the engineering PC.

### To export from a site PC

- 1 Start Vista Server and Vista Workstation.
- 2 In Vista Workstation, on the **File** menu, point to **Database** then click **Export**.
- 3 In the Operations area, click Add devices to a LonWorks network.
- 4 Select Upload parameters from selected Xenta devices.
- 5 Select Indicate objects as checked-out.

#### 6 Select Add referenced objects and shortcuts.



#### Tip

- For more information on the **Export** dialog settings, see Help.
- 7 Click OK.
- **8** In the folders pane, drag the LonWorks Network object to the Database Export window.
- 9 In the Database Export window, click Export .
- **10** Browse to a suitable location and click **Save**.
- 11 In the TAC Vista Load Upload Parameters dialog, click 11.
- 12 Click Yes, all.
- 13 Wait until the parameters of the Xenta devices are uploaded. This may take a while depending on the number of Xenta devices in the LonWorks network.
- 14 Click Close.
- **15** Wait until the export is completed.
- 16 Click OK.



#### Note

- The object names are now red and in italics to indicate that they
  are checked out for maintenance work. All changes made on
  checked out objects on the site PC are overwritten when they are
  checked in by an import.
- The checked out network can be checked in manually during the whole export/import procedure if the work is aborted.

In the folders pane, right-click the checked out network and click **Undo Check Out**.

### 21.2.3 Classifying an Engineering PC

The engineering PC needs to be classified in order to register the right settings in the Export/Import function.

### To classify an engineering PC

- 1 Start Vista Server Setup.
- 2 In the PC Classification box, click Engineering PC.
- 3 Click OK.

### 21.2.4 Importing to an Engineering PC

When adding new devices to the network, the network needs to be imported to the engineering PC. This is done in Vista Workstation.

### To import to an engineering PC

- 1 Copy the export/import file (.zip) and the LonMaker backup file to the engineering PC.
- 2 On the engineering PC, create a folder on the hard disk to be used as the Vista database folder.
- **3** Start Vista Server Setup.
- 4 Click the **Vista Database** tab.
- 5 In the **Database folder path**, browse to the newly created database folder.
- 6 Click OK
- 7 Start Vista Server and Vista Workstation.
- 8 In the File menu, point to Database and click Import.
- **9** In the **File** box, browse to the export/import file (.zip).
- 10 Click OK
- **11** Wait until the import is completed.
- 12 Click OK.

### 21.2.5 Adding a Device

When the network is imported to the engineering PC the new devices are added using Vista Workstation. This work does not require the engineering PC to be connected to the LonWorks network.

#### To add a device

- 1 In LonMaker, restore the LonWorks network.
- **2** Open the LonWorks network.
- 3 In the Network Interface box, clear Network Attached.
- **4** Add the devices in the LonMaker drawing.
- **5** Start Vista System Plug-In.
- 6 In Vista System Plug-In, configure all the added Xenta devices. For more information, see Chapter 4, "Configuring a TAC Xenta Device", on page 55.
- 7 Drag the added devices to the TAC network pane.
- **8** Create TAC and TAC Xenta group bindings if Xenta devices are added.

- For more information, see Chapter 5, "Creating a TAC Vista Group", on page 61.
- 9 In LonMaker, bind SNVTs if required.
  For more information, see Chapter 6, "Binding a SNVT", on page 71.
- 10 In Vista System Plug-In, set Neuron IDs on all added devices. For more information, see Chapter 7, "Setting a Neuron ID", on page 75.
- **11** Update the TAC Vista database.
- **12** Edit the XBuilder project. For more information see the *Engineering TAC Xenta Server* manual.



#### Note

If the Xenta Server contains new SNVTs, these must be bound at a later stage in the process due to the fact that they are not yet present in Lon Maker.

### 21.2.6 Stopping and Starting a Heartbeat

The heartbeat on the LonWorks network imported to the engineering PC is automatically stopped when exported from the site PC. You can start the LonWorks network heartbeat if you want alarms from Xenta devices and trend logs to be sent to the engineering PC instead.

The LonWorks heartbeat on the site PC has to be stopped before the LonWorks network heartbeat on the engineering PC is started.

When the heartbeat on the site PC is stopped it is recommended that an upload of all trend logs is performed. This to avoid the trend log data being uploaded from the engineering PC. Check when Vista uploads the trend log data the next time and make sure the heartbeat on the site PC is started so that the site PC can upload the logs. Trend log data uploaded by the Vista on the engineering PC cannot be merged with the trend log data on the site PC.

### To stop and start a heartbeat

- 1 On the site PC, in Vista Workstation, in the folders pane, press CTRL + SHIFT and right-click the LonWorks network object, point to **Advanced Operations** and click **Disable Heartbeat**.
- 2 Click Yes.
- 3 Click **Yes** to upload all trend logs from all Xenta devices in the network.
- On the engineering PC, in Vista Workstation, in the folders pane, press CTRL + SHIFT and right-click the LonWorks network object, point to Advanced Operations and click Enable Heartbeat.

- 5 Click Yes.
- 6 Click Yes.

### 21.2.7 Attaching a LonWorks Network

To be able to download and commission the added devices, the engineering PC must be attached to the LonWorks network.

### To attach a LonWorks network

- 1 Connect the engineering PC to the LonWorks network via the LonTalk adapter card.
- 2 On the engineering PC, quit the following programs:
  - Vista Workstation
  - Vista Server
  - Vista System Plug-In
- 3 In LonMaker, on the LonMaker menu, click Network Properties.



#### Note

- You can also attach the network in the Wizard when starting Lon-Maker if LonMaker is not running.
- 4 Click the **Network Interface** tab.
- 5 Select the **Network Attached** box.
- 6 In the Network Interface Name list, select the network interface.
- 7 Click the **Onnet/Offnet** tab.
- 8 Click Onnet.
- Click OK.

### 21.2.8 Saving the TAC XBuilder Project

The XBuilder project must be saved in the Vista database using XBuilder. For more information about saving the project in the Vista database, see the *Engineering TAC Xenta Server* manual.

#### To save the TAC XBuilder project

- 1 Connect the Xenta Server to the Engineering PC using an Ethernet cable. Make sure that the IP settings are correct for the Engineering PC.
- **2** Start Vista Server and Vista Workstation.
- **3** Set Vista Workstation to operating mode.

- 4 In the folders pane, right-click the Xenta Server object. In the example, ACME Web.
- 5 Click Edit.



### **Notes**

- If the devices on the LonWorks network contain units that are not recognized by XBuilder, you have to associate them to categories representing units known to the Xenta server.
- If the signal has a unit that is not known to the Xenta Server, set the category to **No Category**. For more information about units and categories, see the *Engineering TAC Xenta Server* manual.
- 6 In XBuilder, on the Vista Database menu, click Save.

### 21.2.9 Sending the TAC XBuilder Project to Target

The XBuilder project must be sent to the Xenta Server. For more information about sending the project to the Xenta Server, see the *Engineering TAC Xenta Server* manual.

### To send the TAC XBuilder project to target

- 1 In XBuilder, on the **Project** menu, click **Send to target.**
- **2** After the project has been sent to the Xenta Server, quit XBuilder.

### 21.2.10 Downloading and Commissioning

Downloading and commissioning is achieved using LonMaker and Vista System Plug-In.

#### To download and commission

1 In LonMaker, set the router(s) to repeater mode.



#### Note

- When adding new Xenta devices, you have to set the router(s) between the engineering PC and the device to repeater mode to be able to download the application and parameters the first time.
- 2 In Vista System Plug-In, download the application and the parameters to all Xenta devices indicating that download is needed.
  - For more information, see Section 9.4, "Downloading Application and Parameters", on page 89.
- **3** In LonMaker, commission the added devices.
  - For more information, see Section 9.5, "Commissioning a Device", on page 91.
- 4 In Vista System Plug-In, commence communication.
  - For more information, see Chapter 10, "Commencing TAC Vista Communication", on page 99.
- 5 In Vista Workstation, in the folders pane, expand the network to check that the devices are online.



#### Note

 It may take a while for the engineering PC to establish contact with LonWorks network the first time. Refresh the tree structure if necessary.

### 21.2.11 Exporting from an Engineering PC

When the devices are added to the network and the network is online, the network is exported from the engineering PC to the site PC.

### To export from an engineering PC

- 1 On the engineering PC, in LonMaker, set the router(s) to configured mode.
- **2** Back up the Lonworks network. This includes both drawing and database.
- 3 In Vista Workstation, on the File menu, point to **Database** and click **Export**.

- 4 Click Export to Site PC.
- 5 Select Upload parameters from selected Xenta devices.
- 6 Select Add referenced objects and shortcuts.



#### **Important**

• If the heartbeat on the engineering PC is enabled, it is automatically disabled after the export. In other words, if alarms are redirected to the engineering PC, the engineering PC automatically hands the alarms back after the export.



### Tip

- For more information on the **Export** dialog settings, see Help.
- 7 Drag the LonWorks network to the Database Export window.
- 8 In the Database Export window, click **Export** .
- **9** Browse to a suitable location and click **Save**.
- 10 In the TAC Vista Load Upload Parameters dialog, click 11.
- 11 Click Yes, all.
- **12** Wait until the parameters of the Xenta devices are uploaded. This may take a while depending on the number of Xenta devices in the LonWorks network.
- 13 Click Close.
- **14** Wait until the export is completed.
- 15 Click OK.
- **16** Disconnect the engineering PC from the LonWorks network.

## 21.2.12 Importing to a Site PC

The network the devices are added to, needs to be imported to the site PC. This is done in Vista Workstation.



#### Note

 When importing an export/import file on a site with a Vista network make sure you are logged into the Vista Server where the checked out objects are.

## To import to a site PC

- 1 Copy the export/import file (.zip) to the site PC.
- 2 In Vista workstation, on the **File** menu, point to **Databases** and click **Import**.
- **3** In the **File** box, browse to the export/import file (.zip).
- 4 Select Perform alarm refresh.



### Tip

- For more information on the **Export** dialog settings, see the Help.
- 5 Click OK.
- **6** Wait until the import is completed.
- 7 Click OK.
- 8 In the folders pane, refresh the tree structure and check that the port has been created.
- **9** In the folders pane, expand the network to check that the devices are online.

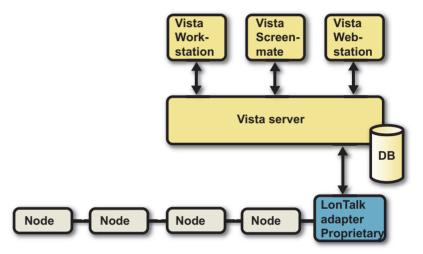


#### Note

The changes made on the engineering PC are recorded in a log file in the \\$log folder located in the Vista database folder; changes made on the network by site personnel are also logged since the imported network now has overwritten them. These changes have to be restored after the import.

# **22 TAC Xenta 911**

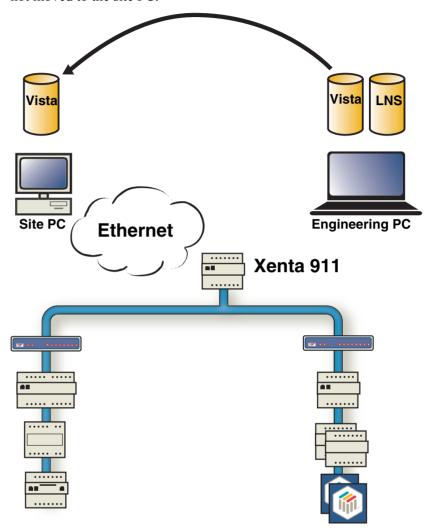
When using the LonTalk adapters Xenta 911, Vista Server communicates with the LonWorks network using the Communication Port – Xenta 911 object. The Xenta 911 uses a proprietary network interface application and thus the LNS server can not communicate via the Xenta 911.



# 22.1 Installing a New LonWorks Network

When using a TAC Xenta 911 as a LonTalk adapter, the LonWorks network and the Vista database are created on the engineering PC using LonMaker and Vista System Plug-In.

When the Vista database is moved to the site PC, the type of communication port in the Vista database must be changed. The LNS database is not moved to the site PC.



It is assumed that the engineering PC has an Echelon or Loytec LonTalk adapter card installed.

# 22.1.1 Creating a LonWorks Network

LonMaker is used to create a LonWorks network.

### To create a LonWorks network

On the engineering PC, create the LonWorks network.
 For more information, see Chapter 3, "Creating a LonWorks Network", on page 29.

# 22.1.2 Setting a TAC Network Interface

The Xenta 911 must be set as the network interface in the Vista System Plug-In. This is to prevent it from appearing in the Vista database. It also make the Xenta 911 a member of the TAC group binding later on in the process.

## To set a TAC network interface

- 1 In the Vista System Plug-In, in the LNS network pane, right-click the Xenta 911 to be used as a LonTalk adapter.
- 2 Click Set as TAC Network Interface.

# 22.1.3 Creating a Vista Database

When the Xenta 911 is set as the network interface the process of creating the Vista database continues.

### To create a Vista database

1 Configure the Xenta devices.

For more information, see Chapter 4, "Configuring a TAC Xenta Device", on page 55.

**2** Update the TAC network.

For more information, see Section 5.2, "Updating a TAC Network", on page 63

3 Create TAC and TAC Xenta Group Bindings.

For more information, see Section 5.4, "Creating TAC and TAC Xenta Group Bindings", on page 67.

4 Bind SNVTs.

For more information, see Chapter 6, "Binding a SNVT", on page 71.

**5** Set neuron IDs.

For more information, see Chapter 7, "Setting a Neuron ID", on page 75.

**6** Create the Vista database.

Fore more information, see Chapter 8, "Creating a TAC Vista Database", on page 77.

7 Download and commission.

Fore more information, see Chapter 9, "Commissioning and Downloading", on page 83.

**8** Commence TAC Vista communication.

Fore more information, see Chapter 10, "Commencing TAC Vista Communication", on page 99.

**9** Back up the Lonworks network. This includes both drawing and database.

# 22.1.4 Changing a Communication Port Type

Before the Vista database is moved to the site PC, the type of communication port in the Vista database must be changed.

## To change a communication port type

- 1 In the System Plug-In, in the TAC network pane, right-click the network object.
- 2 Click Settings.
- 3 In the Vista communication port list, select Communication Port Xenta 911.
- 4 In the **Vista communication port name** box, type an appropriate name
- 5 Click the 911 Port tab.
- 6 In the IP/DNS Address box, type the IP address.
- 7 In the User Name box, type the user name root.
- **8** In the **Password** box, type the password.
- 9 Click OK.

For more information on how to configure a Xenta 911, see the *TAC Xenta 511/527/555/911/913 – Handbook*.

- 10 On the TAC Network menu, click Update TAC Vista Database.
- 11 Click OK.
- **12** Log in to Vista Server if required.
- **13** Start TAC Vista **Workstation**, refresh the tree structure and check that the port has been created.



### Note

• The LonWorks network is now offline.

## 22.1.5 Deleting a Port

The unused Communication Port – LNS/Loytec object in the Vista database is deleted. This is done in Vista Workstation.

## To delete a port

- 1 In Vista Workstation, in the folders pane, right-click the Communication Port LNS/Loytec object and click **Authority**.
- 2 Clear the **Protected database object** box and click **OK**.
- 3 Select the Vista Server object and refresh the tree structure to make the port name turn black.
- 4 Right-click the Communication Port LNS/Loytec object in the folders pane, and click **Delete**.
- 5 Click **Yes** to delete the Communication Port LNS/Loytec.

# 22.1.6 Moving a Vista Database to a Site PC

Once the type of communication port is changed the Vista database is moved to the site PC and Vista starts communicating with the devices via the Xenta 911. The LNS database is not transferred to the site PC.

## To move a Vista Database to a site PC

- 1 On the engineering PC, quit the following programs:
  - Vista Workstation
  - Vista Server
  - Vista System Plug-In
  - LonMaker
- **2** Disconnect the engineering PC from the LonWorks network.
- 3 Copy the project folder, containing the Vista database, from the engineering PC to the site PC.
- 4 On the site PC, install the following software:
  - Privilege License Server
  - The customer's license file
  - TAC Vista Server/Workstation
- 5 Connect the site PC to the LonWorks network via the Xenta 911. For more information on cables, see the *TAC Xenta Cable Guide*.
- **6** Start TAC Vista Server Setup.
- 7 Click the Vista Database tab.
- **8** In the **Database folder path** box, browse to the Vista database folder.

- 9 Click OK.
- **10** Start Vista Server and Vista Workstation.
- **11** Set Vista Workstation to operating mode.
- **12** In the folders pane, expand the network to check that the devices are online.



## Note

- It may take a while for the Xenta 911 to establish contact with LonWorks network the first time. Refresh the tree structure if necessary.
- A Xenta 911 can be set to use low bandwidth communication. That is, the Xenta 911 is event driven and connects to Vista when an alarm is tripped or reset.
- To change the connection parameters, in the folders pane, rightclick the LonWorks Network object, click Properties and click the Connection Parameters tab. For more information on the connection parameters, see the help.

# 22.2 Adding a Device to a LonWorks Network

When using a TAC Xenta 911 as a LonTalk adapter, devices are added to the LonWorks network and the Vista database on the engineering PC. LonMaker and the Vista System Plug-In are used for this work.

Port changes in the Vista database are needed when the database is moved from the site PC to the engineering PC and vice versa. The database is moved using the Export/Import function in Vista Workstation. The LNS database is not installed on the site PC.

It is assumed that the engineering PC has an LTA card from Echelon or Loytec installed as a LonTalk adaptor.

# 22.2.1 Classifying a Site PC

The PC needs to be classified acquire the right settings in the Export/Import function.

## To classify a site PC

- 1 Quit Vista Server and Vista Workstation.
- 2 Start Vista Server Setup.
- 3 In the PC Classification area, click Site PC.
- 4 Click OK.

# 22.2.2 Exporting from a Site PC

The network the devices are added to, need to be exported from the site PC. This to:

- upload parameters from the Xenta devices in the LonWorks network
- indicate all objects of the LonWorks network as checked out for maintenance work
- be able to move all the objects of the LonWorks network to the engineering PC.

## To export from a site PC

- 1 In Vista Workstation, on the **File** menu, point to **Database** then click **Export**.
- 2 In the Operations area, click Add devices to a LonWorks network.
- **3** Select Upload parameters from selected Xenta devices.
- 4 Select Indicate objects as checked-out.

## 5 Select Add referenced objects and shortcuts.



## Tip

- For more information on the **Export** dialog settings, see Help.
- 6 Click OK.
- 7 In the folders pane, drag the LonWorks Network object to the Database Export window.
- 8 In the Database Export window, click **Export** .
- **9** Browse to a suitable location and click **Save**.
- 10 In the TAC Vista Load Upload Parameters dialog, click 11.
- 11 Click Yes, all.
- **12** Wait until the parameters of the Xenta devices are uploaded. This may take a while depending on the number of Xenta devices in the LonWorks network.
- 13 Click Close.
- **14** Wait until the export is completed.
- 15 Click OK.



### Note

- The object names are now red and in italics to indicate that they
  are checked out for maintenance work. All changes made on
  checked out objects on the site PC are overwritten when they are
  checked in by an import.
- The checked out network can be checked in manually during the whole export/import procedure if the work is aborted.

In the folders pane, right-click the checked out network and click **Undo Check Out**.

# 22.2.3 Classifying an Engineering PC

The engineering PC needs to be classified to get the right settings in the Export/Import function.

## To classify an engineering PC

- 1 Start Vista Server Setup.
- 2 In the PC Classification box, click Engineering PC.
- 3 Click OK.

## 22.2.4 Importing to an Engineering PC

When adding new devices to the network, the network needs to be imported to the engineering PC. This is done in Vista Workstation.

## To import to an engineering PC

- 1 Copy the export/import file (.zip) and the LonMaker backup file to the engineering PC.
- 2 On the engineering PC, create a folder on the hard disk to be used as the Vista database folder.
- **3** Start Vista Server Setup.
- 4 Click the **Vista Database** tab.
- 5 In the **Database folder path**, browse to the newly created database folder.
- 6 Click OK
- 7 Start Vista Server and Vista Workstation.
- 8 In the File menu, point to Database and click Import.
- **9** In the **File** box, browse to the export/import file (.zip).
- 10 Click OK
- **11** Wait until the import is completed.
- 12 Click OK.

# 22.2.5 Adding a Device

When the network is imported to the engineering PC the new devices are added using Vista Workstation. This work does not require the engineering PC to be connected to the LonWorks network.

### To add a device

- 1 In LonMaker, restore the LonWorks network.
- **2** Open the LonWorks network.
- 3 In the Network Interface box, clear Network Attached.
- 4 Add the devices in the LonMaker drawing.
- **5** Start Vista System Plug-In.
- 6 In Vista System Plug-In, configure all the added Xenta devices. For more information, see Chapter 4, "Configuring a TAC Xenta Device", on page 55.
- 7 Drag the added devices to the TAC network pane.
- **8** Create TAC and TAC Xenta group bindings if Xenta devices are added.

- For more information, see Chapter 5, "Creating a TAC Vista Group", on page 61.
- In LonMaker, bind SNVTs if required.

  For more information, see Chapter 6, "Binding a SNVT", on page 71.
- 10 In Vista System Plug-In, set Neuron IDs on all added devices.
  For more information, see Chapter 7, "Setting a Neuron ID", on page 75

# 22.2.6 Changing a Communication Port Type

Before the engineering PC can be connected to the LonWorks network the type of communication port in the Vista database is needed.

## To change a communication port type

- 1 In the System Plug-In, in the TAC network pane, right-click the network object.
- 2 Click Settings.
- 3 In the Vista communication port list, select Communication Port LNS or Communication Port Loytec.
- 4 In the **Vista communication port name** box, type an appropriate name.
- 5 Click the Loytec Port tab and select a network interface if a Lon-Talk adapter card from Loytec is used.
- **6** Log in to Vista Server.
- 7 Click **OK**.
- 8 On the TAC Network menu, click Update TAC Vista Database.
- **9** Log in to Vista Server if required.
- 10 Start TAC Vista Workstation.
- 11 In the folders pane, refresh the tree structure and check that the port has been created.

## 22.2.7 Deleting a Port

The unused Communication Port – Xenta 911 object in the Vista database is deleted. This is done in Vista Workstation.

## To delete a port

- 1 In Vista Workstation, in the folders pane, right-click the Communication Port Xenta 911 object and click **Authority**.
- 2 Clear the **Protected database object** box and click **OK**.
- 3 Select the Vista Server object and refresh the tree structure to make the port name turn black.
- 4 Right-click the Communication Port Xenta 911 object in the folders pane, and click **Delete**.
- 5 Click Yes.

# 22.2.8 Stopping and Starting a Heartbeat

The heartbeat on the LonWorks network imported to the engineering PC is automatically stopped when exported from the site PC. You can start the LonWorks network heartbeat if you want alarms from Xenta devices and trend logs to be directed to the engineering PC instead.

The LonWorks heartbeat on the site PC has to be stopped before the LonWorks network heartbeat on the engineering PC is started.

When the heartbeat on the site PC is stopped it is recommended that an upload of all trend logs is performed. This to avoid the trend log data to be fetched from the engineering PC. Check when Vista will fetch the trend log data the next time and make sure the heartbeat on the site PC is started to get the site PC to fetch the logs. Trend log data fetched by the Vista on the engineering PC can not be merged with the trend log data on the site PC.

## To stop and start a heartbeat

- 1 On the site PC, in Vista Workstation, in the folders pane, press CTRL + SHIFT and right-click the LonWorks network object, point to **Advanced Operations** and click **Disable Heartbeat**.
- 2 Click Yes.
- 3 Click **Yes** to upload all trend logs from all Xenta devices in the network.
- On the engineering PC, in Vista Workstation, in the folders pane, press CTRL + SHIFT and right-click the LonWorks network object, point to Advanced Operations and click Enable Heartbeat.
- 5 Click Yes.
- 6 Click Yes.

# 22.2.9 Attaching a LonWorks Network

To be able to download and commission the added devices, the engineering PC must be attached to the LonWorks network.

### To attach a LonWorks network

- 1 Connect the engineering PC to the LonWorks network via the LonTalk adapter card.
- 2 On the engineering PC, quit the following programs:
  - Vista Workstation
  - Vista Server
  - Vista System Plug-In
- 3 In LonMaker, on the **LonMaker** menu, click **Network Properties**.



### Note

- You can also attach the network in the Wizard when starting Lon-Maker if LonMaker is not running.
- 4 Click the **Network Interface** tab.
- 5 Select the **Network Attached** box.
- 6 In the **Network Interface Name** list, select the network interface.
- 7 Click the **Onnet/Offnet** tab.
- 8 Click Onnet.
- 9 Click OK.

# 22.2.10 Downloading and Commissioning

Downloading and commissioning is achieved using LonMaker and Vista System Plug-In.

### To download and commission

1 In LonMaker, set the router(s) to repeater mode.



### Note

- When adding new Xenta devices, you have to set the router(s) between the engineering PC and the device to repeater mode to be able to download the application and parameters the first time.
- 2 In Vista System Plug-In, download the application and the parameters to all Xenta devices indicating that download is needed.
  - For more information, see Section 9.4, "Downloading Application and Parameters", on page 89
- 3 In LonMaker, commission the added devices.
  - For more information, see Section 9.5, "Commissioning a Device", on page 91
- 4 In Vista System Plug-In, commence communication.
  - For more information, see Chapter 10, "Commencing TAC Vista Communication", on page 99.
- 5 In Vista Workstation, in the folders pane, expand the network to check that the devices are online.



#### Note

• It may take a while for the engineering PC to establish contact with LonWorks network the first time. Refresh the tree structure if necessary.

# 22.2.11 Exporting from an Engineering PC

When the devices are added to the network and the network is online, the network is exported from the engineering PC to the site PC.

## To export from an engineering PC

- 1 On the engineering PC, in LonMaker, set the router(s) to configured mode.
- **2** Back up the Lonworks network. This includes both drawing and database.
- 3 In Vista Workstation, on the **File** menu, point to **Database** and click **Export**.

- 4 Click Export to Site PC.
- 5 Select Upload parameters from selected Xenta devices.
- 6 Select Add referenced objects and shortcuts.



### **Important**

• If the heartbeat on the engineering PC is enabled, it is automatically disabled after the export. In other words, if alarms are redirected to the engineering PC, the alarms are automatically relinquished on the engineering PC after the export.



## Tip

- For more information on the **Export** dialog settings, see Help.
- 7 Drag the LonWorks network to the Database Export window.
- 8 In the Database Export window, click **Export** .
- **9** Browse to a suitable location and click **Save**.
- 10 In the TAC Vista Load Upload Parameters dialog, click 11.
- 11 Click Yes, all.
- **12** Wait until the parameters of the Xenta devices are uploaded. This may take a while depending on the number of Xenta devices in the LonWorks network.
- 13 Click Close.
- **14** Wait until the export is completed.
- 15 Click OK.
- **16** Disconnect the engineering PC from the LonWorks network.

## 22.2.12 Importing to a Site PC

The network the devices are added to, need to be imported to the site PC. This is done in Vista Workstation.



#### Note

 When importing a export/import file on a site with a Vista network make sure you are logged in to the Vista Server where the checked out objects are placed.

## To import to a site PC

- 1 Copy the export/import file (.zip) to the site PC.
- 2 In Vista workstation, on the **File** menu, point to **Databases** and click **Import**.
- **3** In the **File** box, browse to the export/import file (.zip).
- 4 Select Perform alarm refresh.



### Tip

- For more information on the Export dialog settings, see the Help.
- 5 Click OK.
- **6** Wait until the import is completed.
- 7 Click OK.
- 8 In the folders pane, refresh the tree structure and check that the port has been created.
- **9** In the folders pane, expand the network to check that the devices are online.

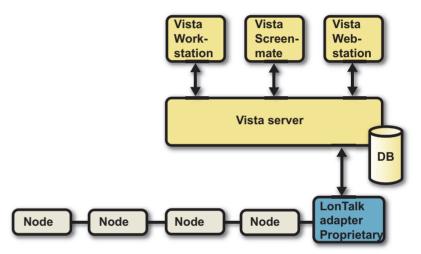


### Note

The changes made on the engineering PC are recorded in a log file in the \{\}log folder located in the Vista database folder. Also changes made on the network by site personnel are logged since the imported network now has overwritten them. These changes have to be restored after the import.

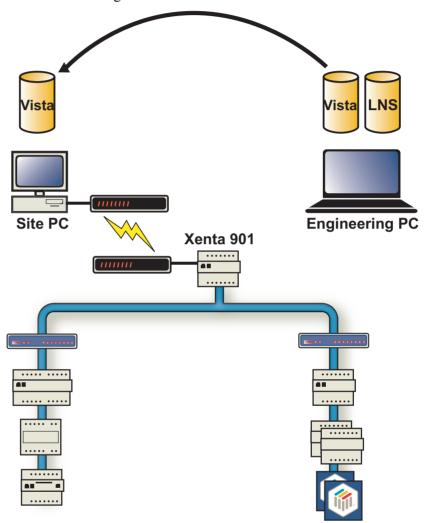
# 23 TAC Xenta 901

When using the LonTalk adapters Xenta 901, Vista Server communicates using the Communication Port – Modem object with the LonWorks network. When using a Xenta 901 the Lonworks network is represented in Vista by a TAC Xenta 901 Network – Modem object. The Xenta 901 uses a proprietary network interface application and thus the LNS server can not communicate via the Xenta 901.



# 23.1 Installing a LonWorks Network

When using a TAC Xenta 901 as a LonTalk adapter the LonWorks network and the Vista database are created on the engineering PC using LonMaker and Vista System Plug-In. When the Vista database is moved to the site PC, the type of communication port in the Vista database must be changed.



It is assumed that the engineering PC has an LTA card from Echelon or Loytec installed as a LonTalk Adaptor.

# 23.1.1 Creating a LonWorks Network

LonMaker is used to create a LonWorks network.

### To create a LonWorks network

On the engineering PC, create the LonWorks network.
 For more information, see Chapter 3, "Creating a LonWorks Network", on page 29.



### Note

The Xenta 901 must be added to the LonMaker drawing.

# 23.1.2 Setting a TAC Network Interface

The Xenta 901 must be set as a network interface in the Vista database. This is to prevent it from appearing in the Vista Database. It also makes the Xenta 901 a member of the TAC group binding later on in the process.

### To set a TAC network interface

- In the Vista System Plug-In, in the LNS network pane, right-click the Xenta 901 to be used as a LonTalk adapter.
- 2 Click Set as TAC Network Interface

## 23.1.3 Creating a Vista Database

When the Xenta 901 is set as the network interface the process of creating the Vista database continues.

### To create a Vista database

1 Configure the Xenta devices.

For more information, see Chapter 4, "Configuring a TAC Xenta Device", on page 55.

**2** Update the TAC network.

For more information, see Section 5.2, "Updating a TAC Network", on page 63

3 Create TAC and TAC Xenta Group Bindings.

For more information, see Section 5.4, "Creating TAC and TAC Xenta Group Bindings", on page 67.

4 Bind the SNVTs.

For more information, see Chapter 6, "Binding a SNVT", on page 71.

**5** Set neuron IDs.

For more information, see Chapter 7, "Setting a Neuron ID", on page 75.

**6** Create the Vista database.

Fore more information, see Chapter 8, "Creating a TAC Vista Database", on page 77.

7 Download and commission.

For more information, see Chapter 9, "Commissioning and Downloading", on page 83.

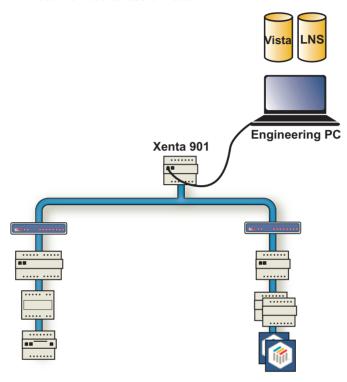
**8** Commence TAC Vista communication.

Fore more information, see Chapter 10, "Commencing TAC Vista Communication", on page 99.

**9** Back up the Lonworks network. This includes both drawing and database.

# 23.1.4 Changing a Network Type

To be able to commission the Xenta 901 the LonWorks Network object is changed to a Xenta 901 Network – Modem object and the Communication Port – LNS/Loytec object is changed to a Communication Port – Virtual Modem object. This allows communication with the Xenta 901 without the need to use a modem.



## To change a communication port type

- 1 In the System Plug-In, in the TAC network pane, right-click the network object.
- 2 Click Settings.
- 3 In the Vista communication port list, select Communication Port Virtual Modem.
- 4 In the **Vista communication port name** box, enter an appropriate name.
- 5 Click the **901 Port** tab.
- 6 In the **Com Port** box, select the physical address of the communication port you use to communicate with the Xenta 901.
- 7 In the Access Code box, enter the Xenta access code, if used.
- 8 In the **Phone Number Out** box, enter the phone number (IP address) of the modem on the Xenta 901 side.
- 9 In the **Phone Number In** box, enter the phone number (IP address) of the modem on the Vista side.

#### 10 Click OK

11 On the TAC Network menu, click Update TAC Vista Database.

For more information on how to configure a Xenta 901, see the *TAC Xenta 901 – Handbook*.

**12** Log in to Vista Server if required.

## 23.1.5 Commissioning a 901 Network

The 901 network must be commissioned. This is achieved by sending the phone numbers (IP addresses) to the Xenta 901 via the virtual modem port.

### To commission a 901 network

- 1 Disconnect the Engineering PC from the LonWorks network.
- **2** Connect the Engineering PC to the Xenta 901. For more information on cables, please see the *Cable Guide*.
- 3 In the TAC network pane, right-click the network object, then click Commission 901 Network.
- 4 Wait until the 901 network is commissioned.
- 5 Click Close.
- 6 Start TAC Vista **Workstation**, refresh the tree structure and check that the port is created.

# 23.1.6 Deleting a Port

The unused Communication Port – LNS/Loytec object in the Vista database is deleted. This is done in Vista Workstation.

## To delete a port

- 1 In Vista Workstation, in the folders pane, right-click the Communication Port LNS/Loytec object and click **Authority**.
- 2 Clear the **Protected database object** box and click **OK**.
- 3 Select the Vista Server object and refresh the tree structure to make the port name turn black.
- 4 Right-click the Communication Port LNS/Loytec object in the folders pane, and click **Delete**.
- 5 Click **Yes** to delete the Communication Port LNS/Loytec.

# 23.1.7 Changing from a Virtual Modem Port to a Modem Port

When the 901 network is commissioned the virtual modem port is replaced with a modem port.

## To change from a virtual modem port to a modem port

- 1 In Vista System Plug-In, in the TAC Network pane, right-click the network object.
- 2 Click Settings.
- 3 In the Vista communication port box, select Communication Port Modem.



## **Important**

- Do not change the name of the Communication Port Modem or any of the port settings.
- 4 Click OK.
- **5** Update the Vista database.
- **6** Start Vista Workstation and check that the port is created.



## Tip

• A refresh of the folders pane is needed to be able to see the type of new port.

An easy way to check the type of port is to use the screen tip.

# 23.1.8 Moving a Vista Database to a Site PC

When the communication port type is changed the Vista database is moved to the site PC and Vista starts communicating with the devices via the Xenta modems. The LNS database is not moved to the site PC.

### To move a Vista Database to a Site PC

- 1 On the engineering PC, quit the following programs:
  - Vista Workstation
  - Vista Server
  - Vista System Plug-In
  - LonMaker
- **2** Disconnect the engineering PC from the Xenta 901.
- 3 Copy the project folder, containing the vista database, from the Engineering PC to the site PC.
- 4 On the site PC, install the following software:
  - Privilege License Server
  - The customer's license file
  - TAC Vista Server/Workstation
- Connect the site PC to the LonWorks network via the Xenta 901. For more information on cables, see the *Cable Guide*.
- 6 Start TAC Vista Server Setup.
- 7 Click the **Vista Database** tab.
- **8** In the **Database folder path** box, browse to the Vista database folder.
- 9 Click OK.
- **10** Start Vista Server and Vista Workstation.
- **11** Set Vista Workstation to operating mode.
- **12** In the folders pane, expand the network to check that the devices are online.

# 23.2 Adding Devices to a LonWorks Network

When using a TAC Xenta 901 as a LonTalk adapter, devices are added to the LonWorks network and the Vista database on the engineering PC. LonMaker and the Vista System Plug-In is used for this work.

Port changes in the Vista database are needed when the database is moved from the site PC to the engineering PC and vice versa. The database is moved using the Export/Import function in Vista Workstation. The LNS database is not installed on the site PC.

It is assumed that the engineering PC has an LTA card from Echelon or Loytec installed as a LonTalk adaptor.

# 23.2.1 Classifying a Site PC

The PC needs to be classified to get the right settings in the Export/Import function.

## To classify a site PC

- 1 Quit Vista Server and Vista Workstation.
- 2 Start Vista Server Setup.
- 3 In the PC Classification box, click Site PC.
- 4 Click OK.

# 23.2.2 Exporting from a Site PC

The network the devices are added to, needs to be exported from the site PC. This to:

- upload parameters from the Xenta devices in the LonWorks network.
- indicate all objects of the LonWorks network as checked out for maintenance work.
- be able to move all the objects of the LonWorks network to the engineering PC.

## To export from a site PC

- 1 In Vista Workstation, in the **File** menu, point to **Database** then click **Export**.
- 2 In the Operations box, click Add devices to a LonWorks networks.
- **3** Select Upload parameters from selected Xenta devices.
- 4 Select Indicate objects as checked-out.

## 5 Select Add referenced objects and shortcuts.



### Tip

- For more information on the **Export** dialog settings, see Help.
- 6 Click OK.
- 7 In the folders pane, drag the LonWorks Network object to the Database Export window.
- 8 In the Database Export window, click Export .
- **9** Browse to a suitable location and click **Save**.
- 10 In the TAC Vista Load Upload Parameters dialog, click 11.
- 11 Click Yes, all.
- **12** Wait until the parameters of the Xenta devices are uploaded. This may take a while depending on the number of Xenta devices in the LonWorks network.
- 13 Click Close.
- **14** Wait until the export is completed.
- 15 Click OK.



### Note

- The object names are now red and in italics to indicate that they
  are checked out for maintenance work. All changes made on
  checked out objects on the site PC are overwritten when they are
  checked in by an import.
- The checked out network can be checked in manually during the whole export/import procedure if the work is aborted.

In the folders pane, right-click the checked out network and click **Undo Check Out**.

# 23.2.3 Classifying an Engineering PC

The engineering PC needs to be classified in order to secure the right settings in the Export/Import function.

## To classify an engineering PC

- 1 Start Vista Server Setup.
- 2 In the PC classification box, click Engineering PC.
- 3 Click OK.

# 23.2.4 Importing to an Engineering PC

When adding new devices to the network, the network needs to be imported to the engineering PC. This is done in Vista Workstation.

## To import to an engineering PC

- 1 Copy the Export/Import file (.zip) and the LonMaker backup file to the engineering PC.
- 2 On the engineering PC, create a folder on the hard disk to be used as the Vista database folder.
- **3** Start Vista Server Setup.
- 4 Click the **Vista Database** tab.
- 5 In the **Database folder path**, browse to the newly created database folder.
- 6 Click OK.
- 7 Start Vista Server and Vista Workstation.
- 8 In the File menu, point to Database and click Import.
- **9** In the **File** box, browse to the export/import file (.zip).
- 10 Click OK.
- **11** Wait until the import is completed.
- 12 Click OK.

## 23.2.5 Adding Devices

When the network is imported to the site PC the new device is added using LonMaker and Vista System Plug-In. This work does not require the engineering PC to be connected to the LonWorks network.

### To add devices

- 1 In LonMaker, restore the LonWorks network.
- **2** Open the LonWorks network.
- 3 In the Network Interface box, clear Network Attached.
- 4 Add the devices in the LonMaker drawing.
- 5 Start Vista System Plug-In.
- 6 In Vista System Plug-In, configure all the added Xenta devices. For more information, see Chapter 4, "Configuring a TAC Xenta Device", on page 55.
- 7 Drag the added devices to the TAC network pane.
- **8** Create TAC and TAC Xenta group bindings if Xenta devices are added.
  - For more information, see Chapter 5, "Creating a TAC Vista Group", on page 61.
- 9 In LonMaker, bind SNVTs if required.
  For more information, see Chapter 6, "Binding a SNVT", on page 71.
- 10 In Vista System Plug-In, set Neuron IDs on all added devices.
  For more information, see Chapter 7, "Setting a Neuron ID", on page 75

# 23.2.6 Changing a Communication Port Type

Before the engineering PC can be connected to the LonWorks network the type of communication port in the Vista database must be changed.

## To change a communication port type

- 1 In the System Plug-In, in the TAC network pane, right-click the network object.
- 2 Click Settings.
- 3 In the Vista communication port list, select Communication Port LNS or Communication Port Loytec.
- 4 In the **Vista communication port name** box, enter an appropriate name.
- 5 Click the **Loytec Port** tab.
- 6 Log in to Vista Server.
- 7 Select a network interface if an LTA card from Loytec is used.
- 8 Click OK.
- 9 On the TAC Network menu, click Update TAC Vista Database.
- **10** Log in to Vista Server if required.
- 11 Start TAC Vista Workstation.
- **12** In the folders pane, refresh the tree structure and check that the port has been created.

# 23.2.7 Stopping and Starting a Heartbeat

The heartbeat on the LonWorks network imported to the engineering PC is automatically stopped when exported from the site PC. You can start the LonWorks network heartbeat if you want alarms from Xenta devices and trend logs to be redirected to the engineering PC.

The LonWorks heartbeat on the site PC has to be stopped before the LonWorks network heartbeat on the engineering PC is started.

When the heartbeat on the site PC is stopped it is recommended that an upload of all trend logs is performed. This to avoid the trend log data to be fetched from the engineering PC. Check when Vista will fetch the trend log data the next time and make sure the heartbeat on the site PC is started to get the site PC to fetch the logs. Trend log data fetched by the Vista on the engineering PC can not be merged with the trend log data on the site PC.

## To stop and start a heartbeat

- 1 On the site PC, in Vista Workstation, in the folders pane, press CTRL + SHIFT and right-click the LonWorks network object, point to **Advanced Operations** and click **Disable Heartbeat**.
- 2 Click Yes.
- **3** Click **Yes** to upload all trend logs from all Xenta devices in the network.
- 4 On the engineering PC, press CTRL + SHIFT and right-click the LonWorks network object, point to **Advanced Operations** and click **Enable Heartbeat**.
- 5 Click Yes.
- 6 Click Yes.

# 23.2.8 Attaching a LonWorks Network

To be able to download and commission the added devices, the engineering PC must be attached to the LonWorks network.

### To attach a LonWorks network

- 1 Connect the engineering PC to the LonWorks network via the LonTalk adapter card.
- 2 On the engineering PC, quit the following programs:
  - Vista Workstation
  - Vista Server
  - Vista System Plug-In
- 3 In LonMaker, on the **LonMaker** menu, click **Network Properties**.



### Note

- You can also attach the network in the Wizard when starting Lon-Maker if LonMaker is not running at this point.
- 4 Click the **Network Interface** tab.
- 5 Select the **Network Attached** box.
- 6 In the **Network Interface Name** list, select the network interface.
- 7 Click the **Onnet/Offnet** tab.
- 8 Click Onnet.
- 9 Click OK.

# 23.2.9 Downloading and Commissioning

Downloading and commissioning is achieved using LonMaker and Vista System Plug-In.

### To download and commission

1 In LonMaker, set the router(s) to repeater mode.



### Note

- When adding new Xenta devices, you have to set the router(s) between the engineering PC and the device to repeater mode to be able to download the application and parameters the first time.
- 2 In Vista System Plug-In, download the application and the parameters to all Xenta devices indicating that download is needed.
  - For more information, see Section 9.4, "Downloading Application and Parameters", on page 89.
- 3 In LonMaker, commission the added devices.
  - For more information, see Section 9.5, "Commissioning a Device", on page 91.
- 4 In Vista System Plug-In, commence communication.
  - For more information, see Chapter 10, "Commencing TAC Vista Communication", on page 99.
- In Vista Workstation, in the folders pane, expand the network to check that the new devices are online.



### Note

It may take a while for the engineering PC to establish contact with LonWorks network the first time. Refresh the tree structure if necessary.

# 23.2.10 Exporting from an Engineering PC

When the devices are added to the network and the network is online, the network is exported from the engineering PC to the site PC.

## To export from an engineering PC

- 1 On the engineering PC, in LonMaker, set the router(s) to configured mode.
- **2** Back up the Lonworks network. This includes both drawing and database.
- 3 In Vista Workstation, on the **File** menu, point to **Database** and click **Export**.
- 4 Click Export to Site PC.
- 5 Select Upload parameters from selected Xenta devices.
- 6 Select Add referenced objects and shortcuts.



## **Important**

If the heartbeat on the engineering PC is enabled, it is automatically disabled after the export. In other words, if alarms are redirected to the engineering PC, the alarms are automatically relinquished on the engineering PC after the export.



### Tip

- For more information on the **Export** dialog settings, see Help.
- 7 Drag the LonWorks network to the Database Export window.
- 8 In the Database Export window, click **Export** .
- **9** Browse to a suitable location and click **Save**.
- 10 In the TAC Vista Load Upload Parameters dialog, click 11.
- 11 Click Yes, all.
- 12 Click Close.
- **13** Wait until the export is completed.
- 14 Click OK.
- **15** Disconnect the engineering PC from the LonWorks network.

## 23.2.11 Importing to a Site PC

The network the devices are added to, needs to be imported to the site PC. This is done in Vista Workstation.



#### Note

 When importing a export/import file on a site with a Vista network make sure you are logged in to the Vista Server where the checked out objects are placed.

## To import to a site PC

- 1 Copy the Export/Import file (.zip) to the site PC.
- 2 In Vista workstation, on the **File** menu, point to **Databases** and click **Import**.
- **3** In the File box, browse to the export/import file (.zip).
- 4 Select Perform alarm refresh.



### Tip

- For more information on the **Export** dialog settings, see Help.
- 5 Click OK.
- **6** Wait until the import is completed.
- 7 Click OK.
- **8** Restart Vista Server and Vista Workstation.
- **9** In the folders pane, expand the network to check that the new devices are online.



### Note

The changes made on the engineering PC are recorded in a log file in the \{\}log folder located in the Vista database folder. Also changes made on the network by site personnel are logged since the imported network now has overwritten them. These changes have to be restored after the import.

## 24 LonMaker on the Site PC

If LonMaker is installed on the site PC, the procedure to back up a Lon-Works network and the procedure to move an LNS database to the site PC differ from how you do this when the LNS Server is installed on the site PC.

## 24.1 Backing Up a LonWorks Network

When the LonWorks network is commissioned in LonMaker, the Lon-Maker drawings and the LNS database are backed up.

If LonMaker is installed on the site PC or if a Xenta 501/527/901/911/913 is used as a LonTalk adapter on the site PC, you will back up the LonMaker drawings and the LNS database in a common file. If LNS Server is installed on the site PC, you will back up the LonMaker drawings and the LNS database in two separate files.

If an LNS Server is installed on the site PC, see Chapter 11, "Backing up a LonWorks Network", on page 101.

### To back up a LonMaker network

- 1 Quit Vista Workstation, Vista Server, and Vista System Plug-In.
- 2 In LonMaker, close the LonWorks network. In the example, ACME\_Inc.
- 3 In the LonMaker Design Manager, click the Backup.
- 4 In the **Backup Selection**, select the **Backup drawing** check box.
- 5 Select the **Backup database** check box.

You have asked to back up a LonMaker drawing and/or database. You may override the default backup file name.

□ Backup Selection
□ Backup drawing
□ Backup database
□ Drawing files to backup
□ Backup Visio (\*.vs\*) files only
□ Backup all files in drawing directory
□ Backup File

In the **Backup file** box, browse to the folder where you want to save the backup. In the example, C:\ProjectACME\BackupLM.

#### 7 Click OK.



C:\ProjectACME\BackupLM\ACME Inc.zip

### 8 Click OK.

If you are following the Getting Started procedure, return to Chapter 12, "Moving a Database to a Site PC", on page 105 to proceed with the engineering process.

Browse.

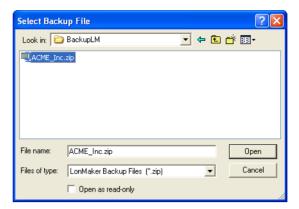
## 24.2 Moving an LNS Database to a Site PC

If LonMaker is installed on the site PC, you will move the LNS database to the site PC by using LonMaker to restore the LonMaker network backup. If an LNS Server is installed on the site PC, you will move the LNS database to the site PC by using LNS Object Browser to restore the backup.

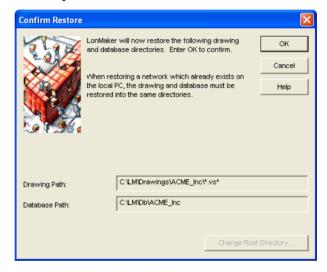
If LNS Server is installed on the site PC, see Section 12.3, "Moving an LNS Database to a Site PC", on page 107.

### To move an LNS database to a site PC

- 1 Start LonMaker.
- 2 In the LonMaker Design Manager dialog, click Restore.
- **3** Browse to the backed-up LonMaker network. In the example, C:\ProjectAcme\BackupLM\ACME\_Inc.zip.



### 4 Click Open.



### 5 Click OK.



### 6 Click No.

It is not necessary to open the LonMaker drawing to recommission on the site PC at this time.

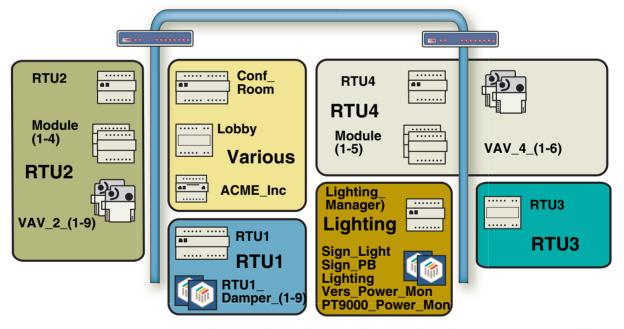
### **7** Exit LonMaker.

If you are following the Getting Started procedure, return to Chapter 12.4, "Moving a TAC Vista Database to a Site PC", on page 111 to proceed with the engineering process.

## 25 Using Subsystems

When working with a LonWorks network containing many devices in LonMaker, it can be difficult to make space for all the devices on just one drawing sheet. If you divide the network into different subsystems, you will get one drawing sheet for each subsystem (10 pages per drawing sheet). The subsystems are only logical and have nothing to do with the physical structure of the network, even though you often look at the location of the devices in the building when choosing which subsystems to use. Another way of deciding which structure to use is gathering the devices in subsystems according to what functions they serve. We also recommend that subsystems be used to distinguish between TAC Xenta Groups viewed within the TAC Vista database.

## 25.1 A Subsystem Example

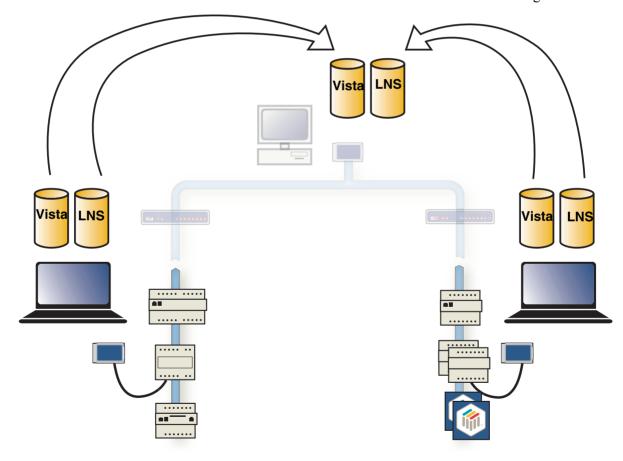


When creating a subsystem in LonMaker, choose a new or an existing drawing. Using this option, you can divide your database file (\*.vsd), into sub database files. The default name for the sub database file is the network name plus the subsystem name. You also have the option to name the sub database file yourself. This option does not mean choosing a new or existing drawing sheet. The subsystem option itself creates a new drawing sheet.

For further information on how to create subsystems, please refer to Section 3.5.5, "Creating a Subsystem", on page 47 of the Getting Started section of this manual.

# 26 Merging LonWorks Networks

When you use more than one PC to download applications and commission devices (channel by channel or subsystem by subsystem), several LNS and TAC Vista databases will be created. Since the combined LNS databases contain information for the entire network, merging the information into one LNS database will be necessary. The Database Merge Export Utility in LonMaker is used to complete this step. Since there is no function to merge databases in Vista, you will have to recreate the Vista database which will contain the complete network information. This will be done after the LNS databases have been merged.



## 26.1 Preparation for Merging LNS Databases

Before beginning the process, create backup files for each of the LNS databases to be merged. Make sure to do a full backup, including both the LonMaker drawing and the LNS database. Move these network files to the Engineering PC to be used for storing the complete LNS database.

Physically connect one of your engineering computers to the network backbone and create a new network in LonMaker (select New Network from the LonMaker Design Manager window). This will be the target network drawing/database with which each of the LNS databases will be merged.

Add the following to this LonMaker drawing:

- Backbone
- Channels
- Routers

Commission the routers configured as repeaters and then backup this target network.

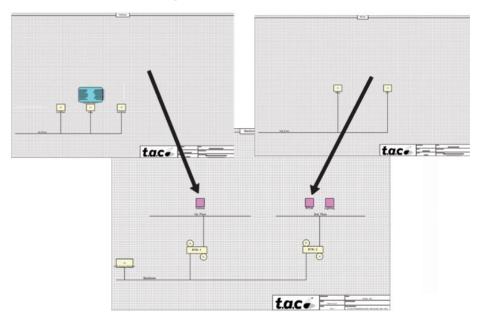
## **26.2** The Merging Process

- 1 Use LonMaker on the target network PC, then restore each of the LNS networks to be merged.
- **2** Open one of the networks to be merged.
- 3 Open the **LonMaker** menu bar and click **Database Merge Export Utility**.
- **4** Export the network and close it.
- 5 Open the target network and drag the Network Merge shape, located in the LonMaker Basic Shapes stencil, to the drawing.



### Note

- Always add merged networks to the root subsystem of the target network drawing. LonMaker will not accept the merging of networks with subsystems.
- 6 Select the network to be merged (the network exported during the step above) and name the subsystem in which it will appear.
- 7 Click Finish and the subsystem shape should appear on the target network drawing.



**8** Repeat this process for each network to be merged with the target network.

## 26.3 After the Merging Process has Completed

After all networks have been merged with the target network, create a TAC Vista database that will contain the target network's information (the complete LNS database information).

The following steps will have to be redone:

- Assigning application files (\*.mta)
- Creating Vista groups
- Creating group bindings
- Updating the Vista database
- Downloading applications and parameters
- Commencing communication

For further information on how to create the Vista database, please refer to Chapters 4–12 of the Getting Started section.

## 27 Network Communication

To monitor communication on the network, use a network analyzer. When you are choosing a network analyzer, look for one with the following features:

- Time-out messages
- Bandwidth usage in %
- Error rate in %
- Difference between the number of sent messages that require acknowledgement and the received acknowledged messages

When looking at the bandwidth:

- < 25% is good
- Up to 50% is acceptable
- If the bandwidth approaches 60%, you should check to see whether you have acknowledged messages in large groups, e.g. acknowledged group bindings.

When looking at the error rate:

- < 0.5% is fairly good
- an error rate of up to 2-3% can be acceptable, depending on several considerations (e.g. the size of the network and the complexity of the environments).

## 27.1 Acknowledged Group Bindings

Setting group bindings as Acknowledged will increase traffic on the network. If you see a large number of ACK messages being sent at the same time, you probably have a group binding set as Acknowledged. We recommend choosing the service type Unacknowledged Repeated for group bindings with more than 5 members.

### 27.2 Code 23 Messages

You should react to code 23 messages whose data section starts with 44, if you see them repeatedly in the network analyzer. These messages indicate that a TACNV can't be found in the transmitting Xenta. This is most often caused by a misspelling of the TACNV address in the receiving Xenta. This message can also result when the transmitting Xenta does not have this signal defined as "public". To identify the missing TACNV, check for a preceding code 23 message whose data section start with 41. In this message, you can see the subnet/node address of the receiving Xenta as well as the name of the TACNV not found.

## 27.3 Acknowledged Messages Not Received

A difference between the number of sent messages that require acknowledgement and received acknowledged messages can arise due to a lack of bandwidth. If acknowledgements are not received and the counts start to differ quickly, even though you are not using a large amount of bandwidth, there may be router problems or be one or more nodes may be offline.

### 27.4 Time-Outs

If a lot of messages on your network time-out, the problem may be caused by interference on the network. A package sent on the Lon-Works Network normally has a voltage of about 0.6 volts (1.2 volts peak-to-peak), but the transceiver will register signals down to approximately 0.2 volts. If, for instance, a poorly shielded frequency transformer generates 0.2 volts, or more, on the network, the transceiver will find the network occupied and will not send its messages. The signal from the frequency transformer will be registered as incomplete and there will be a lot of time-out messages.

To obtain a good picture of the network, connect the network analyzer to the network for at least 10 minutes.



### Caution

We recommend manually running the frequency transformers up and down their entire span while the network analyzer is attached.

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