

IMPORTER

INSTALLATION MANUAL

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The comparisons and other information provided in this document have been prepared in good faith based on publicly available information. The reader is encouraged to consult the respective manufacturer's most recent published data for verification.

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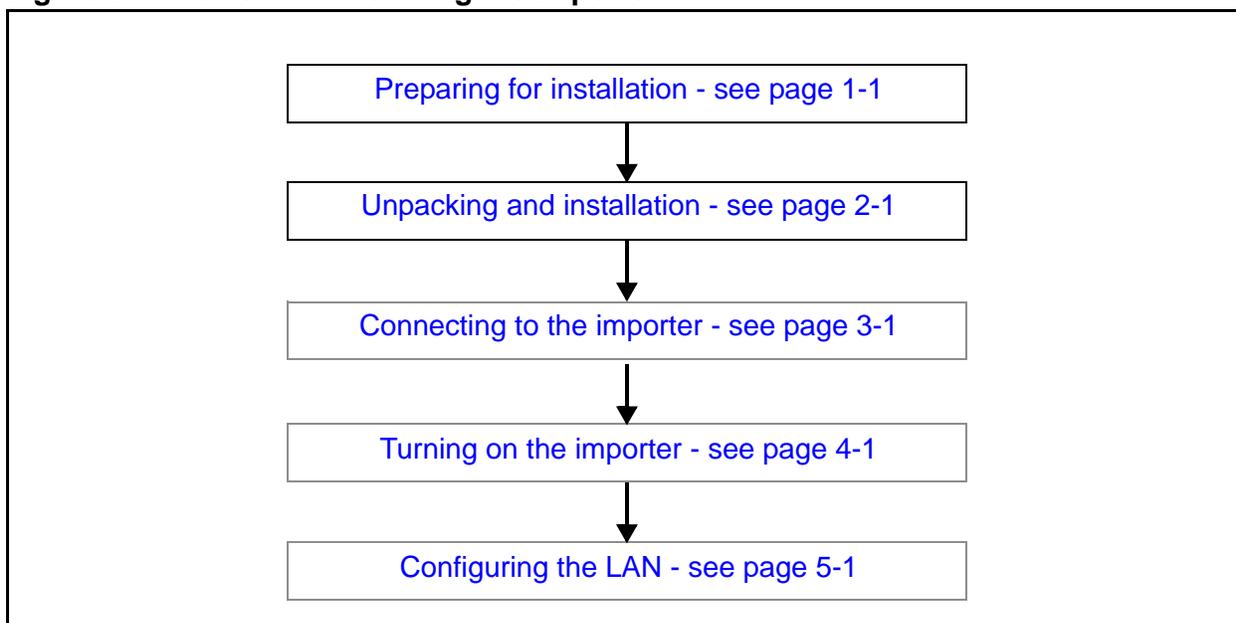
ABOUT THIS MANUAL

This manual provides information about installing an Importer. This manual is intended for use by qualified, trained installers.

USING THIS MANUAL

To install the Importer, follow the steps shown below.

Figure 2.1: Flowchart - Installing the Importer



CAUTION:
FAILURE TO COMPLY WITH RECOMMENDATIONS MAY VOID YOUR
MANUFACTURER'S WARRANTY. FOR MORE INFORMATION, REVIEW YOUR
WARRANTY DOCUMENTS.

TIP

When you have completed a task or step, put a check mark beside the step number.

FEATURES OF THIS MANUAL

This manual contains a number of useful features:

ONLINE (PDF FILES)

- Click on blue text (hyperlinks) to jump to a related section or get additional information (for example, to view a definition of a term).
- To find keywords, use the **Find** option in Acrobat Reader's **Edit** menu.
- To quickly find a specific section, click the section in the PDF file's **Bookmarks** list.

PRINTED

- To find keywords, go to the index at the end of the manual.
- To find a specific term, go to [Section 6, "List of terms" on page 6-1](#).

IMPORTER MANUALS

This section lists the full suite of Importer documents. These documents are also provided in Acrobat PDF format on the Nautel website, in the Nautel User Group (NUG) section.

IMPORTER PRE-INSTALLATION MANUAL, IMPORTER-PREINST. The Pre-installation Manual provides instructions and reference information needed when planning and preparing for the installation of an Importer.

IMPORTER INSTALLATION MANUAL, IMPORTER-INST. The Installation Manual provides instructions and reference information needed when installing an Importer.

IMPORTER OPERATING AND MAINTENANCE MANUAL, IMPORTER-OPS-MAINT. The Operating and Maintenance Manual provides instructions for operating, maintaining and troubleshooting an Importer. It also provides reference information needed when performing diagnostic procedures.

HD RADIO™ IMPORTER USER'S GUIDE. The HD Radio™ Importer User's Guide provides detailed instructions for operating an Importer. It is provided as a supplement to the Operating and Maintenance Manual.

ONLINE RESOURCES

The Nautel website provides useful resources to keep you up to date on your Importer.

NAUTEL USER GROUP (NUG)

The website includes a special section that customers can log into in order to access the Nautel customer newsletter, product manuals, frequently asked questions (FAQ), information sheets, and information about field upgrades.

ONLINE DOCUMENTATION

The website's NUG section provides online access to all the documentation for your Importer. Documentation is provided in Acrobat (PDF) format. You can use the documentation online or print the sections that you need.

SECTION 1: PREPARING FOR INSTALLATION

Before performing the installation of your Importer, perform the following steps:

1. Ensure that you have performed the pre-installation tasks described in the *Importer Pre-Installation Manual (Importer-PREINST)*.
2. Make sure that you received all the components – check your packing list.
3. Inspect all crates and packages for damage.
4. Report any damage immediately to your Nautel sales representative.
5. Assemble your parts and tools.
For a list of required tools, refer to the *Importer Pre-Installation Manual*.
6. When you are ready to proceed with installation, go to [Unpacking and installation - see page 2-1](#).

SECTION 2: UNPACKING AND INSTALLATION

To install an Importer, perform the following tasks:

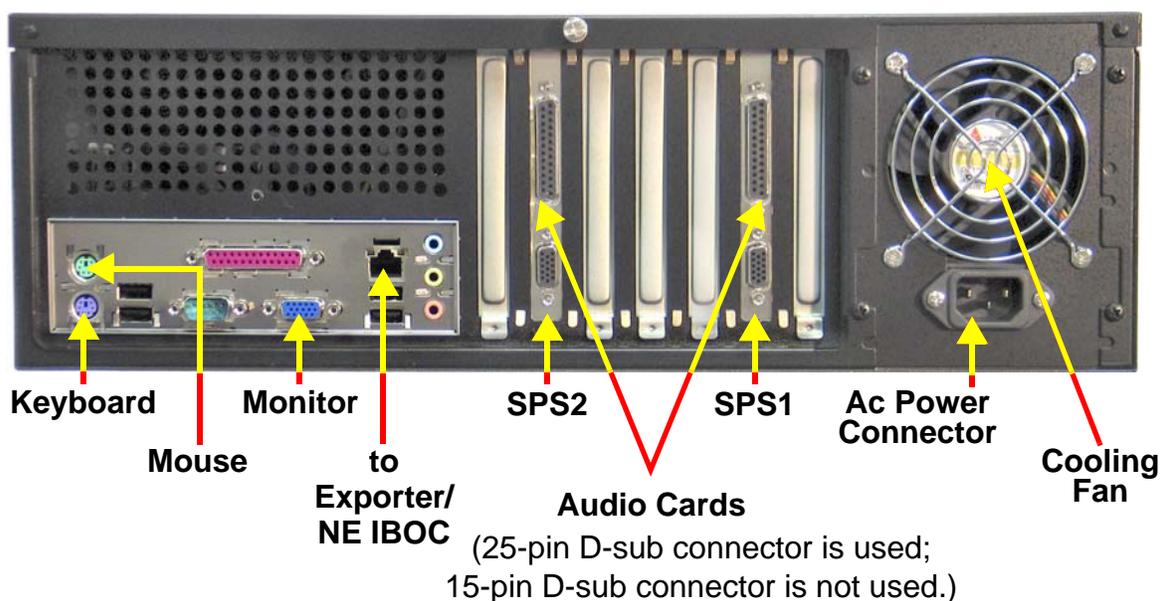
1. Unpack the Importer from its shipping box. Make sure that all shipped items are available.
2. Remove the Importer's top cover, then remove any packing material, particularly above the CPU. Make sure that there are no loose components, and that all connectors and audio cards are properly seated.
3. Install the Importer at the studio or transmitter site in the cabinet space you have prepared.
4. **Do not** connect ac power to the Importer at this time.

SECTION 3: CONNECTING TO THE IMPORTER

To connect the importer's audio cables, perform the following steps:

1. Locate the cable harnesses supplied in plastic bags labeled *UA93*. There should be one bag for each audio card ordered.
2. At the back of the importer (see [Figure 3.1](#)), attach the cable with six XLR connectors to the 25-pin D-sub connector on the importer's audio card. If there are two audio cards, connect two such cables.
3. If the audio sources are AES/EBU, connect the audio to the XLR connector labeled *Digital In* (from the cable in [Step 2](#)). If there are two audio cards, the importer software recognizes the audio card closest to the cooling fan as the source of SPS1 audio (see [Figure 3.1](#)).
4. Connect the keyboard, mouse and monitor to the back of the importer (see [Figure 3.1](#)).

Figure 3.1: Importer rear panel connections



SECTION 4: TURNING ON THE IMPORTER

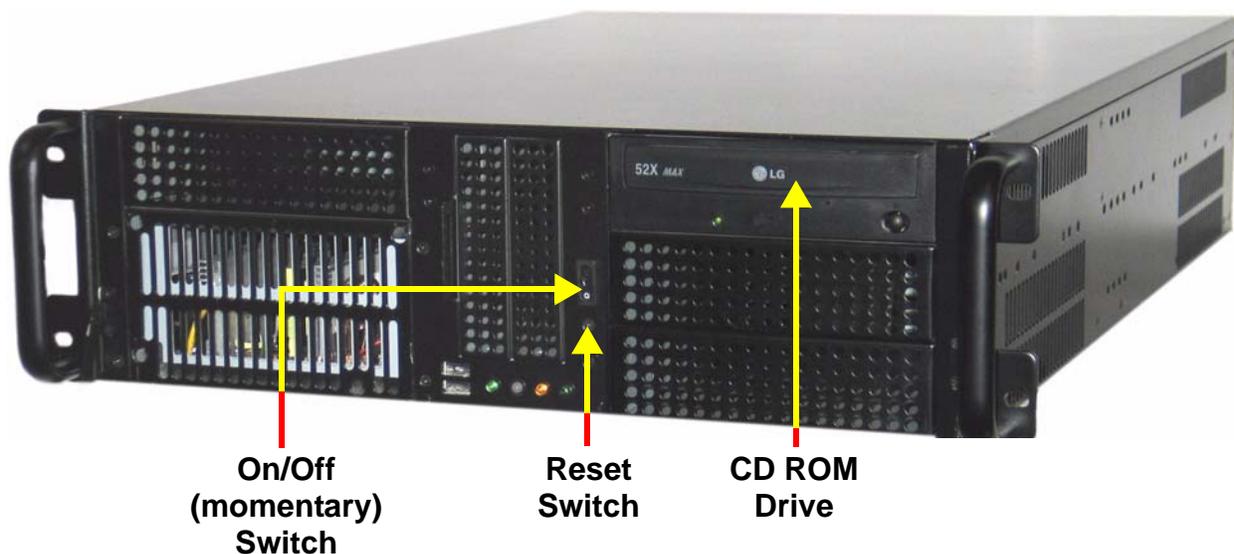
To turn on and boot up the importer, perform the following steps:

1. Connect ac power to the back of the importer. The importer will begin booting up.

Note: There is a momentary I/O switch on the front panel that turns the importer on and off. When the importer is on and the switch is pressed, Windows XP will routinely shut down and turn off the power supply. When the importer has been shut down in this manner and the switch is pressed again, the importer will turn on.

2. Ensure the monitor is turned on and that Windows XP starts up properly.
3. A login window should appear. Type *importer* (lower case) in both the user name and password fields.

Figure 4.1: Importer front view (shown without key-locked cover)



SECTION 5: CONFIGURING THE LAN

Perform the steps in this section to configure the importer's IP addresses.

Note: IP address information for the importer and NE IBOC or exporter, based on LAN configuration, was determined in the Pre-installation Manual. The equipment has been factory pre-configured with a default NE IBOC or Exporter IP address of 10.10.10.10. Even if modifications are not required, you should verify that the IP addresses are correct.

Modify the importer's IP address for the NE IBOC or Exporter as follows:

1. From the importer's control panel:
 - Select **Setup > Importer**
 - Enter the Exporter IP address in the **Exporter IP** field (see [Figure 5.1](#)).

Figure 5.1: Importer Setup screen

The screenshot shows the 'Importer Setup' dialog box with the following fields and values:

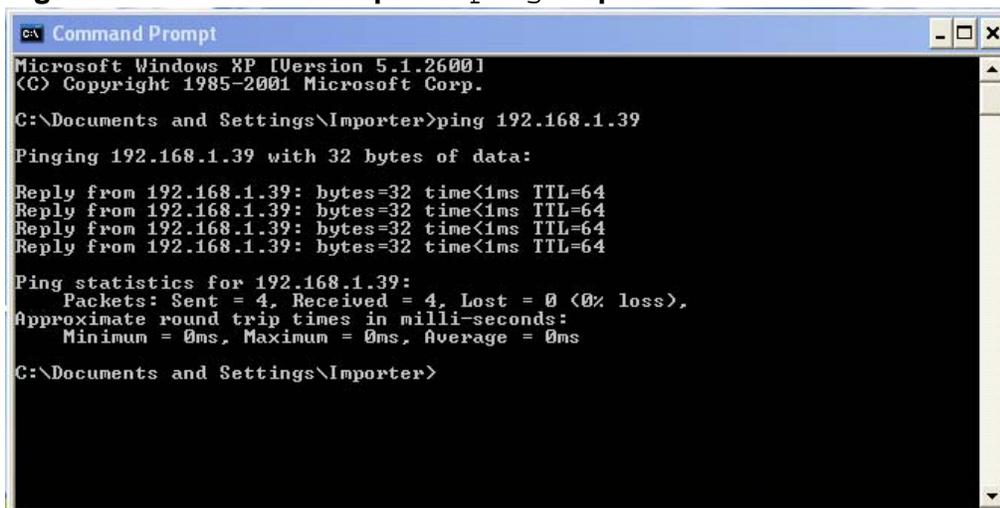
- Exporter:**
 - IP: 10 . 10 . 10 . 10 (circled)
 - Tx Port: 8025
 - Rx Port: 1700
 - Protocol: TCP
- Database:**
 - IP Address:
 - Machine Name: (local)
 - Catalog: IMPORTER_DB_2_0
- Administrator:**
 - IP: 127 . 0 . 0 . 1
 - Port: 1600
- Logistics processor:**
 - IP: 127 . 0 . 0 . 1
 - Port: 1000
- Connection Manager:**
 - Port: 1010

Buttons: OK, Cancel

2. Modify the Windows IP address as follows:
 - Select the **Network Connections** icon.
 - Right click on *Local Area Connection*.
 - Select *Properties*.
 - Scroll to and highlight *Internet Protocol*.
 - Click on *Properties*.
 - In the **Properties** window, click the *Use the following IP address* option.
 - Enter the importer's IP address in the **IP address** field (see your network manager).
 - Check the *Subnet mask*. It should be: 255 : 255 : 255 : 0
 - Enter the gateway IP address in the **Default gateway** field (see your network manager).
 - Click **OK**.
 - Click **OK** again.

3. Verify the IP address of the importer as follows:
 - Using another PC that is directly or indirectly (via a switch) network connected to the importer, select: *Start > All Programs > Accessories > Communications > Command Prompt*
 - At the command prompt, type: `ping importer IP address`
 - The *ping* command should show the status of four packets sent to the importer. If the connection is OK, a response similar to [Figure 5.2](#) should appear.
 - Type `exit` to close the **Command Prompt** window.

Figure 5.2: Successful importer ping response



```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Importer>ping 192.168.1.39

Pinging 192.168.1.39 with 32 bytes of data:

Reply from 192.168.1.39: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.1.39:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Importer>
```

SECTION 6: LIST OF TERMS

This section defines some of the terms that are used in Nautel documentation.

AAS. Advanced Application Services

AES-EBU. Audio Engineering Society/European Broadcasting Union (AES/EBU) is the name of a digital audio transfer standard. The AES/EBU digital interface is usually implemented using 3-pin XLR connectors (the same type of connector used in professional microphones). One cable carries both left- and right-channel audio data to the receiving device.

CAT-5. Short for Category 5. Network cabling that consists of four twisted pairs of copper wire terminated by RJ45 connectors.

EASU. The Exciter Auxiliary Services Unit accepts the studio feed audio in AES/EBU format and converts it to the 44.1 kHz sampling rate used throughout the system. The EASU also contains the GPS receiver that locks onto the Global Positioning System, and determines the site location and time. This information is then passed onto the NE IBOC to be transmitted as part of the station information. The GPS receiver also provides 10 MHz and 1 PPS signals that are used within the NE IBOC for synchronization purposes.

EOC. Ensemble Operations Center.

EXGINE. An HD™ Radio component which resides in the exciter. The Exgine decodes the Exciter link data and produces the appropriate I/Q modulation.

GPS. The Global Positioning System is a system of satellites and receiving devices used to compute positions on the Earth.

GUI. Graphical User Interface

HD™ RADIO. High definition (HD) Radio is another term for In Band On Channel (IBOC) technology. HD Radio is a trademark of the Ibisquity Digital Corporation.

IBOC. Nautel In-Band-On-Channel technology provides high quality digital audio over existing AM and FM radio channels.

LAN. Local Area Network.

MPS. Main Program Service

NE IBOC. Nautel's In-Band-On-Channel signal generator. See IBOC. Required for XR series IBOC installations.

PAD. Program-Associated Data.

SPS. Supplemental Program Service. Sometimes called SAC. In initial tests, NPR called this Tomorrow Radio.

STL. Studio-transmitter Link. A studio-transmitter link sends a radio station's audio signals from a broadcast studio to a transmitter located some distance away from the studio.

TSL. Transmitter-studio Link. A transmitter-studio link returns data (e.g., monitoring information) from a transmitter site to a broadcast studio located some distance away from the transmitter.

UDP. User Datagram Protocol. A core internet protocol whereby programs on networked computers can send short messages between one another.

VNC. Virtual Network Connection.

XLR. A 3-pin connector used for a balanced audio cable. Used in pro-audio equipment and AES/EBU digital audio.

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