technetix

Firmware Upgrade Manual for FW Version 1.4 [30-03-2024]

Project Number: HE 101341

Product Description: NCC-2222

This document contains information about how to upgrade the NCC-2222 to FW Version 1.4 with Web interface Version 1.4 support

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Contents

1 Introduction

This document contains information about how to upgrade the Application firmware or new Application firmware to a NCC-2222 NarrowCast Controller V1.4.

In this document we will guide you through the upgrade process and explain in clear steps how to upgrade the NCC-2222 firmware platform.

2 System and software requirements

To upgrade the NCC-2222 system to version 1.3 you need at least the following:

Hardware:

Upgrade Target device:

- Working NCC-2222, powered in MRO-100/BP rack or eq.
- Network connection to NCC-2222 (Locally connection preferred but network connection also possible)
- Network cable straight

Upgrade Source device:

- Windows XP, Vista SP2, Windows 7 SP1 or Windows 8 Operating system with 32-bit: x86 class processor or 64-bit*: x64 processor
- 32-bit systems: 1 GB minimum, 2 GB or more recommended; 64-bit systems*: 4 GB or more recommended

Software:

Installed on upgrade Target device:

- None

Installed on upgrade Source device:

- Microsoft .NET Framework 3.1 (version 4.5 preferred)
- Firefox Web browser (http://www.mozilla.org) or Internet Explorer 8.0 or greater.
- Technetix Ethernet Discovery System (*supplied with upgrade package*)
- NarrowCast Controller Bootloader x222 Installer V1_1 setup package (*supplied with upgrade package*)
- Technetix MIB file for MIB Browser "**Technetix-GATEWAYS-MIB-SMI-V1-v1-8.mib**" (*supplied with upgrade package*)
- MIB Browser iReasoning, (http://ireasoning.com/mibbrowser.shtml) version 9.5 or eq

Firmware:

- FW version 1.4 "**HE101341 76 NCC-2222 Application V1_4 2024-03-30.ncc2**" (*supplied with this upgrade package*)
- Web GUI File for Web interface "**HE101341 76 NCC-2222 Web Version V1_4 Build 2024-03-30.bin**" (*supplied with this upgrade package*)

# 3   Installing NarrowCast Controller Bootloader Application V1.1

For upgrading the NCC-2222 Technetix has provided a special upgrade tool. This tool is able to update a NCC-2222 and a future NCC-2222 as well. You can find the tool in the Upgrade application tools -> NarrowCast Controller Bootloader x222 V1_1 directory.
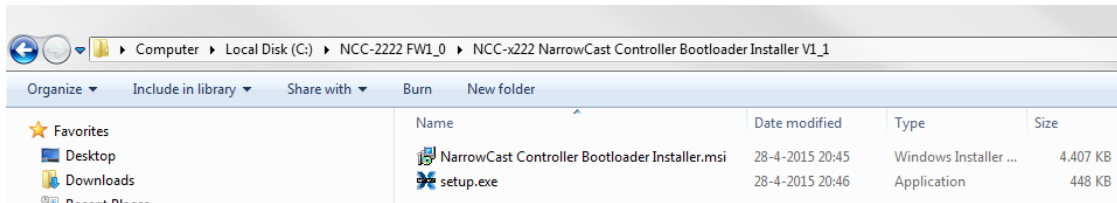
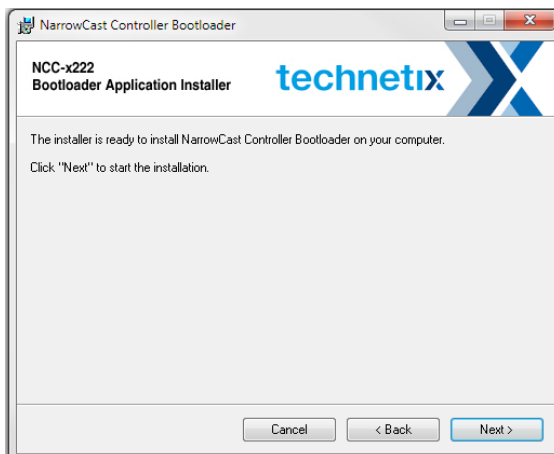Double click on the setup.exe and the installation wizard will guide you through the installation process.
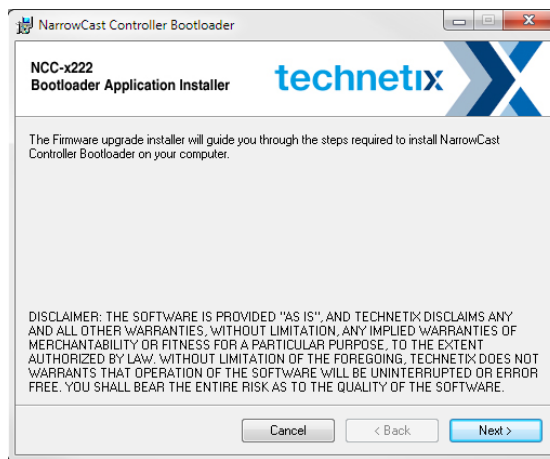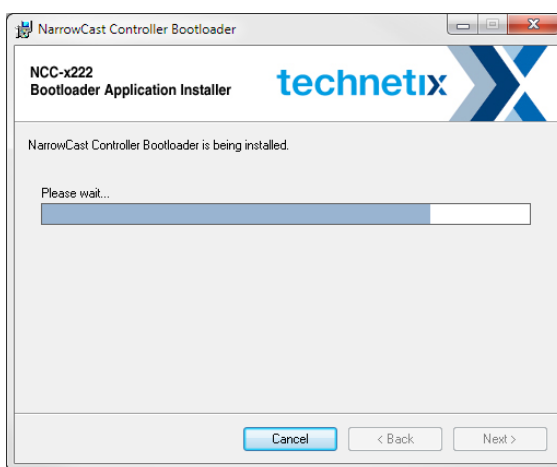

Press the **"Next"** button
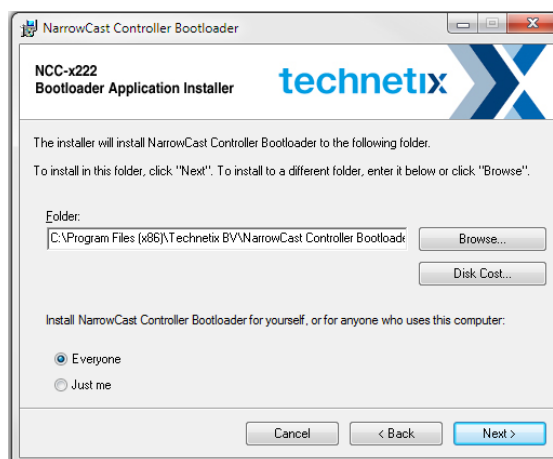
Press the **"Next"** button
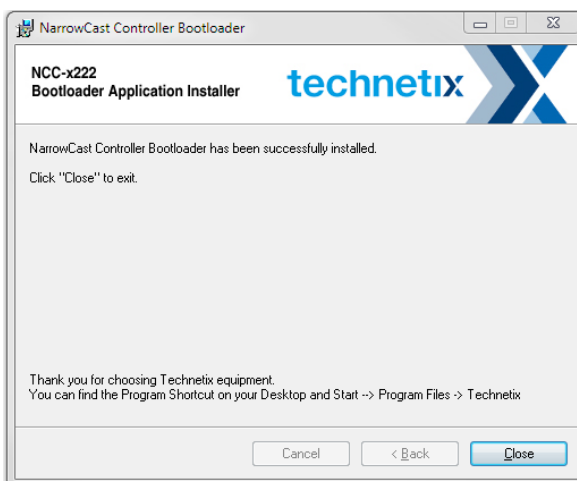
Press the **"Next"** button

Installation in progress…

Installation Complete. Press the **"Close"** button

After installation, a Program files startup icon is created, and you can find an icon on your desktop to startup the bootloader application.


4   Discover the NCC-2222 IP address

Every NCC-2222 does have a unique MAC address, and this MAC address is connected to an IP address. Default, in static mode the default IP address of the NCC-2222 is **192.168.1.1**.

In most situations, a (big) network is used with DHCP configuration. In other situations, the NCC-2222 has a static IP address in a specific subnet. So the IP address can be totally different from the factory default IP address. This makes it difficult to detect the correct and active IP address of the NCC-2222. The IP Address is discoverable with a Technetix discovery tool, the "**Technetix Ethernet Discovery System**".

The NCC-2222 is the first device in this new range of products, which presents the IP address, MAC address and even event messages of the NCC-2222 in one screen. When more than one NCC-2222 units are online the list will grow, but the essence of the tool will stays the same.

Default, all NCC-2222 will carry the Technetix host name, but when more than 1 device are installed in a network, we advise to give specific host names to each NCC-2222 to make them more clear to discover (human readable). The **Hostname** can carry **15 characters (NETBEUI based)**
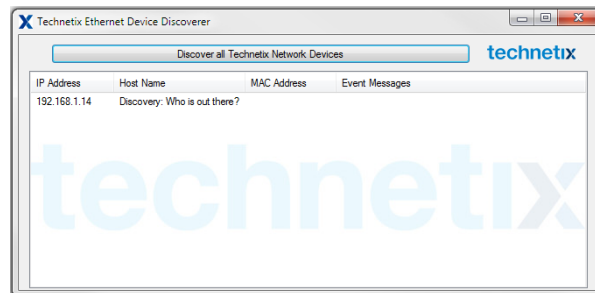
To use the tool, you don't need to have your computer configured in the same sub network. The discovery tool can detect every device on the network, as long as a possible router is not blocking the discovery request by the host (your computer). When you want to communicate with the NCC-2222 to do the upgrade you need to be connected to the same subnet. This is a normal network rule you need to comply to.

When the NCC-2222 is online in Bootloader or application mode, it is discoverable automatically when the Technetix Ethernet Device Discoverer is starting up, or when the button "**Discover all Technetix Network Devices**" is pressed.
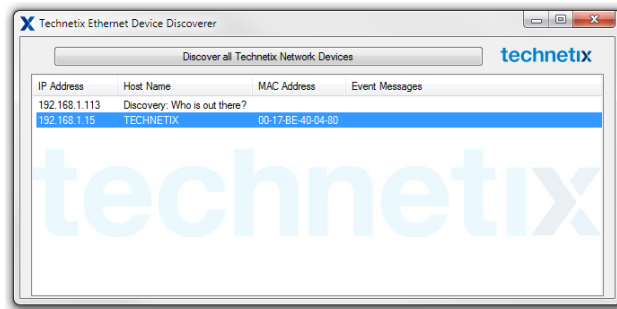
In this example, the NCC-2222 is locally connected to a Host computer (no DHCP, just static connection one-on-one). In the discovery screen the device is detected as IP 192.168.1.1 and the Hostname is "Default:" **TECHNETIX**. The MAC address is always unique and also given in the screen. The last box is normally empty, but when there's a DHCP event occurred, the DHCP message is given in this box, indicating what's happened to the NCC-2222 as an information message.

From this point, we discovered our NCC-2222 does have IP **192.168.1.15** so we can use this IP address to start the upgrading session.

5   Firmware Upgrade

This chapter explains how to upgrade the NCC-2222 Firmware. This is the core code of the NCC-2222. The WebGUI is built on top of this firmware and need to start with V1.3.x to be compatible with this firmware release.

5.1   Using the Bootloader Upgrade Software

As described in the previous Chapter, to upgrade a NCC-2222 module, you need a special PC application to set the NCC-2222 in Bootloader mode. In this Bootloader mode the user is able to do a firmware upgrade their selves, without losing the amplifier settings or signal interruption during upgrade.

When you start up the NCC-x222 Bootloader application, the following screen appears:
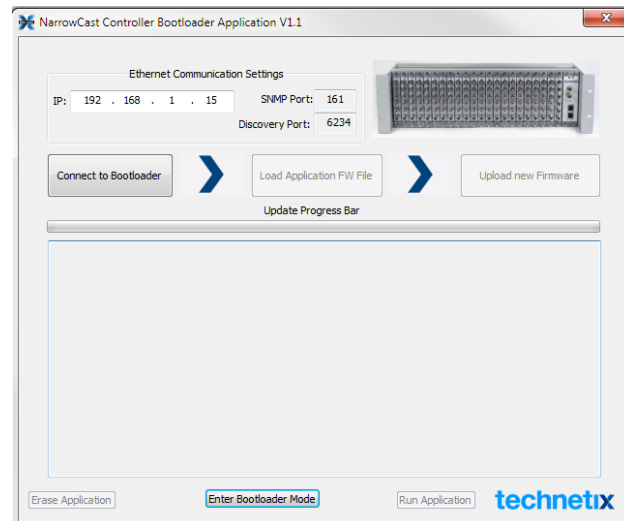
NarrowCast Controller Bootloader Application V1.1
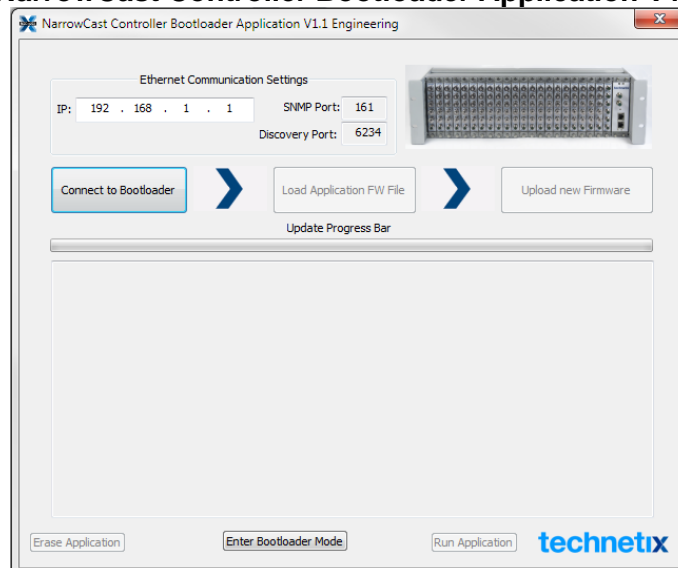
The Bootloader application is an easy tool to upgrade a device. When the module is in NCC-2222 Application mode (normal operation) the Bootloader section is not accessible.

Since our NCC-2222 Narrowcast Controller to upgrade has IP **192.168.1.15** we need to change the IP to this specific IP address:

To enter the Bootloader you need to send a special "**Enter Bootloader Mode**" command to the NCC-2222 before you are able to reach the Bootloader section. This command is given by *pressing* the "**Enter Bootloader Mode**" in this application. The interacting with the Bootloader section is possible when the NCC-2222 is connected through an Ethernet Connection and when the correct IP address is given for the specific NCC-2222 to upgrade (use the Ethernet Discovery program to detect the IP address)

The specific NCC-2222 IP address (Ethernet Discovery program, Chapter 4)

After this command the device leaves the application section and enters the Bootloader section. The Bootloader session will be accessible for max. 180 seconds. When this time expires, the application section is entered again when there is valid application firmware available. When there is no valid firmware available the Bootloader session will stay active, even when the time of 180 seconds is expired. When upgrade is started, 180 seconds timer is reset to zero.

## 5.2 Enter Bootloader section and upload (new) Application

To enter the Bootloader mode, press the "**Enter Bootloader Mode**". Be sure the NCC-2222 is connected through the Ethernet and Powered correctly.

After pressing the "Enter Bootloader Mode" button, the following screen appears.

This warning box informs you that it will take 6 seconds to activate the NCC-2222 bootloader section. To continue, press **"Yes"**, to abort entering the bootloader mode, press **"No"**.
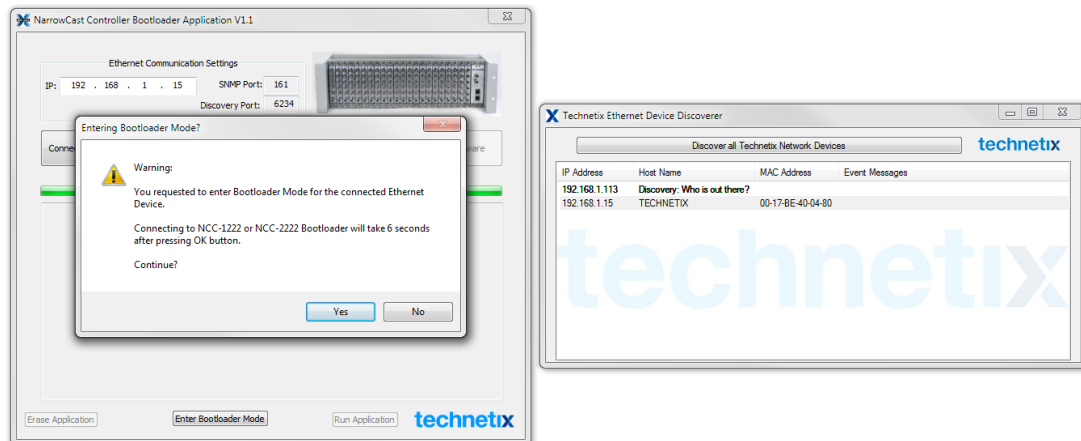

After pressing **"Yes"** the screen is frozen for 6 seconds, and then the following screen appears:
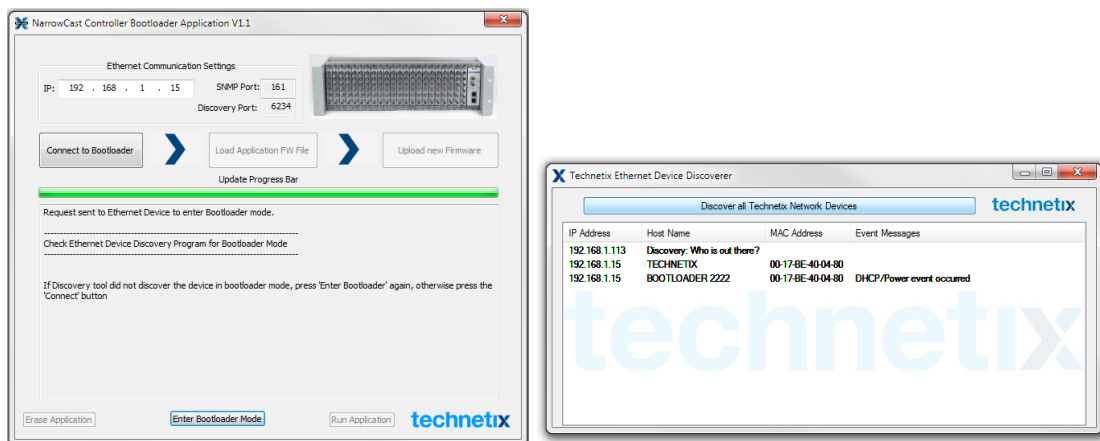
When the device is in Bootloader mode, and the "**Connect to Bootloader**" button is pressed, the device can communicate in the Bootloader mode.

*When you check now at the discovery program, it's telling you the Hostname is **BOOTLOADER** at the moment (Bootloader section) and there has been a **power cycle inside the microprocessor (Soft reset**). The used IP address is based on the DHCP address or the static address as used in the application.*

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	Title	FW Upgrade document for NCC-2222 V1.4	JJ	APPROVED
Page 9 of 22	Author	J. Janssen	Date	30-03-2024
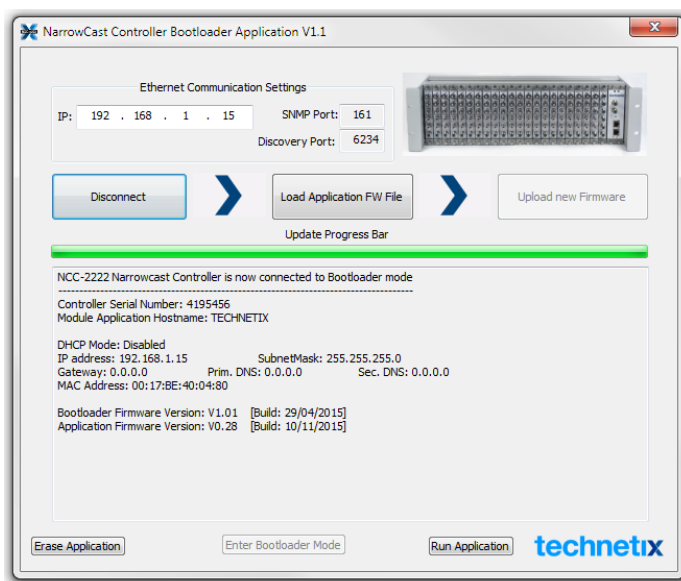
Next, you need to load the .ncc2 file which contains the application data.
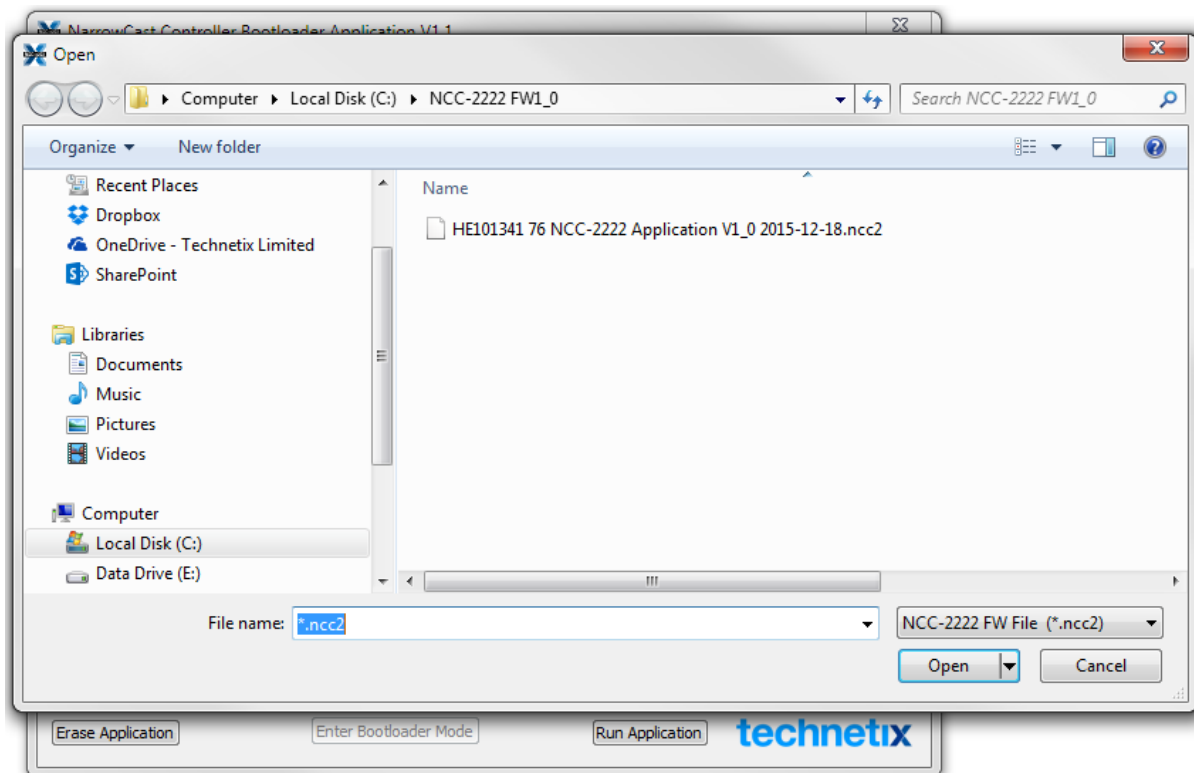
When the firmware is selected, **"Open"** the firmware.

The Selected .ncc2 file contains Firmware Application FW Version V1.4 for NCC-2222

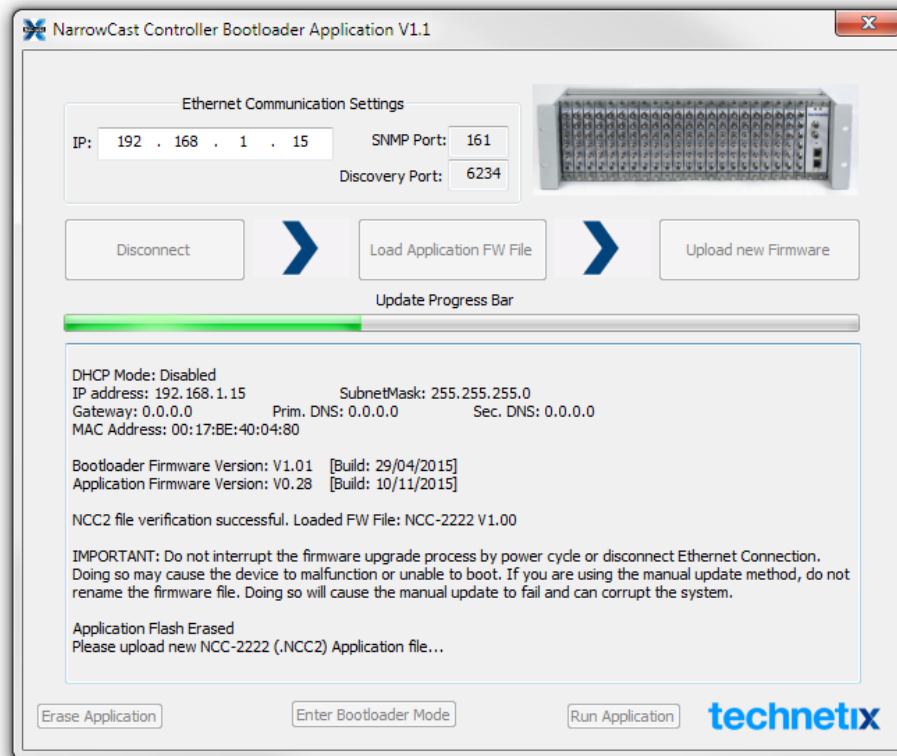To upload the selected new firmware, press the "**Upload new Firmware**" button.

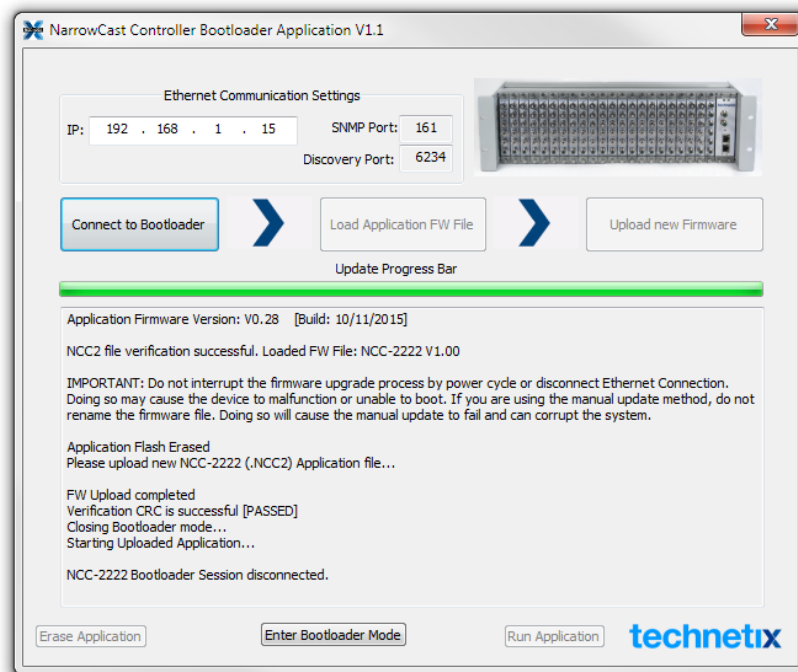| **Technetix Ltd.**	**Class**	Company Confidential	**JJ/GBr**	TESTED
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| ⚠️ | **WARNING:**

WHEN THE UPDATE PROCESS WITH THE ERASE-PROGRAM-VERIFY PROCESS IS STARTED DON'T REBOOT YOUR COMPUTER OR CLOSE THE UPGRADE APPLICATION. UPDAT PROCESS WILL USUALLY TAKE 10-40 SECONDS | ⚠️ |

Firmware upgrade in Progress, wait approx. 25 seconds dependent of network connection speed.

After programming, when the firmware passes the CRC (Cycle Redundancy Check) Checksum, the NCC-2222 is starting up and leaving the Bootloader section.

Firmware upgrade complete

6 GUI upgrade

6.1 Upload GUI BIN code for WebGUI

We have now upgraded successfully the NCC-2222 core firmware, but on top of this firmware we also have WEB and SNMP support. Since the WEB interface is also updated, then we also need to upgrade the WEB support GUI to have total control of the NCC-2222

To upgrade the WEB section, we use a **container** file, **.BIN**. This file contains all information for the WEB support and SNMP support.

On the Website you can see the **Firmware Build** is in the previous chapters updated to **version 1.4**, but the Web version and Web build is still **2015-10-21 and v1.0.** This is not the latest version, since the **Web version also needs to start with Version 1.4** to be fully compliant with this firmware release.
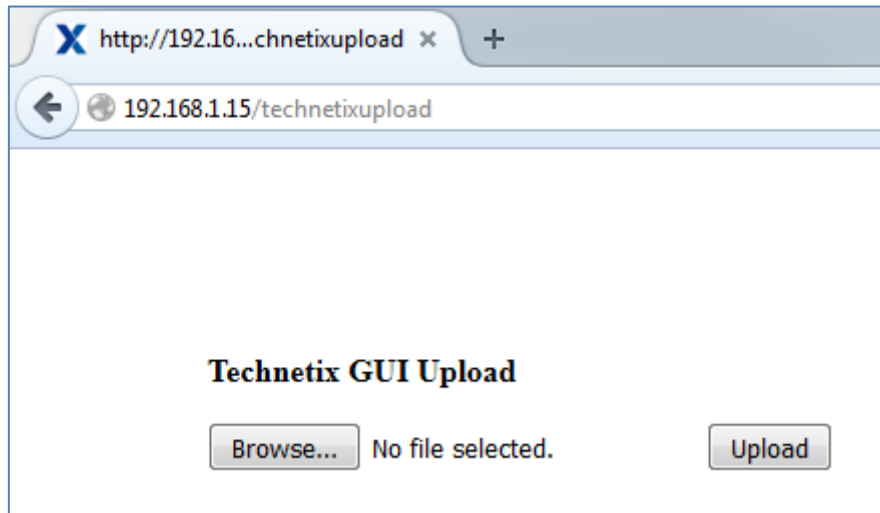
To upgrade the Web/SNMP GUI you need to access the following webpage:

http://<NCC_IP_ADDRESS> /technetixupload

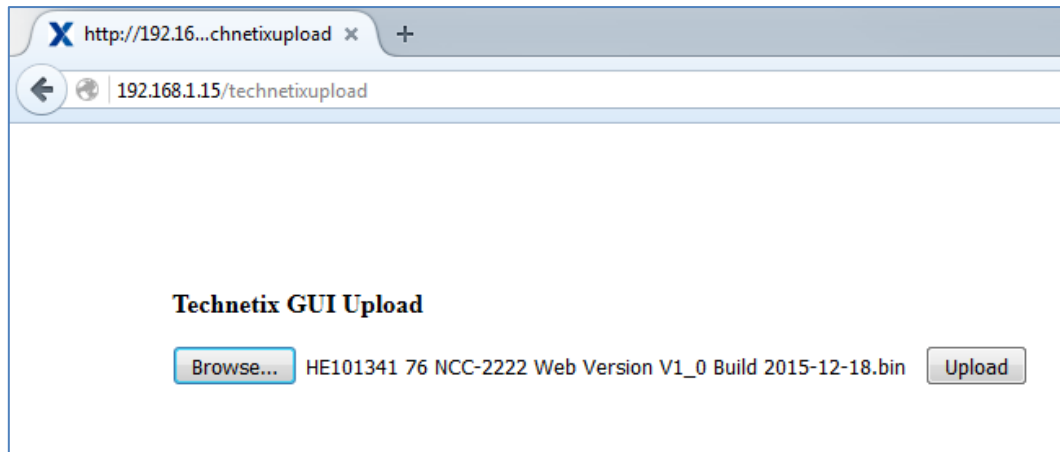In our example we use:

http://192.168.1.15/technetixupload

Now press the "**Browse**" button to select the BIN file on your hard drive. In our example we use the **C:\NCC-2222 FW1_0** directory. Select the BIN file from this page.
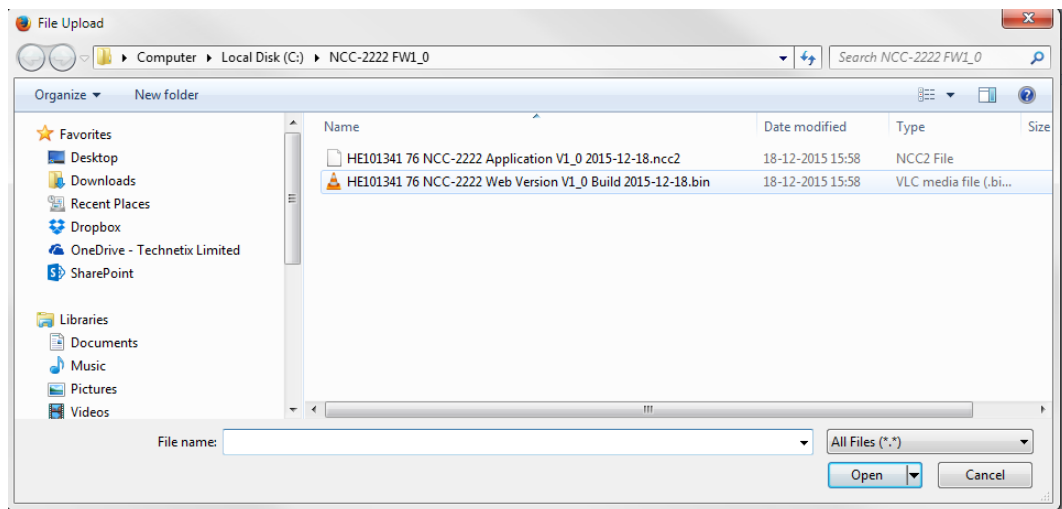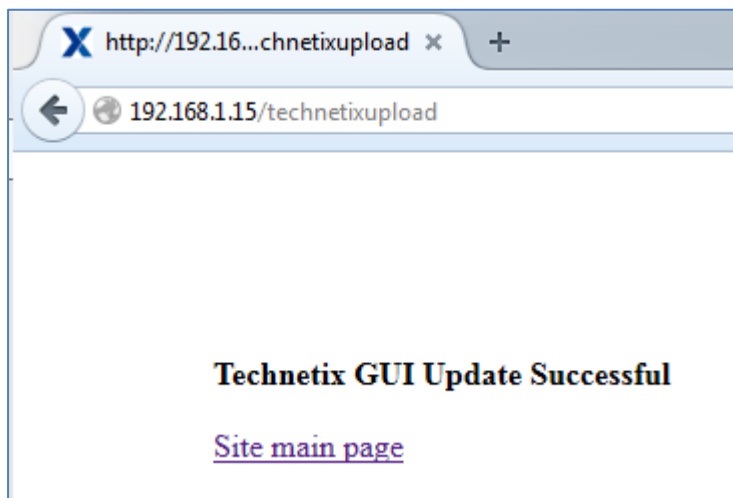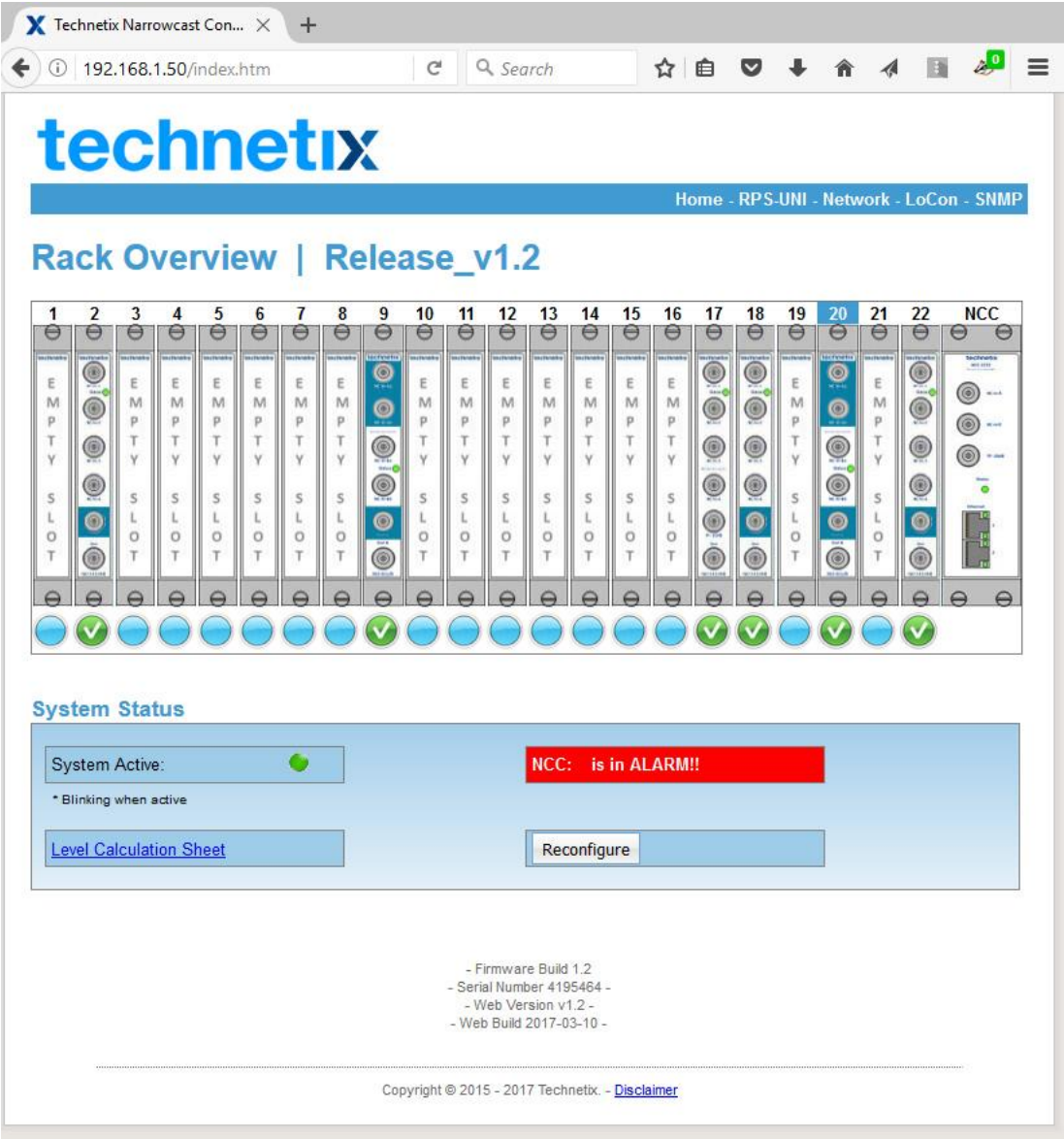
Now click the "**Upload**" button to upload the file to the GUI.

When the GUI is correctly uploaded the screen as given above will indicate **the upgrade of the GUI is successful** and you can continue by click on the text "**Site main page**" to return to the main page.

As the Homepage is on your screen again, you can see the Web Version is now also updated. The **Web version is now v.1.4** indicating the website is written for **Firmware version 1.4** The Web build date is now **2024-03-30**.

Everything is up and running now, but since new features are introduced, it's better to perform a factory reset of the NCC-2222 if possible

7 Factory Reset the NCC-2222 for optimal performance

For the optimal use of the new firmware upgrade, we always advise to do a factory reset after the firmware upgrade. This to prevent having incorrect or unsupported values for functions in memory which can cause strange errors.

Technetix always tries to prevent the direct need for a Factory default, so normally it is not necessary to proceed this action.

When a factory default is given, the NCC-2222 will be set to all factory defaults settings for all functional settings **including the RF settings.**

CAUTION:
If the decision is made to switch back to factory default we advise to do this during night time or in a not live condition to prevent RF problems

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## 7.1 Prepairing to perform a Factory Reset NCC-2222

To set the NCC-2222 back to factory default, you need a SNMP MIB browser (iReasoning or equal) and a correct MIB file, supplied with this package: "**Technetix-GATEWAYS-MIB-SMI-V1-v1-8.mib**"

The installation process of the iReasoning MIB browser is out of the scope of this document, but all settings can be installed on default. When the installation is finished the MIB files needs to be activated in iReasoning. This is explained in the next chapter.

7.2 Configuring iReasoning for upgrading the NCC-2222

As explained, you first need to install a MIB browser. In this document we will explain the MIB file installation process based on iReasoning MIB browser. This MIB browser is free to download.
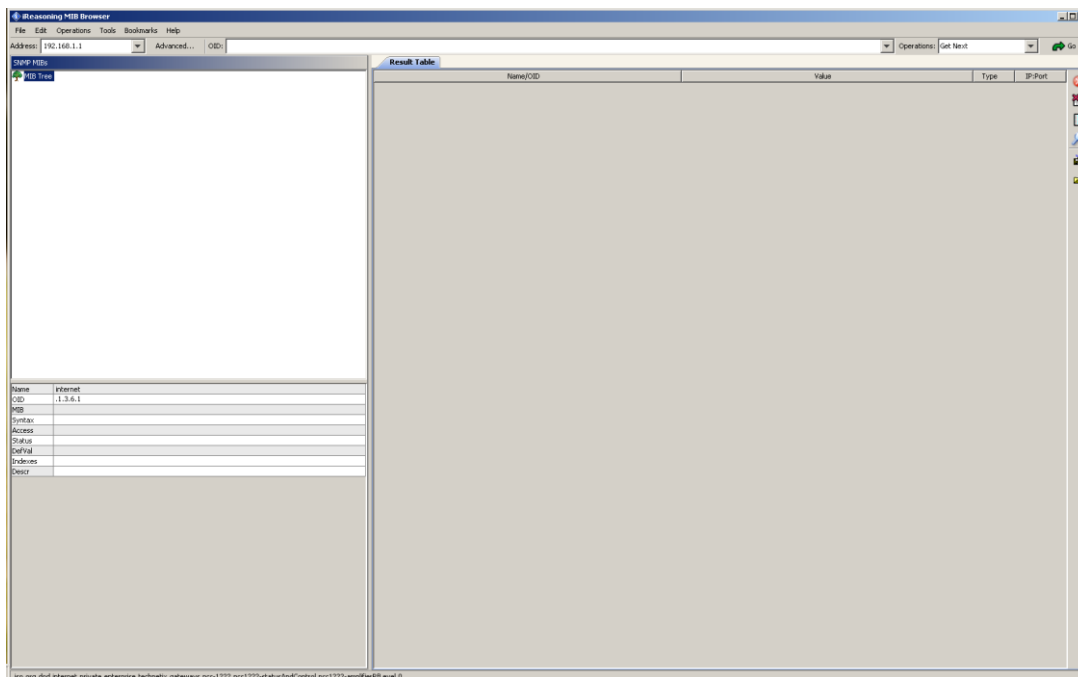
In previous picture you find the iReasoning MIB browser. In this stage, no MIBs are configured, so we first need to add the "**Technetix-GATEWAYS-MIB-SMI-V1-v1-8.mib**" to our MIB database of iReasoning. You can Load the MIB from any location, but we prefer to add this MIB on the same location as the iReasoning MIBs in the correct installation directory.

The installation path for "**Technetix-GATEWAYS-MIB-SMI-V1-v1-8.mib**" is default: C:\Program Files\ireasoning\mibbrowser\mibs. Just move the "**Technetix-GATEWAYS-MIB-SMI-V1-v1-8.mib**" file to this directory.
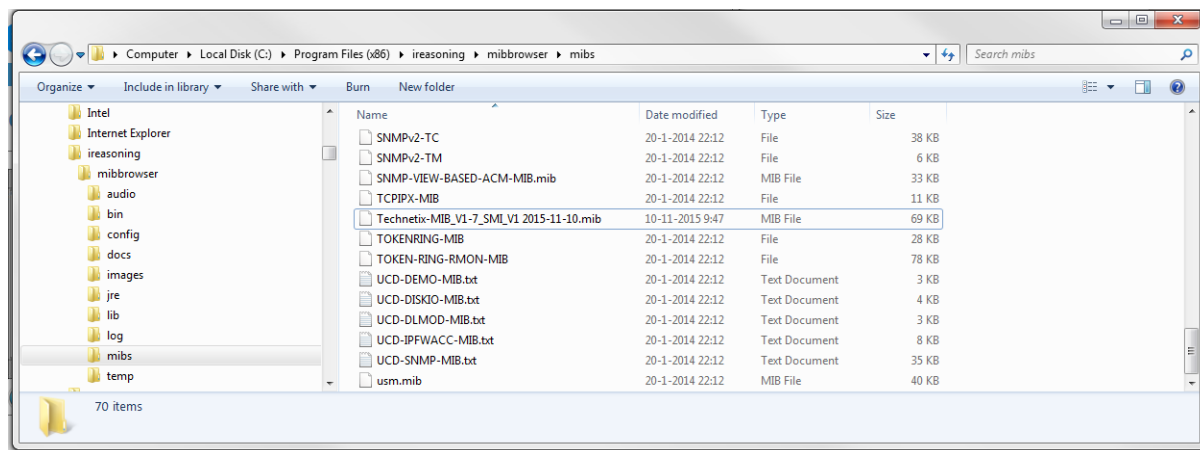
From this point, the MIB is available in the default MIB directory of iReasoning, and can be accessed to load as MIB.
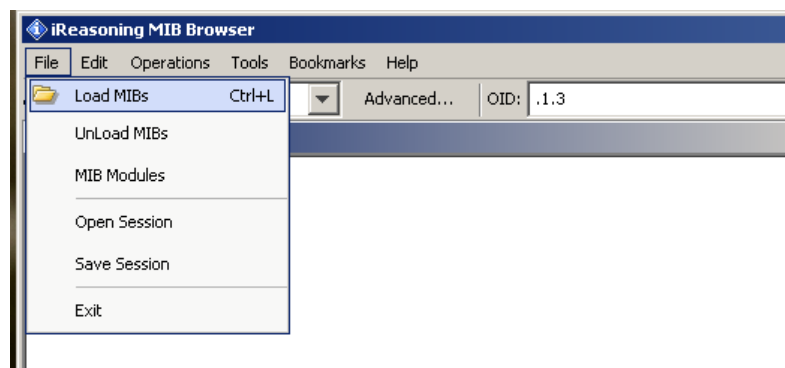
The NCC-2222 supports also RFC-1213 commands default, so we also advice to load this MIB default in iReasoning to have full control of the NCC-2222.
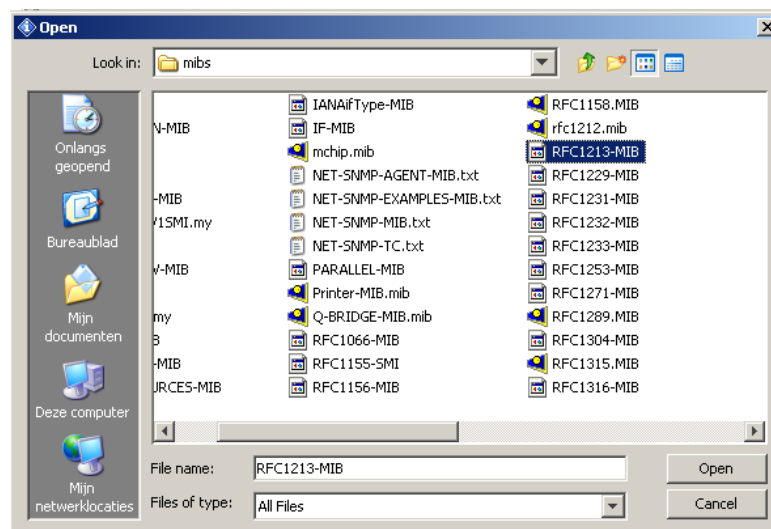
7.3 **Load the MIBs for upgrading the NCC-2222**

To load the explained MIBs, "**Technetix-GATEWAYS-MIB-SMI-V1-v1-8.mib**" and "**RFC-1213-MIB.mib**" you need to select the 2 files:
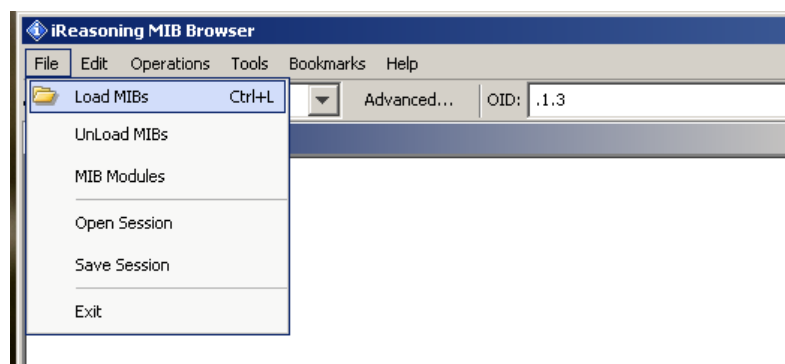
File → Load MIBs

Now first find the file RFC1213-MIB and select "**Open**" to add this MIB to your MIB database.
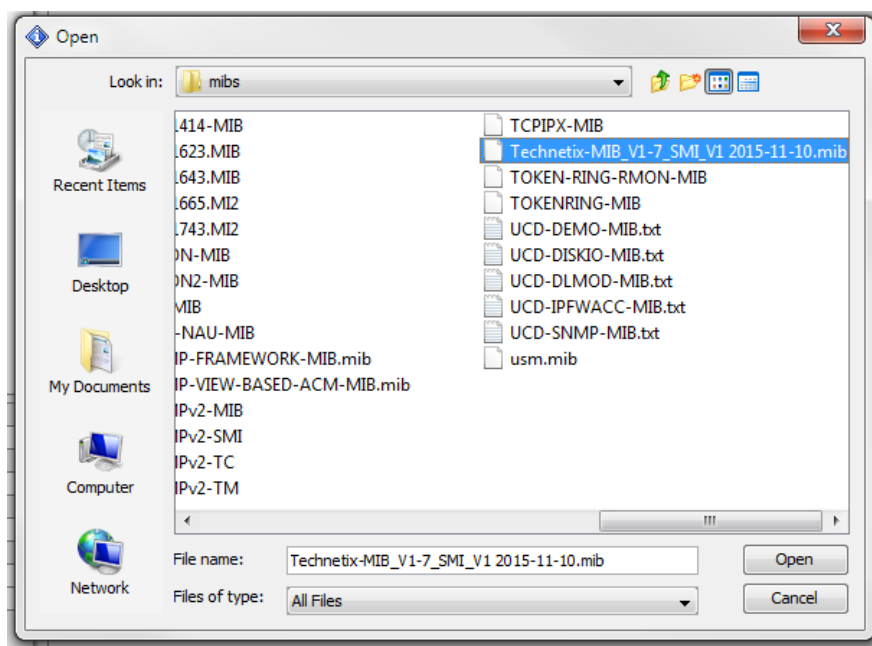

Secondly, find the Technetix MIB, "**Technetix-GATEWAYS-MIB-SMI-V1-v1-8.mib**"
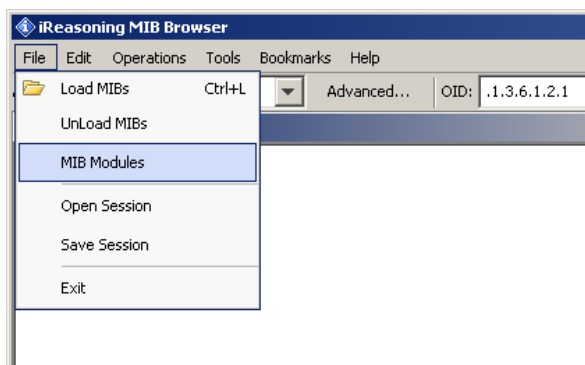
File → Load MIBs

Now first find the file "**Technetix-GATEWAYS-MIB-SMI-V1-v1-8.mib**" and select "**Open**" to add this MIB to your MIB database.
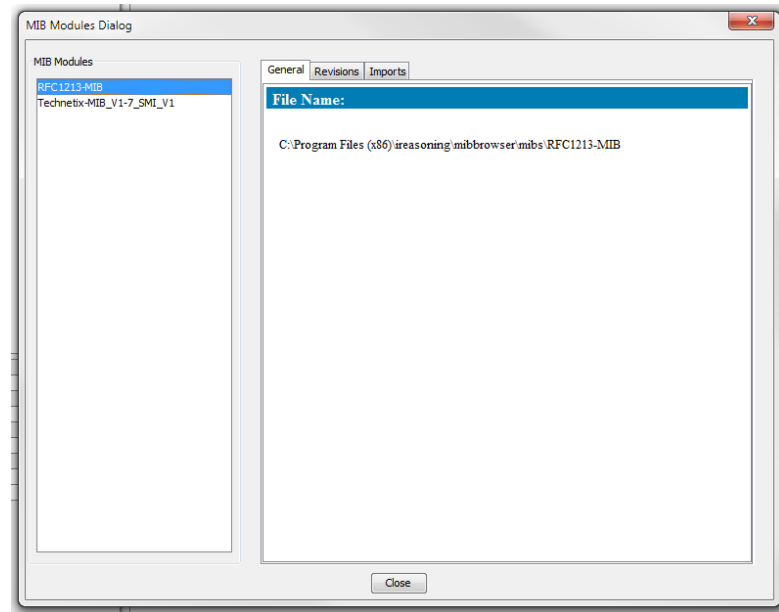
When this file is also loaded as MIB, iReasoning does have the correct files to communicate with the NCC-2222. Finally we do a check if all modules are correctly loaded:

File → MIB Modules

This will open a Dialog box which present the 2 installed MIBs. It must look like below:

From this point the MIB files are correctly installed.

7.3.1 Perform a factory default for the firmware

We have now updated the firmware of the NCC-2222 and the GUI of the NCC-2222, we also need to perform a Factory default reset on this upgrade, since we changed some important setting locations in the memory. In future upgrades we will try to leave the memory structure as it is now, but if features changes, we may need to do a factory default again.

To perform a **Factory Default reset** you need the iReasoning MIB browser, and send a command with the **ncc2222-toLoCon** (OID: .1.3.6.1.4.1.18063.2.32.6.1.0)
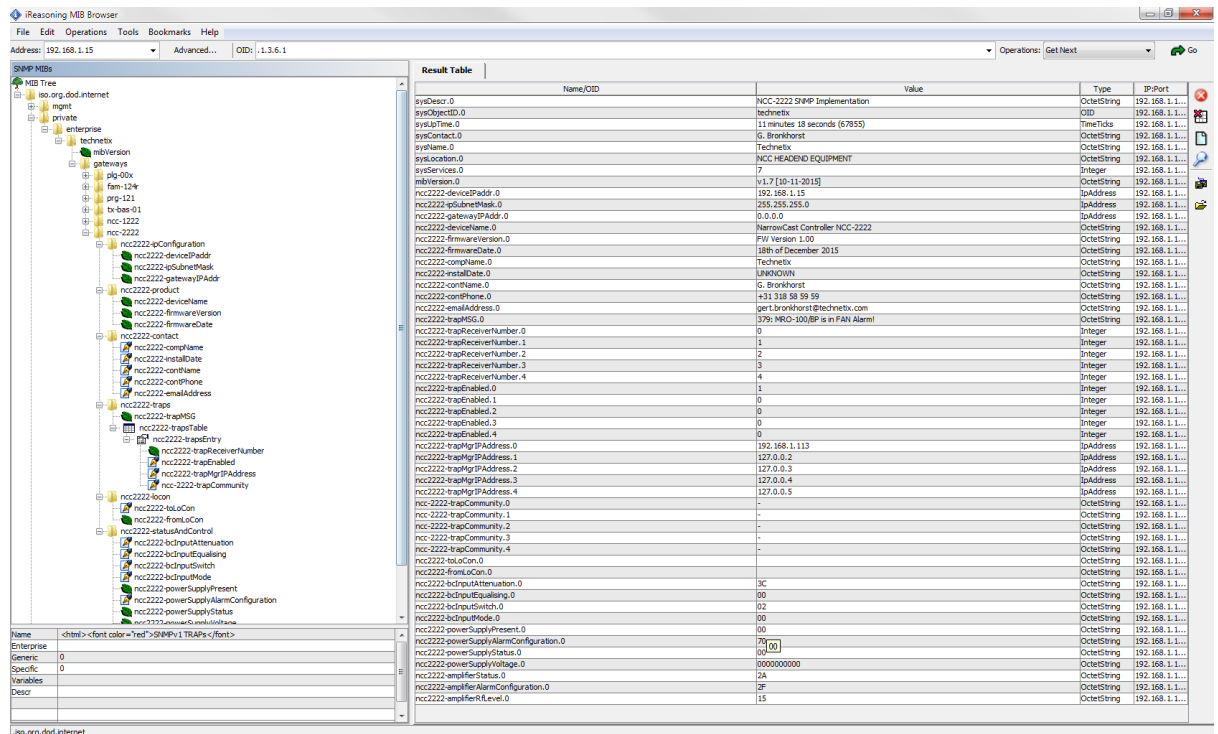
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To set a value in the ncc2222-toLoCon OID you need to click on your **right mouse button** on the ncc2222-toLoCon and select "**Set**" (CTRL-S)
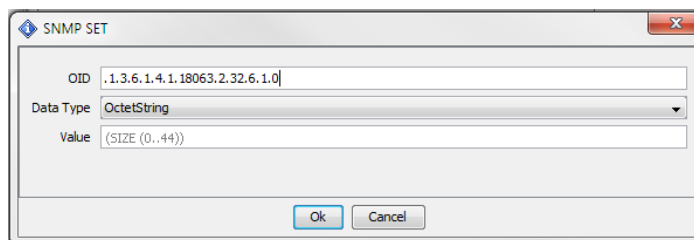

To give the command to perform a Factory Default reset, you need the value:

E2AFDF
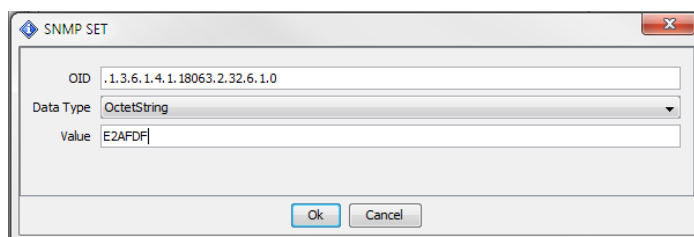
It will take about 3 seconds, and then the NCI scanning will start again. The NCC-2222 will reboot when the settings are all set to factory default.

Since the NCC-2222 is leaving SNMP, iReasoning MIB browser is not able to communicate on SNMP with the NCC-2222 so you will receive an error message, informing you about this situation.
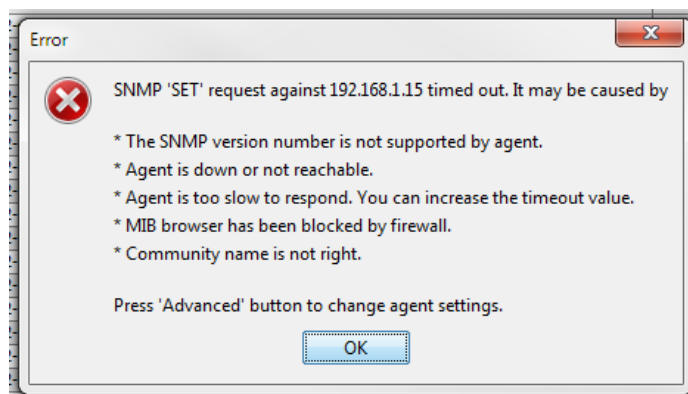
Just ignore this message, and click on the OK button.

8   Firmware upgrade Finished

When you followed all described steps in the previous chapters, your NCC-2222 is correctly upgraded to the latest version of the NCC-2222.

Please read the release document to see all the changes and bug fixes and new features since last release (Version 1.1) "**HE101341 20 NCC-2222 FW Upgrade Document V1_4.pdf**"

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