

Setup of a Standalone netSP or netSP+ using **IMS Neuron**



October 21, 2016

Rudie de Jongh
(Rudie.deJongh@IMSeismology.org)

Reviewed by: Frans Cronjé

Document Number
IMS-PROC-neuron-201609-RDJv0

Contents

1 Purpose	4
2 Preparation	4
2.1 Hardware	4
2.2 Software download	4
2.3 Other documents	4
3 Configuration	5
3.1 Initial hardware setup	5
3.1.1 netSP(+)	5
3.1.2 netADC	5
3.1.3 GPS Timer	5
3.2 IMS Neuron installation & configuration steps	5
3.2.1 Step 1: Installing IMS Neuron	6
3.2.2 Step 2: Adding a user	6
3.2.3 Step 3: Adding a License file	6
3.2.4 Step 4: Adding new Standalone netSP(+)	7
3.2.5 Step 5: Filling in the description field	9
3.2.6 Step 6: Adding the IP address	9
3.2.7 Step 7: Adding the netSP(+)	10
3.2.8 Step 8: Downloading global and local configuration files:	10
3.2.9 Step 9: Adding sites	11
3.2.10 Step 10: Adding a netADC to the configuration	13
3.2.11 Step 11: Adding preferences	15
3.3 Final notes	16

List of Figures

1	Adding license file	6
2	Adding license file	7
3	Enter your netID	7
4	Creating new Standalone netSP	8
5	Filling in the description field	9
6	IP address	9
7	Confirm the addition of the netSP(+)	10
8	Downloading of global and local configuration files	10
9	Adding sites	11
10	Adding sites information	12
11	Selecting sensor type	12
12	Adding a netADC	13
13	Adding sites to netADC	14
14	Selecting available sites	14
15	Accept possible open/unused channels	14
16	netADC preference	15
17	Selecting available netADC	15
18	All good and ready for field deployment	16

List of Tables

1	Change record	17
---	-------------------------	----

1 Purpose

This document describes the process of setting up a netSP or netSP+ to run in standalone mode (ie with no live connection to a Synapse server). The IMS software package IMS Neuron is used to do the setup of the netSP or netSP+ hardware.

2 Preparation

2.1 Hardware

The following IMS hardware must be available during the setup process.

- netSP or netSP+
- netADC8 or netADC4
- GPS_T (optional if a netSP+ is used)
- USB flash disk formatted and non-bootable
- UPS or other suitable power supply

2.2 Software download

Visit the following link and download the IMS Neuron application:

<http://software.imseismology.org/neuron/>

Ensure you download the latest version (filename indicates release date) for your system architecture and operating system.

- 64bit architecture: download the file ending with “amd64”
- 32bit architecture: download the file ending with “i386”
- Windows OS: download the file with extension “.exe”
- Linux OS: download the file with extension “.sh”

2.3 Other documents

The following IMS documents may be needed in conjunction with using IMS Neuron:

- Using the Trace post-association plugin to import RAW IMS data from USB flash drives (IMS_Postassociation-Advisory-201303-AVZ)
- IMS hardware manual (IMS-MAN-SYSTEM-HW-201410-GG)

3 Configuration

For the standalone station to work on its own, you need to setup the hardware and software.

3.1 Initial hardware setup

3.1.1 netSP(+)

Firmware: It is beyond the scope of this document to explain how to ensure that the unit has the latest firmware. Contact IMS Support for additional information.

IP Address: Change the IP address of the netSP(+) if the default of 192.168.1.1 is not desired.

3.1.2 netADC

Firmware: It is beyond the scope of this document to explain how to ensure that the unit has the latest firmware. Contact IMS Support for additional information.

3.1.3 GPS Timer

Firmware: It is beyond the scope of this document to explain how to ensure that the unit has the latest firmware. Contact IMS Support for additional information.

ATU period: Set to 5 minutes (refer to document IMS-MAN-SYSTEM-HW-201410-GG)

3.2 IMS Neuron installation & configuration steps

The installation of this application software requires an internet connection and access to the IMS software website.

To continue, it is assumed that:

- the netSP(+) has the latest firmware code
- the IP address of the netSP(+) is already set. *Default IP: 192.168.1.1*
- the PC running neuron is on the same IP range as the netSP(+) and can ping the netSP(+)
- the netSP(+), netADC and GPS-Timer are interconnected and powered up
- **the netSP(+) has a USB flash drive connected**
- a standard ethernet cable is connected between the neuron PC and the netSP(+)
- IMS Neuron installer is downloaded
- you have an IMS Neuron license file obtained from IMS

3.2.1 Step 1: Installing IMS Neuron

Execute the installer file downloaded from the IMS website (2.2)

- on Windows OS, double click the .exe file
- on Linux OS, navigate to the downloaded file by using the terminal.

– `sh <neuron_installer_file>.sh`

3.2.2 Step 2: Adding a user

All IMS software keeps track of changes done by any given user. It is good practice to always log in as the user, using the software.

Therefore, users should be created (but not necessary).

First, log in as the “Admin” (from the File menu), then use the following credentials:

username: Admin

password: Admin

3.2.3 Step 3: Adding a License file

In order for Neuron to function, you need to add the license file for your unique netID to Neuron.

In the menu bar, select Tools > Licensing > License Manager

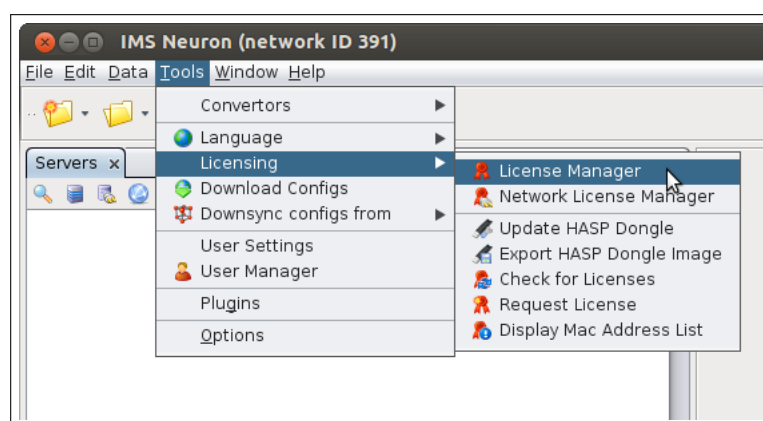


Figure 1: Adding license file

Click on the “Add license file” button and browse to the license file on your hard disk.

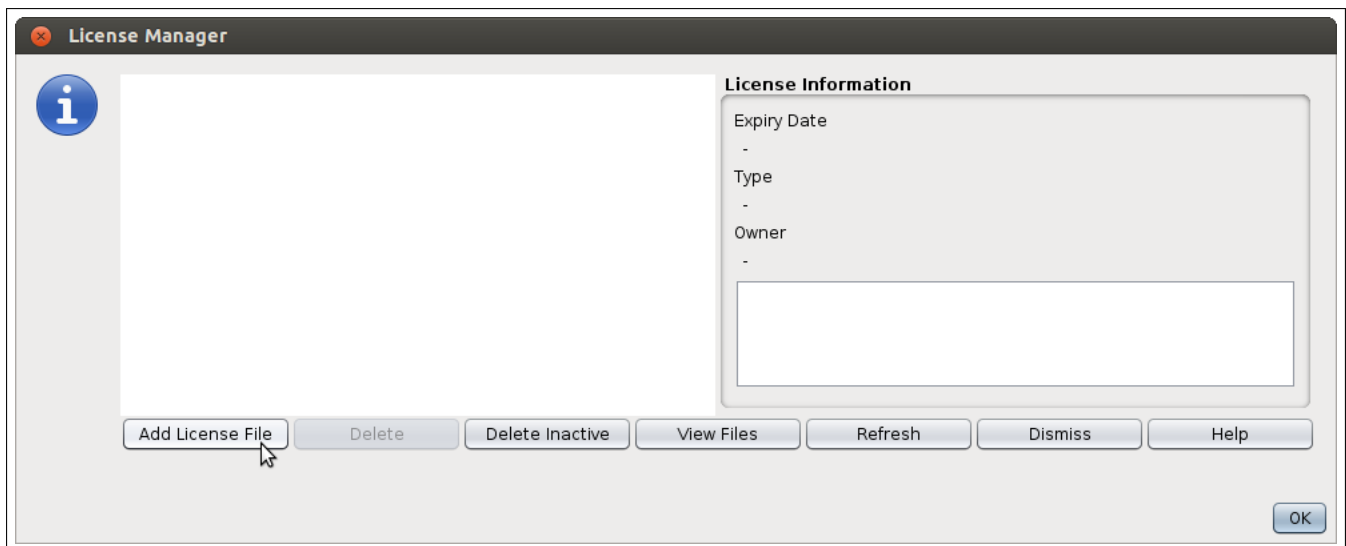


Figure 2: Adding license file

3.2.4 Step 4: Adding new Standalone netSP(+)

Once a license file has been selected, right click in the open space in the servers window.

If this is the very first time you setup Neuron, a window will pop up asking you to confirm your netID. Each customer has a unique netID. You would need to know your netID. Neuron will automatically fill in the netID detected from your license file.

Click on the "OK" button.

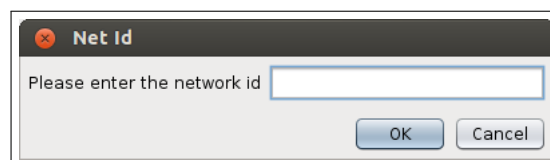


Figure 3: Enter your netID

Right click in the open space in the servers window. Click on "add a new Standalone netSP". Now follow the prompts.

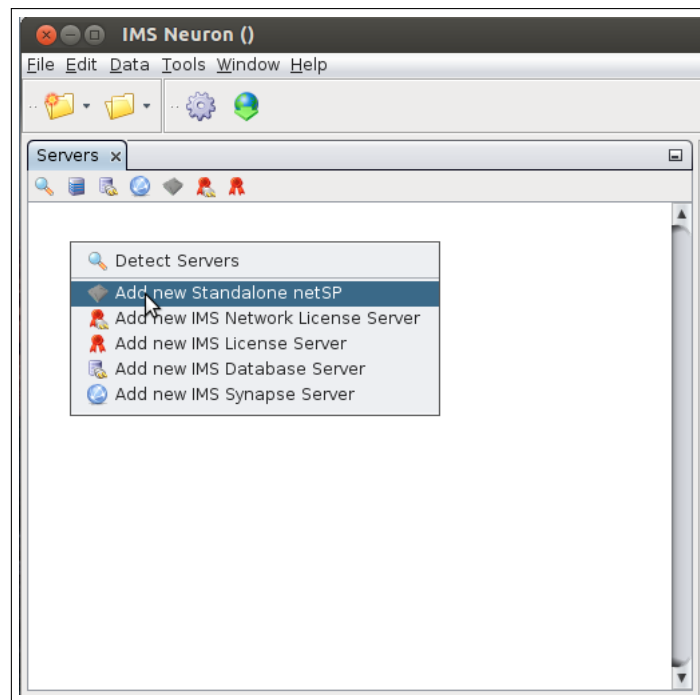
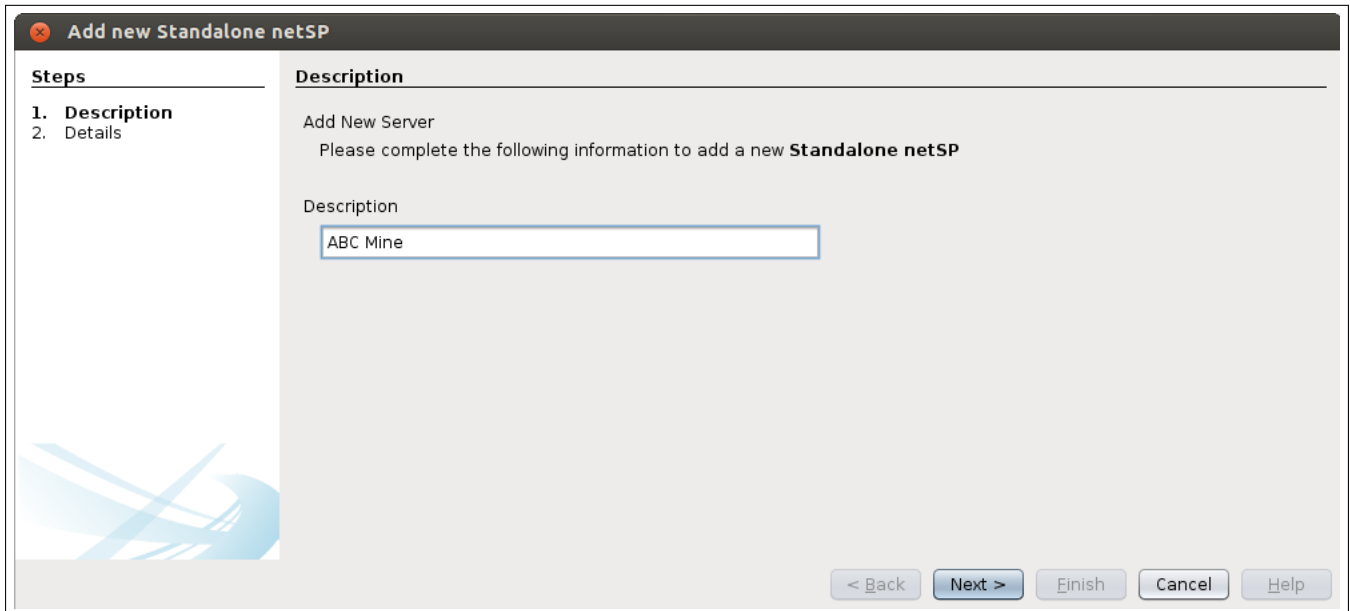


Figure 4: Creating new Standalone netSP

3.2.5 Step 5: Filling in the description field

Enter a description for the new Standalone netSP. Follow the prompts. In this example, “ABC Mine” is used

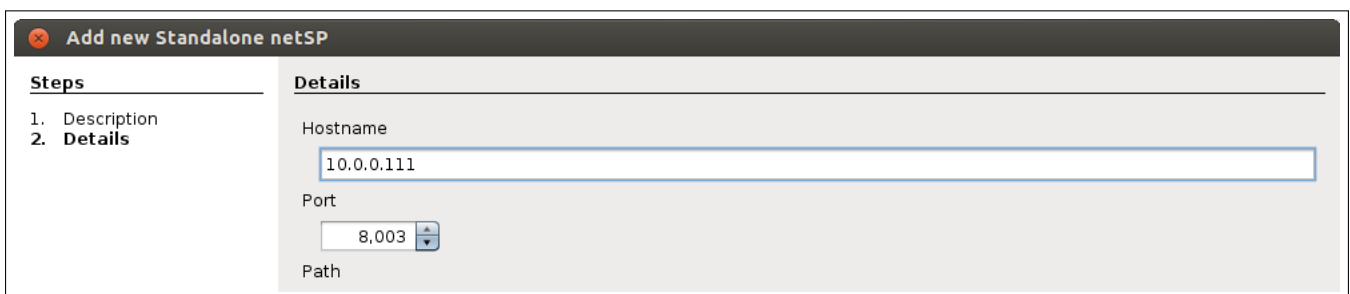


The screenshot shows a dialog box titled "Add new Standalone netSP". On the left, a "Steps" panel lists "1. Description" and "2. Details", with "1. Description" selected. The main area is titled "Description" and contains the text "Add New Server" and "Please complete the following information to add a new Standalone netSP". Below this, a "Description" label is followed by a text input field containing "ABC Mine". At the bottom right, there are five buttons: "< Back", "Next >", "Finish", "Cancel", and "Help".

Figure 5: Filling in the description field

3.2.6 Step 6: Adding the IP address

Enter an IP address for the new Standalone netSP. Follow the prompts.



The screenshot shows the same dialog box, but now on "Step 2: Details". The "Steps" panel on the left has "2. Details" selected. The main area is titled "Details" and contains three fields: "Hostname" with a text input field containing "10.0.0.111", "Port" with a spinner box set to "8,003", and "Path" which is currently empty.

Figure 6: IP address

Once you are done with this step, the “Server” window will be populated with a node containing the netSP(+) serial number.

3.2.7 Step 7: Adding the netSP(+)

Neuron should now automatically pop up a window that asks if you want to add the detected netSP(+) to the configuration. Select “Yes”.

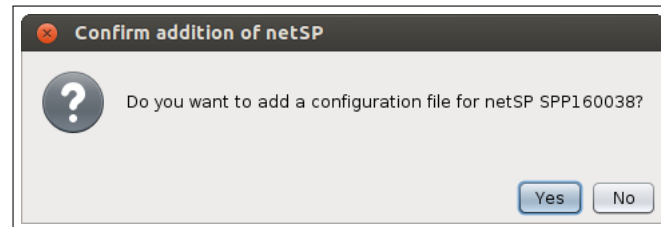


Figure 7: Confirm the addition of the netSP(+)

3.2.8 Step 8: Downloading global and local configuration files:

At this point, global and local configuration files does not exist yet, and should be downloaded from the IMS website. This is done by clicking the icon depicted in the following figure.

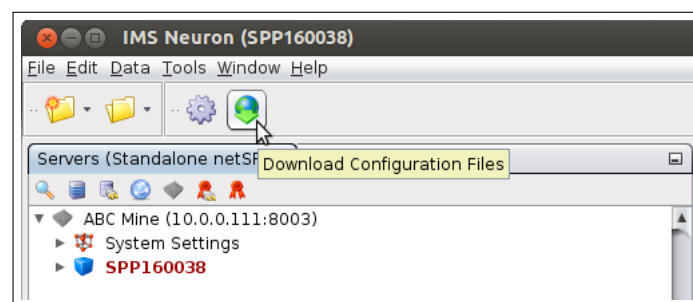


Figure 8: Downloading of global and local configuration files

Double clicking on the “netSP” node, would open the system viewer window and the attached netSP(+) would appear in green.

3.2.9 Step 9: Adding sites

Unique sites should be created. To do this, you would need the serial number of the sensor. If the sensor is a smart sensor and the digital lines are connected, it should be automatically picked up in the next step. If not, then uncheck the “smart sensor” checkbox and add the serial number and type manually.

Usually the serial number label on the sensor would also indicate the sensor type. The serial number format is: <serial_number>.<type>

Expand the “System Settings” node.

Right click on the “Sites” sub node.

Select “Create new site”

Complete all information and step through. (See following figures for examples)

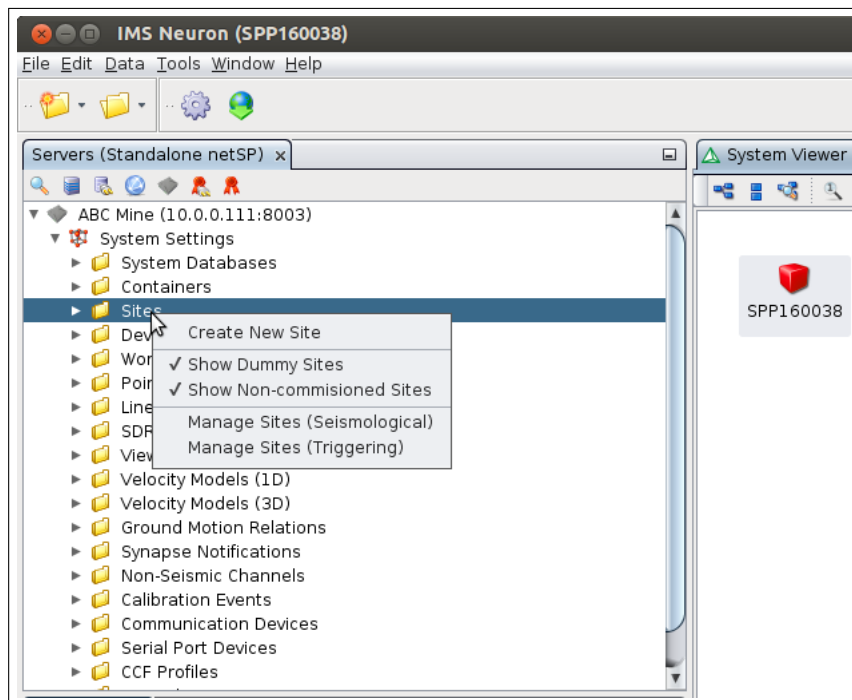
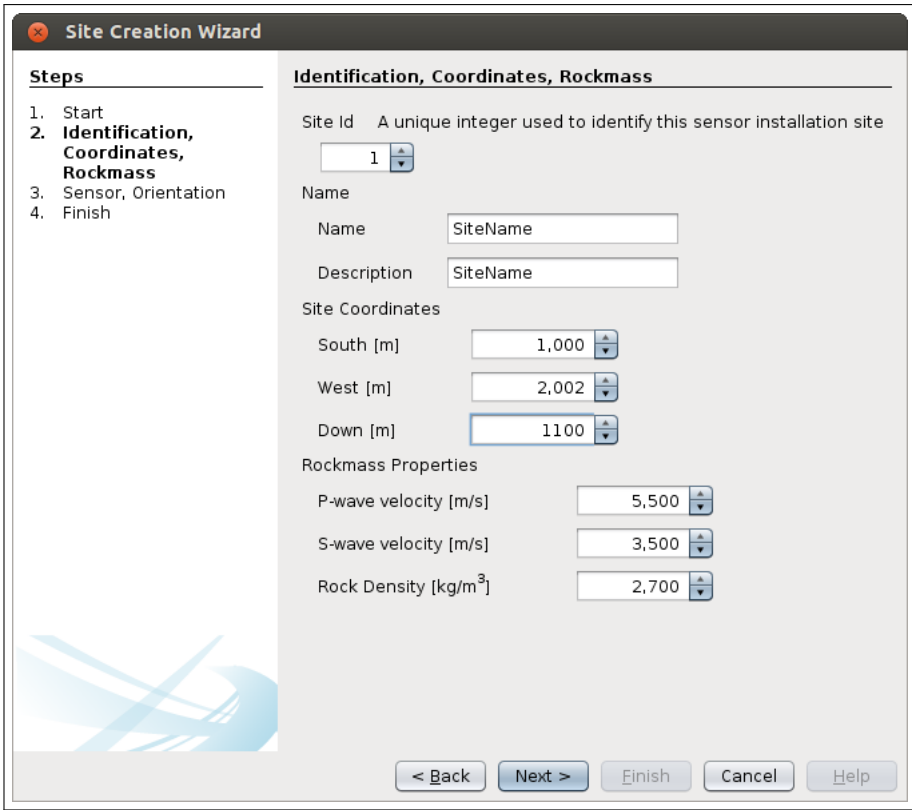


Figure 9: Adding sites

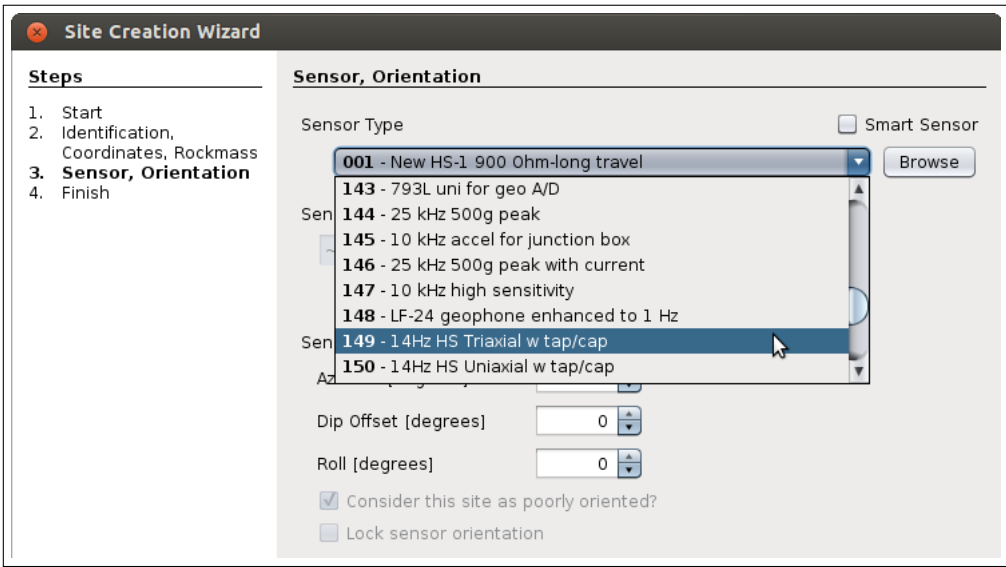


The screenshot shows the 'Site Creation Wizard' window, specifically the 'Identification, Coordinates, Rockmass' step. The 'Steps' panel on the left lists: 1. Start, 2. Identification, Coordinates, Rockmass (highlighted), 3. Sensor, Orientation, and 4. Finish. The main panel contains the following fields:

- Site Id:** A unique integer used to identify this sensor installation site. Value: 1.
- Name:** SiteName
- Description:** SiteName
- Site Coordinates:**
 - South [m]: 1,000
 - West [m]: 2,002
 - Down [m]: 1100
- Rockmass Properties:**
 - P-wave velocity [m/s]: 5,500
 - S-wave velocity [m/s]: 3,500
 - Rock Density [kg/m³]: 2,700

Navigation buttons at the bottom: < Back, Next >, Finish, Cancel, Help.

Figure 10: Adding sites information



The screenshot shows the 'Site Creation Wizard' window, specifically the 'Sensor, Orientation' step. The 'Steps' panel on the left lists: 1. Start, 2. Identification, Coordinates, Rockmass, 3. Sensor, Orientation (highlighted), and 4. Finish. The main panel contains the following fields:

- Sensor Type:** A list box showing various sensor options. The selected item is '149 - 14Hz HS Triaxial w tap/cap'. Other visible items include '001 - New HS-1 900 Ohm-long travel', '143 - 793L uni for geo A/D', '144 - 25 kHz 500g peak', '145 - 10 kHz accel for junction box', '146 - 25 kHz 500g peak with current', '147 - 10 kHz high sensitivity', '148 - LF-24 geophone enhanced to 1 Hz', and '150 - 14Hz HS Uniaxial w tap/cap'. A 'Browse' button is next to the list.
- Smart Sensor:** An unchecked checkbox.
- Dip Offset [degrees]:** 0
- Roll [degrees]:** 0
- Consider this site as poorly oriented?:** A checked checkbox.
- Lock sensor orientation:** An unchecked checkbox.

Figure 11: Selecting sensor type

3.2.10 Step 10: Adding a netADC to the configuration

A netADC needs to be configured to work with the specified netSP(+)

In the “System Settings” node, find the “Devices” sub node and expand it.

Right click on the “netADC” sub node and select “Create new netADC”. Step through the prompts. (See the following figures for examples)

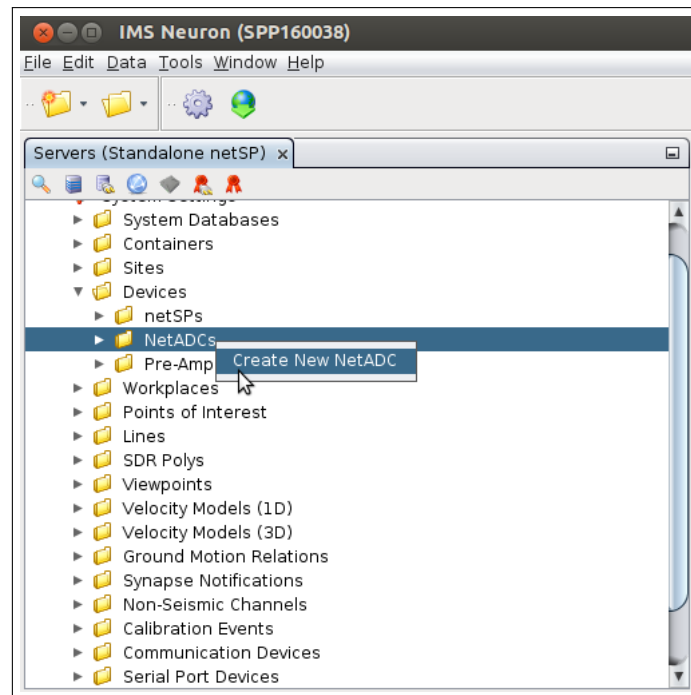


Figure 12: Adding a netADC

The sites configured in section 3.2.9 should be configured to work with the newly added netADC

Click on the “Add Site” button.

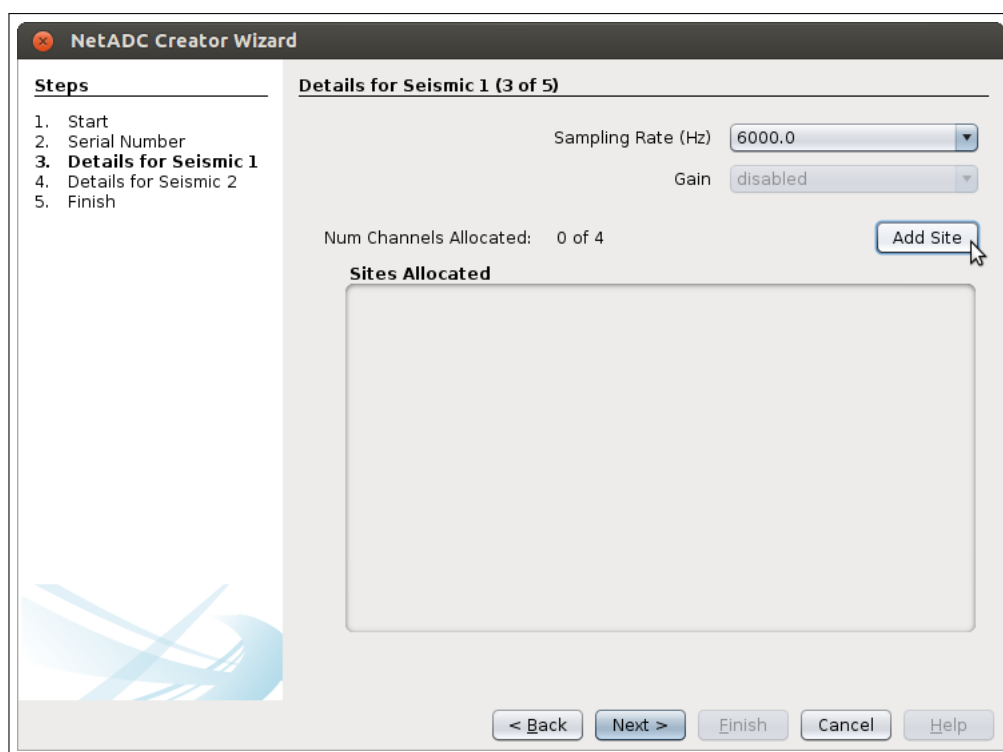


Figure 13: Adding sites to netADC

Select the site and the associated netADC channels. Step through the prompts.

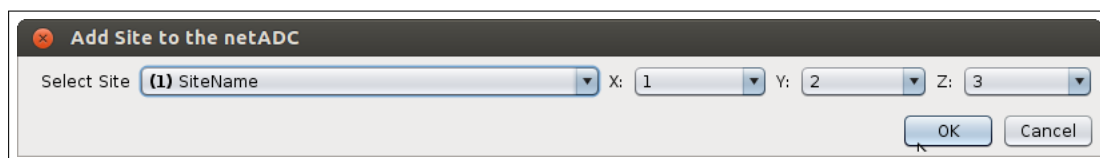


Figure 14: Selecting available sites



Figure 15: Accept possible open/unused channels

3.2.11 Step 11: Adding preferences

This step is not necessary, but advised.

Expand the “netSP” sub node and right click on the newly created netSP(+).

Select “Add preferred netADC”

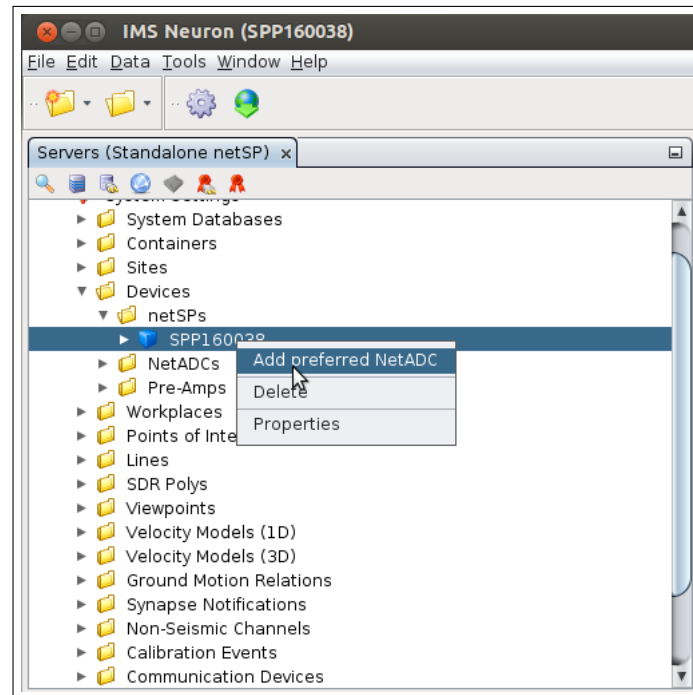


Figure 16: netADC preference

Select the correct netADC, and select the “OK” button.

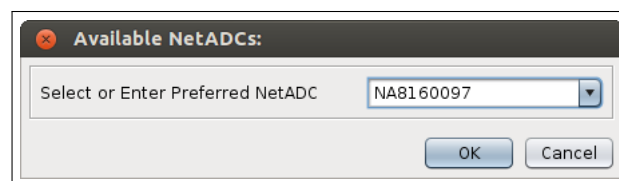


Figure 17: Selecting available netADC

3.3 Final notes

When you reached this stage, the system viewer should show a set of devices, green in colour. It should contain a netSP, netADC and the sites you have configured.

If it does not, right click on the netSP in the system viewer and select "Reboot".

This will force the units to reboot and start up with the new configuration.

Once you see all three icons (netSP, netADC, site) in the system viewer display in green, the devices are ready for deployment in standalone mode.

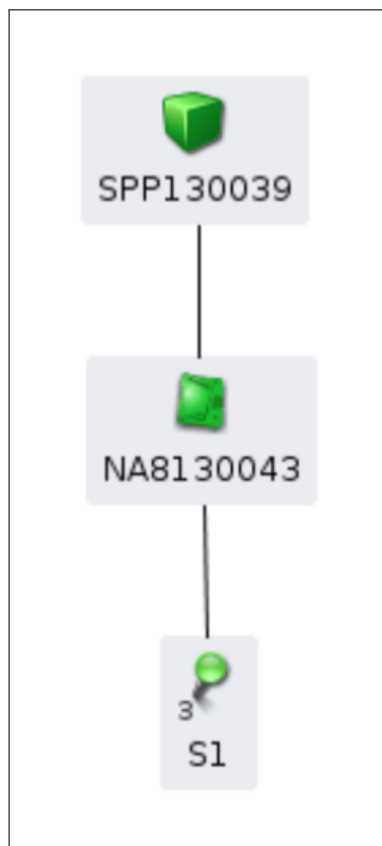


Figure 18: All good and ready for field deployment

Change Control Record			
Date	Author	Description	Revision
2016/09/28	RDJ	Original document	0

Table 1: Change record