

# Network Simulation Tool for Project 25: Inter-RF Subsystem Interface (ISSI) All-in-one Installation Guide for Linux

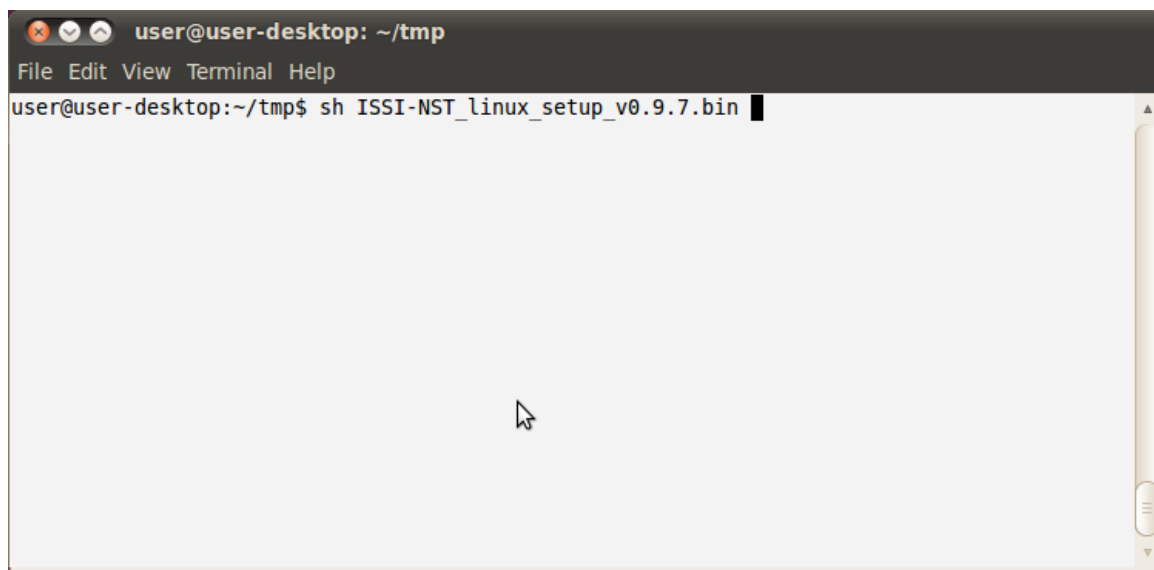
September 30, 2011  
GUI version 1.0.0

## Linux All-in-one

The installation of the ISSI-NST all-in-one tool in Linux <sup>1 2</sup> comprises the selection of the packages to install (client, server or both), the copy of the required files and the installation of a compatible Java<sup>TM 3</sup> Runtime Environment if none is found.

First of all, obtain the all-in-one installation package available at [http://www.nist.gov/itl/antd/emntg/ps\\_p25\\_tool.cfm](http://www.nist.gov/itl/antd/emntg/ps_p25_tool.cfm).

Open a terminal and run the package with '`sh ISSI-NST_linux_setup.bin`', as shown below. **Note: Replace version 0.9.7 with current version being installed.**



**Note:** You do not need to have administration privileges to perform the installation. However, you will need to have write permission in the target installation directory. You will need administration privileges to run the server if you intend to use ports lower than 1024.

The installer will present you with a menu to select which package(s) to install:

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<sup>1</sup> Linux is a registered trademark of Linus Torvalds.

<sup>2</sup> Disclaimer: Any mention of commercial products is for information only; it does not imply recommendation or endorsement by the NIST.

<sup>3</sup> Java is a registered trademark of Sun Microsystems, Inc. or its subsidiaries in the United States and other countries.

```
user@user-desktop: ~/tmp
File Edit View Terminal Help
Welcome to the ISSI Network Simulation Tool Setup Wizard

Choose the components you want to install:
    [1] Client
    [2] Server
    [3] Client and Server

Enter the number of the option you prefer: [3]
```

Selecting 'Client' will install the ISSI-NST client, the sample scenarios, and the client documentation. Selecting 'Server' will install the ISSI-NST server, the server configuration tool, and the server documentation. Selecting 'Client and Server' will install all of the above.

After making a selection, the installer will ask for the installation path for the selected package(s):

```
user@user-desktop: ~/tmp
File Edit View Terminal Help
Welcome to the ISSI Network Simulation Tool Setup Wizard

Choose the components you want to install:
    [1] Client
    [2] Server
    [3] Client and Server

Enter the number of the option you prefer: [3]

Enter the following information to install and configure your ISSI-NST client:

    Installation directory (full path). Subdirectories named 'ISSI-NST_Client-0.9.7' and
    'ISSI-NST_Server-0.9.7' will be created in this directory, and all the files will be copied
    in those subdirectories [/opt]:
```

Make sure that you have permissions to write in the selected directory (and create it if it does not exist already); otherwise an error will be shown:

```
user@user-desktop: ~/tmp
File Edit View Terminal Help

Enter the number of the option you prefer: [3]

Enter the following information to install and configure your ISSI-NST client:

    Installation directory (full path). Subdirectories named 'ISSI-NST_Client-0.9.7' and
    'ISSI-NST_Server-0.9.7' will be created in this directory, and all the files will be copied
    in those subdirectories [/opt]:
        Could not create the selected client directory (/opt/ISSI-NST_Client-0.9.7)
        . You may find more information in the installation log file (/home/user/ISSI-NST_Install_log_201103171327.log). Please enter a valid installation directory.
        Could not create the selected server directory (/opt/ISSI-NST_Server-0.9.7)
        . You may find more information in the installation log file (/home/user/ISSI-NST_Install_log_201103171327.log). Please enter a valid installation directory.

    Installation directory (full path). Subdirectories named 'ISSI-NST_Client-0.9.7' and
    'ISSI-NST_Server-0.9.7' will be created in this directory, and all the files will be copied
    in those subdirectories [/opt]:
```

After this step, the individual installations of the client and/or the server packages will start.

## GUI Installation

The installer will present you the license:

```
user@user-desktop: ~/tmp
File Edit View Terminal Help

Welcome to the ISSI Network Simulation Tool - Linux Client Setup Wizard

This software was developed at the National Institute of Standards and Technology
by employees of the Federal Government in the course of their official duties.
Pursuant to title 17 Section 105 of the United States Code this software is not
subject to copyright protection and is in the public domain. NIST assumes no
responsibility whatsoever for its use by other parties, and makes no guarantees,
expressed or implied, about its quality, reliability, or any other characteristic.

Do you accept the terms of the License Agreement? (yes / no)
```

Next, the installation program will validate the existing Java Runtime Environment (JRE) in the system and if needed, install a compatible JRE. If a compatible JRE is not found, the installation program will proceed to install one in the server's installation directory:

```
user@user-desktop: ~/tmp
File Edit View Terminal Help
=====
Enter the following information to install and configure your ISSI-NST client:

    Installation directory for the server (full path). A subdirectory named 'ISSI-NST_Client-0.9.7' will be created in this directory, and all the files will be copied in that subdirectory [/opt]: /home/user/tmp/

STEP 2 of 3: Install the ISSI-NST client
=====

    Validating the JRE...
    This installation process will now install a SUN JRE in the installation directory, but you still need to ensure that this JRE is used when the ISSI-NST software is started (This may require modifications in the system configuration).
    Press ENTER to continue.
```

When the installation is over, and if the server package was not selected for installation, the installer will present with a summary of the installation, along with the commands to start the tools and the path to the installation log file:

```
user@user-desktop: ~/tmp
File Edit View Terminal Help
STEP 3 of 3: Installation summary and starting instructions
=====

The installation finished succesfully

To start the client run "cd /home/user/tmp//ISSI-NST_Client-0.9.7; /home/user/tmp//ISSI-NST_Client-0.9.7/jre1.6.0_24/bin/java -jar -Xms128m -Xmx1024m NS2-Viz2.jar"

To start the Audio Trace Generator run "cd /home/user/tmp//ISSI-NST_Client-0.9.7; /home/user/tmp//ISSI-NST_Client-0.9.7/jre1.6.0_24/bin/java -jar -Xms128m -Xmx1024m lib/AudioTraceGenerator.jar"

You can find the installation log in the file /home/user/ISSI-NST_Client_Install_log_201103171238.log

user@user-desktop:~/tmp$
```

## Server Installation

Follow the instructions. The installer will perform checks on the following requirements:

- GNU C Compiler (`gcc`), version 4 or higher
- C++ support for `gcc` (`c++`), version matching that of `gcc`
- Binutils, version matching that of `gcc`

- tar archiving program
- bash compatible shell
- GNU data compressor (gzip)
- GNU make utility
- Autotools (autoconf and automake), version matching that of make
- tail command
- Xt development libraries (libXt-dev or libXt-devel)
- SUN's Java JRE 1.6.02 or higher (1.6.21 provided with the installation package).  
The use of other JRE's is not recommended due to compatibility issues.

```

user@user-desktop: ~/Downloads/tonto/ISSI-NST_linux_server_files
File Edit View Terminal Help
STEP 1 of 5: Verify system requirements
=====
gcc..... OK
g++..... OK
ld..... OK
tar..... OK
gunzip.... OK
make..... OK
automake... OK
tail..... OK
bash..... OK
ERROR: Could not find the Xt development libraries. Please, verify that you have
these libraries installed in your system, in a directory used by gcc. You may f
ind more information in the installation log file (/home/user/ISSI-NST_Server_In
stall_log_201008150621.log).
user@user-desktop:~/Downloads$

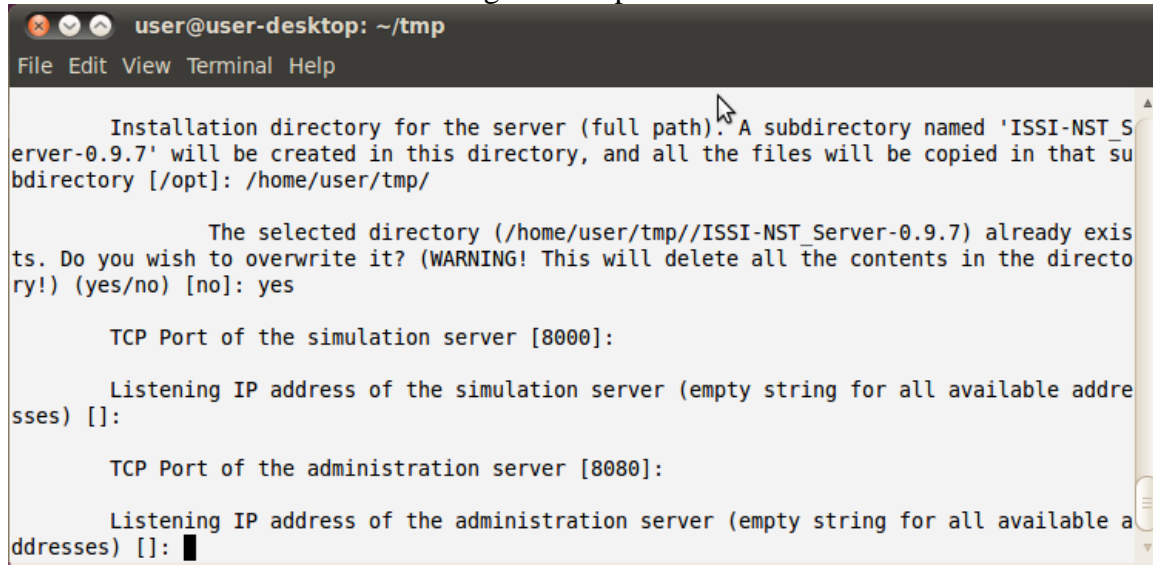
```

If an error is found, extended information can be found in the installation log file (the path to that file is provided in the error message).

Once the requisites have been verified, the user is asked for several configuration parameters. For each parameter, the default value is enclosed within brackets. Entering an empty answer (e.g., pressing the ENTER key) will use the default value provided. The configuration parameters requested are the following:

- **TCP port for the simulation server:** The TCP port in which this server will listen for the client requests.  
NOTE: Remember that you will need administrative privileges to start the application if you choose a port lower than 1024.
- **Listening IP address for the simulation server:** Network address in which the server will listen for client requests.
- **TCP port for the administration server:** The TCP port in which this server will listen for configuration updates.  
NOTE: Remember that you will need administrative privileges to start the application if you choose a port lower than 1024.

- **Listening IP address for the administration server:** Network address in which the server will listen for configuration updates.



```

user@user-desktop: ~/tmp
File Edit View Terminal Help

Installation directory for the server (full path): A subdirectory named 'ISSI-NST_Server-0.9.7' will be created in this directory, and all the files will be copied in that subdirectory [/opt]: /home/user/tmp/

The selected directory (/home/user/tmp//ISSI-NST_Server-0.9.7) already exists. Do you wish to overwrite it? (WARNING! This will delete all the contents in the directory!) (yes/no) [no]: yes

TCP Port of the simulation server [8000]:

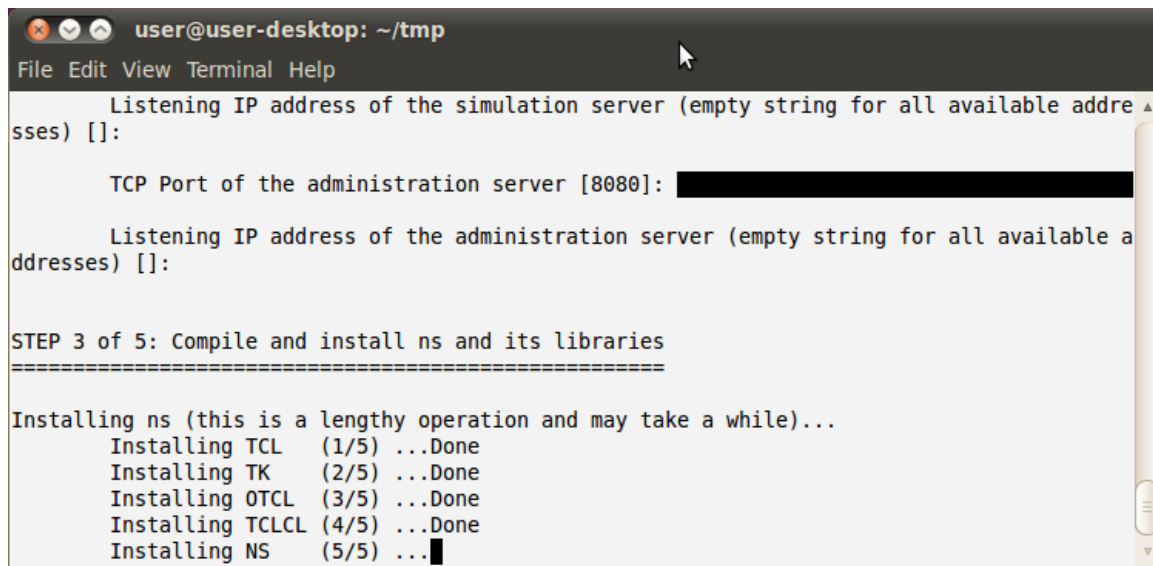
Listening IP address of the simulation server (empty string for all available addresses) []:

TCP Port of the administration server [8080]:

Listening IP address of the administration server (empty string for all available addresses) []:

```

When all the configuration parameters have been introduced, the installation program will proceed to install the simulation model and its required libraries:



```

user@user-desktop: ~/tmp
File Edit View Terminal Help

Listening IP address of the administration server (empty string for all available addresses) []:

TCP Port of the administration server [8080]:

Listening IP address of the administration server (empty string for all available addresses) []:

STEP 3 of 5: Compile and install ns and its libraries
=====

Installing ns (this is a lengthy operation and may take a while)...
Installing TCL (1/5) ...Done
Installing TK (2/5) ...Done
Installing OTCL (3/5) ...Done
Installing TCLCL (4/5) ...Done
Installing NS (5/5) ...

```

Finally, the installation software will validate the Java Runtime Environment in the system and if needed, install a compatible JRE in the server's installation directory:

```
user@user-desktop: ~/tmp
File Edit View Terminal Help

Installing ns (this is a lengthy operation and may take a while)...
Installing TCL (1/5) ...Done
Installing TK (2/5) ...Done
Installing OTCL (3/5) ...Done
Installing TCLCL (4/5) ...Done
Installing NS (5/5) ...Done

STEP 4 of 5: Install the ISSI-NST server
=====

Validating the JRE...
This installation process will now install a SUN JRE in the installation di
rectory, but you still need to ensure that this JRE is used when the ISSI-NST server is sta
rted (This may require modifications in the system configuration).
Press ENTER to continue.
```

When the installation is over, the installer will present with a summary of the installation, along with the commands to start the server, launch the server configuration GUI, and the path to the installation log file:

```
user@user-desktop: ~/tmp
File Edit View Terminal Help

STEP 5 of 5: Installation summary and starting instructions
=====

The installation finished succesfully

To start the server run "cd /home/user/tmp//ISSI-NST_Server-0.9.7; /home/user/tmp//ISSI-NST
_Server-0.9.7/jre1.6.0_24/bin/java -jar NS2-Viz2_Server.jar"
To start the server configuration GUI run "cd /home/user/tmp//ISSI-NST_Server-0.9.7; /home/
user/tmp//ISSI-NST_Server-0.9.7/jre1.6.0_24/bin/java -cp NS2-Viz2_Server.jar gov.nist.antd.
hsntg.server.admin.AdminGui"

You can find the installation log in the file /home/user/ISSI-NST_Server_Install_log_201103
171259.log

user@user-desktop:~/tmp$
```

If the client package was also installed, the installation summary will include the instructions to launch the client and the audio traces generation tool.

The basic configuration provided with the server installation program creates a default user for the simulations (**user:** user01; **password:** user01) and another one for the configuration GUI (**user:** admin; **password:** admin). This configuration can be changed using the configuration GUI (refer to the server documentation for further information).

```
user@user-desktop: ~/tmp
File Edit View Terminal Help
The installation finished succesfully

To start the client run "cd /home/user/tmp//ISSI-NST_Client-0.9.7; /home/user/tmp//jre1.6.0_24/bin/java -jar -Xms128m -Xmx1024m NS2-Viz2.jar"

To start the Audio Trace Generator run "cd /home/user/tmp//ISSI-NST_Client-0.9.7; /home/user/tmp//jre1.6.0_24/bin/java -jar -Xms128m -Xmx1024m lib/AudioTraceGenerator.jar"

To start the server run "cd /home/user/tmp//ISSI-NST_Server-0.9.7; /home/user/tmp//jre1.6.0_24/bin/java -jar NS2-Viz2_Server.jar"

To start the server configuration GUI run "cd /home/user/tmp//ISSI-NST_Server-0.9.7; /home/user/tmp//jre1.6.0_24/bin/java -cp NS2-Viz2_Server.jar gov.nist.antd.hsntg.server.admin.AdminGui"

You can find the installation log in the file /home/user/ISSI-NST_Install_log_201103171327.log

user@user-desktop:~/tmp$
```