

QualNet 6.1 Installation Guide

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Preface

Who Should Read this Guide

This installation guide describes the system requirements and installation process for QualNet on Windows and Linux systems.

How this Guide is Organized

This guide contains the following information:

- [Chapter 1](#) describes installing QualNet on Windows platforms.
- [Chapter 2](#) describes installing QualNet on Linux platforms.

QualNet Document List

The following table shows the QualNet Documentation Set and offers a brief description of each document.

| Document | Description |
|---|--|
| <i>QualNet API Reference Guide</i> | This guide is a supplement to <i>QualNet Programmer's Guide</i> and provides detailed information on the QualNet API functions and parameters. This is available in both PDF and HTML formats. |
| <i>QualNet Distributed Reference Guide</i> | This guide provides instructions for running QualNet on a distributed architecture. |
| <i>QualNet Documentation Portfolio</i> | The documentation portfolio combines all QualNet documents in a single PDF file. |
| <i>QualNet Installation Guide</i> | This guide provides detailed steps for installing QualNet on Windows and Linux/Mac platforms. |
| <i>QualNet Model Libraries</i> | This set of documents contains detailed reference information on all QualNet models and includes the following protocol libraries. See <i>QualNet Model Library Index</i> for an alphabetical list of all our models and a reference to which library they can be found in. Advanced Wireless Cellular Developer LTE Multimedia and Enterprise Sensor Networks Standard Interfaces TIREM Advanced Propagation UMTS Urban Propagation Wireless |
| <i>QualNet Portability Guide</i> | This document describes the changes that need to be made scenarios developed for previous versions of QualNet in order to run them on the current version of QualNet. |
| <i>QualNet Product Tour</i> | This tour provides an introduction to QualNet by means of an example. |
| <i>QualNet Programmer's Guide</i> | This is a guide to the QualNet programming interface and functions, allowing users to develop and customize protocol models. |
| <i>QualNet Release Notes</i> | This document lists the changes (added and removed features, bug fixes, etc.) made in the current version of QualNet with respect to the previous version. |
| <i>QualNet Statistics Database User's Guide</i> | This is a guide to the statistics database generated by QualNet. |
| <i>QualNet User's Guide</i> | This is a detailed guide for using <i>QualNet</i> and works in combination with the <i>QualNet Model Libraries</i> set of documents. |

More Information

- For general information about SCALABLE, visit the company website at www.scalable-networks.com.

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- For more information on QualNet, please contact QualNet Sales at sales@scalable-networks.com or visit the QualNet website at www.exata-cyber.com.
 - For technical help on QualNet, please contact QualNet Support at support@scalable-networks.com or visit our Support website at support.scalable-networks.com.
 - For help on QualNet documentation, please contact QualNet Support at support@scalable-networks.com or visit the QualNet website at www.exata-cyber.com and click on Documentation.

1

Installing QualNet on Windows

This chapter covers the system requirements and installation procedures for QualNet on Windows.

1.1 System Requirements

QualNet is supported on the following platforms:

- Microsoft Windows XP Professional with service pack 3 (SP3) 32-bit edition
- Microsoft Windows XP Professional x64 Edition with service pack 2 (SP2)
- Windows 7 Home Premium and Professional 32-bit and 64-bit editions

- Notes:**
1. Although QualNet has not been fully tested on other platforms, it should also work on other editions of Windows XP and Windows 7.
 2. The pre-compiled QualNet binary included in the QualNet distribution is a 32-bit application. For 64-bit platforms, a 64-bit pre-compiled QualNet binary is also included.
 3. The QualNet GUI is a 32-bit application which can run on both 32-bit and 64-bit platforms.

The minimum platform requirements to run QualNet on a Windows system are listed in [Table 1-1](#).

TABLE 1-1. Minimum Requirements for Windows

| Item | Requirements |
|--------|--|
| CPU | 32-bit (x86 compatible) processor or 64-bit (x86-64 compatible) processor |
| Memory | 512 MB free for LAN-size simulations without GUI 2 GB free for LAN-size simulations with GUI 2 - 4 GB free for a large network (1000+ nodes) |
| Disk | 600 MB free disk space |

GUI Requirements

In addition to the above, the following are recommended when running the QualNet GUI on Windows:

- Discrete graphics card with at least 128 MB memory supporting hardware 3D acceleration.
- Display with 1024 x 768 or better resolution.

1.2 Installing QualNet

To install QualNet on Windows, perform the following steps:

1. Download the installation package (qualnet--6.1-windows-installer.exe) from the QualNet download page or load it from the installation CD.
2. Double-click on the installation package and follow the installation prompts.

Note: Some firewall programs may prevent QualNet GUI from running. To use QualNet GUI, you may need to add it to the exception list of your firewall program. Check the documentation of your firewall program for details on adding a program to the exception list or contact your system administrator. If you are using Microsoft Windows firewall, visit the Microsoft website for details of adding a program to the exception list.

1.3 License

During the installation, the installer prompts the user to copy the license file. Copy the license file into `QUALNET_HOME\license_dir`, where `QUALNET_HOME` is the directory where QualNet is installed.

The license file name is of the form `QualNet-<type>-<date>.lic`, where `<type>` is the type of license and `<date>` is the date when support for the product expires. `<type>` is one of the following: Commercial-floating, Commercial-node-locked, University-floating, University-node-locked, Evaluation, or Temporary-node-locked. `<date>` is in the format `YYYY-MM-DD-HH-MM-SS`. For example, the license file may be named `QualNet-Commercial-floating-2013-05-19-01-19-52.lic`.

- Notes:**
1. Be sure to check the file extension on your license file. It should end in ".lic". Depending on your system and method of copying, you may end up with an extra extension, such as `QualNet-Commercial-floating-2013-05-19-01-19-52.lic.txt`, which will not work.
 2. If the license file cannot be located, inquire with the purchaser of QualNet. For users with the evaluation version of QualNet, the license file is sent as an email attachment from Scalable Network Technologies.
 3. If a floating license is used, follow the instructions provided with the license files to install the server license file.
 4. For help with license issues, contact license@scalable-networks.com or visit the FAQ page: <http://www.scalable-networks.com/snt-support/index.php? m=knowledgebase& a=view>.

1.4 Compiling QualNet

The QualNet installer places a pre-compiled executable file in QUALNET_HOME\bin, where QUALNET_HOME is the directory where QualNet is installed. This pre-compiled executable can be used directly and you do not need to compile QualNet. Refer to *QualNet User's Guide* for details.

However, if you modify the code or activate certain libraries, you will need to recompile QualNet. Refer to *QualNet Programmer's Guide* for details.

1.5 Uninstalling QualNet

To uninstall QualNet, do one of the following:

- Uninstall QualNet from the Start menu (this option is available only if you chose to install Start menu shortcuts during installation):

Start > All Programs > SNT > QualNet Developer 6.1 > Uninstall QualNet Developer

- Open a command window, change directories to any location other than the QualNet installation directory or any of its subdirectories, and type the following command:

```
%QUALNET_HOME%/Uninstall.exe
```

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Installing QualNet on Linux

This chapter covers the system requirements and installation of QualNet on Linux systems. For distributed platforms, refer to *QualNet Distributed Reference Guide*.

2.1 System Requirements

QualNet is supported on 32-bit (x86 compatible) and 64-bit (x86-64 compatible) platforms running one of the following Linux distributions:

- CentOS 5.3 and 5.4
- openSUSE 10.2 and 11.1
- Red Hat Enterprise Linux 5.3 and 5.4
- SUSE Linux Enterprise Server 10 SP2 and 11
- Ubuntu 9.10 (Karmic)

QualNet can also be supported on the following Linux distributions. If you need to run QualNet on one of these platforms, contact support@scalable-networks.com.

- CentOS 5.6 and 6.3
- openSUSE 11.4 and 12.1
- Red Hat Enterprise Linux 5.6 and 6.3
- SUSE Linux Enterprise Server 10 SP4 and 11 SP2
- Ubuntu 10.04 LTS and 12.04 LTS

Note: The pre-compiled QualNet binary included in the QualNet distribution is a 32-bit application for 32-bit platforms and a 64-bit application for 64-bit platforms. For 64-bit platforms, a 32-bit pre-compiled QualNet binary is also included.

The QualNet GUI is a 32-bit application which can run on both 32-bit and 64-bit platforms.

The minimum platform requirements to run QualNet on a Linux system are listed in [Table 2-1](#).

TABLE 2-1. Minimum Requirements for Linux

| Item | Requirements |
|--------|---|
| CPU | 32-bit (x86 compatible) processor with SSE2 extension support or 64-bit (x86-64 compatible) processor Note: When you install QualNet, the installer will check whether the CPU supports SSE2 extension. |
| Memory | 512 MB free for LAN-size simulations without GUI 2 GB free for LAN-size simulations with GUI 2 - 4 GB free for a large network (1000+ nodes) |
| Disk | 600 MB free disk space. |
| OpenGL | OpenGL library libGL.so.1.2 or higher (needed only if QualNet GUI is run on the machine). |

GUI Requirements

In the addition to the above, the following are recommended when running QualNet GUI on Linux:

- Discrete graphics card with at least 128 MB memory supporting hardware 3D acceleration (see [Section 2.4](#) for details on installing drivers). (QualNet GUI may not run on a virtual machine since virtual machines typically do not support 3D acceleration.)
- Display with 1024 x 768 or better resolution

QualNet Packet Sniffer Interface Requirements

In order to use the QualNet Packet Sniffer interface, Linux kernel source code or header files must be present. To verify if these are available on the emulation server (i.e., the machine running QualNet), open a terminal window and do the following:

- For Debian or Ubuntu systems, type:

```
dpkg -s kernel
dpkg -s kernel-headers
```

- For other systems, type:

```
rpm -q kernel
rpm -q kernel-headers
```

If the above commands fail, consult your system administrator on how to install the kernel source or header files on the emulation server.

2.2 Installing QualNet

This section describes how to install QualNet on a Linux system.

Note: QualNet is small enough that each user can install a separate copy of the software in their home directory. QualNet need not be installed in /usr/local or other shared directories.

QualNet can be installed locally on a machine by running the installer's GUI (see [Section 2.2.1](#)). QualNet can be installed on a remote machine by running the installer from the command line using ssh (see [Section 2.2.2](#)).

2.2.1 Running QualNet Installer from GUI

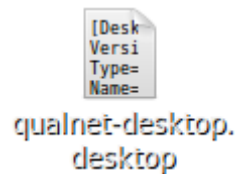
To install QualNet on a Linux system using the installer's GUI, perform the following steps:

1. Download the installation package from the QualNet download page or load it from the installation CD.
 - The installation package for QualNet Developer on 32-bit platforms is qualnet-6.1-linux-installer-32bit.
 - The installation package for QualNet Developer on 64-bit platforms is qualnet-6.1-linux-installer-64bit.
2. Double-click on the installation package.
3. Follow the installation prompts.
4. In addition to copying the necessary files to your system, the installer also updates some environment variables. In order for these environment variables to take effect, you must logout of the system and login again.

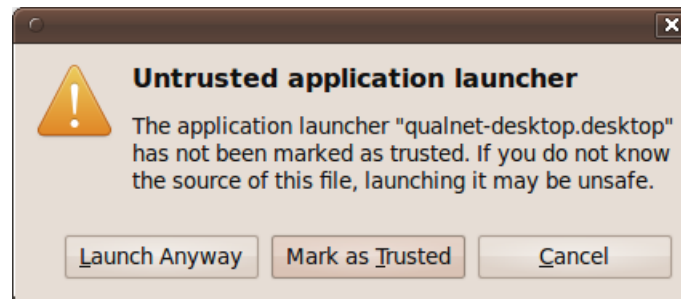
Note: In the last step of the installation, the installer provides an option for placing shortcuts on the desktop. If this option is selected, the following shortcut for the QualNet GUI is placed on the desktop:



On some Ubuntu platforms, instead of the above icon, the following icon is placed on the desktop:



Clicking on this icon displays the following dialog:



Select the **Mark as Trusted** option. This will replace the previous desktop icon with the following:



Clicking on the above icon will start the QualNet GUI.

2.2.2 Running QualNet Installer from Command Line

To install QualNet on a Linux system using the installer's command line interface, perform the following steps:

1. Download the installation package from the QualNet download page or load it from the installation CD.
 - The installation package for QualNet Developer on 32-bit platforms is qualnet-6.1-linux-installer-32bit.
 - The installation package for QualNet Developer on 64-bit platforms is qualnet-6.1-linux-installer-64bit.

2. Open a command window and change the directory to the location where you downloaded the installation package.
3. Run the installer by typing one of the following commands:
 - For QualNet Developer on 32-bit platforms, use the following command:

```
./qualnet-6.1-linux-installer-32bit --mode text
```
 - For QualNet Developer on 64-bit platforms, use the following command:

```
./qualnet-6.1-linux-installer-64bit --mode text
```
4. Follow the installation prompts. (On Ubuntu platforms, you may need to replace the desktop shortcut, as explained in [Section 2.2.1](#).)
5. Logout of the system and login again. (This step is required for the environment variables updated by the installer to take effect.)

2.3 License

During the installation, the installer prompts the user to copy the license file. Copy the license file into `QUALNET_HOME\license_dir`, where `QUALNET_HOME` is the directory where QualNet is installed.

The license file name is of the form `QualNet-<type>-<date>.lic`, where `<type>` is the type of license and `<date>` is the date when support for the product expires. `<type>` is one of the following: Commercial-floating, Commercial-node-locked, University-floating, University-node-locked, Evaluation, or Temporary-node-locked. `<date>` is in the format `YYYY-MM-DD-HH-MM-SS`. For example, the license file may be named `QualNet-Commercial-floating-2013-05-19-01-19-52.lic`.

- Notes:**
1. Be sure to check the file extension on your license file. It should end in “.lic”. Depending on your system and method of copying, you may end up with an extra extension, such as `QualNet-Commercial-floating-2013-05-19-01-19-52.lic.txt`, which will not work.
 2. If the license file cannot be located, inquire with the purchaser of QualNet. For users with the evaluation version of QualNet, the license file is sent as an email attachment from Scalable Network Technologies.
 3. If a floating license is used, follow the instructions provided with the license files to install the server license file.
 4. For help with license issues, contact license@scalable-networks.com or visit the FAQ page: <http://www.scalable-networks.com/snt-support/index.php? m=knowledgebase& a=view>.

2.4 Installing Third-Party Software

To be able to run the QualNet GUI on Linux platforms, you need to install the following software:

- OpenGL library libGL.so.1.2 or higher: Consult your system administrator for help with installing OpenGL.
- Graphics driver: Contact the manufacturer of the graphic card installed on your system for instructions to install the latest version of the graphics driver.
 - For NVidia GeForce cards, drivers are available from <http://www.nvidia.com>.
 - For ATI Radeon cards, drivers are available from <http://www.ati.com>.

Note: Some Linux distribution include prepackaged versions of these drivers. Search for "nvidia" for NVidia cards or "fglrx" for ATI cards using the system package manager.

2.5 Compiling QualNet

The QualNet installer places a pre-compiled executable file in QUALNET_HOME\bin, where QUALNET_HOME is the directory where QualNet is installed. This pre-compiled executable can be used directly and you do not need to compile QualNet. Refer to *QualNet User's Guide* for details.

However, if you modify the code or activate certain libraries, you will need to recompile QualNet. Refer to *QualNet Programmer's Guide* for details.

2.6 Uninstalling QualNet

To uninstall QualNet, do the following:

1. Open a command window.
2. Change directories to any location other than the QualNet installation directory or any of its subdirectories.
3. Type the following command to uninstall QualNet from the local machine:

```
$QUALNET_HOME/uninstall
```

Type the following command to uninstall QualNet from a remote machine:

```
$QUALNET_HOME/uninstall --mode text
```