Setup QNX Real-time Environment on Your Own Computer

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To write programs that run under the QNX Neutrino RTOS, the first thing you need is the QNX Software Development Platform (SDP). This platform contains the tools needed to build programs, such as compilers and linkers, precompiled for all CPU architectures that QNX Neutrino supports. But instead of using these tools directly, it's more convenient to install and use the QNX Momentics IDE, which provides a graphical environment for developing and running programs. The IDE is part of the QNX Momentics Tool Suite, which is packaged separately from QNX SDP.
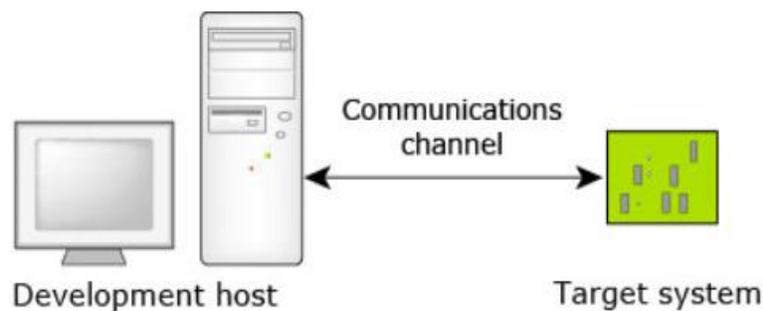
You can install QNX SDP and QNX Momentics IDE on a macOS, or Windows development host and deploy the QNX Neutrino RTOS on a target system.

This document shows how to Install QNX SDP and QNX Momentics IDE onto the development host, and how setup a virtual target machine on a Windows machine, for another host, follow the similar steps.

Step 1. Create myQNX Account Profile

With [myQNX Account](#), you can create a profile, which provides a single snap shot of the types of QNX products, programs, and membership information you have registered with QNX Software Systems. You can upgrade or change this at any time.

IMPORTANT: SDP 7.x licenses are initially delivered within the myQNX License Manager and MUST be assigned to users via the license manager in order for them to access the product.

You are better to use a Concordia email to register myQNX. After you register, send your email to your TA to request a QNX SDP v7.1 license.

Step 2: Install QNX Software Center

This commercial release of the QNX Software Center enables you to download and install QNX Software Development Platform 7.1 and other compatible products, add-ons, and BSPs.
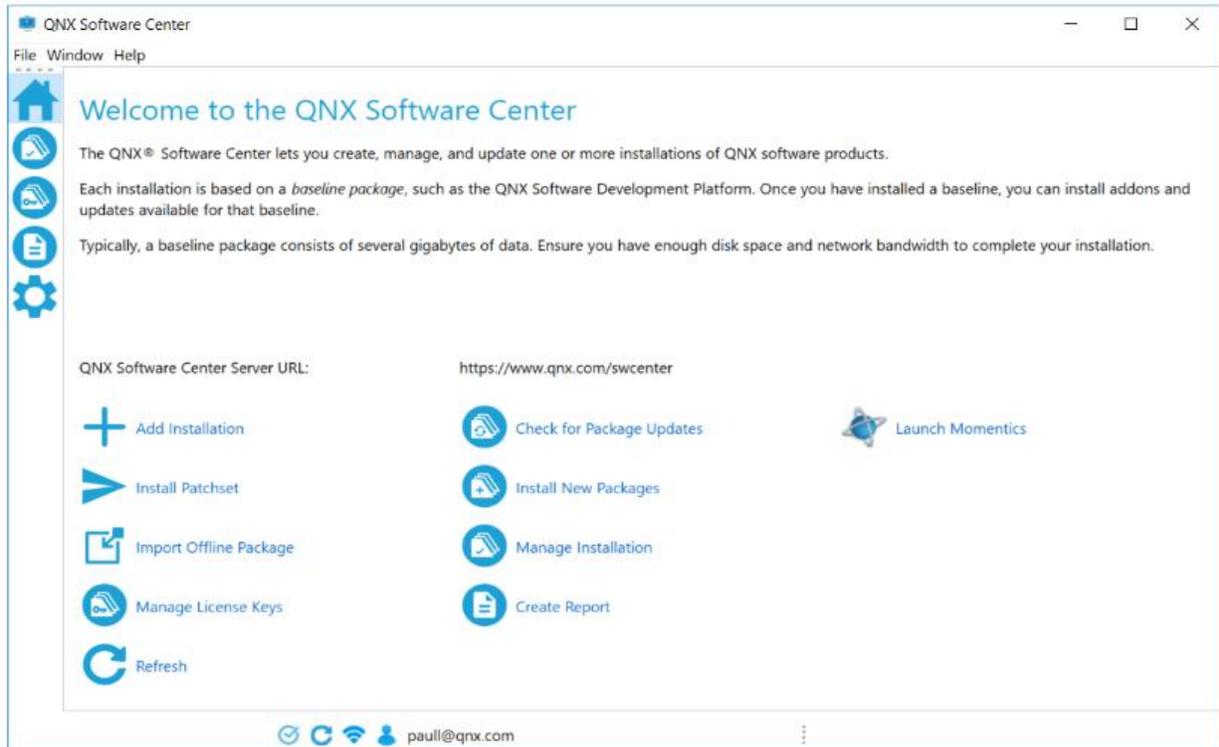
Follow the step to install QNX software center and login your QNX account.

1. log in to your myQNX account on the QNX website, select the Developers tab at the top of the page, then click the QNX Software Center link.
2. Click the link for Windows hosts , (note: for macOS host), and download the QNX Software Center installer.
3. Run the installer and follow the instructions on your screen. We recommend you accept the default installation directory: '*C:\QNX\QNX Software Center*'

For more details to QNX Software Center User's Guide.

Step 3: Install the QNX Software Development Platform

After you log in, the QNX Software Center displays a Welcome screen that lets you install the QNX Software Development Platform (SDP) and other QNX products.

1. Select Add Installation from the Welcome screen or the Advanced tab.
2. Select the product that you want to install. For instance, to install QNX SDP 7.1, you would expand the QNX Software Development Platform 7.1 group, then click the QNX Software Development Platform 7.1 package.
3. Specify the installation folder, name, and other properties of your installation, then click Next. Suggest to install the SDP package to the directory '*C:\QNX\qnx710*'

Step 4: Install the QNX Momentics IDE

To develop applications for the QNX Neutrino RTOS, you shall install the QNX Momentics IDE. The IDE extends the capabilities of the QNX Software Development Platform (SDP) by providing a graphical environment for developing, debugging, and profiling applications.

1. Select Add Installation from the Welcome screen.
2. Expand the QNX Momentics IDE group, then click QNX Momentics IDE.
3. Input or accept the default installation folder, name, and description. By default, the installation directory is '*C:\QNX\QNX_Momentics_IDE*'.

Step 5: Install hypervisor – VirtualBox

To manage a QNX real-time target machine, you shall install a Virtual Machine Manager, called to manages QNX virtual machines. VirtualBox — A free and open-source hosted hypervisor for x86 virtualization. QNX recommends using VirtualBox version 6.1.18 or earlier.

1. Download VirtualBox v6.1.18 to work with QNX v7.1 from
   https://download.virtualbox.org/virtualbox/6.1.18/
2. Right-click the downloaded file, choose 'run as administrator',
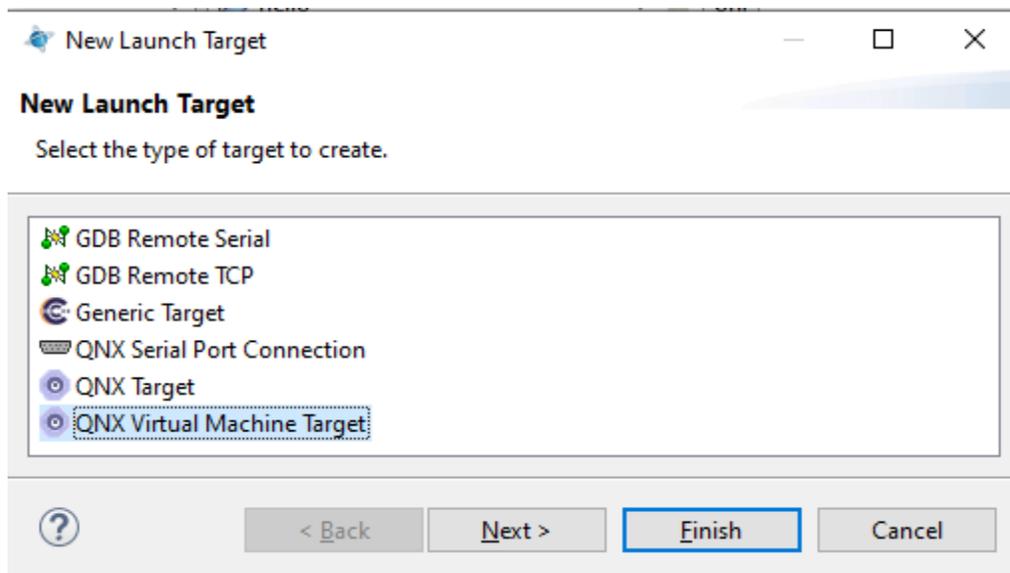3. Set up VirtualBox Networking, choose 'Host-Only' mode, shown as below:
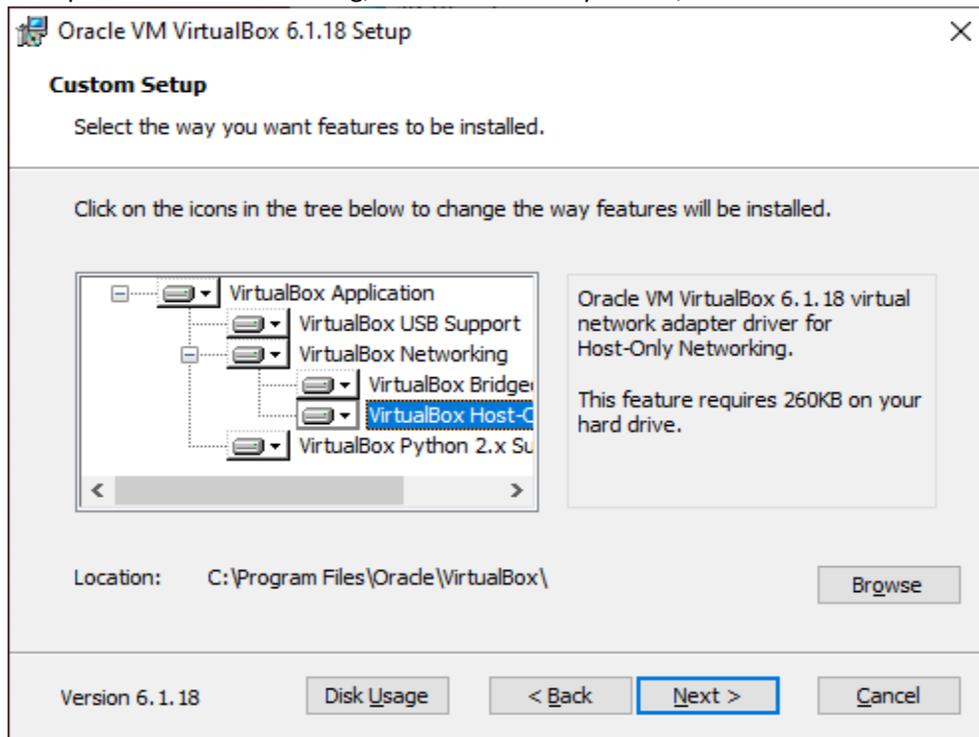
4. Click the Install button to finish installation

Step 6: Generate a QNX VM image

1. Launch QNX Momentics , and click 'New Launch Target" from the top:
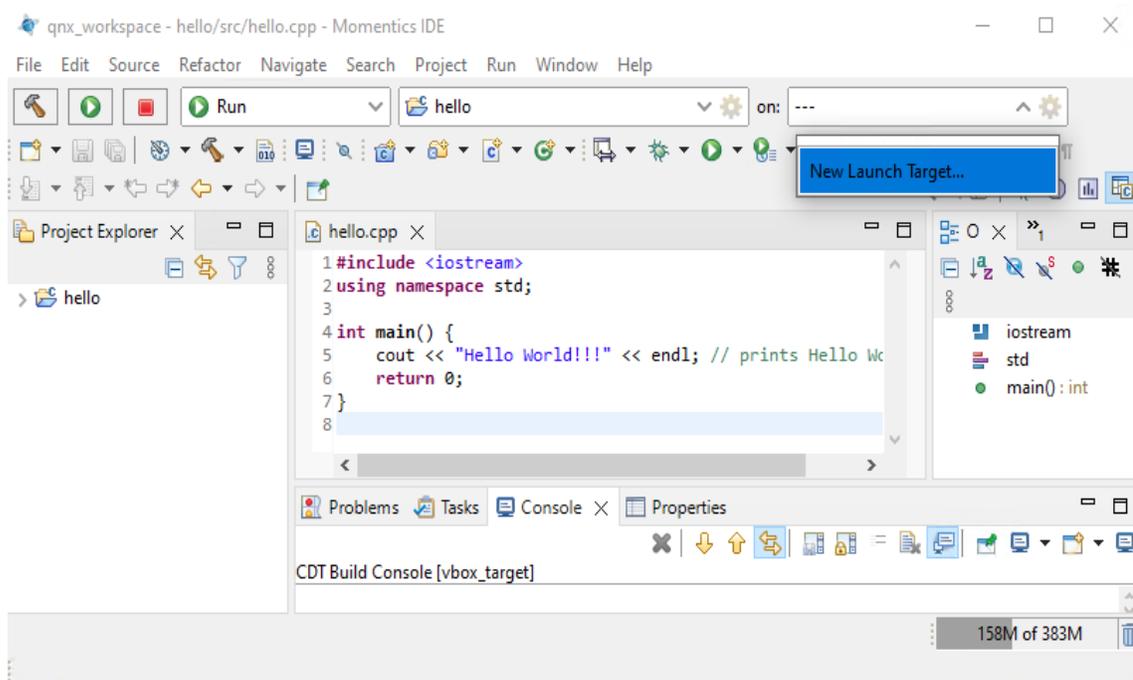
2. Choose QNX Virtual Machine Target, click 'Next':

3. Name Target name, for example 'local_VM', set VM Platform as 'vbox' and choose CPU Architecture as 'x86_64', then click Finish.

Accessing your Target - Target System project for virtual machine

Target System project for a virtual machine:

fill in a name representing your target. This will be the Target System project's name

the virtual machine that you're using (e.g. vbox for Virtual Box)

the architecture running on your VM

the IP address can be found automatically once/if your VM is running

put extra command line options here to be added to the `mkqnximage` command line used by the IDE to create and run an image for your VM.

choose Finish and your Target System project will be created and `mkqnximage` will create and run the image

New QNX Virtual Machine Target

QNX Virtual Machine Target
Edit the properties of the QNX Virtual Machine

Target Name: local_VM
VM Platform: vbox
CPU Architecture: x86_64
IP Address: <leave blank for automatic>
Extra Options: <leave blank for default options>
Preview: QNX_TARGET=C:/Users/stdufresne/qnx710/target/qnx7 C:\Users\stdufresne\qnx710\host\win64\x86_64\usr\bin\bash C:/Users/stdufresne/qnx710/host/common/bin/mkqnximage --noprompt --

Finish   Cancel

4. QNX will create a VirtualBox VM and save it under your QNX workspace.
5. Once VM is created, QNX IDE will launch VirtualBox automatically.

For more details, read Creating the QNX Neutrino RTOS target system.

Note:

- Normally QNX IDE can find the IP of new created VM, by default the IP is '192.168.56.101' or '192.168.56.2'. If this running VM cannot be found by QNX IDE , you may have to set IP manually to this VM by using the command '*ifconfig wm0 192.168.56.2*'.

vbox_target [Running] - Oracle VM VirtualBox

File   Machine   View   Input   Devices   Help

You have the **Auto capture keyboard** option turned on. This will cause the Virtual Machine to

```
---> Mounting file systems
# ---> Starting Networking
net.inet.icmp.bmcastecho: 0 -> 1
# x.kern.droproot: 0 -> 1
# -> Starting sshd
# -> Starting misc
#   deprecated, use security policies.
# s: NOTICE: PPS initializing
# s: NOTICE: PPS attaching /pps
# s: NOTICE: PPS attached /pps major 2 minor 6
# ocess count: 27
# artup complete
# X vbox_target 7.1.0 2022/07/12-18:14:39EDT x86pc x86_64
#
# ifconfig wm0 192.168.56.2
#
#
# _
```

Right Ctrl

- To keep this assigned IP for next time, you can choose 'Save the machine state' when closing the virtual machine.