

10 Steps to Evaluating QNX and Momentics IDE

Symmetry Innovations is the distributor of QNX in Australia and New Zealand. For the benefit of the QNX prospects, Symmetry Innovations has enabled evaluation of QNX RTOS and Momentics IDE over the internet. This will benefit prospects who want immediate access to QNX RTOS and Momentics IDE without spending time on setup and installation.

Following versions are available for evaluation over the internet.

- QNX 6.6 RTOS
- QNX Momentics IDE 5.0

Ask us for access. You can do it in one of the four simple ways.

1. Send email to info@symmetry.com.au and request access OR
2. Go to <http://qnx.symmetry.com.au/qnx-trial.html> and fill up the form OR
3. Generate a New Support Ticket requesting access at <http://support.symmetry.com.au> OR
4. Phone +61-262486611 and ask for QNX Evaluation.

Step 1: Requirements

Following setup is a minimum requirement for a prospect who wants to evaluate QNX RTOS and Momentics IDE over the internet.

- PC
- Team Viewer Client (available from <http://www.teamviewer.com>)
- Internet Connection

Step 2: Evaluation Machine Details

As part of the evaluation you would be evaluating QNX RTOS and Momentics IDE. Both are installed on separate virtual machines.

QNX RTOS

QNX RTOS is installed as a virtual machine. The details of the virtual machine are as under.

```
IP Address   : 10.1.1.3
Username     : guest
Password     : guest
```

Momentics IDE

Momentics IDE is installed on a Windows 7 Virtual Machine. The details of the virtual machine are as under.

```
IP Address           : 10.1.1.2
Windows Login As     : Guest
Windows Password     : None
Team Viewer ID       : Provided in a separate e-mail
Team Viewer Passowrd : Provided in a separate e-mail
```

Step 3: Getting Started with Evaluation

The below steps would get you started with the evaluation machines over the internet.

Connect

- Open up the team viewer client on you PC and connect to the QNX tools using the given Team Viewer ID and password. (Please note that Team Viewer ID and password would be provided in a separate e-mail)
- On successful connection you will see a Windows 7 login screen. You have the luxury to work in full screen if required.

Log in

- Login as Guest (You won't be asked for a password)
- After successful login you will see a Windows 7 desktop.

Step 4: Familiarize with Windows 7 Desktop

You will notice the following four important icons on the desktop apart from Recycle Bin.

Bitwise SSH Client

This can be used to ssh into the QNX machine and upload/download files by using the following credentials.

```
Host      : 10.1.1.3
Port      : 22
Username  : guest
Password  : guest
```

QNX Momentics IDE 5.0

This is the QNX Momentics Integrated Development Environment (IDE), which can be used for writing code and targeting the QNX machine.

ide-5.0-workspace

This is a shortcut to the Momentics IDE default workspace where all your projects are stored. The actual path is "C:\Users\Guest\ide-5.0-workspace".

My Documents

This is a shortcut to the My Documents folder of the Guest User Account where you can store your miscellaneous data. The actual path is "C:\Users\Guest\Documents".

Step 5: Copying Files

Files can be copied to and fro from all the three machines involved i.e. Your PC, Momentics IDE Windows 7 Machine and QNX Machine.

Windows 7 <-> QNX

Files from Windows 7 and QNX can be copied to and fro by using the Bitvise ssh client. Once connected to the QNX Machine via Bitvise SSH Client, use the "New SFTP Window" within Bitvise SSH Client to move files around.

Your PC <-> Windows 7

Files from your PC and Windows 7 can be copied by using the Team Viewer File Transfer mechanism. The Team Viewer File Transfer icon can be located on the top panel when you are connected to Windows 7 machine.

Step 6: Launch and Familiarize with Momentics IDE

The below steps would help you in launching the Momentics IDE and familiarizing with it.

Launch

To launch the Momentics IDE, double click on the "QNX Momentics IDE 5.0" icon on the Desktop. This will open up the Momentics IDE.

Familiarize

- The IDE will look familiar to you if you have used Eclipse before.
- Momentics has different "Perspectives" for different jobs.
- "Perspectives" are nothing but just the layout and arrangement of the relevant IDE components on the limited real estate of visible space.
- To see and open different perspectives, click on "Window -> Open Perspective -> ..."

There are several perspectives but few of them that might be of interest are listed below.

C/C++ Perspective

- This is the default perspective that you will see when Momentics IDE is launched.
 - It can be used to write C/C++ code.
 - You would see QNX targets and Projects on the left pane.
 - You can create new projects and files here.
 - You can "Build" and "Clean" projects here.
 - You can "Run" projects here.
 - You can start "Debugging" the projects here.
 - The console output can be visible on the bottom pane.
-

Debug Perspective

- This is the default perspective that will open up automatically when you start "Debugging" a project.
- You can "Debug" the program here by doing "Step into", "Step over", etc.
- Here you can create "Break Points", "Variables Watch", etc.
- The console output can be visible on the bottom pane.

QNX System Information Perspective

- You would see QNX targets on the left pane.
- Expanding the target will show you all the process running under that target.
- On the right pane, you would be able to see different tabs like "System Summary", "Process Information", "Memory Information", "Malloc Information", "Target File System Navigator", etc which are self explanatory. Try them out.
- You can also add new targets by right clicking on the left pane, provided that the targets are already connected to the network physically.

Step 7: Explore and Run Pre-installed Targets and Projects

When you launch Momentics IDE, you will find one target and three projects on the left pane that are pre-installed by Symmetry Innovations. There is a README File in each project that you will see when you expand the projects on the left pane.

Target: 10.1.1.3 (QNX 6.6 VM)

- A QNX Virtual Machine Target is pre-installed for you to play i.e. "10.1.1.3 (QNX 6.6 VM)".
- Note that this is a x86 VM and not a real machine.
- This is the default target of the pre-installed projects.
- Explore this target from the "QNX System Information" perspective.

Projects How To

- There are three pre-installed projects that are visible on the left pane. Each one of them explained below.
- For information on the project, expand the project and read the README file by double clicking on the file.
- To build the project, Right Click on the project name on left pane and select "Build Project". Alternatively, you can select the project and then from the Top Menu Bar, select "Project -> Build Project".
- You would be able to see the build progress in the bottom pane.
- To Run project A and Project B, select the project on the left pane and then press Ctrl+F11. Alternatively, you can select the project and then from the Top Menu Bar, select "Run -> Run".
- To Run project C, follow instructions within each sub project.
- The projects will run on the default target 10.1.1.3.
- In the bottom pane, you would be able to see the output of the project.
- After running the project, just above the output you would see something like "/tmp/(project name suffixed with some random number) on 10.1.1.3". This means that the project binary was renamed to "/tmp/(project name suffixed with some random number)" and transferred to the QNX machine 10.1.1.3 where it was run on and the console output was displayed on the bottom pane.
- To terminate an running program, press the Red Square Stop Button in the bottom pane.

Project 1: A.HelloWorld

- This is a starter project that just prints "!!!Hello World!!!" on the console.
- Build, Run and Debug the Project.

Project 2: B.Interrupt

- This is a simple Interrupt Handler project.
- Build, Run and Debug the Project.

Project 3: C.Benchmarks

- This is a Makefile project. It contains three sub projects that not only shows how to use QNX, it does this by providing interesting benchmark information.
- Build the Project. To Run and Debug individual sub projects, follow the below instructions.

msgtest

- This project tests the performance of QNX message passing, between two processes.
- To run/debug this project, Right click on the "msgtest" binary on the left pane and select "Run As/Debug As -> 1 C/C++ QNX Application"
- Note that this test creates two copies of itself.

msgtestt

- This project tests the performance of QNX message passing, between two threads.
- To run/debug this project, Right click on the "msgtestt" binary on the left pane and select "Run As/Debug As -> 1 C/C++ QNX Application".

udpecho & udp send

- This project tests the throughput of UDP packet transfers.
- First Run/debug "udpecho" by Right clicking on the "udpecho" binary on the left pane and select "Run As/Debug As -> 1 C/C++ QNX Application".
- And then run/debug "udp send" by Right clicking on the "udp send" binary on the left pane and select "Run As/Debug As -> 1 C/C++ QNX Application".
- "udpecho" will stay running. So terminate it when you are finished by pressing the Red Square Stop Button in the bottom pane.

Step 8: Creating a New Project

Now let's get to the real business of creating your own new project and trying your hands at C/C++ code. Pretty simple !!

- Go to the "C/C++" perspective.
- On the Top Menu Bar, click on "New -> C Project". A new window will open up.
- In the new window, type the project name as "MyQNXProject". On the left pane, select "Hello World ANSI C Project". Click on Finish.
- Your new sample project is created.
- On the left pane, right click on "MyQNXProject" and select "Build Configurations -> Build Selected...". It will open a new window asking you to select the build configuration. Default is "Debug". So for now, lets only check "Debug" (uncheck everything else) and press OK.
- The project will be build and information shown in bottom pane.

- To Run the project, select the project on the left pane and then on the Top Menu Bar, select "Project -> Run". Alternatively, select the project on the left pane and press Ctrl+F11.
- In the new window, select "C/C++ QNX Application". The project will be run on QNX and the output "!!!Hello World!!!" displayed on the bottom pane.
- To Run the project, select the project on the left pane and then on the Top Menu Bar, select "Project -> Debug". Alternatively, select the project on the left pane and press F11.
- To make changes to the program, Go to the "C/C++" perspective. Expand the project on the left pane. Expand "src" directory under project and double click on the "MyQNXProject.c" file. The file would open up in the right pane for edit.
- Double click on the filename on the right pane and your file would take the whole screen so that its easy to write code.
- Replace "!!!Hello World!!!" with "#Hello QNX World#".
- Save the file by clicking "File -> Save" from the Top Menu Bar.
- Again double click on the filename to reset to the original view.
- Run/Debug the project to verify the output.

This is just a sample new project. You can take this project as a starting point, modify it as per your own wish, add your own logic and make it do some real job.

Step 9: Documentation

QNX 6.6 and Momentics IDE 5.0 documentation can be found at this link. <http://www.qnx.com/developers/docs/index.html>

Step 10: Support

Direct all support requests to info@symmetry.com.au or generate a support ticket at <http://support.symmetry.com.au>.

Please check the below limitations before requesting support.

Limitations

- Currently only a QNX 6.6 Virtual Machine is available for evaluation. Evaluation of real X86 and ARM targets is available on request.
- No root access to QNX for security reasons.
- No admin privileges on Windows 7 Guest account for security reasons.
- Do not leave your data on any of the machines. Please take backup regularly. We usually reset the machines which may result in your data getting lost.