



*Q-Viewer™ User Guide*  
*Version 6.0-3363 (beta)*

*Q-Viewer™ is a product of QuasarSoft Ltd.*

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## **About this Document**

This document assumes that you already have background knowledge of the following:

- The software tools used for building your application, mainly the compiler and linker
- The C Programming language
- The processor

If you feel that your knowledge of C is not sufficient, we recommend *The C Programming Language* by Kernighan and Richie (ISBN 0-13-1103628), which describes the standard in C-programming and, in newer editions, covers the ANSI C standard.

The Q•Kernel™ Reference Guide is available to learn the API and the Q•Kernel™ User Guide to learn how to use Q•Kernel™.

## **How to Use this Manual**

The intention of this manual is to give you a detailed description for the PIC32.

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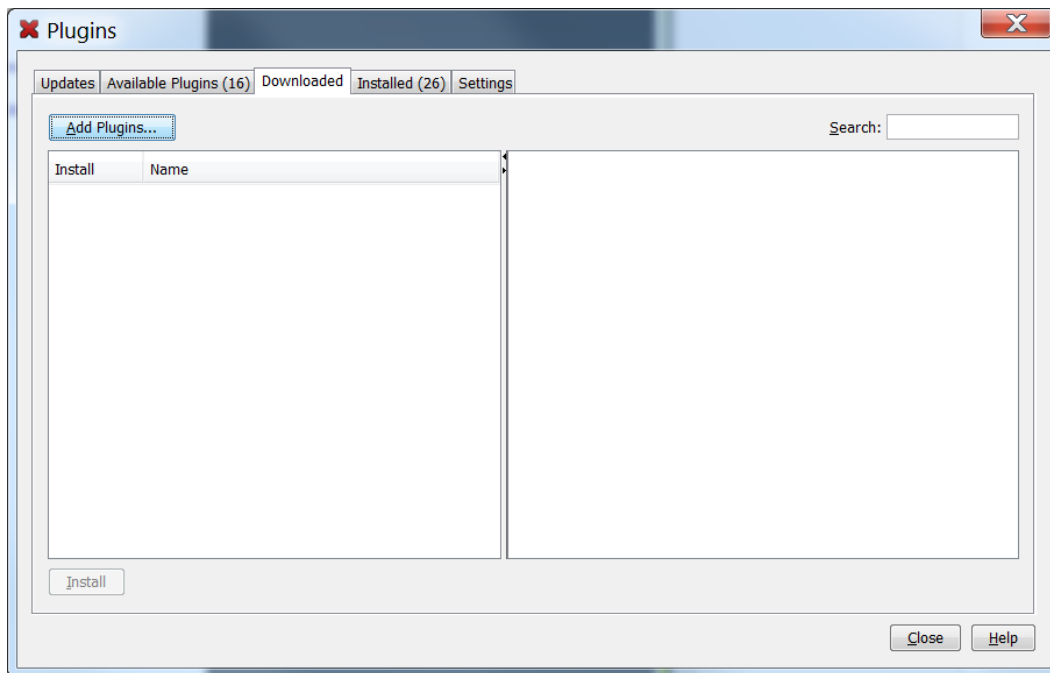
## **1. Introduction to Q-Viewer**

### **1.1. Supported Q-Kernel version**

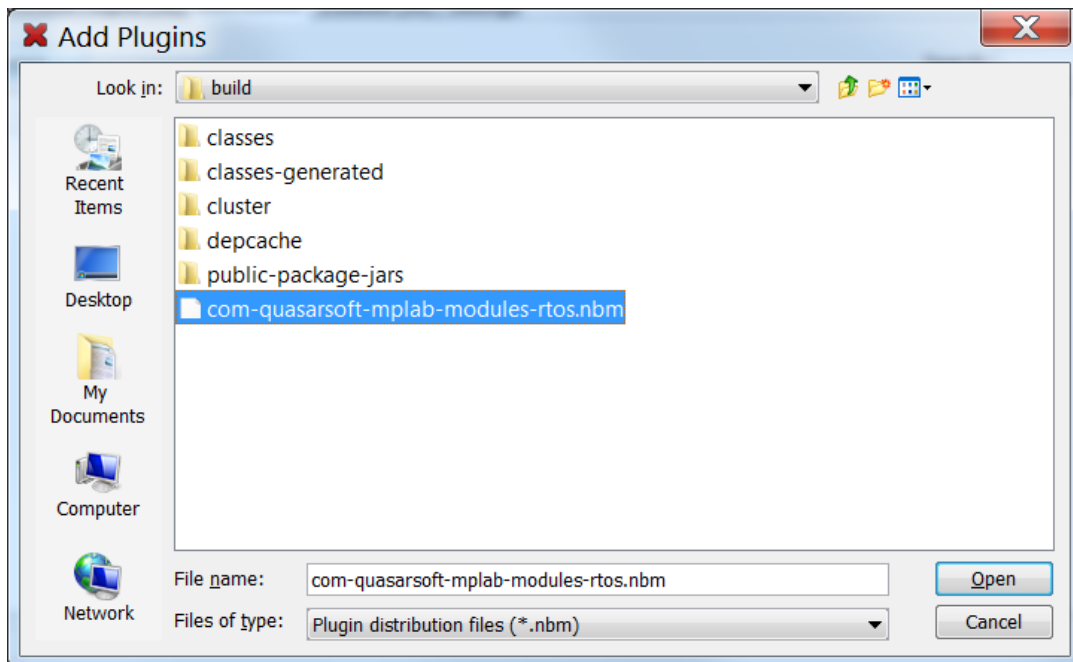
Currently only release 3363 of Q-Kernel for PIC24 and PIC32 is supported in combination with MPLAB-X 2.00 and higher.

## 2. Installation for MPLAB-X

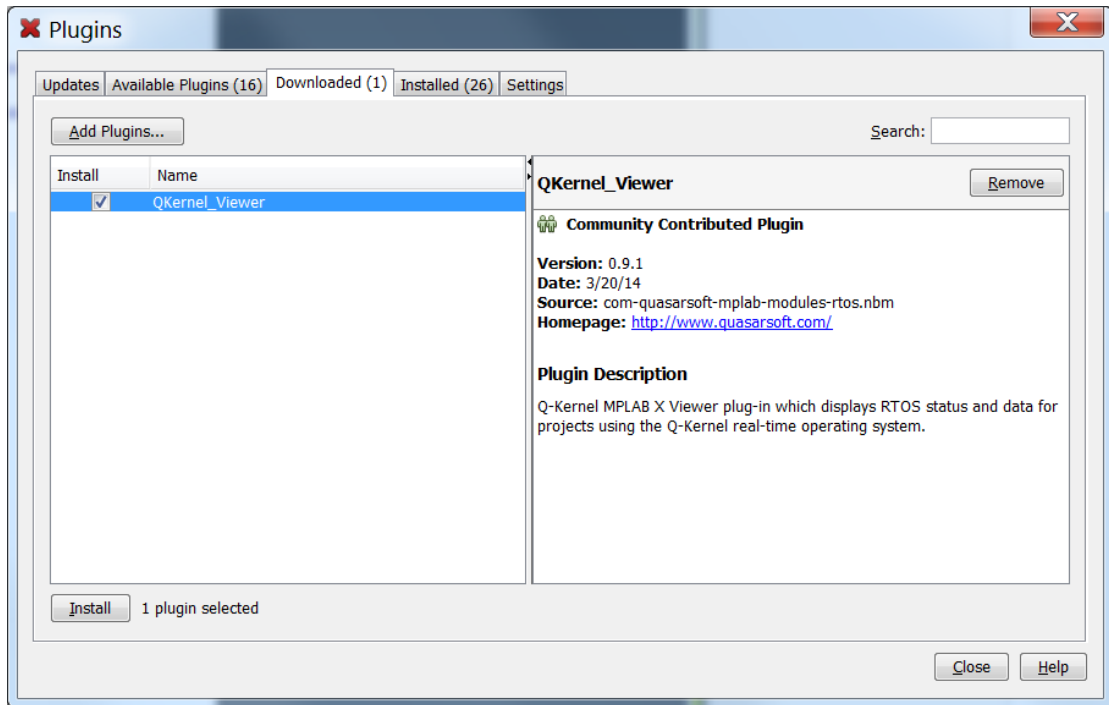
Go to tools and choose plugins.



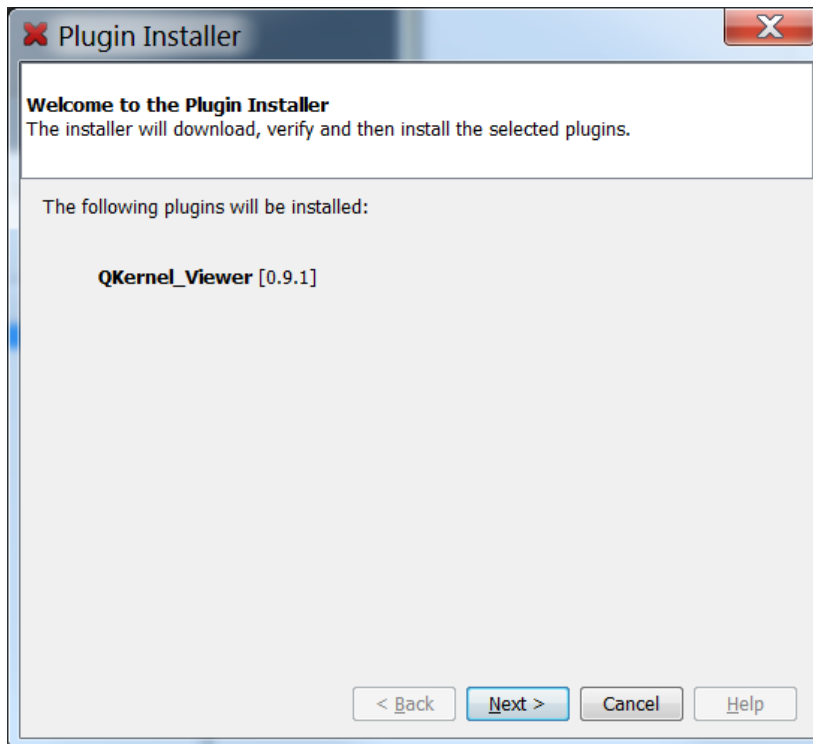
Click on Add Plugins and locate the file with the extension nbm.



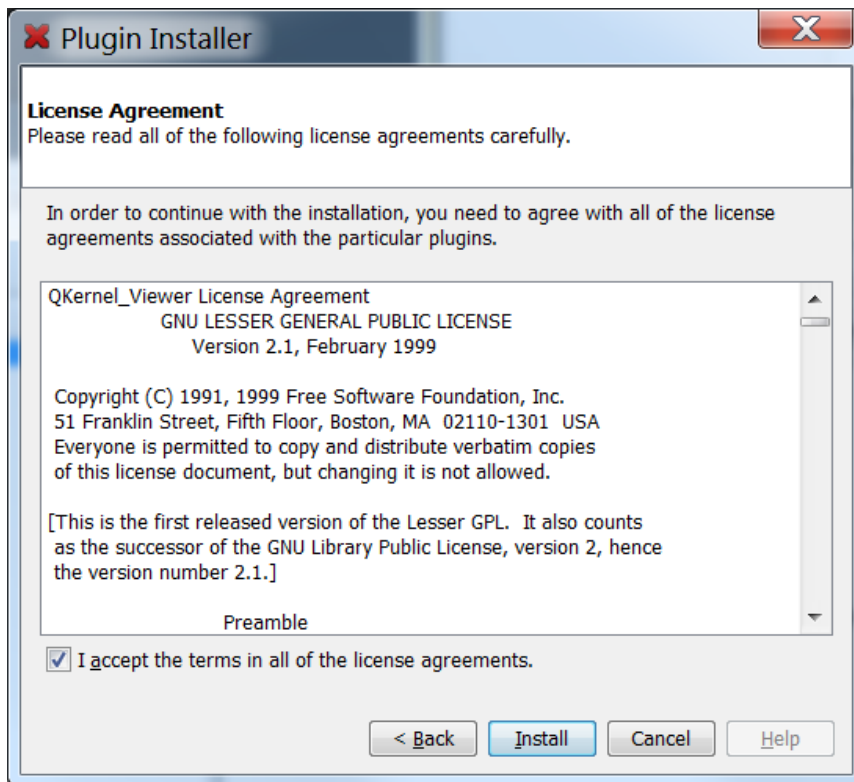
Open the file and the following window will be shown



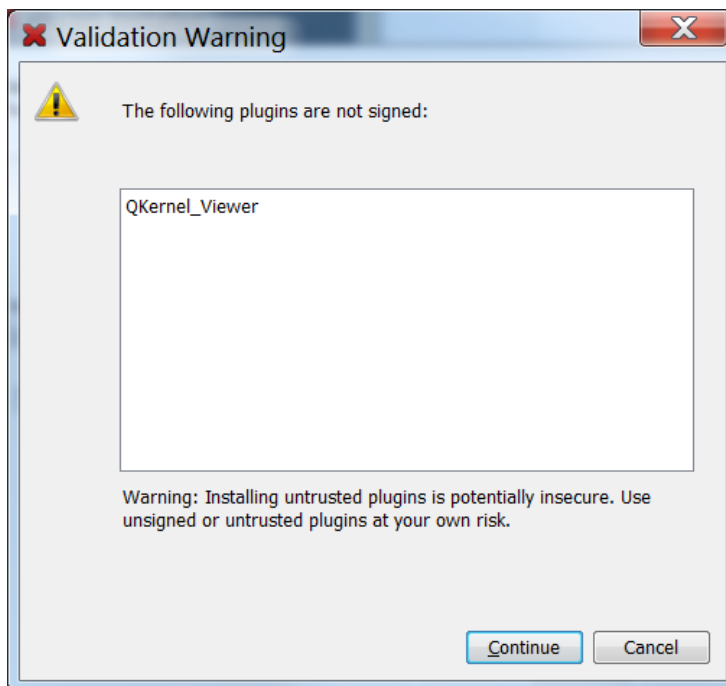
Click Install and the following Window will be shown



Click Next and the license agreement will be shown.

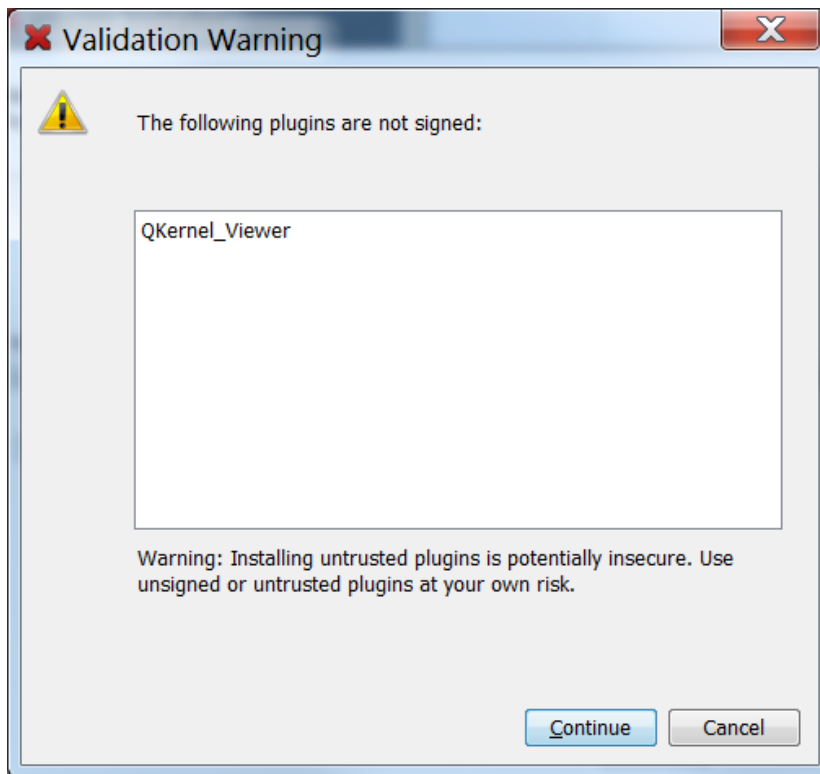


Click Accept and Install

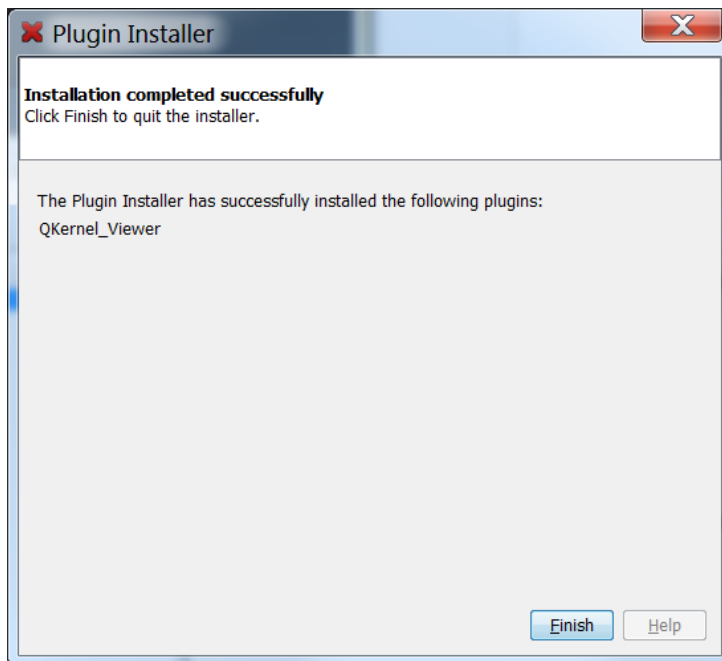




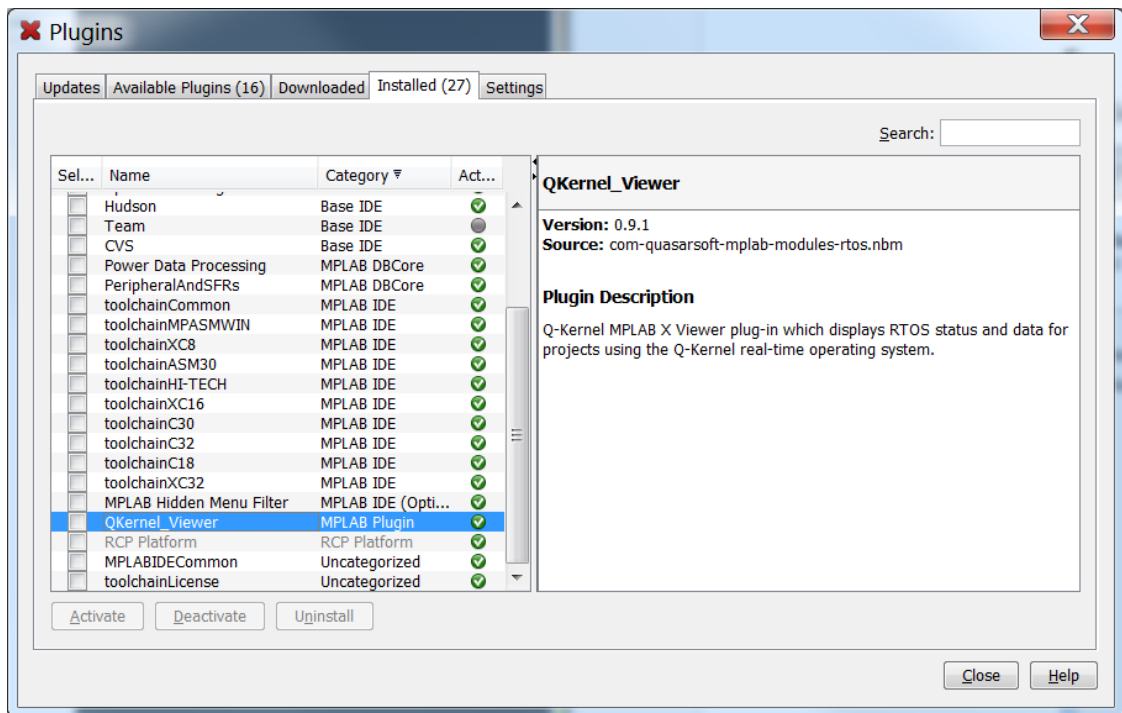
Because the viewer is not signed yet a warning is displayed



Click continue and installation is completed

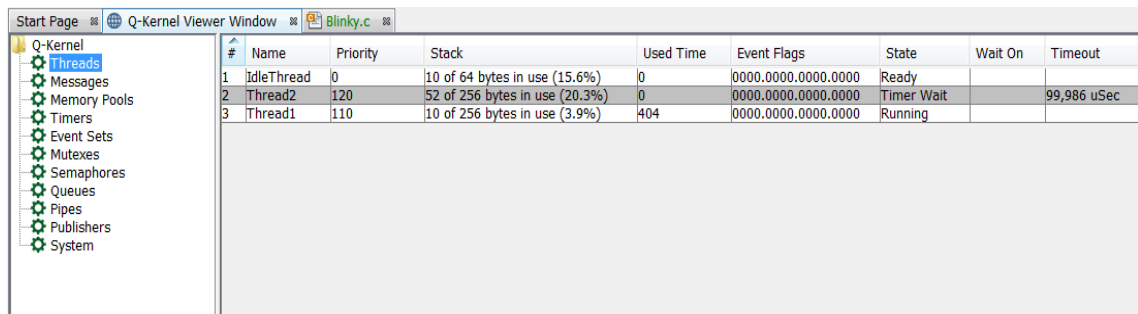


You can now inspect if the viewer is installed



Now exit MPLAB and restart it. The viewer can be started by clicking Tools and then Embedded.

With a simple program (blinky) you will see something like this for thread



And this for system

The screenshot displays the Q-Viewer application window. The title bar shows 'Start Page', 'Q-Kernel Viewer Window', and 'Blinky.c'. The left sidebar contains a tree view with the following items: Q-Kernel, Threads, Messages, Memory Pools, Timers, Event Sets, Mutexes, Semaphores, Queues, Pipes, Publishers, and System (highlighted). The main area shows a table of system statistics:

Name	Value
QKernel Version	6.0-3353
Clock Frequency	16000000 (16 MIPS)
Interrupt Stack	28 of 256 bytes in use (10.9375%)
Idle Task Stack	10 of 64 bytes in use (15.625%)
System Time	2010-01-01 00:00:00 -0700
Uptime	00:00:00
Critical Section	No
Zone	Thread
Kernel Status	InitDone OsStarted EdsSupported
Fiber Requests	(No Fibers Requested)
Queued Fibers	4 (0 in use)
Prevent Idle Mode	No
Prevent Sleep Mode	No
Free Heap Memory	29,190
Time Used by Kernel	<Invalid values for cycle count (stats on?)>

At the bottom of the main area, there is a 'Q-Kernel' logo and the text 'This plugin supports Q-Kernel'. Below the main area is a panel with tabs for 'Breakpoints', 'Search Results', 'Output', and 'Tasks'. The 'Debugger Console' tab is active, showing 'Blinky (Build, Load, ...)' and 'Simulator' tabs. The console content includes 'Launching' and 'Initializing simulator'.

### **3. Functionality**

- 3.1. **Threads**
- 3.2. **Messages**
- 3.3. **Memory Pools**
- 3.4. **Timers**
- 3.5. **Event Sets**
- 3.6. **Mutexes**
- 3.7. **Semaphores**
- 3.8. **Queues**
- 3.9. **Pipes**
- 3.10. **Publishers**
- 3.11. **Systems**