

# Quick Start Guide

## Objective

This guide is intended to quickly guide the user through the initial out-of-box product experience to developing a simple Qt sample application Qt Open Source compiled on a nearby PC.

This procedure is a “short cut” to provide a high-level view of the application development process and PIQUE™ hardware capabilities. In-depth details, configuration and customization options, and hardware implementation details are reserved for coverage in related documents.

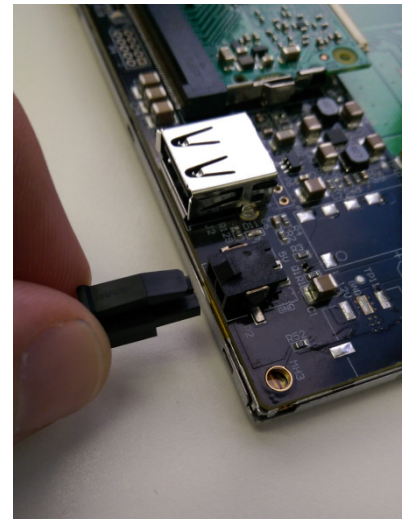
## Requirements

PIQUE Starter Kit, Windows or Linux computer running Oracle™ VirtualBox software.

## Initial Demonstration

Ensure the supplied microSD card is inserted into the PIQUE, then connect the PIQUE to the 5VDC power supply using the supplied USB AC charger and cable via the P2 connector. The connector is keyed to prevent a reverse-polarity connection.

Shortly after connecting power, the TFT touchscreen will display a startup screen, then transition to the demonstration program's main screen.



Test the various demonstrations of touchscreen functions, on-screen keyboard input, and graphics response time as desired.

## A Tablet-Like 7" Touchscreen for the Raspberry Pi Compute Module 3

### Running the Development Virtual Machine

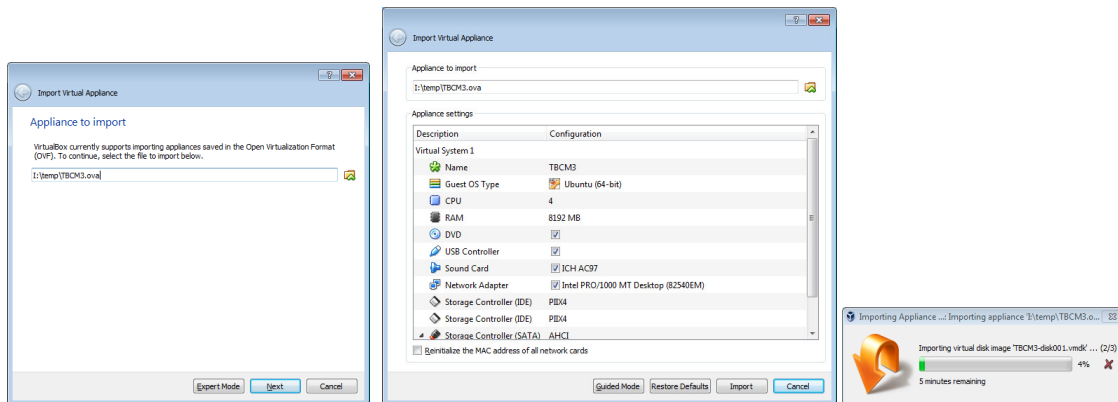
Install Oracle VirtualBox™ for Windows, OS X, or Linux. The latest version is available at:

<https://www.virtualbox.org/wiki/Downloads>

Download the virtual appliance file using the link provided at:

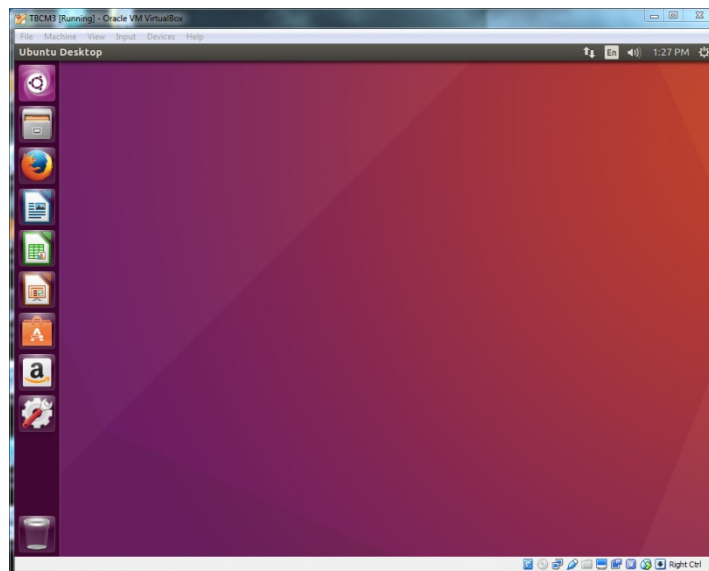
<http://thecircuitfoundry.com/products/PIQUE/support/index.html>.

Run VirtualBox. From the File menu, select “Import Appliance...”, navigate to the location of the downloaded file, and click Next.



When Virtual System 1’s settings are shown, click Import to create the Ubuntu 16.04 virtual machine.

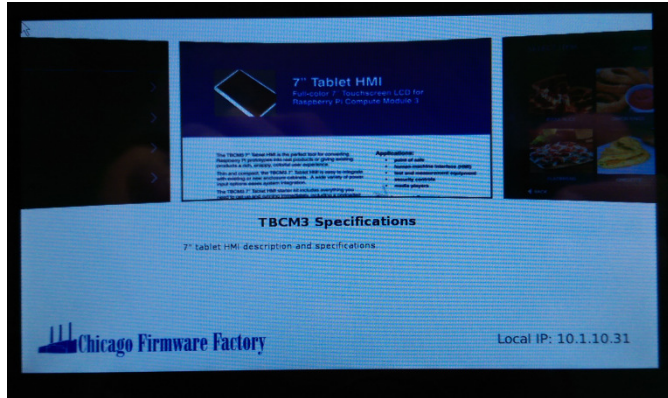
Launch the PIQUE virtual machine from VirtualBox. Log in with the password “**chicagofirmware**”. After booting and logging in, the Ubuntu Desktop will be shown.



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### Connecting via SSH

Connect the PIQUE to your local network via Ethernet using the included USB hub and Ethernet adapter, then remove and reconnect the P2 power connection. After startup, the demonstration program will display the PIQUE's local IP address.



From the PIQUE virtual machine, press CTRL+ALT+T to launch a terminal session. In the new terminal, enter “ssh pi@10.1.10.31”, substituting the IP address shown by the demonstration program. Log in with the password “raspberrypi”.



### Disabling the Demonstration Application

Issue the following commands to prevent the demonstration program from automatically starting on bootup:

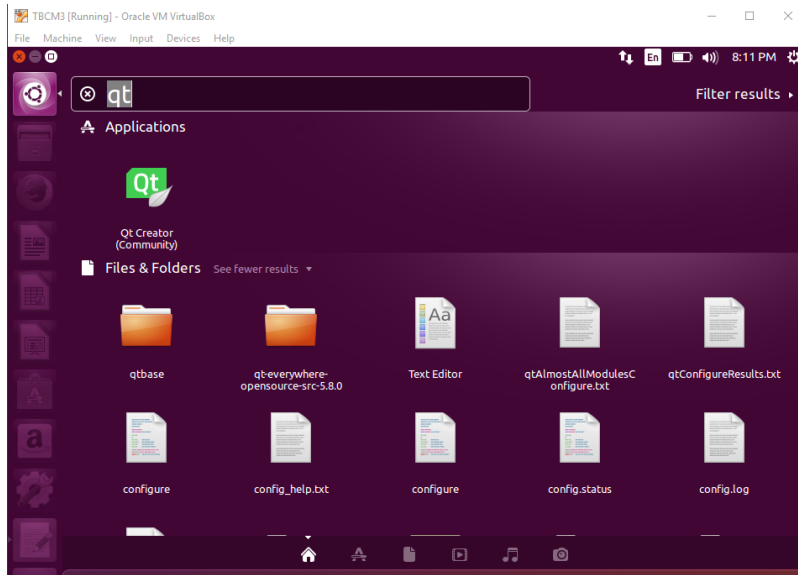
```
cd /boot
mv RUNDEMO.txt RUNDEMO.txt.disabled
sudo reboot now
```

You will be prompted to re-enter the password you entered when logging in, after which the PIQUE will reboot and present a typical linux login prompt, allowing for operation via a USB-connected keyboard if desired.

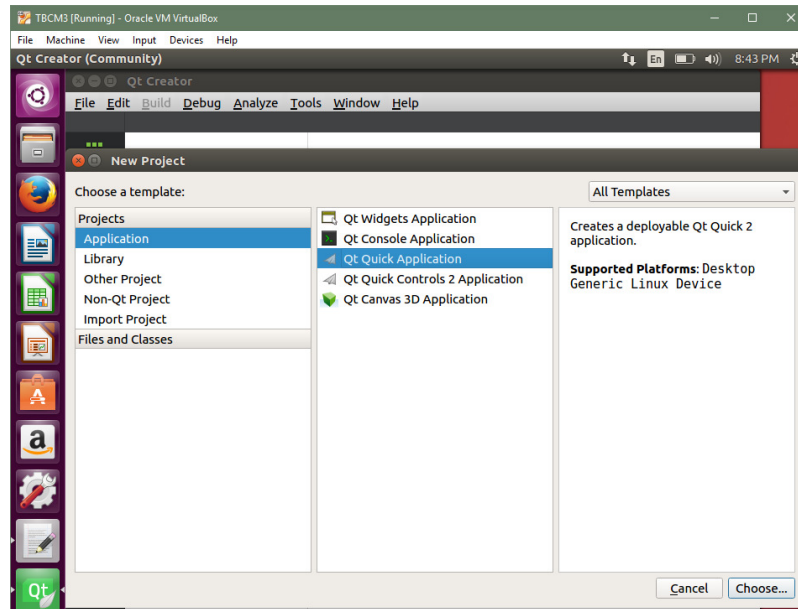
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### Creating a Qt Application

In the PIQUE virtual machine, click the top-left icon to show various recently-run programs. If necessary, enter "qt" in the search bar. Launch Qt Creator from this menu by double-clicking it.

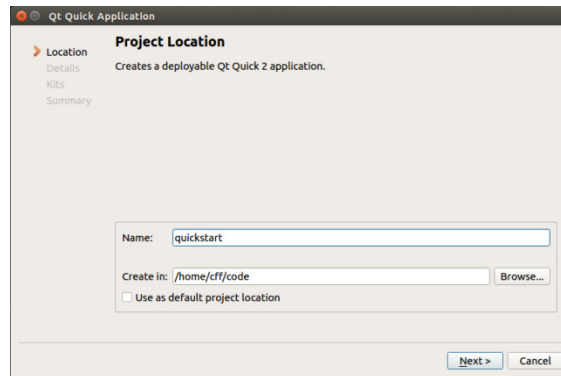


Create a New Project by clicking the "+ New Project" button, then choose the Qt Quick Application template and click the "Choose..." button.

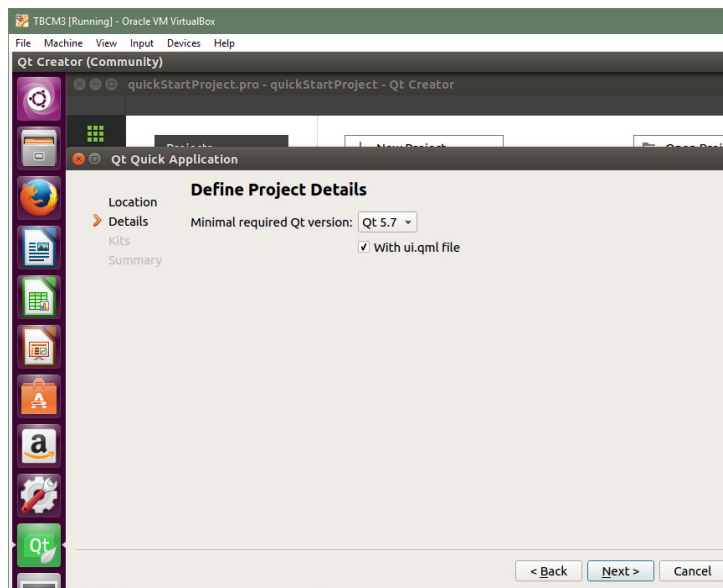


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Enter a project name and folder as shown below and click the “Next” button.



Select Qt 5.7 as the minimal required version and click the “Next” button.

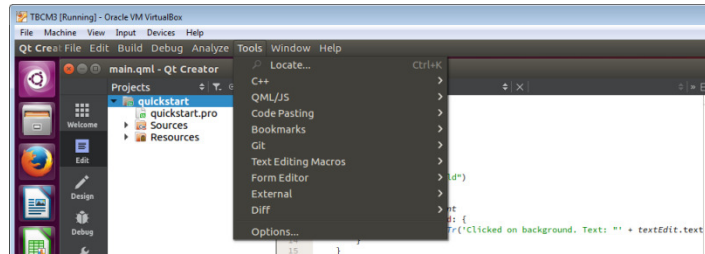


The virtual machine’s Qt Creator setup includes “kits” for both running on the local machine (Desktop Qt 5.8.0 GCC 64bit) and for running on the PIQUE target (PIQUE\_kit). Enable both kits for this project and click the “Next” button.

When prompted for version control, leave “<None>” selected and click the “Finish” button.

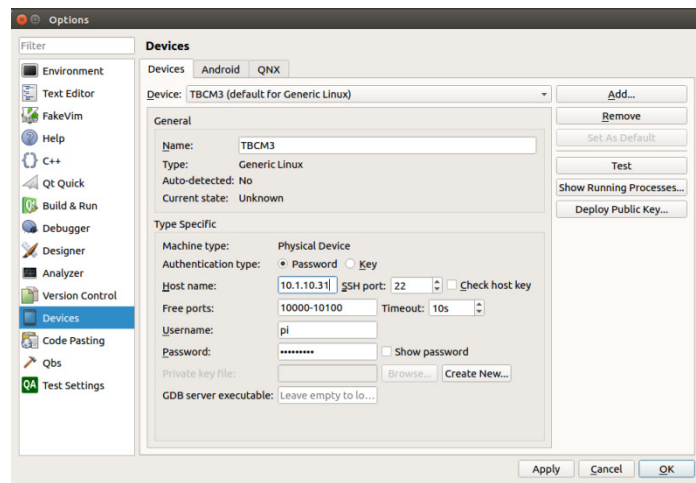
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Before project can be compiled and deployed to PIQUE, the correct IP address of the PIQUE must be configured in Qt Creator. From the “Tools” dropdown menu at the top of the screen, select “Options” then the “Devices” tab. Make sure the PIQUE is the selected device.



Edit the Host name, Username, Password, and SSH port fields with these values:

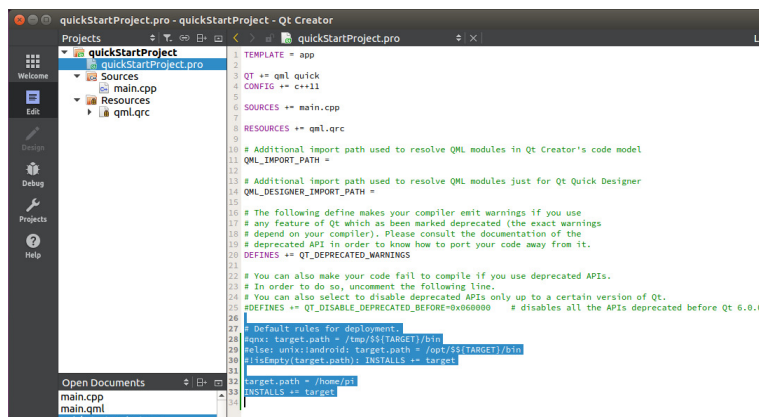
Host name: <IP address of the PIQUE>  
 Username: pi  
 Password: raspberry  
 SSH port: 22



Double-click the projects “quickstart.pro” file to edit it with Qt Creator. Disable the “Default rules for deployment” section using # symbols, then add the following 2 lines in their place:

```
target.path = /home/pi
INSTALLS += target
```

This will cause the project to be deployed in the /home/pi directory, prevents file/directory permission issues.

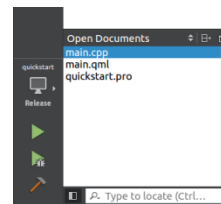


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### Building the Qt Application to Run Locally

Configure a build by clicking the computer screen icon in the lower-left corner of Qt Creator, then select “Desktop Qt 5.8.0 GCC” in the “Kits” list and Debug in the “Build” list.

Build the project by clicking the hammer icon in the lower-left corner, then run the application by clicking the green triangular arrow button.



### Building the Qt Application to Run on the PIQUE

Reconfigure the build by clicking the computer screen icon, then select “PIQUE\_kit” in the “Kits” list and Debug in the “Build” list.

Build the project using the hammer icon and deploy it using the green triangular arrow button.

### Conclusion and Next Steps

This guide is helpful for initial operation and gaining a high-level view of the development procedure. Consult the other guides in the documentation center to better understand how the virtual machine was created and how to set up Qt on your local Windows or Linux desktop computer, how the demonstration system's Raspbian Linux distribution was modified, and how to migrate existing Raspberry Pi applications to the PIQUE.

For further support, contact The Circuit Foundry:

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phone 630-454-4407