iDigi Connector for Wind River Linux

Getting Started Procedure

The iDigi Connector is a software development package used to communicate and exchange information between a device and the iDigi Device Cloud. iDigi supports application to device data interaction (messaging), application & device data storage, and remote management of devices. Devices are associated with the iDigi Device Cloud through the Internet or other wide area network connections, which allows for communication between the device, the iDigi Device Cloud, and customer applications. An important part of this communication is the transfer of data from a device to the iDigi Device Cloud. iDigi is based upon a cloud computing model that provides on-demand scalability so you can rest assured that when you need additional computing and storage, iDigi will scale to meet your needs. The iDigi Device Cloud is designed using a high-availability architecture, with redundancy and failover characteristics in mind. Using iDigi, customers can now easily develop cloud connected devices and applications that quickly scale from dozens to hundreds, thousands or even millions of endpoints.

The following is a list of steps to follow to connect the Kontron device to iDigi.

Step 1: Setup your iDigi Account

Before getting started you will need to create a new iDigi account and obtain a unique iDigi Vendor ID (which is a unique identifier for your company).

To create an account, navigate to https://developer.idigi.com/user_registration.do and follow the instructions to create and register your iDigi account.

1. Login with the user credentials you created above.

2. If you are a first time iDigi developer, you will need to obtain an iDigi Vendor ID. To obtain an iDigi Vendor ID, select the register for Vendor ID button in the Vendor Information section on the bottom of the My Account tab (Administration -> My Account) after successfully logging into https://developer.idigi.com/.

After selecting the register for a Vendor ID button, the page will refresh and your unique vendor ID number will be displayed in place of the button

Step 2: Connect your device

1. Connect power to the Kontron device.

2. Connect the Kontron device's Ethernet to the host PC using an Ethernet hub., both the Linux host PC and the Kontron device must be on the same subnet.

3. Connect both devices to the Internet. In order to access the iDigi cloud both the host PC and the device must be able to access the Internet.

4. Power on the device.

By default both the host PC and the Kontron device will obtain a DHCP address. The device also has a fixed address of 172.31.255.1 which you can access from the host PC.

In order to connect to your device from the host PC, the host must have a route to the static IP address of the device. When adding the route the Ethernet interface is specified**,** if you only have only one Ethernet interface then you can skip this section.

If you have multiple Ethernet interfaces the route is added to the default Ethernet interface if this is not correct you nust manually ad the route.

The command to add the route is:

sudo route add -net 172.31.255.1 netmask 255.255.255.255 dev eth**X**

Replace eth**X** with the name of the interface to which the gateway is connected, etc0, eth1 ..etc. You must only have one route to the device.

You can connect to your Kontron device by using ssh; login as root and the root password is root, from a terminal window (click on Application->System Tools->Terminal to open).

sudo ssh root@172.31.255.1

To view the network parameters at the prompt type ifconfig, you should see both the static 172.31.255.1 address and the DHCP address.

Verify that the date and time is set correctly on the device by typing date at the command prompt; use the date command as show below (plug in the correct date/time) to set the time.

date +%Y%m%d -s "20120601"

Step 3: Provision your device

Once you have an account and you are connected to the Internet the next step is to provision your device with iDigi**.**

1. Double click on the icon iDigi Provision Device on the desktop. This will obtain your devices MAC address and register it with iDigi.

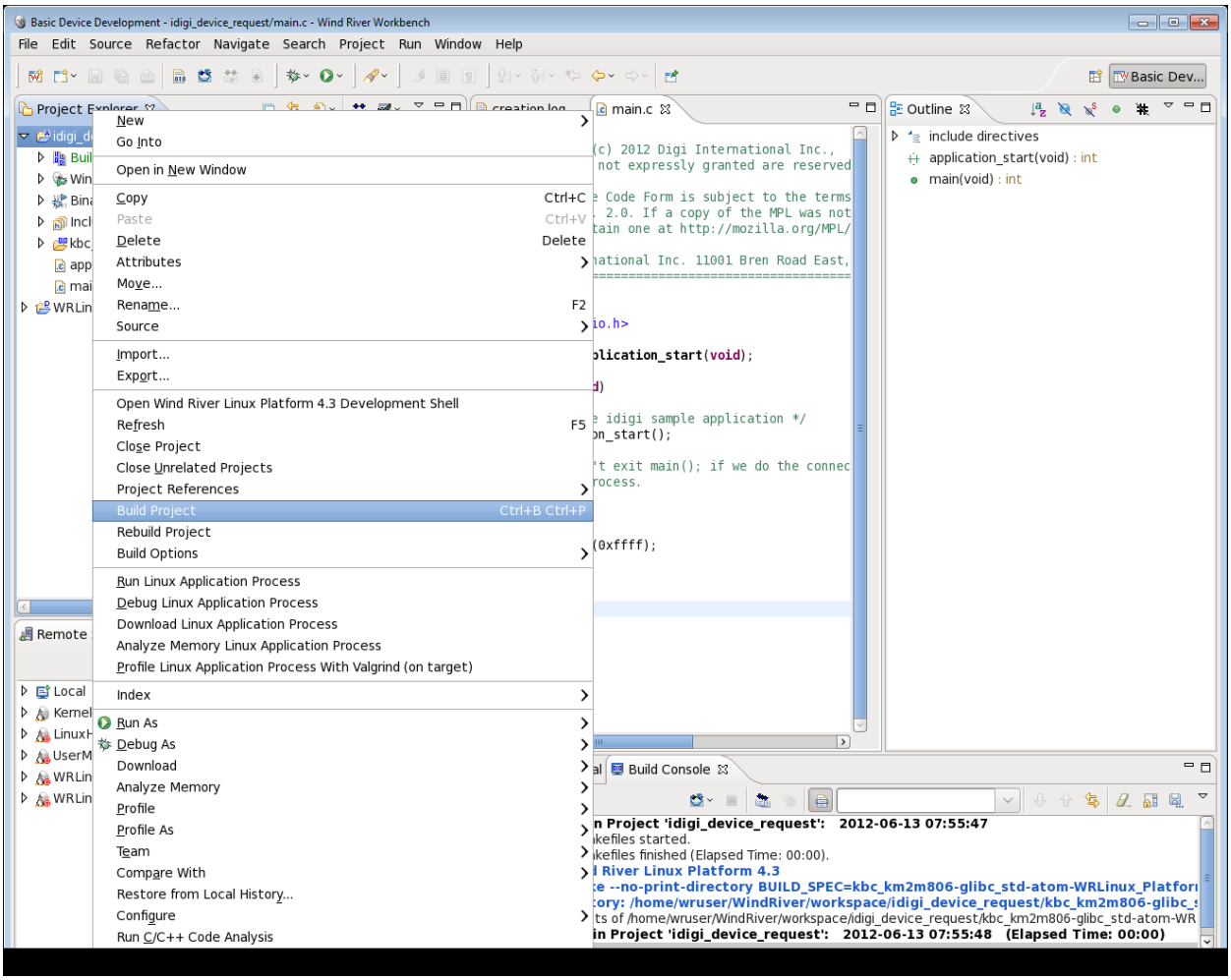
2. Enter your iDigi username and password,

3. Enter the root password for the device (the default is root).

Note: Only provision your device once, once your device is provisioned attempting to provision a second time will fail.

Step 4: Build a sample application

1. Double click on the Wind River Workbench icon on the Desktop, the Workbench is used to build, debug and launch the idigi sample applications.
2. The sample applications appear on the left hand side of the workbench.
3. Right-click on idigi_connect and select Build Project, as shown in the picture below:

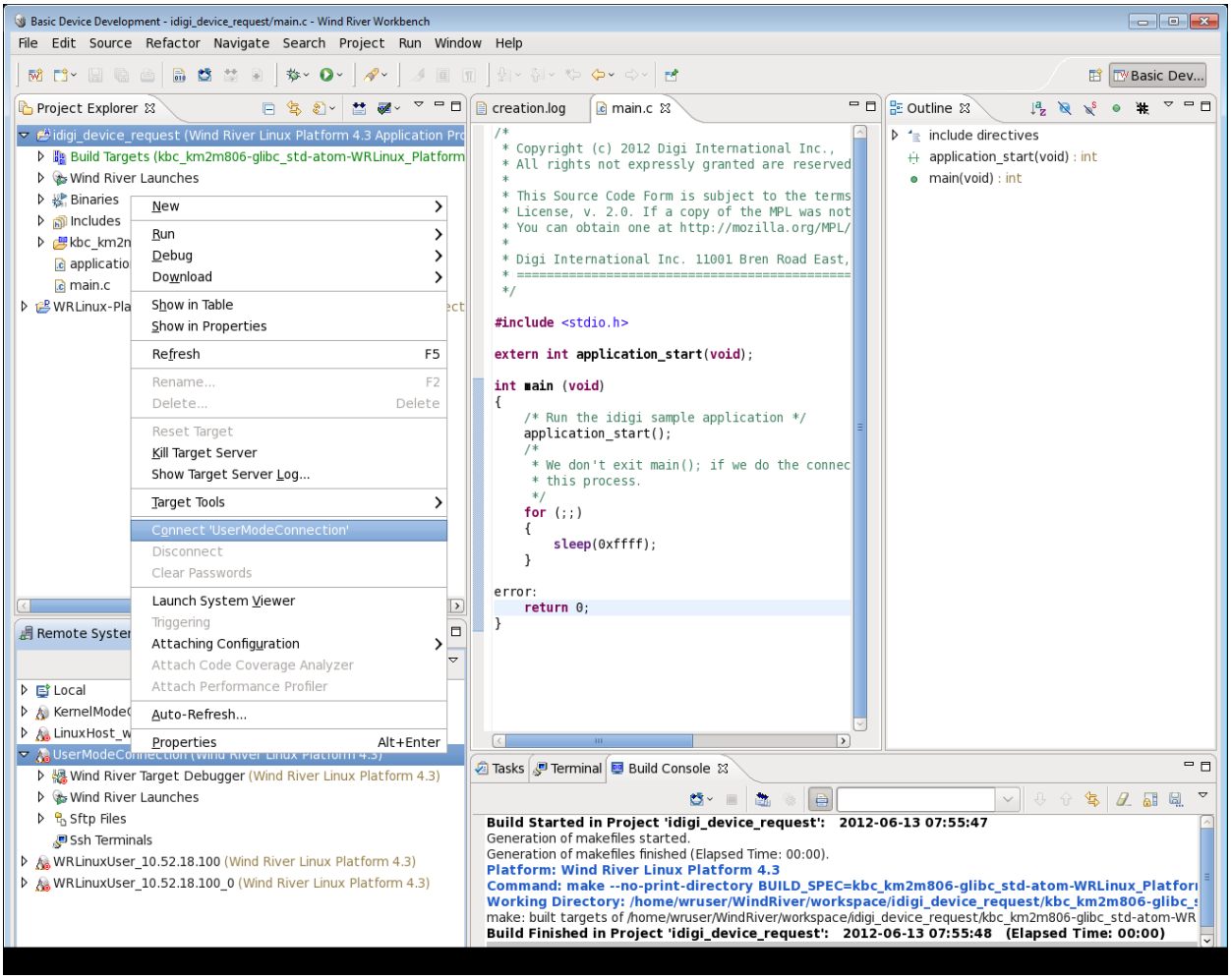


In the Build Console on the lower portion of the screen you can view the build output, it will say Build Finished

Step 5: Run the sample

The User Mode connection is used to run the run the sample (in the lower left hand corner under Remote Systems).

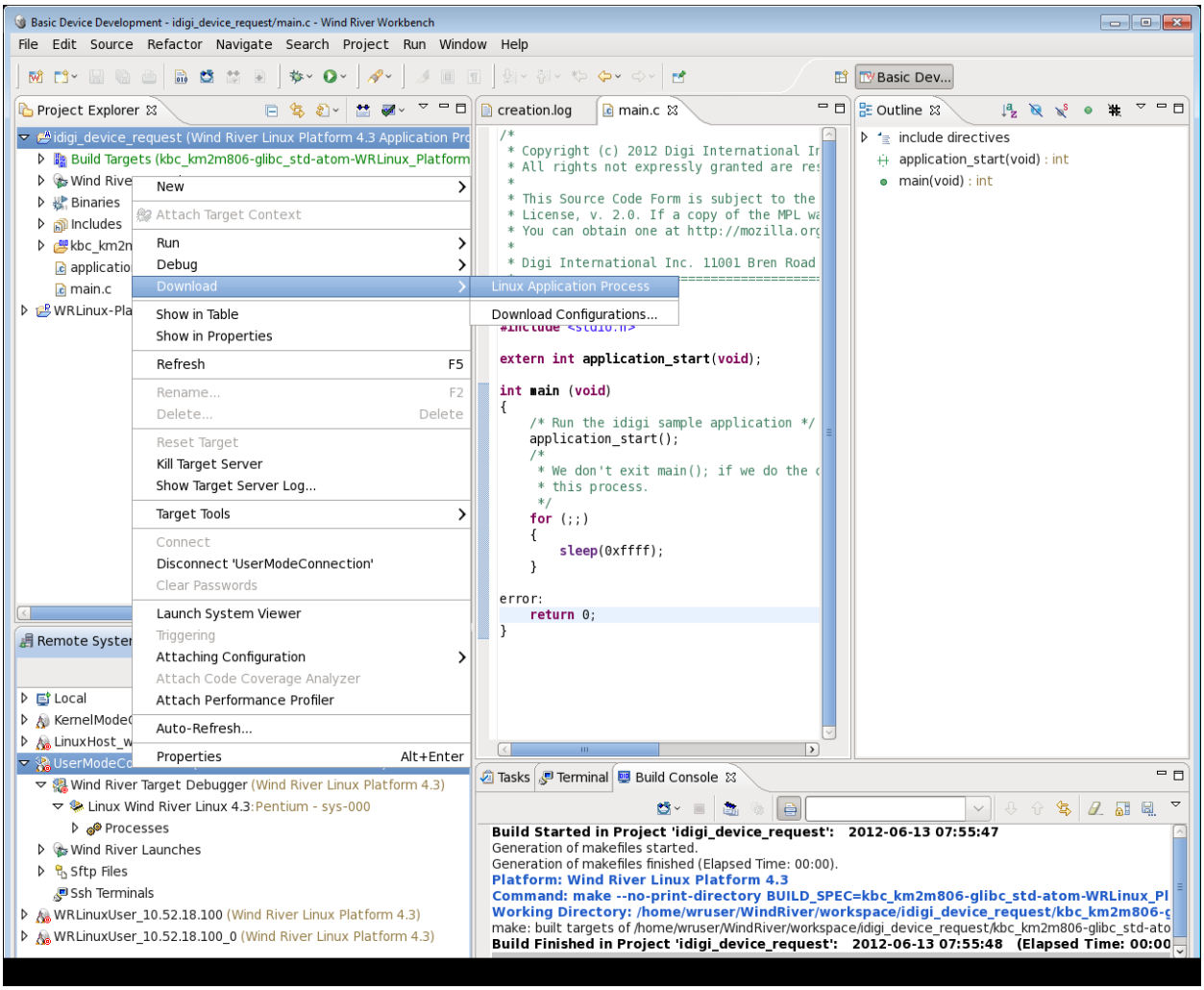
1. Right mouse click on and highlight UserModeConnection in the lower left hand corner, this is shown in the picture below:



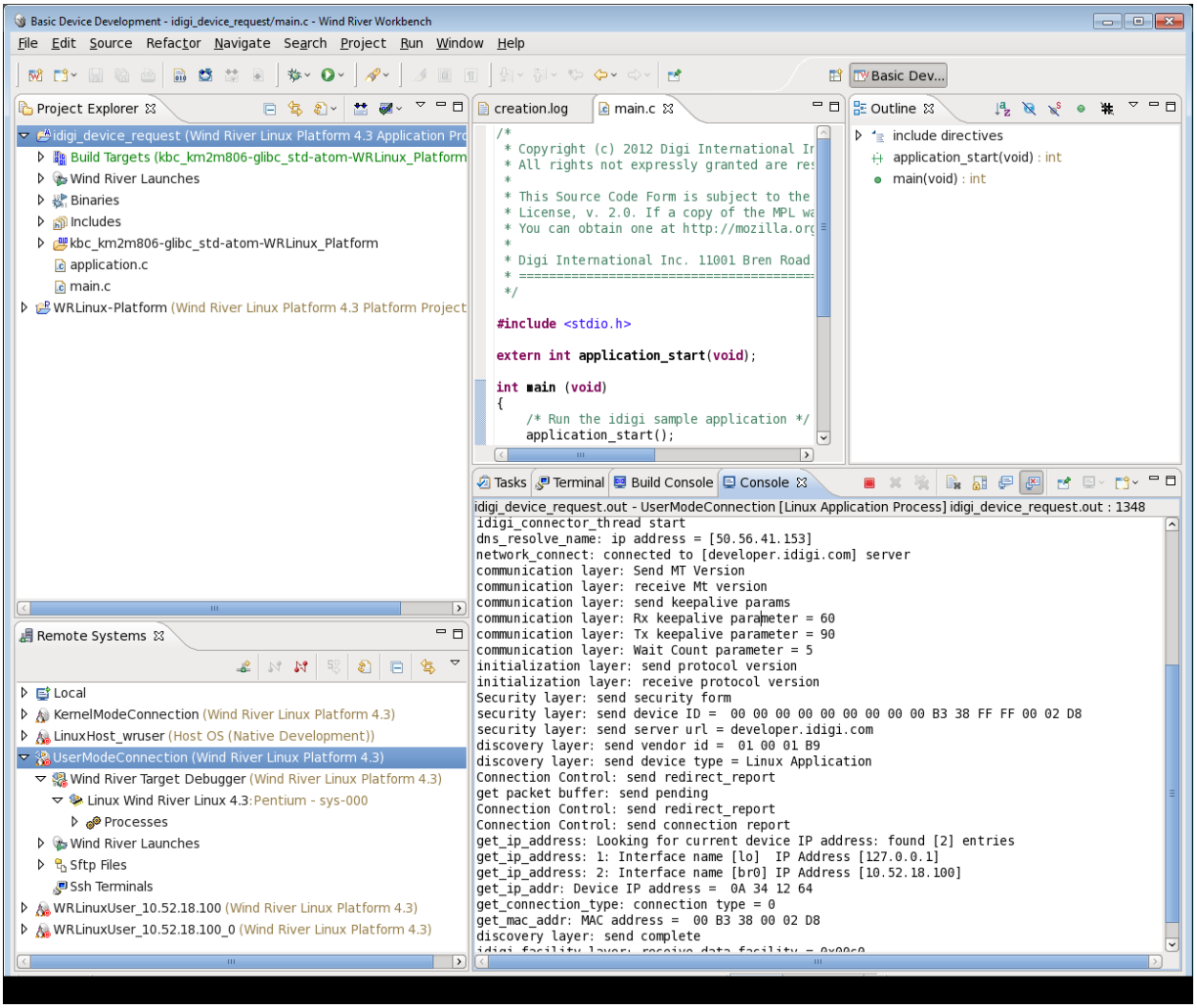
2. Select connect and verify the bottom toolbar will now say Connected – Target server running

3. Right-click on UserModeConnection again and select Download -> Linux Application Process. Hit OK on the pop-up menu.

4. Right mouse click once more on UserModeConnection and select Run->Linux Application Process. Hit OK on the pop-up menu.



5. You can then view the program output by clicking on the Console tab, if no errors are reported then your device is connected to iDigi (shown below). To validate, log into iDigi and using iDigi Manager Pro verify your device is connected.



Your device is now Connected to iDigi. To validate, log into iDigi and using iDigi Manager Pro verify that your device is connected.

Step 5: Communicating with your device

To manage your device you can use the iDigi Manager Pro interface by logging into your iDigi Device Cloud account. Alternatively, you can communicate with your device programmatically by using iDigi Web Services.

iDigi Web Service requests are sent from a remote application to the iDigi Device Cloud, which then directly communicates to the device. This allows for bidirectional machine to machine communication. Each iDigi connector sample includes a Python application demonstrating how to communicate to a device using the iDigi Web Services.

To learn more about iDigi web services please read this document. The python script which is provided with the samples uses the API described in this document.

http://ftp1.digi.com/support/documentation/90002008_F.pdf

Next Steps

After completing the getting stated procedure please review the iDigi Connector documentation; it is suggested that start by modifying and existing sample.