

Set up UIC on Raspberry Pi

This lab procedure walks through the steps to install and run the UIC on the Rasperry Pi platform. The first part of the lab is the basic set up of the Raspberry Pi 4. The second part is similar to the Getting Started section in the UIC User Guide. The final section is verifying we can connect to the UIC client.

KEY POINTS

- Basic set up of raspberry pi 4
- Load UIC files
- Install UIC
- Run UIC
- Verify client connectivity

Prerequisites 1

For this lab you will need the following:

- Raspberry Pi 4 .
 - 0 SD card for Raspberry Pi 4
 - SD card reader for your PC 0
- UZB 7 serial dongle for Z-Wave
- 1 IP router with built-in DHCP
- VNC viewer https://www.realvnc.com/en/connect/download/viewer/
- Filezilla https://filezilla-project.org/
- balenaEtcher https://www.balena.io/etcher/
- Putty https://www.putty.org/

1.1 Prepare Raspberry Pi 4 SD card

Follow these steps to prepare the raspberry pi 4 to run the UIC.

- Insert the SD card into the SD card reader 1.
- Use balenaEtcher to load the image to the SD card (in this case 2021-01-11-raspios-buster-armhf.img) 2.

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When flashing is complete, and before ejecting the SD card, navigate to the boot volume on the SD card. Create an empty file 3. with the name "ssh". Do this by right clicking on the white space in file explorer and creating a new text file (make sure to remove the .txt extension). You may need to change the view settings in File Explorer to be able to remove the .txt extension (see below).

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4. Insert the SD card into the Raspberry Pi 4 and power it on.

1.2 Connect to Raspberry Pi

The following section details how to connect to the Raspberry Pi

- 1. Power up the router. Connect the PC to the router using ethernet or WiFi. Connect the Raspberry Pi to the router using ethernet.
- 2. Open a terminal with ssh (such as Putty), and type in either raspberrypi.local or the IP address of the Raspberry Pi in the host name field. After clicking open, click yes to accept the security key, and the default user name is pi and password is raspberry.



3. Now we can enable the VNC server. Run raspi-config by typing the command "sudo raspi-config" in the ssh command line.

🧬 pi@raspberrypi: ~	_		×
Raspberry Pi 3 Model B Plus Rev 1.3			^
Raspberry Pi Software Configuration Tool (raspi-	config)		
1 Change User Password Change password for the 'pi' user			
2 Network Options Configure network settings 3 Boot Options Configure options for start-up			
4 Localisation Options Set up language and regional settin 5 Interfacing Options Configure connections to periphera	ngs to match ls	ı your	
6 Overclock Configure overclocking for your Pi 7 Advanced Options Configure advanced settings			
8 Update Update this tool to the latest ver	sion		
9 About raspi-config Information about this configuration	on tool		
<select> <finish></finish></select>			
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Select "interfacing options", "VNC", and "yes" to enable. This may also be a good time to increase screen resolution. Select "Display options", select "resolution", and select a suitable resolution, e.g. 1920 x 1080. Finally, select "Finish", and "yes" to reboot.

4. Wait for the Raspberry Pi to reboot and then open VNC Viewer. Connect to raspberrypi.local, or use the IP address. The IP address can be found using the DHCP client list in the router. Use the same username and password (pi/raspberry) to connect. Upon success you will see the desktop of the Raspberry Pi.

VNC Viewer	-		×
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VNC CONNECT by ReaWNC raspberrypi.local		Sign	n in 🔻
rasperypilocal			

Open a terminal on the raspberry pi desktop and type "ifconfig" to find the IP address of the raspberry pi, in case it is needed later.

2 Installing UIC

2.1 Copy UIC files to Raspberry Pi

The following section details how to transfer the UIC files to the Raspberry Pi

1. Open Filezilla and connect to sftp://raspberrypi.local using the same username and password as before

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Status: Directory listing of "/home/pi" successful Status: Patriaving directory listing of "/home/pi/Darkt	on"					
Status: Listing directory /home/pi/Desktop	op					
Status: Directory listing of "/home/pi/Desktop" succes	sful					
Status: Connecting to raspberrypi.local						~
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Lab 1 basic setup.pdf	519,775	Adobe Acroba	3/17/20	gnupg		
Lab2-UIC-Basics.docx	700,737	Microsoft Wor	3/17/20	local		
Ab2-UIC-Basics.pdf	704,411	Adobe Acroba	3/17/20	.vnc		
UIC release v0.0.6.zip	333,261,373	ZIP File	6/8/202	Bookshelf		
UIC-FAE-Training-2021-6.pptx	3,871,209	Microsoft Pow	. 4/1/202	Desktop		
🗳 uic-sdk-0.0.5-alpha-update.zip	126,804,853	ZIP File	2/23/20	Documents		
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- 2. On the left side (local site) locate the uic-sdk zip file on your computer, and on the right side (remote site) choose a location on the Raspberry Pi to copy to (for example /home/pi).
- 3. Right click on the zip file and choose "Upload" to start the transfer

2.2 Installing UIC

The following section details how to install the UIC.

- 1. Go to VNC Viewer and open a terminal on the Raspberry Pi
- 2. Type "unzip UIC-release-v0.0.6.zip" at the command prompt to extract the contents of the UIC package
- 3. Connect the UZB 7 to the Raspberry Pi and type "dmesg|grep usb" at the command prompt. Make a note of the tty device (in the example below it is ttyUSB0)

4.

pi@raspberrypi: ~	_ — ×
File Edit Tabs Help	
<pre>pi@raspberrypi:~ \$ dmesg grep usb [0.063240] usbcore: registered new interface driver usb [0.063341] usbcore: registered new interface driver lan [0.283975] usbcore: registered new interface driver smst [0.311903] dwc_otg 3f980000.usb: base=0xf0980000 [0.713003] dwc_otg 3f980000.usb: base=0xf0980000 [0.713035] dwc_otg 3f980000.usb: DWC OTG Controller [0.713035] dwc_otg 3f980000.usb: new USB bus registered 1 [0.713366] dwc_otg 3f980000.usb: irq 62, io mem 0x000000[[0.713324] usb usb1: New USB device found, idVendor=1d60 [0.713352] usb usb1: New USB device found, idVendor=1d60 [0.713354] usb usb1: New USB device found, idVendor=1d60 [0.713355] usb usb1: New USB device found, idVendor=1d60 [0.713360] usb usb1: SerialNumber: 3f980000.usb [0.714871] usbcore: registered new interface driver usb [0.714871] usbcore: registered new interface driver usb1 [0.718987] usb 1-1: New USB device found, idVendor=044 [1.381873] usb 1-1: New USB device found, idVendor=044 [1.381979] usb 1-1.1: New USB device strings: Mfr=0, Pro [1.925101] smsc95xx 1-1.1:10 eth0: register 'smsc95xx' 1.1, smsc95xx USB 2.0 Ethernet, b8:27:eb:f8:65:12 [3.482259] usbcore: registered new interface driver brc [392.176247] usb 1-1.3: New USB device strings: Mfr=1, Pro [392.176256] usb 1-1.3: New USB device strings: Mfr=1, Pro [392.176264] usb 1-1.3: New USB device found, idVendor=106 [392.176273] usb 1-1.3: New USB device found, idVendor=106 [392.176273] usb 1-1.3: New USB device found, idVendor=106 [392.176274] usb 1-1.3: New USB device found, idVendor=106 [392.247626] usb 1-1.3: New USB device found, idVendor=106 [392.247626] usb 1-1.3: Product: CP2102N USB to UART Bride [392.2</pre>	ofs h78xx sc95xx d, assigned bus number p0000 bb, idProduct=0002 pduct=2, SerialNumber= wc_otg_hcd o-storage bhid using dwc_otg t24, idProduct=9514 duct=0, SerialNumber=0 3 using dwc_otg t24, idProduct=ec00 roduct=0, SerialNumber a usb-3f980000.usb- cmfmac 4 using dwc_otg pc4, idProduct=ea60 roduct=2, SerialNumber dge Controller 2337fdc2460985 pserial pserial_generic r generic 210x r cp210x ttyUSB0
curl -s http://repo.mosquitto.org/dek	bian/mosquitto-repo.gpg.key su
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sudo apt install ./libuic_0.0.6_armhf.deb ./uic-dev-gui_0.0.6_armhf.deb
./uic-dev-cli_0.0.6_armhf.deb ./uic-upvl_0.0.6_armhf.deb ./uic-
zpc_0.0.6_armhf.deb
```

5. When prompted by the configuration dialog, enter the tty device name for the UZB 7 from the previous step and choose the correct region. The region must be the same as used in the next lab.

2.3 Running UIC

The following section details how to run the UIC.

- 1. At the command prompt type "sudo systemctl enable uic-zpc" to enable zpc at boot
- 2. Type "sudo systemctl start uic-zpc" to start zpc

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3 Connecting to the UIC UI

In this section we verify we can connect to the UIC web interface

3.1 Open web interface

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1. 2.	Launch a web browser on your PC and conn In the top right enter "localhost" and port 188	ect to <u>http://rasp</u> 3, then click the	berrypi.local:3000 connect button		
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