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OCTOPROG User Manual

Ver 103

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Chapter 1

Introduction

The Octoprog Gang programmer is a RL78/R8C Family device programmer that can program up to eight identical devices at the same time. The Octoprog Gang Programmer connects to a host PC using USB and provides flexible programming options that allow the user to fully customize the process. The Octoprog gang programmer provides an economical and reliable means of programming a wide range of RL78/R8C microcontroller units (MCUs). It is designed with a versatile hardware platform to support programming of different MCUs. The Octoprog gang programmer can be used to program eight devices simultaneously by copying data held in an internal flash memory to the MCUs' internal memory.

1.1 Features

The Octoprog features include:

- Economical means of programming the internal flash memory of a wide range of RL78/R8C family of microcontroller units.
- Stand-alone programming mode of operation.
- Single +5V, 3A dc power supply requirement.
- Eight pairs of 14 pin FRC male connectors to accommodate for up to eight MCU programmer stations.
- Multicolor Status LEDs for each programming station.
- Supports encryption of hex file with a 16 digit password key.
- Supports Factory reset function

Note: Support for RL78-G10 family devices is removed from standard model of Octoprog

1.2 Overview

Octoprog software allows user to encrypt and download the hex-file from PC to Gang Programmer using USB connection. Only if the encryption key in programmer and key used for hex-file encryption matches then code will be successfully programmed. This help the user to share the hex-file (encrypted) with EMS provider as the encrypted hex file can be used only with the respective programmer. In addition to this Octoprog allows the user to set the number of targets to be programmed, once target count is reached programmer will wipe out its internal memory and won't program any further targets.



1.3 Octoprog Gang Programmer Connections

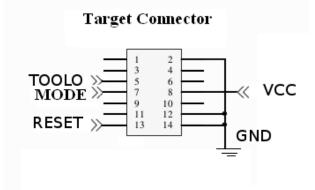


Figure 1.1



Chapter 2

Operation

This chapter explains how to use your Octoprog device in USB_MODE & PROGRAM_MODE. The only required connection for stand-alone operation is the +5V, 3A dc power connection.

2.1 Software Installation

To install Octoprog Gang Programmer software:

- Insert the Octoprog CD-ROM into the CD-ROM drive of the host computer. Click on the Setup automatically to start the installation process.
- Follow the instructions in the installation process.
- When the setup program is complete, Crypto+ icons are available in the Start menu->All programs->Crypto+.
- To start the Crypto+, click the newly created icon.

2.2 Driver Installation

To install the required driver:

- Insert the Octoprog CD-ROM into the CD-ROM drive of the host computer. Copy the Octoprog.inf file to your system.
- Press the Start Button on the programmer while connecting the Octoprog USB cable to your Programmer (This will initialize the programmer in USB_MODE, Refer section 2.3) & follow the steps below.

(Note: Octoprog is powered from USB here)



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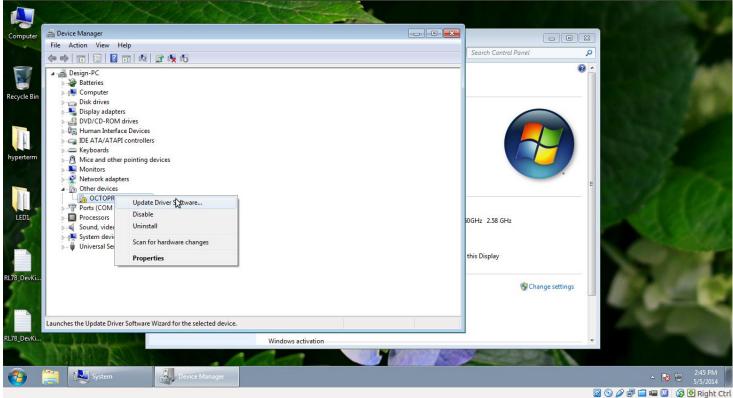


Figure 2.1

2. Select Browse my computer for diver software

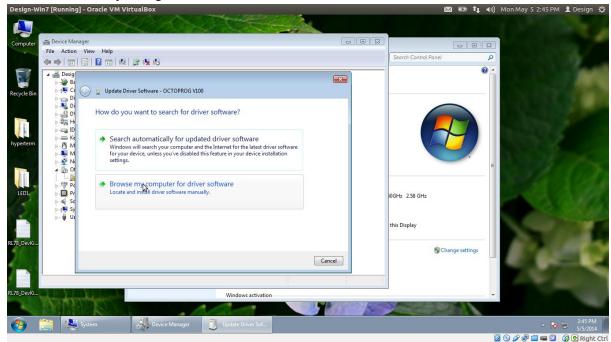
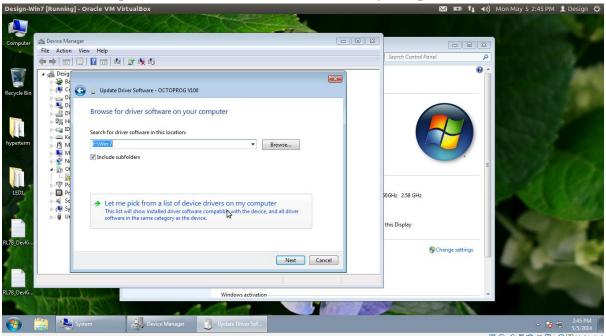


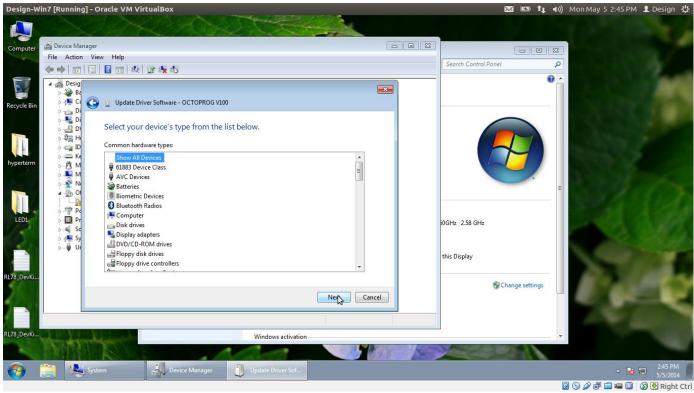
Figure 2.2

3. Select Let me pick from a list of device drivers on my computer



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Figure 2.3



4. Select your device type from the list. Select Show all devices &click next

Figure 2.4

5. Select Have disk

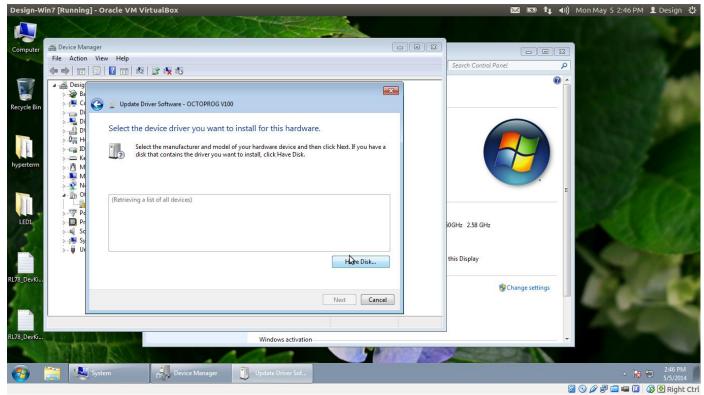


Figure 2.5

6. Select Browse

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Figure 2.6

7. Select Octoprog.inf file.

8. Select Yes

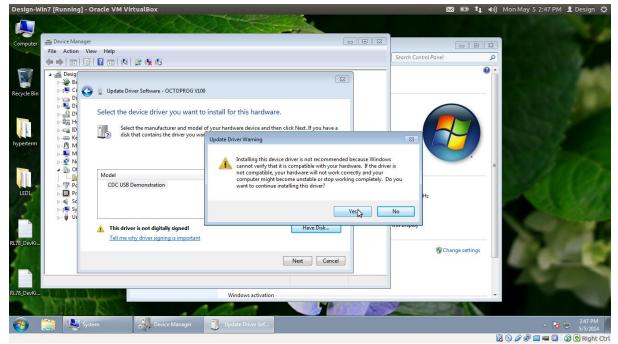


Figure 2.7

9. Select Install this driver software anyway



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🚱 🚞 💐 System 🛃 Device Manager	Update Driver Sof Windows Security		 ▲ 10 - 2:47 PM - 5:5/2014 - 3:2 - 2:47 PM - 5:5/2014 - 3:2 - 2:47 PM - 5:5/2014 - 5:5/2014 - 5:5/2014

Figure 2.8

10. Driver successfully installed Design-Win7 [Running] - Oracle VM VirtualBox

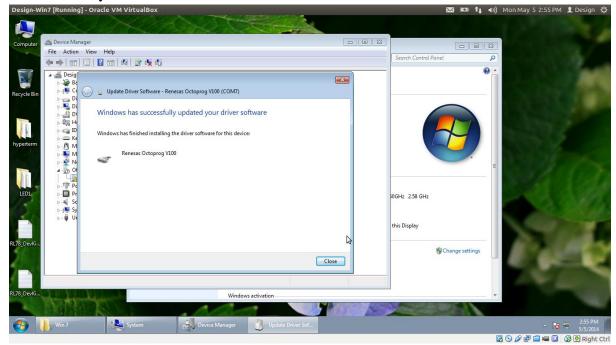


Figure 2.9

11. Driver is installed properly

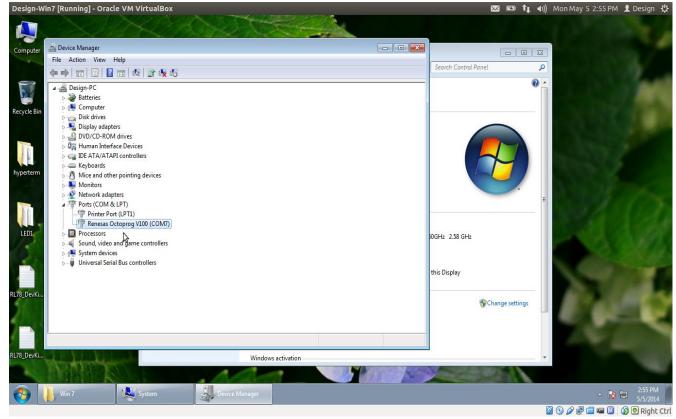


Figure 2.10

2.3 Running Crypto+ Application

Octoprog+ has two modes: USB_MODE & PROGRAM_MODE.

To get into USB_MODE, we have to power up the Octoprog+ pressing the **START** switch simultaneously. When you get into USB_MODE, all LEDs will blink once. When we just power up the device, it will get into PROGRAM_MODE& all LEDs turn red, blue, and green in order then turned off.

To download a program from the PC to the Octoprog+:

Power up the Octoprog+, pressing the **START** switch to get into the USB mode. USB cable should be connected to the PC.

2.3.1 Create a New Project



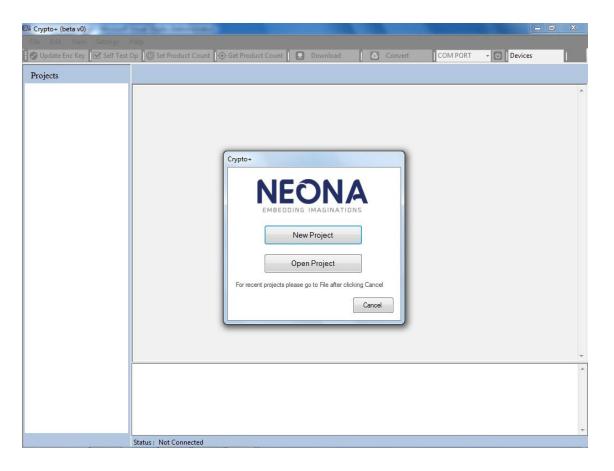


Figure2.11

STEP 1: To create a new project, start the application & click on **New Project** button as shown in figure 2.11 or if the application is already opened, then new project can be created from **File->New Project** as shown in figure 2.12.



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Figure 2.12

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Projects	Status: Not Connected

Figure 2.13



STEP 3: Click Browse to select your project location.

STEP 4: Click **Next** as shown in figure 2.13.

STEP 5: Select Device- Choose the appropriate microcontroller from the list as shown in figure 2.14.

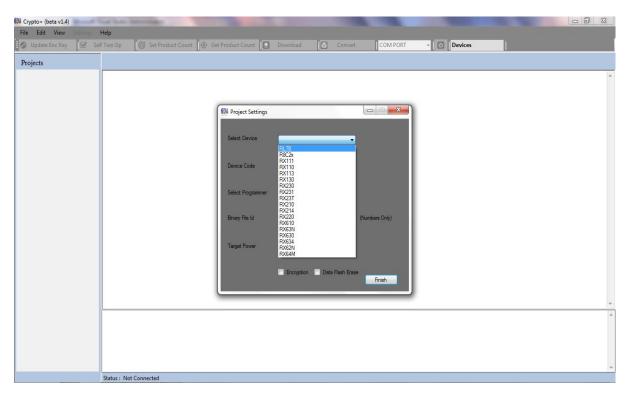


Figure2.14

STEP 6: Enter Device Code- Enter the part number of the microcontroller. This option is available only for RX/RL78.

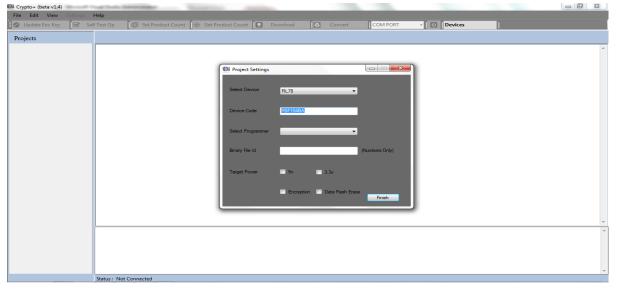


Figure 2.15

STEP 7: Select Programmer- A list of supported programmers will be shown in the Select Programmer field as shown in figure 2.16. Select the programmer that you want.

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Figure 2.16

NOTE:

- \blacktriangleright RL78 is supported by all the programmers.
- ➢ R8C2x is not supported in quadprog
- ➢ RX will be supported only in quadprog

STEP 8: Enter Binary File Id- Enter your 8-digit BINARY FILE ID in the Binary File Id field. File ID consists of only numbers as shown in figure 2.17.

> If you select Octoprog then Binary file id is not needed.

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Projects	
	Image: Setting: Setting: Device Code RF: FM&A Setting: Device Code RF: FM&A Setting: Device Code RF: FM&A Setting: Device Code RF: FM&BA Setting: Device Code RF: FM&BA Setting: Device Code Rev: Field Encode Setting: Device Code Setting: Device Code

Figure 2.17

STEP 9: Select Target Power- Either you can select 5V or 3.3V. It depends on device and programmer that you have selected.

NOTE:

- > 5V Enable option is available only for RL78/RX devices
- > 5V Enable option is available only for quadprog & miniprog



STEP 10: Select Encryption status-encryption can be enabled or disabled. It depends on device and programmer that you have selected.

- ▶ Encryption is always enabled for an R8C2x device.
- > If the selected programmer is Octoprog then Encryption is always enabled.

STEP 11: Select Data Flash Erase- Data Flash Erase can be enabled or disabled.

Note:

This option is not available in Octoprog & Octoprog C

STEP 12: New project Created- Click finish. Now the new project is created successfully. The project and the files can be seen in the tree-view and a message 'New Project Created Successfully' will be displayed in the text view as shown in figure 2.18.

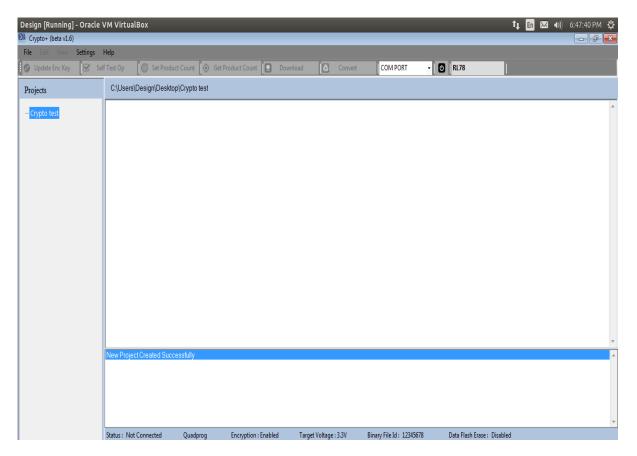


Figure 2.18

2.3.2 Open Project

STEP 1: Start the application and click the **Open Project** button as shown in figure 2.19. If the application is already opened, then a project can be opened using **File->Open** option.

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Figure 2.19

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Browse For Folder Ibranies Ibranies	۸ ۲ ۸
	T
Status: Not Connected	

Figure 2.20

STEP 2: Browse for folder window appears as shown in figure 2.20.

STEP 3: Select the desired project.

STEP 4: Click OK.

2.3.3Add Files to Project

We can add files (Hex, mot, bin, bx, ebx) to the created project.

STEP 1: Right click on the project name displayed in the tree-view as shown in figure 2.21.

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- Crypto test Add File Refresh Delete Close								~
	Status : Not Connected	Quadprog	Encryption : Enabled	Target Voltage : 3.3V	Binary File Id: 12345678	Data Flash Erase : Disi	abled	Ŧ

Figure 2.21

STEP 2: Click on Add File option in the context menu-strip.

STEP 3: Select the required file and click **Open** button in the Open Dialog-box as shown in figure 2.22.



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Crypto test	Image: Started Construction Image: Started Construction Organize • New folder Image: Started Construction Organize • New folder Image: Started Construction Image: Started Construction Image: Started Construction Image: Started Construction	
	New Project Created Success	×
	Status : Not Connected Miniprog Encryption : Enabled Target Voltage : 3.3V Binary File Id : 12345678 Data Flash Erase :	Disabled

Figure 2.22

STEP 4: The added files will be listed in the tree-view and a message '**File Added Successfully**' is displayed in the text view as shown in figure 2.23.

STEP 5: To view file content in the text box by double click on the file name in the Treeview.

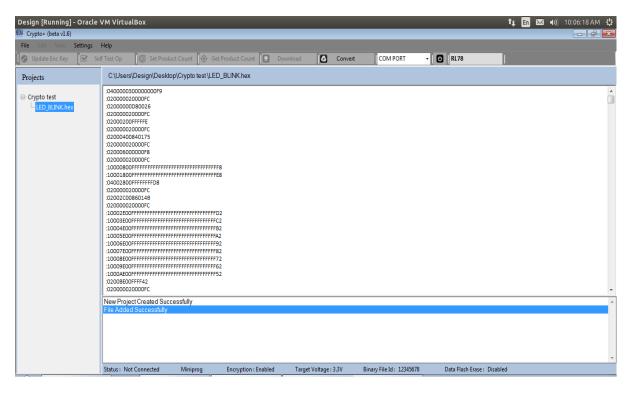


Figure 2.23



2.3.4Convert files

The hex, bin or mot files can be converted to .bx file and the encrypt it to create an .ebx files.

• To covert to .bx file:

STEP 1: Disable the encryption. Click on the required hex or mot file in the tree-view& Click **convert** button displayed in the toolstrip as shown in figure 2.24.

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Figure 2.24

STEP 2: Converted .bx file will appear in the tree-view and if the conversion was successful a message 'Binary file creation finished' is displayed in the text view as shown in figure 2.25.

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	70% 80% 90% 100%							E
	Binary file creation finished Status : Not Connected	Miniprog	Encryption : Enabled	Target Voltage :	3.3V Binary File Id : 1	.2345678 Data Flash Era	se : Disabled	



Figure 2.25

• To covert to .ebx file

STEP 1: Enable the encryption. Click on the required hex or mot file in the tree-view.

STEP 2: Click **Convert** button in the tool strip.

STEP 3: Converted .bx file will appear in the tree-view and if the conversion was successful a message 'Binary file creation finished' is displayed in the text view as shown in figure 2.25 & it will prompt for the encryption key.

STEP 4: Enter the 16 digit encryption key& click OK.

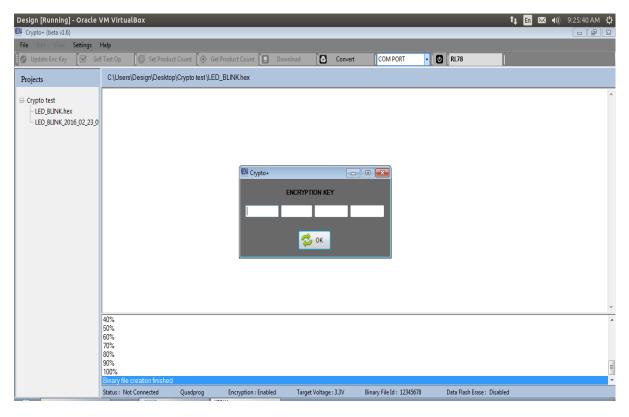


Figure 2.26

STEP 5: After the successful creation of the .ebx file a message 'new output ebx file created' is displayed in the text view and the .ebx file will be added in the tree-view as shown in figure 2.27.



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Crypto test - LED_BLINK.hex - LED_BLINK_2016_02_23_0 - LED_BLINK_2016_02_23_0							
	50% 60% 70% 80% 90%						*
	100% Binary file creation finished new Output ebx file created						
	Status : Not Connected	Quadprog Ei	ncryption : Enabled	Target Voltage : 3.3V	Binary File Id: 12345678	Data Flash Erase : Disable	

Figure 2.27

• To convert a .bin file

STEP 1: Click on the required binary .bin file from the tree-view. Click **Convert** button in the tool strip.

STEP 2: Prompt for entering start will be displayed as shown in figure 2.28. Enter the 8 digit start address & click on **OK**.



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Projects	C:\Users\Design\Desktop	o\Crypto test \Rx_demo_2016_02_03_01_2	8_44.bin		
⊖- Crypto test └- Rx_demo_2016_02_03_01		€M Crypto+	START ADDRESS		
	Deleted File Successfully				
	Deleted File Successfully Deleted File Successfully Deleted File Successfully File Added Successfully				A
	Status : Not Connected	Miniprog Encryption : Enabled	Target Voltage : 3.3V	Binary File Id: 12345678	

Figure 2.28

STEP 3: After the successful creation of the .bx file it will appear in the tree-view and a message 'Binary file creation finished' is displayed in the text view.

STEP 4: If encryption is enabled then after the .bx file creation, encryption key is asked as shown in figure 2.26. Enter the 16 digit encryption key and click OK button.

STEP 5: After the successful creation of the .ebx file a message **'new output ebx file created'** is displayed in the text view and the ebx file will be added in the tree-view as shown in figure 2.29.



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Figure 2.29

2.3.5 Connect to programmer

STEP 1: Select Com port to which the programmer is connected. **STEP 2:** Click on Connect **1** button as shown in figure 2.30.

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	500								Ŧ
	50% 60% 70% 80% 90% 100%								
	Binary file creation finished new Output ebx file created								
	Status : Not Connected		ryption : Enabled	Target Voltage :	3.3V Binar	ry File Id : 12345678	Data Flash Erase : Disa	ibled	

Figure 2.30

STEP 3: A window showing the firmware version & serial number will appear as shown in figure 2.31. Click **OK**.

	VirtualBox						tį En 🖂 🜒	9.30.33 AM Q
KMA Crypto+ (beta v1.6)								
File Edit View Settings Help	1							
🕜 Update Enc Key 📝 Self Test	it Op 🛛 🌀 Set Product	t Count 🛛 🍥 Get Product Coun	Download	Convert	COM5	- O RL78		
Projects C:	::\Users\Design\Desktop	\Crypto test						
Crypto test LED_BLINK.hex LED_BLINK_2016_02_23_0 LED_BLINK_2016_02_23_0			Crypto+ MIN502,SL	■X= NC:14200570 OK				
509 609 709 809	% % %							<u>۲</u> ۸
909 100 Bin								E
	tus : Not Connected	Quadprog Encryption	: Enabled Targ	et Voltage : 3.3V	Binary File Id: 1234567	8 Data Flash Erase :	Disabled	

Figure 2.31

STEP 4: If connection is established, the connect button in the application will turn green and all programmer details will appear in the text view as shown in the figure 2.32.

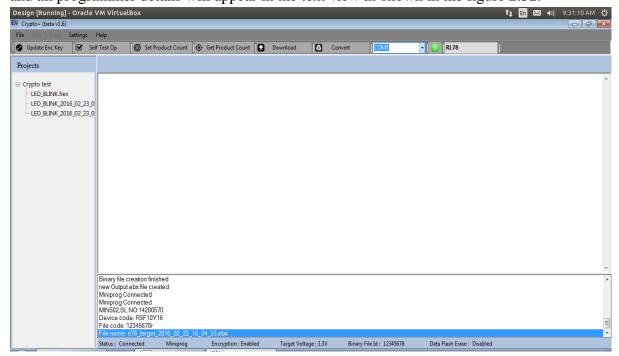


Figure 2.32

2.3.6 Download program to the programmer

STEP 1: If encryption is enabled in the settings and then select the encrypted file else select a .bx file from the tree-view. Click **Download** button.

STEP 2: Enter the device part number as shown in figure 2.33 & Click **OK**. A message **'File download finished'** will appear in the text view and a window to set the product count will appear as shown in figure 2.34.

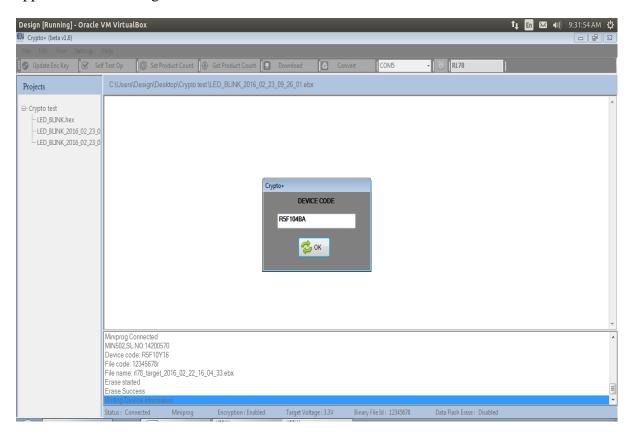


Figure 2.33

STEP 3: Set Product count-Provide the encryption key and the required product count & Click **OK**.

Design [Running] - Oracle \	/M VirtualBox							🕇 🚛 🖂 📢)) 9:	
KM Crypto+ (beta v1.6) File Edit View Settings I	ماما		_				_	_	- 6 💌
🕑 Update Enc Key 🗹 Self		Set Product Count	Get Product Count	Download	Convert	COM5	• 0 RL78	1	i
opulate the key Sel					G Convert	COMD	· C RE70		
Projects	C:\Users\Desigr	n\Desktop\Crypto test \	LED_BLINK_2016_02_23	3_09_26_01.ebx					
Crypto test LED_BLINK.hex LED_BLINK_2016_02_23_0 LED_BLINK_2016_02_23_0			EW Crypto+	ENCRYPTIC PRODUCT (5000000					*
	40%								۳ ۸
	40% 50% 60% 70% 80% 90% 100% File download finis	shed							
	Status : Connected		Encryption : Enabled	Target Voltage	: 3.3V Bina	y File Id : 12345678	Data Flash Erase : Disabled		

Figure 2.34

STEP 4: A message 'Set Product count success' will appear in the text view.

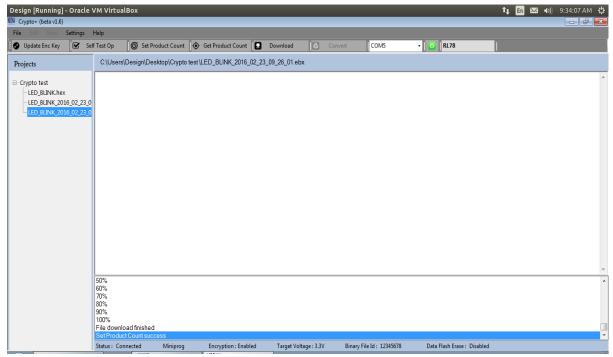


Figure 2.35



NOTE: For downloading the .bx file to the programmer disable the Enable encryption option in the Settings and then select the .bx file and click download button. In the case of R8C, .bx file cannot be downloaded to the programmer.

2.3.7 Set Product Count

Downloading a new program will erase the target count in the programmer. Therefore after downloading an encrypted/binary file, it is mandatory to set the target count in programmer.

STEP 1: Click **Set Product Count**. A window asking the encryption key and product count will appear as shown in figure 2.36.

STEP 2: After successful setting of the product count, a message 'Set Product count success' will appear in the text view as shown in figure 2.35.

NOTE: If we provide 9,999,999 as the product count, product count is set as infinity. Maximum product count that can be set is 5,000,000.

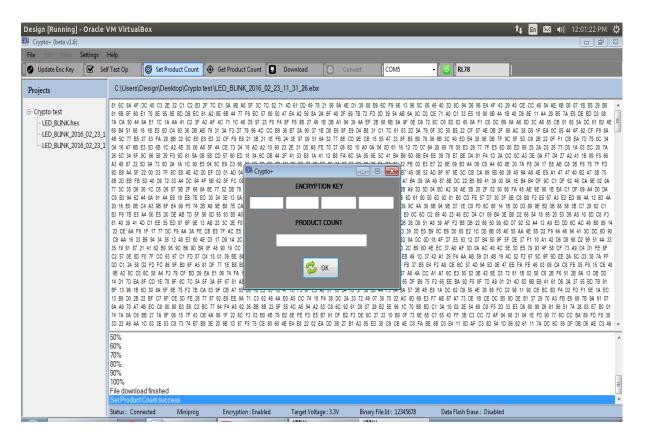


Figure 2.36

2.3.8 Get Product Count

STEP 1: Click on the **Get Product Count** in the Tool-Strip as shown in figure 2.37.

STEP 2: A message 'Getting Product count successful' and the product count value is displayed in the text view as shown in figure 2.37.

Design [Running] - Oracle	VM VirtualBo	x					🏚 🖬 🖂 🌒 12:10:55 PM 🤾	
KM Crypto+ (beta v1.6)								
File Edit View Settings								
🕜 Update Enc Key 🗹 Sel	lf Test Op	Set Product Count	🔄 Get Product Count	Download	Convert COM5	- 🔁 🛛 RL78		
Projects	C:\Users\Des	sign\Desktop\Crypto te	st Get Product Cou	nt				
Crypto test −LED_BLINK.hex −LED_BLINK_2016_02_23_1 −LED_BLINK_2016_02_23_1 −LED_BLINK_2016_02_23_1								K.
								Ŧ
	70% 80% 90% 100% File download Set Product Co Getting Product Product Count	unt success t Count Successfull						•
	Status : Connect	ted Miniprog	Encryption : Enabled	Target Voltage : 3.3V	Binary File Id: 12	1345678 Data Flash Er	ase : Disabled	

Figure 2.37

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2.3.9 Self Test Op

The status of all targets can be checked using the Self Test Op.

STEP 1: Remove all the targets board connections from Programmer

STEP 2: Click on **Self Test Op** as shown in figure 2.38.

STEP 3: Each target's status will appear in text view as shown in figure 2.38.

Design [Running] - Oracle VM VirtualBox	🕇 🚛 🖂 🜒	12:16:45 PM 🖞
🕅 Crypto+ (beta v1.6)		
File Edit View Settings Help		
🕑 Update Enc Key 🕼 Self Test Op 🕼 Set Product Count 💿 Get Product Count 💽 Download 🚺 Convert 🛛 COM5 🔹 💿 🛚 RL78		
Projects CALLerys/Design/Desktop/Crypto test		
C CYPIC TESI LED BUNK 2016 02 23 1 LED BUNK 2016 02 23 1		
		Ŧ
80% 90% 100% File download finished Set Product Count success Getting Product Count Successfull		^
Product Count:5000000 Target-1 UART Successfull		E
Status : Connected Miniprog Encryption : Enabled Target Voltage : 3.3V Binary File Id : 12345678 Data Flash Erase : Disabled		

Figure 2.38

2.3.10Update Encryption Key

STEP 1: Click on **Update Enc Key** as shown in figure 2.39.

STEP 2: Enter current encryption key & new encryption key & click OK.

Design [Running] - Ora	e VM VirtualBox	🏚 🖬 🖂 🗤) 12:20:22 PM 🔅
KM Crypto+ (beta v1.6)		
File Edit View Setting	Help	
🕑 Update Enc Key 🗹	Self Test Op 🛛 🎯 Set Product Count 🚺 Get Product Count 💽 Download 🚺 Conv	vert COM5 - 0 RL78
Projects	C:\Users\Design\Desktop\Crypto test	
Crypto test LED_BLINK.hex LED_BLINK_2016_02_ LED_BLINK_200_02_ LED_BLINK_200_02		
	80% 90%	- -
	90% File download finished Set Product Count success Getting Product Count Successfull Product Count 500000 Target-1 UART Successfull	E.
	Status : Connected Miniprog Encryption : Enabled Target Voltage : 3.3V	Binary File Id : 12345678 Data Flash Erase : Disabled

Figure 2.39



STEP 3: A message 'Encryption key Updated successfully' is displayed in the text view as shown in figure 2.40.

Design [Running] - Oracle	VM VirtualBox							🛊 🖪 🖂 🗤) 12:21:25 PM 🔱
KM Crypto+ (beta v1.6)								
File Edit View Settings	<u> </u>							
🔗 Update Enc Key 🛛 🗹 Se	elf Test Op	Set Product Count	Get Product Count	Download	Convert	COM5	- O RL78	
Projects	C:\Users\Desi	gn\Desktop\Crypto test						
Crypto test - LED_BLINK.hex - LED_BLINK_2016_02_23_1 - LED_BLINK_2016_02_23_1								Α
								Ŧ
	Product Count:5	nt success Count Successfull 000000						
	Target-1 UART Encryption Key I							E
	Status : Connecte		Encryption : Enabled	Target Voltag	je:3.3V Bi	inary File Id: 12345678	Data Flash Erase : Disabl	ed

Figure 2.40



2.3.11 Restore Factory Settings

Programmer will be reset to factory setup. The program and target count will be erased & encryption key is set to default encryption key which is set by the manufacturer.

STEP 1: Connect to the device. Press

STEP 2: Click Restore Factory Settings option in Help shown in figure 2.41.

Design [Running] - Oracle ' KM Crypto+ (beta v1.6)	VM VirtualBox					tų En ⊠ (4)) 12:36:10 PM 🔱
	Help					
🔮 Update Enc Key 🛛 🗹 S	About Restore Factory Settings	unt 🔞 Get Product Count 📘	Download	Convert COM5	• 0 RL78	
Projects	Upload Firmware	rpto test				
Crypto test LED_BLINK.hex LED_BLINK_2016_02_23_1 LED_BLINK_2016_02_23_1						
						Ŧ
	Miniprog Connected MIN502, SLNO:14200570 Device code: R5F104BA File code: File name: LED_BLINK_2016	.02_23_11_31_26 ebx				
	Status : Connected Min	iprog Encryption : Enabled	Target Voltage : 3.3V	Binary File Id: 12345678	Data Flash Erase : Disabled	

Figure 2.41

STEP 3: After successfully resetting to factory setup a message 'Restore Factory Setup Successful' will be displayed in the text view as shown in figure 2.42.

• Update Enc Key • Self Test Op • O • O • O	Crypto+ (beta v0)	COMPANY OF THE OWNER.	COMPANY NAMES	In the second second	of the local division of the local divisiono	the second	
Projects C:(Users)Design/Desktop/Crypto test/LED_BLINK_2016_02_23_09_24_03.bx C:(ptol lest 000 FF FF 400 000 FF							
Copicities is a construction of the property of the propert	Opdate Enc Key Self Test	Op Og Set Product Count	Get Product Cou	ant 🚺 🖸 Download	Convert	COMB - OR RLT	78
Coppto test LED_BUNK hex -LED_BUNK_2016_02.23.0 LED_BUNK_2016_02.23.0 LED_BUNK_2016_02.23.0 LED_BUNK_2016_02.23.0 LED_BUNK_2016_02.23.0 LED_BUNK_2016_02.23.0 LED_BUNK_2016_02.23.0	Projects	C:\Users\Desigr	h\Desktop\Cr	ypto test \LED_E	LINK_2016_02_2	23_09_24_03.bx	
Encryption recy option stated	- LED_BLINK_2016_02_23_0	01 FF FF FF FF FF FF FF FF FF FF FF FF FF	FF FF<	$\begin{array}{c} \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} = \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} = \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} = \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} = \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} = \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in \mathbf{F} \\ \mathbf{F} \in $	FF FF<	FF FF<	$\begin{array}{c} FF \ FF \$

Figure 2.42

2.3.12UploadFirmware

The programmer firmware can be upgraded.

STEP 1: Connect to the device.

STEP 2: Click Upload Firmware option in Help shown in figure 2.41.



STEP 3: A dialog box asking for confirmation will appear as shown in figure 2.43. Click **Yes** to proceed.

1									
Design [Running] - Oracle \	VM VirtualBox							💶 🖬 🖂 🜒 12:54:10 PM	
KMk Crypto+ (beta v1.6)								- F	23
File Edit View Settings	Help								
🔗 Update Enc Key 🗹 Sel	f Test Op 🛛 🎯	Set Product Count	Get Product Count	Download	🖸 Co	nvert COM5	- 🛛 🙆 🛛 RL78		
Projects	C:\Users\Desig	n\Desktop\Crypto test							
- Crypto test - LED_BLINK.hex - LED_BLINK_2016_02_23_1 - LED_BLINK_2016_02_23_1 - LED_BLINK_2016_02_23_1			Miniprog Do you want to u data present in Pr	pgrade the firmware ogrammer, Click VES	of Miniprog? TI to proceed	nis action will loose all the Yes No			*
	Miniprog Connect MIN502,SL.NO:14 Device code: R5I File code: File name: LED_E	200570	31_26.ebx						^
									-
	Status : Connected	l Miniprog	Encryption : Enable	ed Target Vo	oltage : 3.3V	Binary File Id: 123456	78 Data Flash Erase :	Disabled Tuesday, February 23, 2	016

Figure 2.43

STEP 5: Select the .octfrm firmware file from the Open window. **STEP 6:** Click **open**.

Crypto+ (beta v1.6)							 - F
ile Edit View Settings H							
🕑 Update Enc Key 🛛 🗹 🛛 Self	f Test Op 🛛 🎯 Set Prod	uct Count 🛛 📀 Get Product Count	t 🖸 Download	Convert	COM5 -	0 RL78	
Projects	C:\Users\Design\Deskt	op\Crypto test					
	Miniprog Connected MIN502.SL.NO.14200570	Elli Open Crganize Vew folder Favorites Desktop Downloads Recent Places Ubraries Documents Music Pictures Videos Computer Local Disk (C:)	Name dasðsadsa dejdff defdf fiddstof fiddstof gifgtfd gifgtfd gifgtfd gifgtfd gifgtfd chetetet sdafdatd	• +9	Date modified 1./28/2016 2-41 PM 1./28/2016 2-56 PM 1./28/2016 2-56 PM 1./28/2016 1-148 AM 1./28/2016 1-347 PM 1./28/2016 3-47 PM 1./28/2016 3-47 PM 1./28/2016 3-46 PM 1./28/2016 2-35 PM 1./28/2016 3-40 PM 1./28/2016 3-40 PM	P Type File fol File	
	Device code: R5F104BA File code:				Open 🔫 🔽	ancel	
	File name: LED_BLINK_						

Figure 2.44

STEP 7: After completing firmware download, message **'Firmware File download finished'** will be displayed in the text view as shown in figure 2.45.

Projects C'apple Cypto 5 Crypto test	Crypto+	sund had been services					100	0 ×
Projects C'acypto Ocypto 5	File Edit View Set	tings Help						
rupto - Crypto test	💽 Update Enc Key 📔 S	ielf Test Op	nt 🚺 Get Produc	t Count 🔹 💽 Download	Convert	COM3 .	C RL78	1
Crypto test	Projects	C:\cypto\Cypto 5						
40% 50% 60% 70% 80% 90% 100% Fintware File download finished	- Crypto test							*
40% 50% 60% 70% 80% 90% 100% Fintware File download finished								
40% 50% 60% 70% 80% 90% 100% Fintware File download finished								
40% 50% 60% 70% 80% 90% 100% Fintware File download finished								
50% 60% 70% 80% 90% 100% Frimware File download finished								
100% Frimware File download Inished		50% 60% 70%						
		100%						
								-

Figure 2.45

2.3.13 About Us

STEP 1: Click About option in Help shown in figure 2.41.

STEP 2: A window 'About Us' as shown in figure 2.46 will appear, which shows the details about the Crypto+.

😣 🗆 📼 File Machine Vie	ew Input Devices Help					🏚 🖬 🖂 📢) 1:52:48 PM 🔱
KM Crypto+ (beta v1.6)		_	_	_	_	
File Edit View Settings						
🔗 Update Enc Key 🛛 🗹 Se	f Test Op 🛛 🎯 Set Product Co	unt 💿 Get Product Count 📘	Download 🖸 C	onvert COM5	- 0 RL78	
Projects	C:\Users\Design\Desktop\Cry	ypto test				
Crypto test		^{€M} About us Crypto + Beta Ver Neona Er				
	Miniprog Connected MIN502, SL. NO. 14200570 Device code: R5F104BA File code: File code: Ender ELED_BLINK_2016_0 Deleted File Successfully Deleted File Successfully	2_23_11_31_26.ebx				· · · · · · · · · · · · · · · · · · ·
	Status : Connected Minip	rog Encryption : Enabled	Target Voltage : 3.3V	Binary File Id: 12345678	Data Flash Erase : Disabled	

Figure 2.46

2.3.14 Settings

There is a Settings menu in Crypto+ in which various settings can be changed. Clicking on Settings will show all options in the settings menu as shown in figure 2.47. The options are as follows:

- Enable encryption: Encryption status can be enabled or disabled. It depends on device and programmer that you have selected.
- ➤ 5V: Target power can be changed to 5V. 5V option is available depending on the chosen device and programmer.
- > Data Flash Erase: Data Flash erase can be enabled or disabled.
- > Set Binary File Id: Provide option to set Binary file id
- > **Programmer:** Helps to select the required programmer.



Design [Running]	- Oracle	VM VirtualBo	(ti En 🖂 (1)) 9:23:33 AM 🔆
	Settings	Usla						
		e Encryption						
🕜 Update Enc Key	5v	e cheryption	Set Product Count	Get Product Count	ownload 🚺 Conve	rt COM PORT	RL78	
Projects		Flash Erase	gn\Desktop\Crypto test					
,		nary File Id						*
⊟ Crypto test	Prog	ammer 🕨						<u>^</u>
LED_BLINK.he	- riogi		1					
								Ŧ
		File Added Suc	cessfully					*
		Status : Not Con	nected Quadprog	Encryption : Disabled	Target Voltage : 3.3V	Binary File Id: 12345678	Data Flash Erase : Disabled	

Figure 2.47

NOTE: Details about the above mentioned settings is described in detail in Section 2.3.1.

2.3.15 File

The options available when clicking File button is shown in figure 2. 48.

Design [Running] - Oracle	VM Virtu	alBox									Ť,	, En 🖂	
KM Crypto+ (beta v1.6)													 d X
File Edit View Settings	Help												
New Project S	elf Test Op	© Set Produ	ct Count 🚺 💿 Ge	et Product Count 📘	Download		Convert	COM PORT	- 0	RL78			
Open Project	-												
Recent Project 🔸	C:\Users	s\Design\Deskto	p\Crypto test										
Close Project													
Exit													
CED_DERVICINES													
													-
	Eile Adde	d Successfully											
		d odeccooldiny											
													 ~
	Status : No	ot Connected	Quadprog	Encryption : Enable	ed Targo	et Voltage : 3.	3V Bi	nary File Id: 1234	5678	Data Flash Er	ase : Disabled		

Figure 2.48

- New Project: A new project can be created with this option. Follow the steps starting from STEP 2 in section 2.3.1 to create new project.
- Open Project: A project can be opened with this option. Follow the steps starting from STEP 2 in section 2.3.2 to open a project.
- > Recent Project: Helps to open recently opened projects.
- Close Project: The current project can be closed using the Close Project option.
- **Exit:** To exit from the application click Exit option.



2.3.16 Project options

Different project options can be seen when we right click on the project name in the tree-view as shown in figure 2.49.

Dealer (Durale 1, Dealer)							
Design [Running] - Oracle	VM VirtualBox						🏚 🖪 🖂 📢) 9:22:29 AM 🔱
KM Crypto+ (beta v1.6)							- F <mark>-</mark>
File Edit View Settings						1-1	
🕜 Update Enc Key 🛛 🗹 Sel	f Test Op 🛛 🌀 Set	Product Count 🛛 🔶 Get	: Product Count 📘 Do	ownload 🚺 Convert	COM PORT -	RL78	
Projects	C:\Users\Design\D)esktop\Crypto test					
Crypto test Add File Refresh Delete Close							~
							A
							~
	Status : Not Connecte	d Quadprog	Encryption : Enabled	Target Voltage : 3.3V	Binary File Id: 12345678	Data Flash Erase : Disabled	

Figure 2.49

- > Add file:Refer section 2.3.3.
- > **Refresh:** The project can be refreshed using this option.

Delete: The project can be deleted. A warning window will appear as shown in figure 2.50. If you want to proceed then click Yes. After deleting the project a message
 'Deleted Project Successfully' will appear in the text view.

	J	v	11						
Design [Running] - Oracle '	VM VirtualBox							tų En 🖂 4))) 3:05:21 PM 🔱
KM Crypto+ (beta v1.9)									
File Edit View Settings	Help								
🕜 Update Enc Key 🛛 🗹 🛛 Sel	lf Test Op 🏾 🎯 Set Pro	duct Count 🔶 Get I	Product Count 📘 Do	ownload	Convert	COM PORT	RL78		
Projects									
Crypto test LED_BLINK.hex LED_BLINK_2016_02_23_1 LED_BLINK_2016_02_23_1			Warnin Are y	1g ou sure to delete this p	roject? No				•
									Ŧ
									·
	Status : Not Connected	Miniprog	Encryption : Enabled	Target Voltage : 3	.3V Binar	ry File Id : 12345678	Data Flash Erase :	Disabled	

Figure 2.50

Close: The project can be closed using this option.



2.3.17 Delete File in a Project

STEP 1: Right click on the file to be deleted & select **Delete**.

Design [Running] - Oracle \ KM Crypto+ (beta v1.6)		_					t ∎ 🔀 4)) 9:24:48 AM 🔱
File Edit View Settings I							
🕜 Update Enc Key 🛛 🗹 Selt			roduct Count 📘 Dov		rt COM PORT	- O RL78	
Projects	C:\Users\Design\Deskto	p\Crypto test \LED_	BLINK_2016_02_23_09_	24_03.bx			
Crypto test	ie						
	40% 50% 60% 70% 80%						^
	80% 90% 100% Binary file creation finished						E
	Status : Not Connected	Quadprog	Encryption : Enabled	Target Voltage : 3.3V	Binary File Id: 12345678	Data Flash Erase : Disabl	ed

Figure 2.51

STEP 2: A warning window will appear as shown in figure 2.52. If you want to proceed then click Yes. If the file is deleted successfully then a message 'Deleted file Successfully' will be shown in the text view.

Design [Running] - Oracle \ KM Crypto+ (beta v1.6)	/M VirtualBox				t	🍹 En 🖂 📢) 9:25:11 AM 🛟
File Edit View Settings I	Help					
🕑 Update Enc Key 🛛 🗹 Self		t Count 🛛 🍥 Get Product Coun	t 💽 Download 🚺 🙆 Con	COM PORT	- 🖸 RL78	
Projects	C:\Users\Design\Desktop	Crypto test \LED_BLINK_2016	6_02_23_09_24_03.bx			
Crypto test LED_BLINK.hex LED_BLINK_2016_02_23_05						
			Warning	23		
			Are you sure to delete this file?			
			Yes	ło		
	40%					*
	50%					
	60% 70%					
	80% 90%					=
	100%					
	Binary file creation finished	Our days and for any time	- Fachlad Tarast Values - 2.20	Disco - 51-14 - 10045670	Data Flash Erase : Disabled	~
	Status : Not Connected	Quadprog Encryption	: Enabled Target Voltage : 3.3V	Binary File Id: 12345678	Data riash Erase : Disabled	

Figure 2.52

2.4 Download program to target devices(Stand Alone Programming Steps):



- 1. Switch on the Octoprog device using 5v, 3A adapter & connect the targets to the Octoprog.
- 2. Press the **START** button for about 2 seconds to start flashing the connected targets. When the Octoprog is flashing the targets, corresponding target LEDs will be blue.
- 3. If flashing is completed successfully, corresponding target LEDs turns green.
- 4. If there is a failure in flashing, corresponding target LED will turn red.
- 5. After the target programming is completed, reset the Octoprog by using **START** switch.
- 6. The target count will be decremented after each successful flashing. When target count becomes zero, the program downloaded to Octoprog will be erased instantly. After that, if you try to download the program to target device, all LEDs will glow white indicating no program is downloaded to Octoprog. You can check the current target count in USB_MODE.

2.5 LED INDICATIONS:

When Octoprog is got into USB_MODE, all the LEDs blink once.

LED indications in USB_MODE.

- 1. When Octoprog software is connected to the device properly, T5 glows green.
- 2. When download ENC hex is success, following LED indications are there:
 - 1. Erasing success, T6 glows green
 - 2. Programming success, T7 glows green
 - 3. Successfully stored device information, T8 led glows green
- 3. Update encryption key success, T4 glows green.
- 4. Set product count success, T2 glows green.
- 5. Restore factory set up command processing, T5 led glows blue. Restore factory set up success, T3 glows green.

When Octoprog is got into PROGRAM_MODE, all led's blink once red, once blue & once green.

LED indications in PROGRAM_MODE after START button is pressed for programming the target device,

- 1. If there is no target program is downloaded or target product count is not set or your target count limit is reached(i.e. when you reach the target count limit, the target program downloaded to RX will be erased & will be in no program downloaded condition), all the LEDs glow white.
- 2. When programming is progressing corresponding target's blue led will be glowing.
- 3. When programming is failed, corresponding target's red led will be glowing.
- 4. When block programming is success, corresponding led will blink green.
- 5. When block verification is success (i.e. programming is completed successfully), corresponding target's green led will be glowing.

