Tag User Manual

version 1.93



PROGRAMMING A TAG

1 Installing Renesas Software v4.09

Download the Flash Development Toolkit v4.09 from the download section of the SMRU website:

http://www.smru.st-and.ac.uk/Instrumentation/Downloads/

Copy the installation file on to the PC desktop and run the installer by using the mouse to double click on the icon.



Navigate through the various installation windows, accepting the defaults:



etc.

It reduces clutter later to select only the option shown here on this screen:

Renesas Flash Development Toolkit (v4.09) - I	nstallShield Wizard
Select Features	
Select the features setup will install.	RENESAS
Select the features you want to install, and dea	select the features you do not want to install.
FDT Application FDT Application For H8S For H8S For H8 For H8 Fo	Description
6899.77 MB of space available on the C drive InstallShield	
	< Back Next > Cancel
Renesas Flash Development Toolkit (v4.01) - InstallShield Wizard Select Options Setup requires you to make the following choices:	× SAS
Crean up our security. This ophormenioves any existing security before installing. Associate data files. Data files will open in FDT	
.a37 ▼ .mot	
i bin i rec	
.cde .s2	
₩ .ddi	
< Back Next>	Cancel

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2 Configuring the Renesas FDT v4.09 Software

This process only needs to be complete once for a given software installation on a PC. The configuration values are preserved for next time the software is run.

There are basic and complex versions of the FDT program. Start the 'Flash Development Toolkit **Basic**' application from the start menu on the PC.



Scroll down the list and select the processor 'H8/3048BF'

ilter:				Other
Туре	Full Name	Kernel Version	Info	
H8/300H	H8/3022F	1 0 00		=
H8/300H	H8/3048BF	1 0 00		
H8/300H	H8/3052BF	1_2_00		
H8/300H	H8/3052F	1_2_00		
H8/300H	H8/3024F	1_2_00		
H8/300H	H8/3062AF	1_2_00		
H8/300H	H8/3062BF	1_2_00		
H8/300H	H8/3026F	1_2_00		
H8/300H	H8/3064BF	1_2_00		
H8/300H	H8/3064F	1_2_00		
H8/300H	H8/3028F	1_1_00		-

Using the drop-down menu, select the COM port used by the Bluetooth device, then press 'next'.

Set the clock frequency to 24MHz, then press 'next'



Set the connection type to 'Boot Mode'. Deselect the 'Use Default' and set the recommended speed to 9600 (for programming with Bluetooth from the drop-down list. Press 'next'

Y

Note: For Bluetooth the rate must be set to 9600.

Workspace 2 DA FF SB Workspace Industrial Co Display 10 06 and Co Target files on Commence Industrial Co Display 10 06 and Co Target files on Commence Industrial Co Target files on Commence Industrial Co Target files on Commence Industrial Co Target files on Commence Industrial Co Commence Industrial Co Co Commence Industrial Co Co Co Co Co Co Co Co Co Co Co Co Co C	The FLASH Development Toolkit can connect to your device in a number of different ways. All the options on this page may be changed after the Project has been created. Select Connection: BOOT Mode Kemel already running In BOOT Program mode the device erases its FLASH prior to connection. The Toolkit downloads programming kernels to the device as required. The Recommended Speed setting is based on the current device and clock. The user may also input their own, if this is supported by the kernel (and the interface board). Recommended Speeds: Recommended Speeds: S7600 S600 S600 S600 C User Specified: C Liver C Cancel
Workspace Industrial Commendation Workspace Industrial Commendation Display Industrial Commendati	The FLASH Development Toolkit can connect to your device in a number of different ways. All the options on this page may be changed after the Project has been created. Select Connection: USER Program Mode
	< <u>B</u> ack <u>N</u> ext > Cancel

Leave the Programming Options as 'Protection – Automatic' and 'Messaging – Advanced'.

Press 'Finish'.

Programming Options	X
Workspace Industrial Composition of the second seco	The FLASH Development Toolkit offers a device protection system, plus an advanced messaging level for use with hardware and kernel development. What level of device protection would you like? Protection <u>Automatic</u> Interactive None When programming the device, any blocks found to have been written previously will automatically be erased. What level of messaging would you like? Messaging Standard Advanced The Toolkit will display verbose messages whenever it is communicating with the Target device. This mode is useful for Interface hardware development, and Kernel development.
	< <u>B</u> ack Finish Cancel

When the 'Finish' button is pressed, the main window used for programming a tag opens automatically.

FDT Simple Interface (Unsupported Freeware Version)		
Options		
BASIC FILE PROGRAMMING Exit		
Device : H8/3048BF Port : COM25		
File Selection		
User / Data Area		
User Boot Area		
Program Flash Disconnect		
Flash Development Toolkit and flash programming components are provided without support		
OS: Windows 7 [Non-Admin] FDT API initialised: version 4, 09, 02, 000 FCF Settings Applied: H8/3048BF, (C:\Program Files (x86)\Renesas\FDT4.		
4		

3 Tag Programming with Renesas FDT v4.09 Basic Software

If the Renesas software is being used for the first time then follow the configuration instructions in the preceding section, else proceed as follows:

Place a magnet against the glass reed-switch located on the side of the tag, as shown – although tag configurations differ somewhat, the relative position of the reed-switch in relation to the battery and the front of the tag remains the same.



A rather faint yellow LED mounted along the edge of the PCB will flash approximately once every 4 seconds. If it doesn't flash, remove magnet and try again.

Once the yellow LED is flashing, place a second magnet to the rear of the tag, behind the battery but close to the corner where the first magnet was positioned.



Note: The order in which the two magnets is positioned against the tag is important for programming. The magnet on the side of the tag <u>must</u> be positioned first, <u>then</u> the magnet to the rear of the tag.

When the second magnet is correctly then a flashing red LED should be visible through the epoxy near this magnet:



Establish a Bluetooth connection with the PC (but don't try to run TagConfig).

Make a note of the COM port established with the PC.

Run the 'Flash Development Toolkit v 4.09 Basic' from the 'Start menu:



In the FDT Simple Interface window, confirm that the COM port setting identified in the window is the same as that for the established Bluetooth connection. If not then follow the procedure in Section 2 to set the COM port to the Bluetooth port.

FDT Simple Interface (Unsupported Freeware Version)		
Options		
BASIC FILE PROGRAMMING	Exit	
Device : H8/3048BF Port : COM25		
File Selection		
• Download File		
🗆 User / Data Area		
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Program Flash	Disconnect	
Flash Development Toolkit and flash programming components are provided without support OS: Windows 7 [Non-Admin] FDT API initialised: version 4, 09, 02, 000 FCF Settings Applied: H8/3048BF, (C:\Program Files (x86)\Renesas\FDT4.		
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FDT Simple Interface (Unsupported Freeware Version)		
	Exit	
Device : H8/3048BF Port : COM25		
File Selection		
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User Boot Area	•	
Program Flash D	isconnect	
Flash Development Toolkit and flash programming components		
are provided without support		
OS: Windows 7 [Non-Admin] FDT API initialised: version 4, 09, 02, 000		
FCF Settings Applied: H8/3048BF, (C:\Program Files (x86)\Rene	sas∖FDT4.	
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In the FDT Simple Interface window, press on the right-hand arrow button

Navigate to the ".mot" file to load on to the tag

Open			? 🗙
Look in: 尾	MADE	- 🗢 🗈 (* 💷 *
ing ing building building building building	fast2_2_norf fast2_3_norf vp		
File <u>n</u> ame:	Type: FDT3 Data File Size: 84.3 KB Date Modified: 16/04/2008 16:40		<u>O</u> pen
Files of <u>type</u> :	S-Record Files (*.MOT)	•	Cancel

When the file has loaded in to the application, ensure the "User Data Area" tick-box is ticked then press the 'Program Flash' button.

FDT Simple Interface (Unsupported Freeware Version)			
Options			
BASIC FILE PROGRAMMING Exit			
Device : H8/3048BF Port : COM25			
File Selection			
Ownload File			
☑ User / Data Area alog.try\made\GSM_17C_v169_v1-80_gsm4_wc-floc_noCTD.mot	►		
User Boot Area			
Program Flash Disconnect			
Flash Development Toolkit and flash programming components are provided without support OS: Windows 7 [Non-Admin] FDT API initialised: version 4, 09, 02, 000 FCF Settings Applied: H8/3048BF, (C:\Program Files (x86)\Renesas\FDT4.			
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Progress is reported in a status window, as follows:

FDT Simple Interface (Unsupported Freeware Version)	FDT Simple Interface (Unsupported Freeware Version)
Options	Options
BASIC FILE PROGRAMMING Exit	BASIC FILE PROGRAMMING Exit
Device : H8/30488F Port : CDM3	Device : H8/3048BF Port : COM3
- File Selection	File Selection
🕫 Download File	Ownload File
User / Data Area M:\h8_progs\building\MADE\building_vp.mot	User / Data Area M:\h8_progs\building\MADE\building_vp.mot
User Boot Area	User Boot Area
Cancel Disconnect	Program Flash Disconnect
8%	
Changing baud rate to 19200 bps Set baud rate value = 19200 Downloading main kernel 'C:\Program Files\Renesas\FDT4.00\kernels\Pr Main kernel download complete Connection complete Processing file 'M:\h8_progs\building\MADE\building_vp.mot" Operation on User Flash Downloaded the operation module Writing image to device [0x00000000 - 0x000007B7F] Writing image to device [0x0000010 - 0x00007B7F]	Operation on User Flash Downloaded the operation module Writing image to device [0x00000000 - 0x000007F] Writing image to device [0x00000100 - 0x00007B7F] Data programmed at the following positions: 0x00000000 - 0x000007F Length: 0x00000080 0x00000100 - 0x00007F Length: 0x000007A80 30.75 K programmed in 52 seconds Image successfully written to device

When programming has completed successfully, click "Disconnect" and reove the magnets from the tag. The tag should restart and indicate that it is in standby mode by a double flash of the red LED near the antenna.

If further tags are to be programmed, it is most efficient to delete the Bluetooth connection, establish a connection to the new tag using the same COM port number, then simply press "Program Flash" again.