Universal Probe

IDE Connection Manual

IAR Systems Edition

Table of Contents

NOTES

Thank you for purchasing the "Universal Probe" from Sohwa & Sophia Technologies. Correctly understand notes and other information in this document before using this product.

1. A permission from the Japanese government is required when exporting the product and technologies described in this document to which the "Foreign Exchange and Foreign Trade Act" applies or bringing them out of Japan.
2. The product described in this document is intended to be used in general electronics such as business equipment, communication equipment, measurement equipment, or home appliances. Do not use this product in special-purpose equipment such as automobile, railway, marine, or aerospace equipment, transportation equipment, combustion equipment, safety devices, medical equipment, infrastructure equipment, or nuclear power that requires special quality and reliability and of which failure or malfunction may directly threaten human lives or injure human bodies. The customer should be responsible for using this product in such equipment.
3. It is strictly prohibited to reprint this document in whole or in part without our written permission.
4. The contents of this document are subject to change without notice.
5. The specifications in this document may lead to different results depending on your environment or measurement conditions.
6. Note that we bear no responsibility for consequence of operating this product.
7. "Operating Precautions" in this document are important notes to prevent damage on users and third parties as well as assets and to use the product safely and correctly. Be sure to read these precautions before using this product.
8. The product names and trade names in this document are trademarks or registered trademarks of respective owners.

Contact information can be obtained on the website of **Sohwa & Sophia Technologies Inc.**
URL > **http://www.ss-technologies.co.jp/en/index.html**

Universal Probe IDE Connection Manual - IAR Systems Edition

Operating Precautions

Failure to observe the following precautions may lead to human death or severe injury.

Do	Avoid supplying voltage out of the range specified in the specifications of this product. Supplying the voltage out of the range may cause damage or fire.
Do	When using the target equipped with the ground terminal, ensure that the ground terminals of the target and peripheral equipment are connected. Failure to do so may cause an equipment failure or electric shock. Avoid connecting the ground terminal to the gas pipe. This causes a fire or explosion.
Don't	Do not transport this product with equipment connected. In particular, hold the plug when removing or inserting the cable. Failure to do so may damage the cable, causing a fire or electric shock.
Don't	Observe the following points when handling the cable. Do not damage, process, forcibly bend, twist, pull, putting any object on or heat the cable, moving the cable close to the heating device, or touch the cable with a wet hand. Failure to observe these precautions may cause a fire or electric shock. If the cable is damaged, stop using it.
Don't	When you hear thunders, do not touch the power plug. This causes an electric shock. If the product seems to be damaged by lightning strike, stop using it.
Don't	Do not let a staple, clip or other metal items enter into the product. This may cause a fire or failure.
Don't	Do not use or leave the product in direct sunlight, near heating devices, in an extremely hot or cold environment, under hard vibrations, in dusty area with a large amount of metal dust or oily dust, or noisy area full of spike noise. Do not apply a strong shock to the product.
Do not disassemble	Do not disassemble, alter or repair the product. This may cause a fire or electric shock.
No wetting	Do not use the product at a place where there is liquid or at a humid place such as bathroom or in vicinity to glasses. This may cause an electric shock. If liquid enters into this product, immediately turn it off and stop using it.
Caution	Touching the energized product for a long time may cause low-temperature burns. Do not use this product covering with comforter or other cloth.
Pull out the plug.	Immediately turn the power off if unusual smell, noise, smoke or fire is detected or if the product is or may be damaged due to a fall or strong shock. Continuing to use it may lead to a serious accident. Stop using the product.

Abbreviations, Terms and Conventions

This section describes the abbreviations, terms and conventions used in this document.

- About numeric values ... All the numeric values are positive unless otherwise specified.
- K (capital letter) ... Represents 2^{10}=1024. (Example: 16 K=16384)
- k (small letter) ... Represents 1000. (Example: 1 kHz=1000 Hz)
- [xxxxx] ... Represents the window title, xxxxx.
- <xxxxx> ... Represents the item named xxxxx in the window.

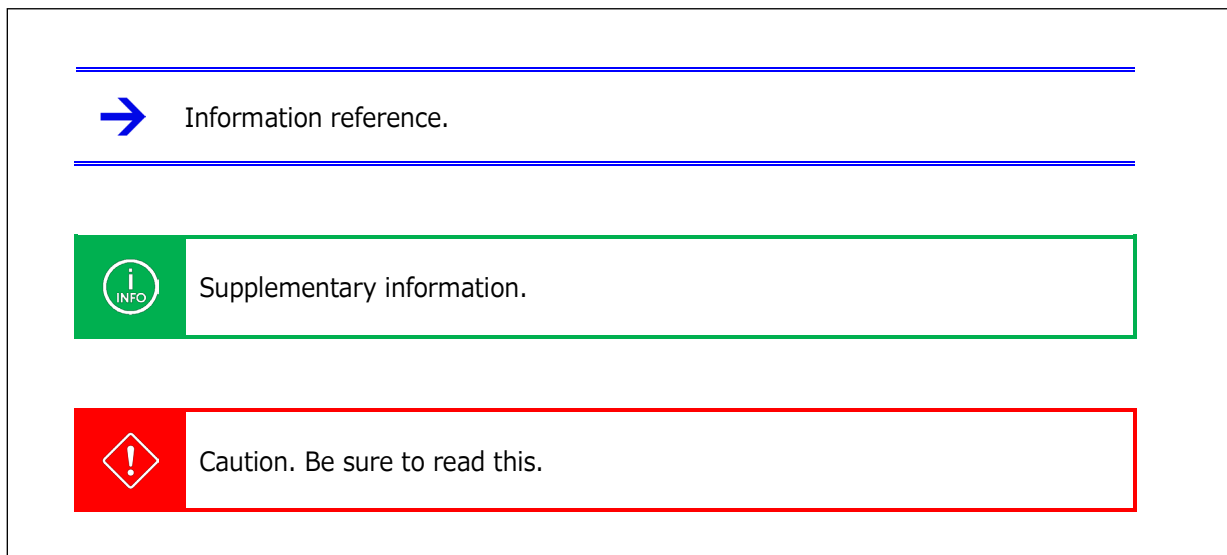The annotations and notes used in this document are as shown in Figure 1.

➡ Information reference.

INFO Supplementary information.

⚠ Caution. Be sure to read this.

Figure 1

The abbreviations and terms are as shown in Table 1.

Table 1

Abbreviations and terms	Description
This product	Universal Probe including accessories.
Probe	Universal Probe itself.

Universal Probe IDE Connection Manual - IAR Systems Edition

1. Preparation

> ⓘ The software versions and download URLs are as of the preparation of this document.
> We do not guarantee that software version, download URLs, compatibility, and screen configurations will remain unchanged at the time that the user creates an environment.

1.1. System Requirements and Software Installation

For the system requirements and the software installation method, refer to the IAR Systems website or relevant manual.

1.2. Starting up IAR Embedded Workbench

Click the IAR Embedded Workbench for ARM icon in the Start menu or on the desktop to start up the software. When the software has started up, the screen as shown below is displayed.
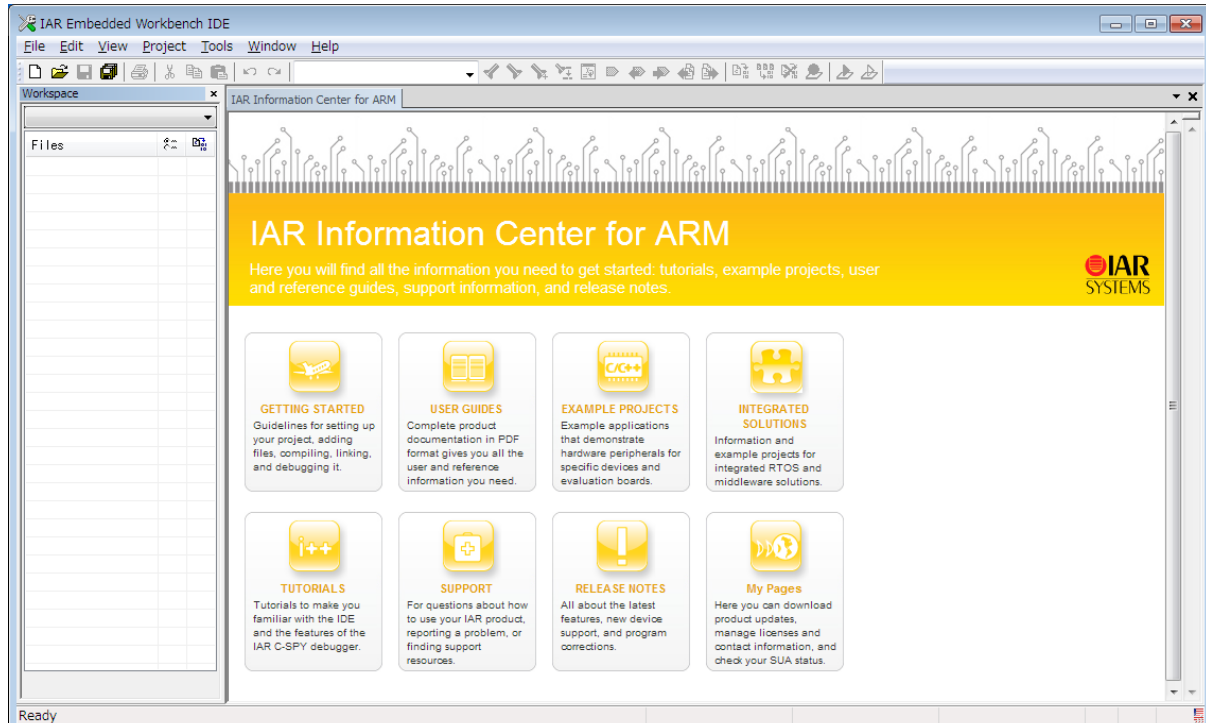

Figure 2

Universal Probe IDE Connection Manual - IAR Systems Edition

1.3. Connecting Probe

After starting up IAR Embedded Workbench for ARM, connect the probe to the PC.
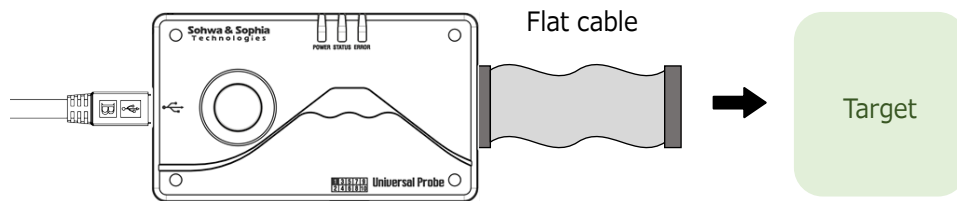Then, connect the probe to the target using the flat cable that comes with the probe.

Figure 3

For details of the use of the probe, refer to "Universal Probe Hardware Users Manual".

2. Debugging Procedures Using IAR Embedded Workbench for ARM

> ⚠ To perform debugging using IAR Embedded Workbench for ARM, you need to rewrite the firmware for the probe with "CMSIS-DAP Firmware" by using the Firmware Selector in advance.
> For details, refer to "Universal Probe Software Users Manual - Firmware Selector".

2.1. Open a Project

Open an existing workspace or create a new workspace.

- Select "File" → "Open" → "Workspace" from the menu to open a project.
- Select "Project" → "Create New Project" from the menu to create a new project.

2.2. Performing Programming and Make

Write a program and execute Make to create a binary file.
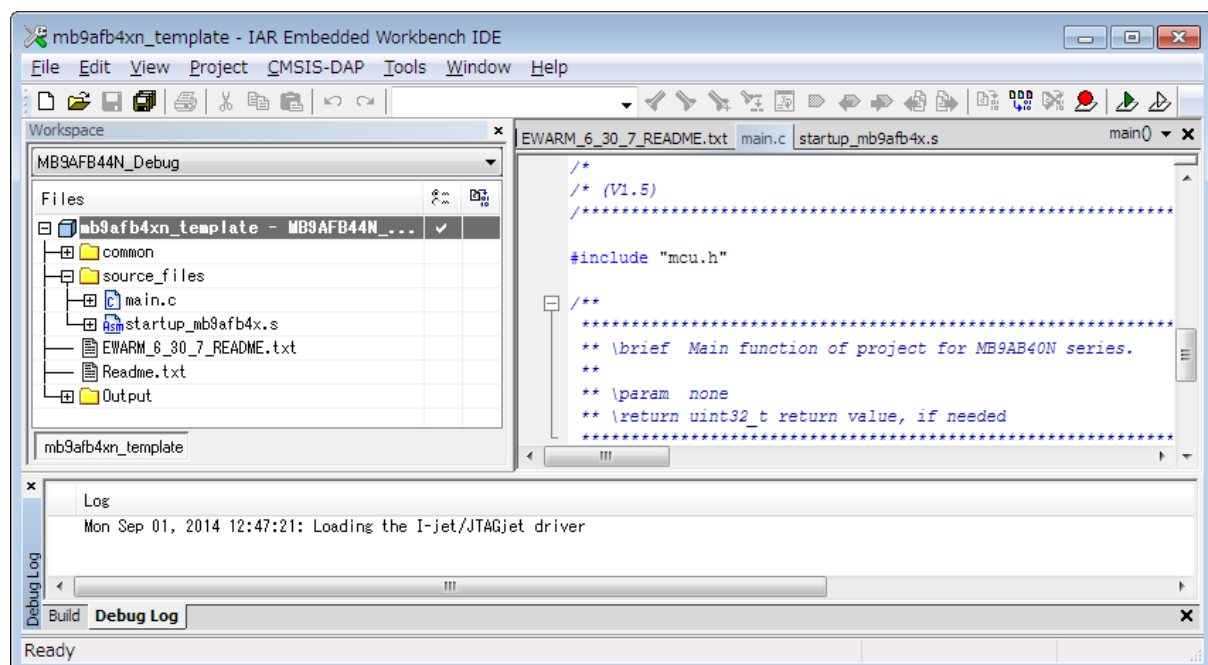For settings of the target CPU and other information, refer to the IAR Systems website or relevant manual.

Figure 4

2.3. Setting Debug Adapter

1) Right-click the project file and select "Options" from the context menu.

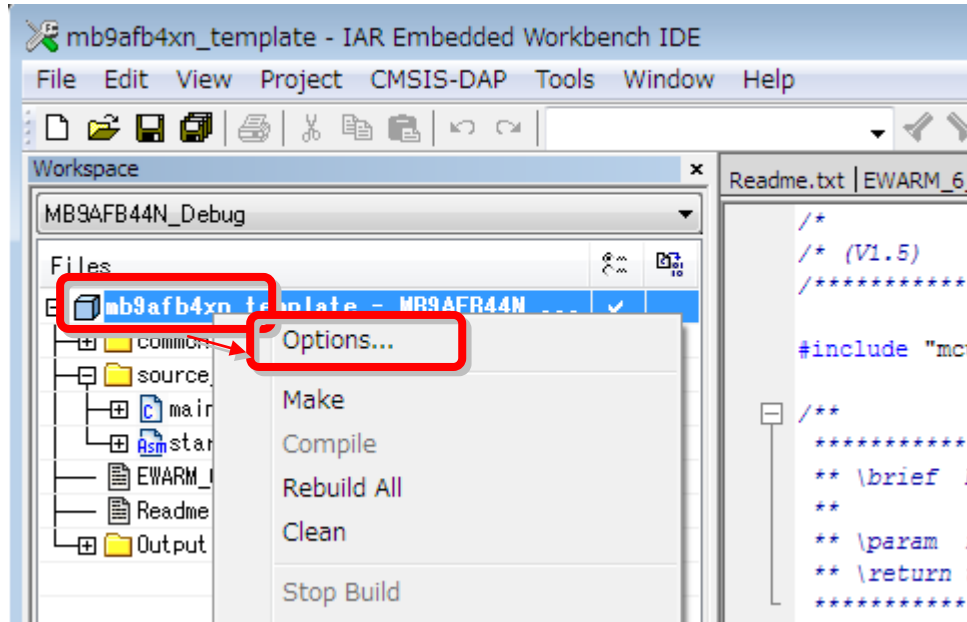Figure 5

2) Select <Debugger> from the Category list on the left side of the [Options for node XXX] window and select "CMSIS DAP" from the <Driver> drop-down menu.
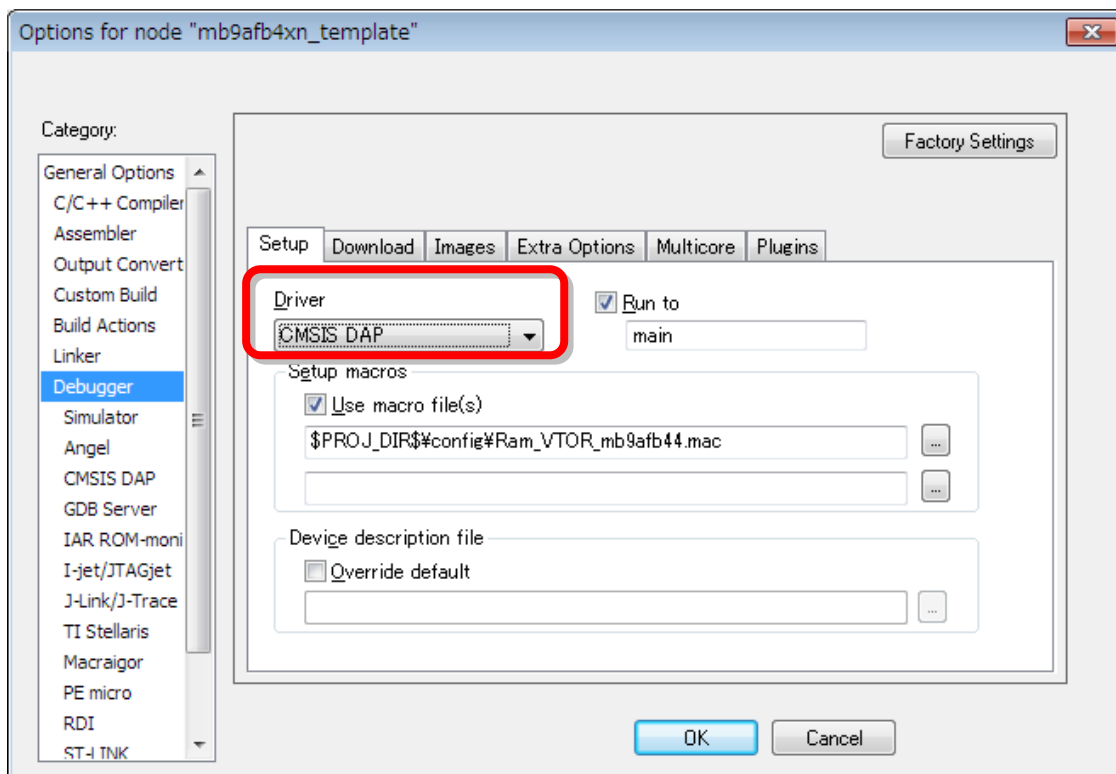

Figure 6

Universal Probe IDE Connection Manual - IAR Systems Edition

3) Select <CMSIS DAP> from items under <Debugger>, specify reset settings or select the interface (JTAG/SWD), and then press the ⬚ OK ⬚ button.
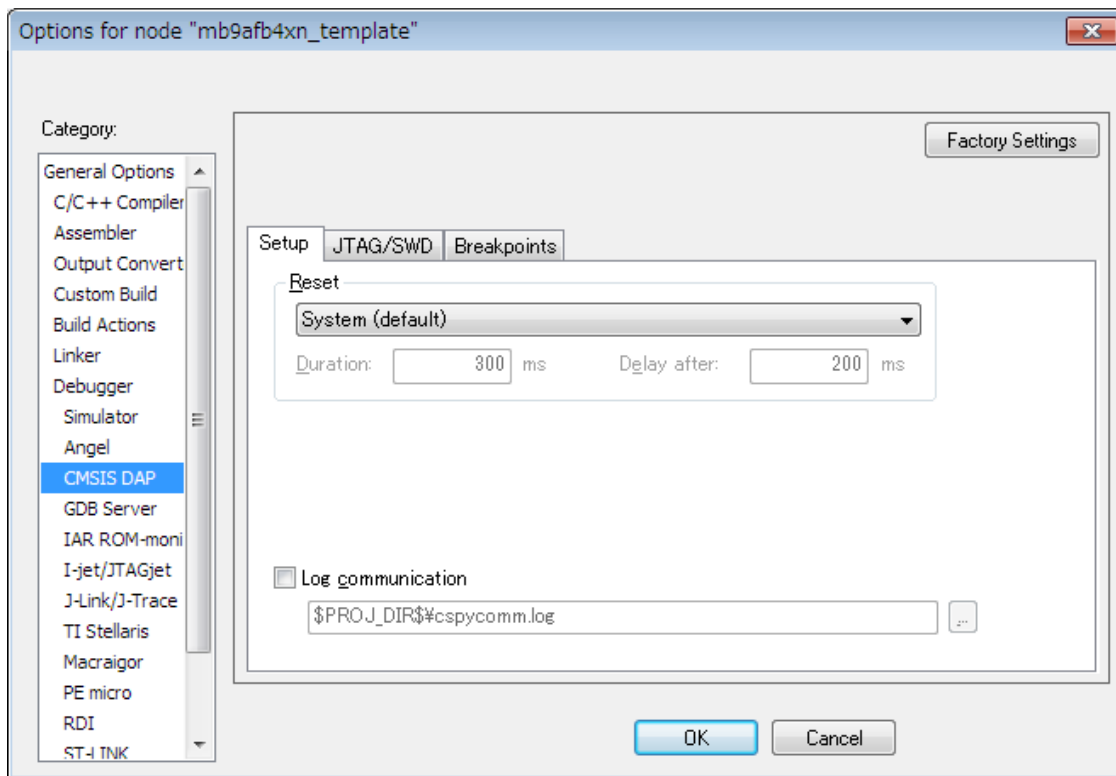

Figure 7

⚠ IAR Embedded Workbench for ARM is not compatible with JTAG of CMSIS-DAP.
Be sure to select SWD.

ℹ - If you do not reset at the start of debugging → Refer to (3) in "3. Hot Plug Debugging."
- If you do not download binary data → Refer to (4) in "3. Hot Plug Debugging."

2.4. Debugging

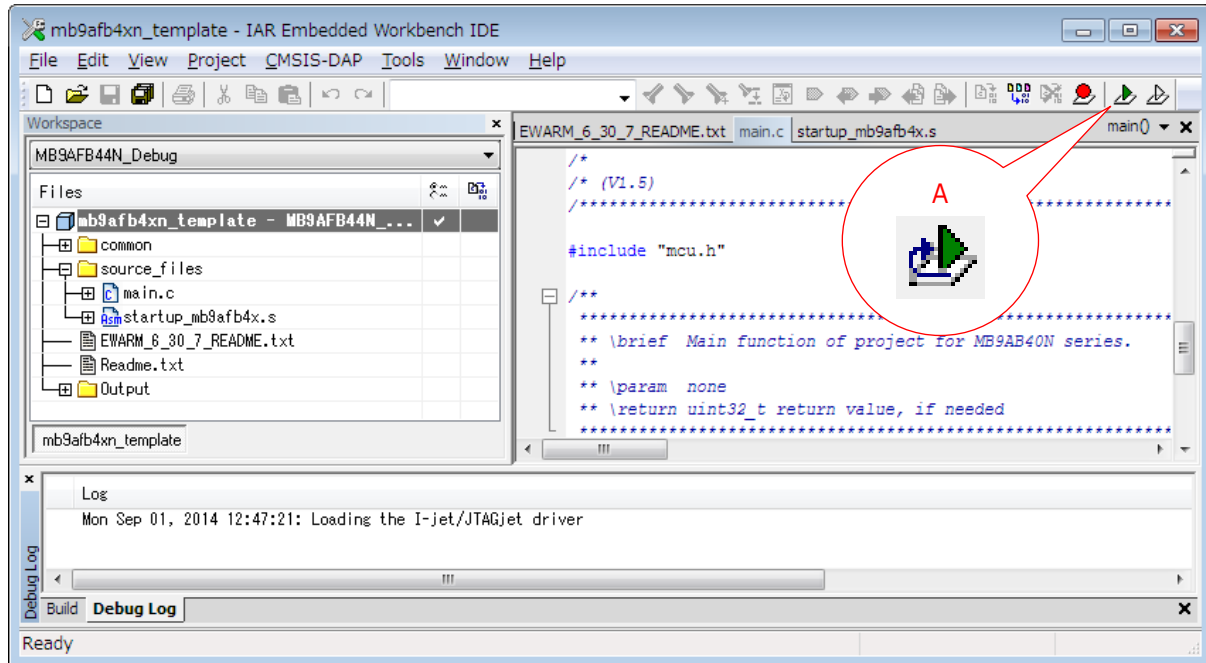Pressing the "A" button as shown in Figure 8 starts download of a binary file and a debugging session.

Figure 8

Universal Probe IDE Connection Manual - IAR Systems Edition

3. Hot Plug Debugging

To connect a probe while the target is operating (hot plugging), the setting for attaching the probe to the operating target needs to be specified at the start of a debugging session.

> ⚠️ A probe cannot always be connected to an operating target.
> Check by yourself whether hot plugging is possible.

1) Open the project file in which the binary data written on the target was created.

2) Right-click the project name and select "Options" from the context menu.
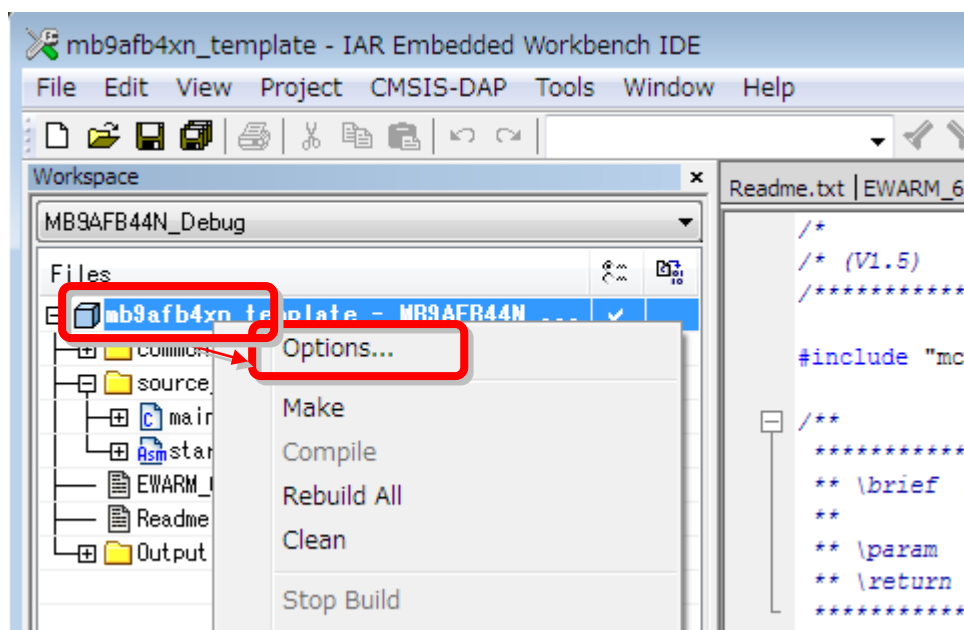

Figure 9

3) Select <Debugger> from the Category list on the left side of the [Options for node XXX] window and check the <Attach to running target> checkbox on the "Download" tab. Starts a debugging session **without reset**.
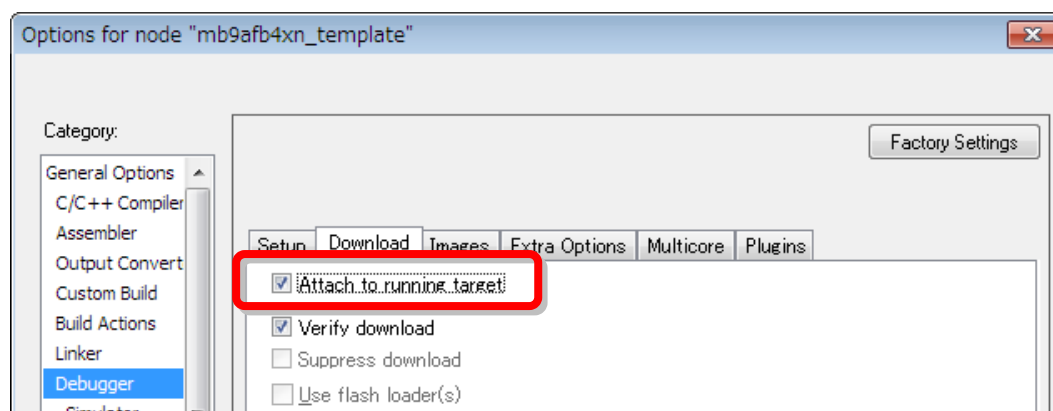

Figure 10

4) Pressing the "A" button as shown in Figure 11 starts a debugging session **without downloading binary data**.
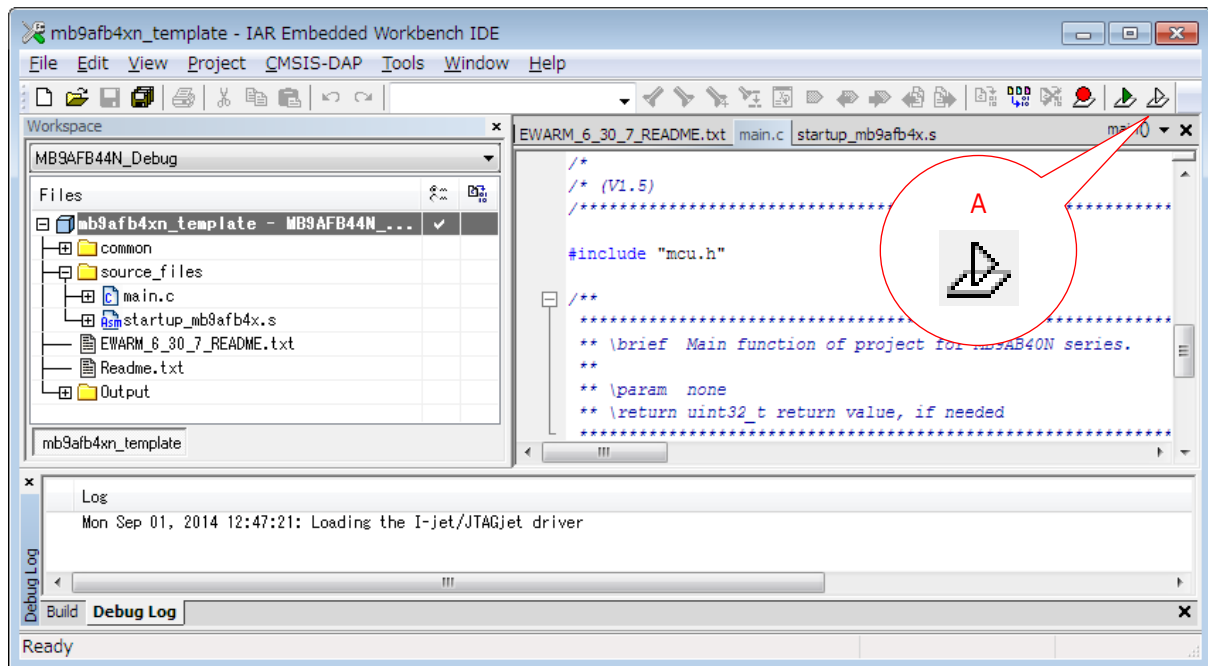

Figure 11

(i) INFO	Hot plug debugging is possible with the program written in the RAM, but we recommend that you perform hot plug debugging with the program written in the flash memory.

Revision History

Ver. No.	Revision date	Contents of revision
01	09/11/2014	Initial Release.
02	11/17/2014	Correction of typographical errors.

Manufacturer Information

Sohwa & Sophia Technologies Inc.

[Headquarters]   6-2, Minami-kurokawa, Asao-ku, Kawasaki City, Kanagawa Pref.,
215-8588, JAPAN
Web: http://www.ss-technologies.co.jp/en/index.html

Subsidiary

SOHWA MALAYSIA SND. BHD.

Unit 5-2, Level 5, Tower 6, Avenue 5,
The Horizon, Bangsar South No.8, Jalan Kerinchi
59200, Kuala Lumpur, Malaysia

HomePage : http://www.sohwa-m.com.my/