

# Atmel ATF15xx ISP Software

## Quick Start Tutorial

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This tutorial will introduce you to the features of the **Atmel ATF15xx In-System Programming (ISP) Software (ATMISP) V5.x** and higher for the ATF15xx family of ISP Complex Programmable Logic Devices (CPLDs). This tutorial will describe the entire ISP process from setting up the JTAG device chain file (.CHN) using ATMISP to executing the JTAG ISP instructions onto the JTAG device on the ATF15xx ISP Board or the ATF15xx Development/Programmer Board.

### Step I : Setup ATMISP Software

### Step II : Setup ISP Hardware

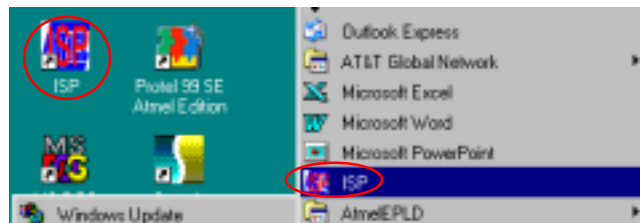
### Step III : Execute ISP Instructions

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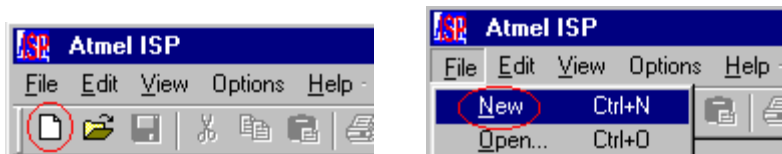
### Step I : Setup ATMISP Software

The first step of an ISP flow is to create a new chain file in the ATMISP software. A chain file (.CHN) contains the JTAG device chain information such as the device types, number of devices in JTAG chain, JTAG operations, and the location of the associated JEDEC files that are required to program a single or multiple-device JTAG chain in the target hardware system.

1. To create a new chain file, the **ATMISP Software** first needs to be launched either through the *desktop icon* or the *Start ... Programs* menu.



2. To create a new chain file, select the **New** command under the **File** menu or click on the **New shortcut button**.



An existing chain file (with a .CHN extension) that was created by the ATMISP software can be loaded into the software by using the **Open** command under the **File** menu or the **Open shortcut button**.

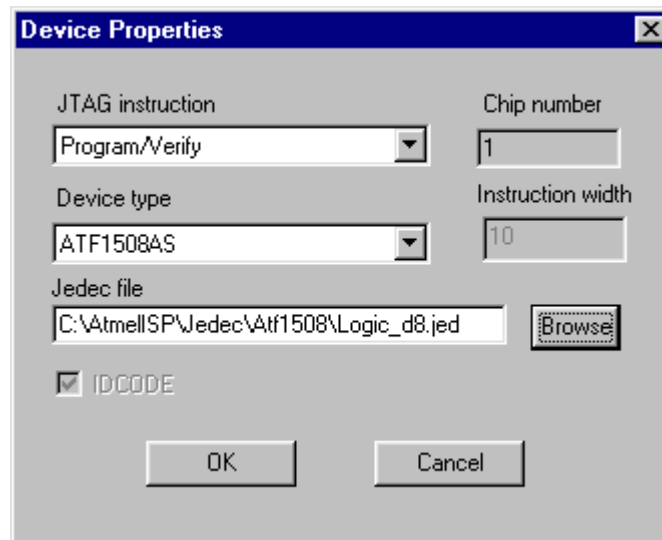
- The first piece of information that the software asks for when creating a new chain is the number of devices in the JTAG chain. Therefore, simply enter how many JTAG devices are chained together in your target system. Therefore, enter **1** and then click **OK** since you will be programming a 1-device JTAG chain in Step III of this tutorial.



- Next you will need to specify the properties of each JTAG device in the *Device Properties* window. First, you will need to select the target device type of the first device in the JTAG chain. Clicking on the down arrow will open the list of all the supported device types. For this tutorial, please select **ATF1508AS** as the target device type.

In the *JTAG Instruction* field, you can specify which JTAG instruction to be executed on this device in the chain. Please select **Program/Verify** to program and verify the ATF1508AS.

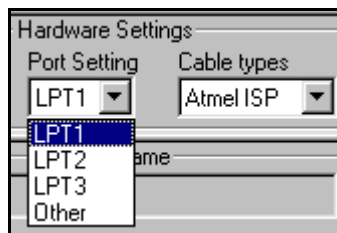
The next step is to specify the JEDEC file to be programmed into the target device in the *JEDEC File* field. Click on the **Browse** button, change the directory to **[..\ATMELISP\JEDEC\ATF1508\*]** and then select **LOGIC\_D8.JED** as the JEDEC file. Click **OK** to close the *JTAG Device Properties* window when all properties are specified.



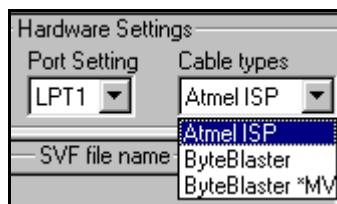
If there are more than one device in the JTAG chain, then the JTAG Device Properties window will open again for the second, third, .. devices until the JTAG Device Properties window for the last device in the JTAG chain is closed.

A new chain is now created and it will be displayed in the **Chain File Hierarchy** window of the Atmel ATF15xx ISP Software. You can easily add or delete devices by using the **Add Device** or **Delete Device** command respectively. These two commands are available through the *Edit menu* and the *right-click drop down menu* in the Chain File Hierarchy window. To edit the device properties, you can use the **Edit Device** command in the Edit menu or by double clicking any part of the chain in the Chain File Hierarchy window.

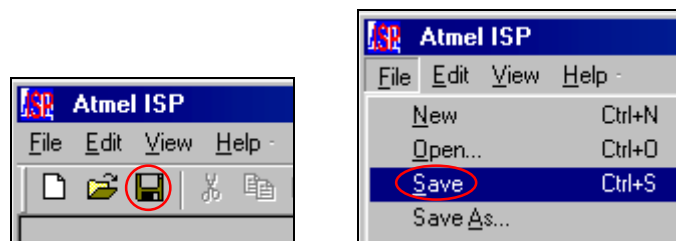
5. The default LPT port setting in the ATMISP software is LPT 1 (port address 378 hex). If you are using a different LPT port, then please change the Port Setting field to the appropriate LPT port number or manually enter the port address by selecting Other.



6. The default cable type setting is set to the Atmel-ISP Cable. If you are using the Altera ByteBlaster/MV cable, please change the Cable Types field to ByteBlaster or ByteBlasterMV.



7. This chain file should now be saved by selecting the **Save** or **Save As** command in the *File* menu or by clicking on the **Save shortcut button**.



This completes the ATMISP software setup process.

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## Step II : Setup ISP Hardware

Atmel currently offers two different hardware boards that support In-System Programming of the ATF15xx. They are the ATF15xx ISP Board (P/N: ATDH1160VPC) and the ATF15xx Development/Programmer Board (ATF15xx-DK or ATF15xx-DK2). Either one of these two boards can be used to complete the remaining portions of this tutorial. If the ATF15xx Development/Programmer Board will be used, please follow the setup steps described in Section A below. Otherwise, if the ATF15xx ISP Board will be used, then please follow the setup steps described in Section B below.

### Section A:

1. Connect the 10-pin female header of the Atmel-ISP Cable or the ByteBlasterMV cable into the JTAG header of the ATF15xx Development/Programmer Board.
2. Set the Vcc Selection Jumper to 5.0V.
3. Set the CLOCK Selection Jumper at JPCLK to PIN83 (Rev2.0) or GCLK1 (Rev3.x or higher).
4. Connect the 9V DC power source to the power connector at JPower or JP Power.
5. Insert a blank ATF1508AS 84-pin PLCC device into the 84-pin PLCC socket. Please note that pin 1 of the device should be facing the LEDs.
6. Turn the power on by flipping the Power Switch to the ON position. If you are using the Atmel-ISP Cable, please make sure that the Red LED on the back of the cable is turned on.
7. Connect the 25-DB connector of the Atmel-ISP Cable or ByteBlaster/MV cable into the parallel (LPT) port of the computer.

### Section B:

1. Connect the 10-pin female header of the Atmel-ISP Cable or the ByteBlasterMV cable into the JTAG header at J5 of the ATF15xx ISP Board.
2. Set the Vcc Selection Jumper at JP3 to 5V.
3. Connect the 9V DC power source to the power connector at J8.
4. Insert a blank ATF1508AS 84-pin PLCC device into the 84-pin PLCC socket. Please note that pin 1 of the device should be facing the ATF16LV8C at U3.
5. Turn the power on by flipping the Power Switch to the ON position. If you are using the Atmel-ISP Cable, please make sure that the Red LED on the back of the cable is turned on.

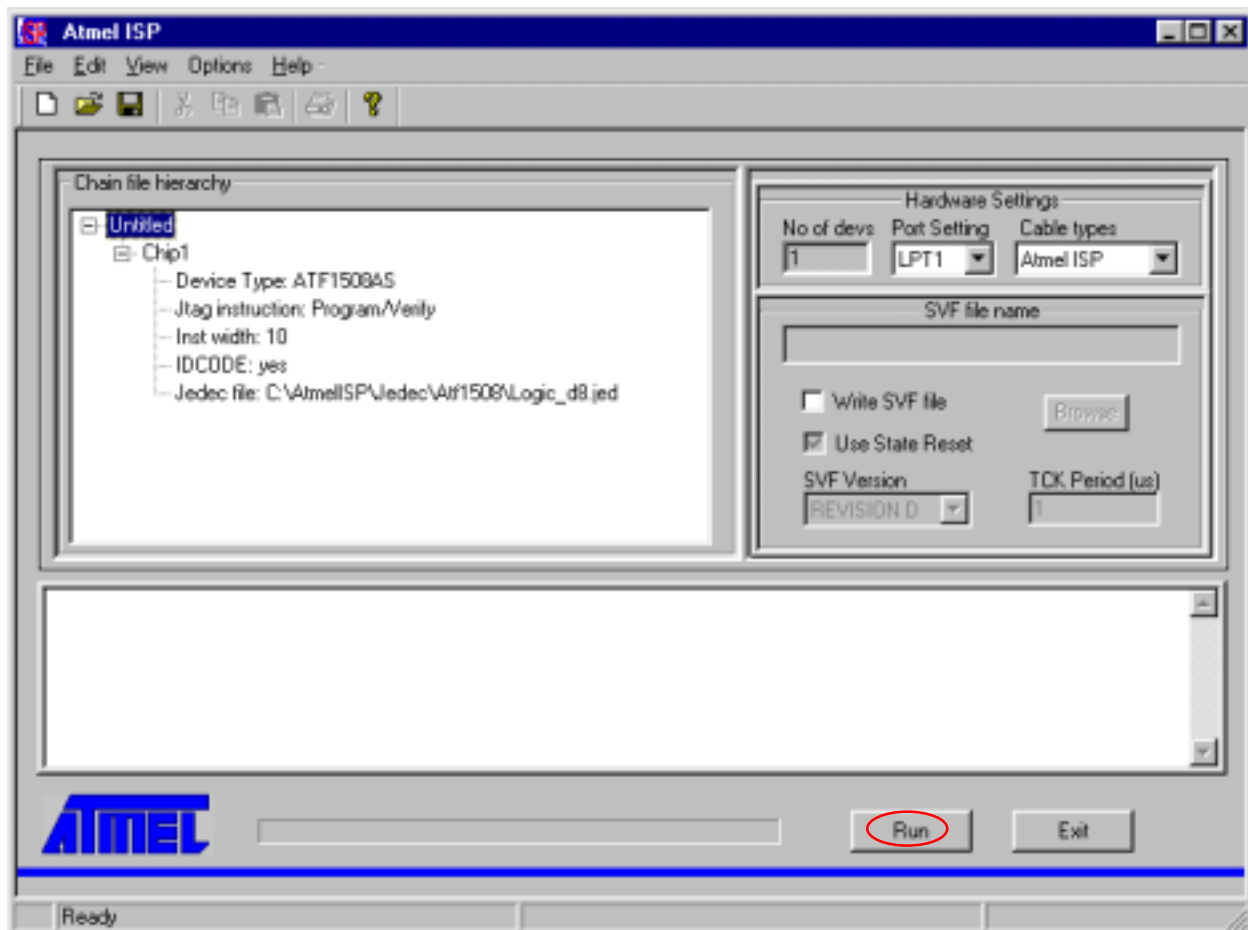
6. Connect the 25-DB connector of the Atmel-ISP Cable or ByteBlaster/MV cable into the parallel (LPT) port of the computer.

The ISP hardware setup process is now completed.

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### Step III : Execute ISP Instructions

Now that both the ISP software and hardware are properly setup, it is time to program the LOGIC\_D8.JED file into the ATF1508AS on the target ISP board. To start the ISP process, click on the Run button at the bottom of the ATMISP window.



The programming process will now start with the progress bar indicating the progress of the programming cycle. Once the programming completes, ATMISP will generate a prompt indicating that the JTAG operation was completed successfully or not. The LOG window will also show information related to the programming process.