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## Getting started with STM8L-DISCOVERY

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### Introduction

The STM8L-DISCOVERY, based on the STM8L152C6T6, is a quick-start evaluation board for 8-bit ultralow-power MCUs. It is the cheapest and quickest way to discover the STM8L, to program and use the device, and to build and debug applications. It includes the embedded debugger ST-LINK and an  $I_{DD}$  measurement feature which helps you to discover the ultralow power efficiency.

Connect the STM8L-DISCOVERY to a PC through a standard USB cable, and run the pre-programmed example. Once the debugger is open, you can follow the real-time execution of the code. A large number of application examples are provided to allow you to learn, reuse and modify the application source code. This can be used for a quick proof-of-concept evaluation or demonstration prototype. The STM8L-DISCOVERY is ideal for hobbyists, developers, students and support teams.

By using this document as a guide and trying out the application examples, you can quickly get familiar with the STM8L-DISCOVERY and all its possibilities.

Visit [www.st.com/stm8l-discovery](http://www.st.com/stm8l-discovery) to access all the user manuals and application notes related to the STM8L-DISCOVERY.

### Reference documents

- STM8L-DISCOVERY evaluation board user manual (UM0970)
- STM8L-DISCOVERY software user manual *Developing and debugging your STML-DISCOVERY application code* (UM0991)
- ST Visual Develop (STVD) user manual (UM0036)
- *Introduction to STM8L15x power saving modes using the STM8L-DISCOVERY  $I_{DD}$  measurement feature* (AN3269)
- *Building a wave generator using STM8L-DISCOVERY* (AN3252)
- STM8L15x reference manual (RM0031)
- STM8L15xx datasheet

# 1 Getting started

## 1.1 System requirements

Before using the STM8L-DISCOVERY, the following material is required:

- A Windows PC (2000, XP, Vista)
- A USB type A to mini-B cable

## 1.2 Quick start tutorial (less than 20 min)

Start running one of the many STM8L-DISCOVERY application examples from scratch in less than 20 min.

### 1.2.1 Software environment

1. Download your free software environment (IDE). Choose between:
  - ST's MCU toolset composed of ST Visual Develop (STVD) and ST Visual Programmer (STVP) available on <http://www.st.com>
  - IAR Embedded Workbench for STM8 Kickstart edition (8K-limited) available on [www.iar.com](http://www.iar.com), **Downloads** tab

While IAR Embedded Workbench for STM8 includes its own compiler, STVD must be used together with either Cosmic or Raisonance compilers.

2. Download your free compilers:
  - Cosmic 16 K available on [www.cosmicsoftware.com/download\\_stm8\\_16k.php](http://www.cosmicsoftware.com/download_stm8_16k.php)
  - Cosmic 32 K one-year limited available on [www.cosmicsoftware.com/download\\_stm8\\_32k.php](http://www.cosmicsoftware.com/download_stm8_32k.php)
  - Raisonance 32 K available on [www.mcu-raisonance.com](http://www.mcu-raisonance.com)

*Note: Please note that the Cosmic 32 K version does not include direct support from Cosmic. To get details on how to install your IDE and/or compilers, read Chapter 2 of UM0991 available on [www.st.com/stm8l-discovery](http://www.st.com/stm8l-discovery).*

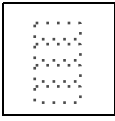
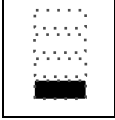
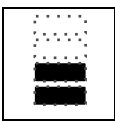
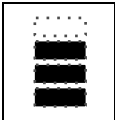
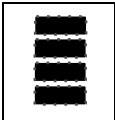
### 1.2.2 Connect the STM8L-DISCOVERY to the host PC

The STM8L-DISCOVERY comes pre-programmed with the Discover demo. This demo consists in discovering the STM8L15x power-saving modes taking advantage of the STM8L-DISCOVERY built-in  $I_{DD}$  measurement feature.

Connect the STM8L-DISCOVERY to your PC using a USB cable.

The application starts immediately and is displayed dynamically on the LCD. The user can select the STM8L real-time power consumption in each mode using the User push-button interface. Download application note AN3269 from [www.st.com/stm8l-discovery](http://www.st.com/stm8l-discovery) to get more details about this demo.

**Table 1. Bars and LCD display linked to functions**

Bars	LED3/LED4	Displayed on the LCD
	Blink	STM8L VDD voltage measured
	OFF	STM8L power consumption in <b>Run mode</b>
	OFF	STM8L power consumption in <b>Low power run mode</b> with LCD on
	OFF	STM8L power consumption in <b>Low power run mode</b> with LCD off
	OFF	STM8L power consumption in <b>Halt mode</b>

### 1.2.3 Running the STM8L-DISCOVERY application examples

STM8L-DISCOVERY is provided with numerous application examples available on [www.st.com/stm8l-discovery](http://www.st.com/stm8l-discovery).

Make sure your free software environment (STVD in this case) is correctly installed.

- Download one of the application examples as well as its associated application note, available on [www.st.com/stm8l-discovery](http://www.st.com/stm8l-discovery) and extract directory *STM8L-DISCOVERY\_Example* on your PC.
  - Cosmic: *STM8L-Discovery\_Example/Project/Example/STVD/Cosmic/Example.stw*
  - Raisonance: *STM8L-Discovery\_Example/Project/Example/STVD/Raisonance/Example.stw*
- Configure STVD to use ST-LINK as a debug instrument:
  - Click **Debug Instrument -> Target Settings**.
  - Select target **Swim ST-LINK** in the target list.
- Select the appropriate MCU:
  - Go to **Projects>Settings>MCU** and select **STM8L152C6** from the MCU list.

- Make sure that the MCU selected is displayed in the **selected MCU** field before clicking OK.
- 4. Click **Build -> Rebuild All** to build your application.
- 5. Click **Debug -> Start Debugging** to download your application to the STM8L program memory and start the debug session.
- 6. Run the application code in Debug or Stand-alone mode:
  - a) Click **Debug -> Run** to run your application in debug mode.
  - b) Click **Debug -> Stop Debugging** to disconnect the debugger; then, the application starts running immediately in stand-alone mode.

Once the selected application is running, check whether it operates as described in the application note associated to the example.

*Note:* Some of the available examples require additional components to work properly. Please refer to the application note associated to the example selected to find out more about it.

### 1.2.4 Developing your own application

1. Install the free software environment (IDE and/or compilers) of your choice. Please refer to [Section 1.2.1](#).
2. Install the STM8L-DISCOVERY development package.
  - Download STM8L-Discovery\_dev.zip from [www.st.com/stm8l-discovery](http://www.st.com/stm8l-discovery) (zip file available together with UM0991) and extract the directory structure on your PC.
  - Duplicate the project\_template directory and rename it (*My\_own\_project*).
3. Run the Integrated Development Environment of your choice.
4. Select **File -> Open Workspace**.
5. Browse for the project file .stw of *My\_own\_project* you intend to run according to the IDE and/or compiler you have selected:
  - STVD with Cosmic: STM8L-Discovery\_My\_own\_project/Project/My\_own\_project/STVD/Cosmic/STVD\_workspace.stw
  - STVD with Raisonance: STM8L-Discovery\_My\_own\_project/Project/My\_own\_project/STVD/Raisonance/STVD\_workspace.stw
  - IAR Embedded Workbench (EWSTM8): STM8L-Discovery\_My\_own\_project/Project/My\_own\_project/STVD/EWSTM8/workspace.stw

This procedure provides for a prestructured project workspace and simplifies your project design.

Detailed instructions on the project creation are provided in user manual UM0991 *Developing and debugging your STM8L-Discovery application code*, available for download from [www.st.com/stm8l-discovery](http://www.st.com/stm8l-discovery).

## 2 Support

Visit our STM8L-DISCOVERY forum on [www.st.com/stm8l-discovery](http://www.st.com/stm8l-discovery).

Contact our technical support on [www.st.com](http://www.st.com).

### 3 Revision history

**Table 2. Document revision history**

Date	Revision	Changes
09-Dec-2010	1	Initial release.
06-Jan-2011	2	Updated ST's MCU toolset URL under <a href="#">Section 1.2.1</a> .

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