

DUOLABS Spa

This is a general purpose document that explains how to make a working firmware release for D-Module.

Step1. Create a Bootloader.

Please read carefully the Philips main processor datasheet included in this file repository. What is needed for the user to do is a simple application that uses the Philips original bootloader to load the entire flash memory.

Step 1 consists in creating a customized bootloader to program the module externally with a programmer.

This will erase the original bootloader of the D-Module.

No bootloader is included in this open-source document.

Step2. Software development.

Some software modules are compiled and supplied in object format as the license does not allow the source code distribution. All the other general functions are supplied in open source.

The “*Event managing*” is not provided as for the bootloader and must be developed. The bitstream is already allocated at block 0 of the dataflash.

D-Module is open-source structure is made of the following software modules:

1. **DVBCI.**
This module makes the communication between the CAM and the Host. The protocol used is the standard ISO/IEC 13818.
This module is provided in .object format.
2. **CSystem.**
This module is the skeleton to make a CAS System.
Source code provided.
3. **FileSystem.**
This module manages the filesystem handling inside the memory of the D-Module.
This module is provided in .object format.
4. **Filters.**
This module manages the hardware filtering of the D-Module.
Source code provided.
5. **Managers.**
Manages the classes used for filters, descramblers, filesystem, Menus, DVB Tables.
Source code provided.
6. **RTOS.**
Multitasking OS functionality.
This module is provided in .object format.
7. **TinyXML.**
Functions to use XML files.
Source code provided.
8. **Transceivers.**
Classes needed to implement the smartcard reader.
Source code provided.
9. **TrasmProtocols.**
Basic smartcard protocols: T0 is the one implemented
Source code provided.
10. **Wrapping.**
Miscellaneous wrapping routines.

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Source code provided.

11. ***Father.***
Father class for all project objects.
Source code provided.

Step3. Test and debugging.

After the software development is done with appropriate emulators it will be possible to test it on D-Module. Please remember that the bootloader will be erased when you enter the Philips bootloader mode to load the Flash memory.

All the source code is under GPLv3 license. Please read it. <http://www.gnu.org/licenses/quick-guide-gplv3.html>