



Arm[®] Socrates[™]

Version 1.7.2

Installation Guide

Non-Confidential

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Issue 05

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Arm® Socrates™

Installation Guide

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Release Information

Document history

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Issue	Date	Confidentiality	Change
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The information in this document is Final, that is for a developed product.

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Inclusive language commitment

Arm values inclusive communities. Arm recognizes that we and our industry have used language that can be offensive. Arm strives to lead the industry and create change.

This document includes language that can be offensive. We will replace this language in a future issue of this document.

To report offensive language in this document, email terms@arm.com.

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1. Introduction

1.1 Product revision status

The r_xp_y identifier indicates the revision status of the product described in this manual, for example, $r1p2$, where:

r_x	Identifies the major revision of the product, for example, $r1$.
p_y	Identifies the minor revision or modification status of the product, for example, $p2$.

1.2 Intended audience

This Installation Guide is intended for users who are installing the Arm Socrates™ IP Tooling platform.

1.3 Conventions

The following subsections describe conventions used in Arm documents.

Glossary

The Arm® Glossary is a list of terms used in Arm documentation, together with definitions for those terms. The Arm Glossary does not contain terms that are industry standard unless the Arm meaning differs from the generally accepted meaning.

See the Arm Glossary for more information: developer.arm.com/glossary.

Convention	Use
<i>italic</i>	Citations.
bold	Terms in descriptive lists, where appropriate.
monospace	Text that you can enter at the keyboard, such as commands, file and program names, and source code.
monospace <u>underline</u>	A permitted abbreviation for a command or option. You can enter the underlined text instead of the full command or option name.
<and>	Encloses replaceable terms for assembler syntax where they appear in code or code fragments. For example: <pre>MRC p15, 0, <Rd>, <CRn>, <CRm>, <Opcode_2></pre>

Convention	Use
SMALL CAPITALS	Terms that have specific technical meanings as defined in the <i>Arm® Glossary</i> . For example, IMPLEMENTATION DEFINED , IMPLEMENTATION SPECIFIC , UNKNOWN , and UNPREDICTABLE .



Recommendations. Not following these recommendations might lead to system failure or damage.



Requirements for the system. Not following these requirements might result in system failure or damage.



Requirements for the system. Not following these requirements will result in system failure or damage.



An important piece of information that needs your attention.



A useful tip that might make it easier, better or faster to perform a task.



A reminder of something important that relates to the information you are reading.

1.4 Useful resources

This document contains information that is specific to this product. See the following resources for other useful information.

Access to Arm documents depends on their confidentiality:

- Non-Confidential documents are available at developer.arm.com/documentation. Each document link in the following tables goes to the online version of the document.

- Confidential documents are available to licensees only through the product package.

Table 1-2: Arm Publications

Document name	Document ID	Licensee only
Arm® Socrates™ User Guide	101399	No
Arm® Socrates™ Release Note	PJDOC-1779577084-32899	Yes

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To provide feedback on the document, fill the following survey: <https://developer.arm.com/documentation-feedback-survey>.

2. The Socrates IP Tooling platform

Familiarize yourself with the Socrates™ IP Tooling platform, and the installation and setup procedures.

2.1 About Socrates

Socrates™ IP Tooling platform is an environment for exploring, configuring, and building Arm IP ready for integration into a *System on Chip* (SoC).

The following examples show you some of the ways you can use Socrates™.

Designing a SoC

If you want to:

- Investigate Arm® IP features, properties, and configuration options
- Use this information to decide which IP to use in your system or subsystem design
- See which IP you already have licenses for
- Provide your procurement team with a detailed list of part numbers for the IP that you want to license

You can:

- Browse the **IP Catalog** and view information in **Socrates Help**
- Filter the **IP Catalog** by IP name or supported protocols
- Export information from the **Bill of Materials** about required and alternative part numbers



You can open Socrates without a license. This enables you to browse the **IP Catalog** and view the videos.

Managing IP packages

If you want to:

- Ensure that the **IP Catalog** stays up-to-date with the latest release information
- Make finding the location of downloaded IP easier
- Update the **IP Catalog** entries so they are correctly associated with the latest IP packages

You can:

- View notifications for product and **IP Catalog** updates
- Enter shared download locations for all licensed IP packages

- Enable automatic refreshing of associations

Develop a system with Arm IP

If you want to:

- Understand IP configuration options, interfaces, and protocols
- Integrate IP into a system
- Build IP-XACT and Verilog output
- Automate the configuration and build procedures

You can:

- Browse the **IP Catalog** and view technical documentation in **Socrates Help**
- Organize and configure IP in the **Project Explorer**
- See validation and configuration errors in the **Create Configured IP** window
- Automatically build simple IP as part of the configuration procedure
- Use the *Command Line Interface* (CLI), and script-based API, for script-based solutions

Creating a high-level view of a SoC design

If you want to:

- Create a high-level view of your SoC design, containing configured IP instances and their high-level connections
- Choose the most suitable interconnect IP for your design, based on the high-level connectivity requirements of the other IP in your design
- Use this high-level view for further refinement and development of your design

You can:

- Use the **System Specification**, from the **Generators** group in the **IP Catalog**, to create an empty System Specification
- Add instances of your required non-interconnect IP to the System Specification
- Use **Interconnect Assistant** to select, configure, and add the most suitable interconnect IP to the System Specification, automatically creating all the required high-level connections

2.2 Installation overview

Follow the installation checklist steps:

Procedure

1. Clean your environment if you have a previous Socrates™ installation, or a previous installation of any of the Socrates™ System Builder, Socrates™ DE, CoreLink™ Creator, or CoreSight™ Creator tools. Ensure that your environment meets the installation requirements, and install any missing prerequisite software. See [3. Setting up your environment](#) on page 13

2. Run and follow the installation wizard. See [4. Installing and starting the software](#) on page 16.
3. Set up the server daemons and licenses. See [5. Setting up licensing](#) on page 20. You only need to do this if this is the first time that you have installed a Socrates™ product, or if you want to change your licensing setup.

3. Setting up your environment

Check and implement the installation environment and software requirements.

3.1 Cleaning your environment

You can remove previous installations of Socrates™ software.

Remove any previous installation of Socrates™, or the prior products Socrates™ System Builder, Socrates™ DE, CoreLink™ Creator, or CoreSight™ Creator before installing the latest version.

To uninstall, go to the installation location and run the following commands:

```
$ cd <install location>
$ ./uninstall
```

If you receive a prompt requesting permission to delete leftover files, click **Yes**.

Ensure that the installation directory is empty. You can then restore the backed-up workspace, if applicable.

See the *Arm Socrates™ Release Note* for more information on updating the tool version.

3.2 Installation requirements

Ensure that your software environment complies with the installation requirements.

An environment health check feature is provided with the installer. Use the health check to see the status of dependencies, and troubleshoot runtime issues. See [4.3 Installation Health Check script](#) on page 16.

The installation requirements are as follows:

- Red Hat Linux Enterprise 7.6 or later, 64-bit
- At least 2.5GB of RAM
- At least 4GB of free disk space for the installation



If the installation fails due to a lack of available disk space, follow the steps in [3.1 Cleaning your environment](#) on page 13 before you restart the installation procedure.

- At least 128MB space in your <home directory>
- Additional disk space depending on the number of user projects, and the size of the projects

- Certain libraries are necessary to successfully run and complete the installation. Use a package manager, for example `yum`, to find and install libraries. The required libraries are:
 - `redhat-lsb-core.i686`



Depending on your Linux setup, you might require this library to allow the license manager to start automatically.

-
- `glibc.i686`
 - RHEL7: `compat-libstdc++ 33` package, both `i686` and `x86_64` versions
 - `libxml2.i686`
 - `libXrandr.i686`
 - `libXcursor.i686`
 - `libSM.i686`
 - `libICE.i686`
 - `libstdc++.i686`
 - `zlib.x86_64` for 64-bit installations
 - `libxml2.x86_64`
 - `libxslt`

Missing libraries prompt an error message at installation or runtime, for example:

```
Xalan: error while loading shared libraries: libstdc++.so.5: cannot open shared
object file: No such file or directory
```

To free disk space after Linux library installations, run:

```
yum clean all
```

For more information about installing and using packages, see the Known Issues section of the *Arm Socrates™ Release Note*.

3.3 Memory settings

To ensure that your Socrates™ installation runs correctly, you can change the default settings for Java heap space.

By default Socrates uses an initial heap size (`-xms`) of 512MB and a maximum heap size (`-xmx`) of 2048MB.

Increasing the initial heap size can improve start up performance. Increasing the maximum heap size enables you to configure large configurations, such as those possible with CoreLink™ CMN-600.

To update the heap sizes:

1. Open <install location>/ARM-Socrates.ini.
2. Edit the following lines, where m stands for megabytes.

```
-Xms512m  
-Xmx2048m
```

4. Installing and starting the software

Install and run the Socrates™ IP Tooling platform.

4.1 Product packages

Socrates™ is delivered in a product package.

Socrates™ functionality is enabled with FlexNet licenses. See [5. Setting up licensing](#) on page 20.

If you are a product licensee, you can download the product package for your IP from <http://developer.arm.com/downloads>.

4.2 Installing Socrates

There is a wizard to guide you through the installation process.

About this task

If you have an earlier installation of any Socrates™ tool, uninstall it before installing the current version. See [3.1 Cleaning your environment](#) on page 13 for more information.

To prepare for installation and start the installation wizard:

Procedure

1. Change to the directory of the unpacked installer package:

```
$ cd <path to ARM-Socrates-x.x.x-Linux-x86-64-Install> where x.x.x is the three or four-digit release number
```
2. You must have execute permissions to run the installer. To make the installer executable, run:

```
$ chmod +x ARM-Socrates-x.x.x-Linux-x86-64-Install
```
3. Start the installer:

```
$ ./ARM-Socrates-x.x.x-Linux-x86-64-Install
```



During the installation procedure, you are prompted for an installation location. This location must be either an empty directory or a non-existent directory. If no directory exists, Socrates™ creates one. When the installation is complete, do not move the installation directory location.

4. The installation wizard opens. Follow the on-screen instruction to install.

4.3 Installation Health Check script

Arm® provides an Installation Health Check script. This script is run as part of the standard installation.

The script uses your current environment settings to check required dependencies, and to identify common installation problems. The script can be found in your installation directory, in `<install location>/etc/install/health_check`, named `checkInstallation.sh`.

The results of the Installation Health Check are presented as the final step of the installation wizard.

4.4 Starting Socrates

Use the `socrates.sh` command or double-click the Socrates™ icon to start Socrates™.

You can run `socrates.sh` directly from the installation location, through an alias to the installation location, or you can add the installation location to your path variable.

The Installation Health Check script runs the first time that you start the software, or the first time that you run a new version.

Depending on the licenses available to you, you might be asked to select a license.

When you restart Socrates™, select a workspace for your projects. The default Workspace area is created in `<home directory>/armSocrates/workspace`.

4.5 Troubleshooting

Identify and resolve troubleshooting issues that are associated with setting up licensing, and installing or running the software using the following information.

For a list of known technical issues and solutions for your version of Socrates™, see the *Arm® Socrates™ Release Note*.



As a first step in troubleshooting issues, Arm® recommends that you run the Installation Health Check script. See [4.3 Installation Health Check script](#) on page 16 for more instructions.

4.5.1 Cannot restore segment prot after reloc error

This error occurs when starting Socrates™.

File permissions conflict

A file permissions conflict due to a Linux security feature causes this error.

Solution

- Turn off the security feature by navigating to `/etc/selinux/config` and using the following command `SELINUX=disabled`
- Allow libraries to be relocated in memory using the following command `chcon -t texrel_shlib_t /opt/cubrid/lib/libcubridsa.so.8`

4.5.2 Java runtime environment fatal error

Memory access violation

You receive the following error message:

```
# A fatal error has been detected by the Java Runtime Environment:
#
# SIGSEGV (0xb) at pc=0x00000036a6e471d0,pid=1958, tid=139794478638848
#...
```

This error represents a memory access violation that is caused by a conflict between some versions of Eclipse and RealVNC.

Solution

Update to RealVNC Server version 5.0.5 or later.

4.5.3 IP Catalog association I/O error

This error can occur when associating IP in the IP Catalog.

IO error

You receive the following error message:

```
An IO error was encountered when walking the file tree starting at: ...
```

The behavior can occur when long paths are required to reference IP Bundles in shared Windows and Linux locations.

Solution

Shorten the paths required to reference IP Bundles in shared Windows and Linux locations.

4.5.4 Workspace name cannot contain space character

Workspace name contains a space character that is shown by a red cross

If the workspace name contains the space character, for example `my workspace`, then it is shown in the **Data Explorer** with a red cross,

Solution

Modify the workspace name.

4.5.5 Help content or training videos do not open

Some Socrates™ help content and training videos load in an external web browser. Your default browser is normally used. Sometimes the help content does not open.

Your default browser is not set in Socrates

In some environments your default web browser might not be set in Socrates™.

Solution

1. Select **Window > Preferences > General > Web Browser**
2. Click **New**
3. Enter a name for your browser
4. Enter the location of your browser
5. Click **OK**
6. Tick the checkbox next to your browser to set it as the default external web browser

5. Setting up licensing

Set up the license server on a Linux platform. This enables runtime functionality.

5.1 Setting up the license environment

Socrates™ uses FlexNet License Management from Flexera Software. The license setup depends on the product licenses that you have. Set up your licensing environment using the following steps.

Generate and download the license files

1. Log in to the Arm® licensing portal <https://developer.arm.com/support/licensing>.
2. Enter your product serial number. If you have more than one product, enter the serial numbers individually. Contact your Arm® account manager to obtain the appropriate serial numbers.
3. Enter machine host ID and other requested information.
4. Click **Save** to download a `license.dat` file.

Install the license daemon

The license daemon `armlmd` is required to host the licenses used by Socrates IP Tooling Platform. Download `armlmd` from <https://silver.arm.com/browse/BX002>. Use the search term **BX002 - FLEXnet binaries and utilities**.

Check the license daemon

Ensure that `armlmd` is correctly installed. Run:

```
cd BX002-PT-00004-r11p15-00re10
./lmutil lmver armlmd
```

Check that the output is the `armlmd` information, as follows. Take particular note of the version:

```
lmutil - Copyright (c) 1989-2017 Flexera Software LLC. All Rights Reserved.
FlexNet Licensing v11.15.0.0 build 215548 (ipv6) x64_lsb (liblmgr.a), Copyright
(c) 1988-2017 Flexera Software LLC. All Rights Reserved.
```

Edit the license files

Edit the license files for your application to enter the path to the `armlmd` license server daemon. Set the daemon ports, and the server hostname and host ID.

Set the environment variables on client workstations

Set the environment variable `ARMLMD_LICENSE_FILE` to the location of the `armlmd` license files, for example `27001@testserver.com`.

Start the license daemons on the server

To start the license daemon for the Socrates™ IP Tooling Platform, run:

```
/home/arm/Licensing/lmgrd -c /home/arm/Licensing/armlmd_lic.dat
-l /home/arm/armlmd_lic_log.log
```

This command invokes the `armlmd` daemon, and saves the daemon log to `/home/arm/armlmd_lic_log.log`.

5.2 Required licenses

Socrates™ uses several different licenses. The specific licenses that you have determine which IP you are able to configure and build.

Start-up without a license

You can start up Socrates without a license. Select the **No License** option.

Socrates licenses

To start Socrates™, and configure most IP, you must have at least one of the following Socrates™ licenses:

- A full `socrates` license.
- A `socrates_config_only` license, which enables you to configure Arm IP, but not build.
- A legacy `system_builder` or `socrates_flexibleaccess_ms` license, which gives the same functionality as the full license.

IP licenses

You can configure most IP without having a license for it. However, to build IP-XACT and Verilog output you must download a licensed IP package to your system and associate it with the corresponding entry in the **IP catalog**. For more information, see the *Arm® Socrates™ User Guide*.

For information on additional licenses required for some IP products, see *Arm® Socrates™ Release Note*.

Appendix A Document revisions

This appendix describes the changes between released issues of this document.

A.1 Revisions

This appendix describes changes between released issues of this book.

Table A-1: Issue 0101-00

Change	Location
First release	-

Table A-2: Differences between issues 0101-00 and issue 0102-00

Change	Location
Updated for 1.2 requirements	4.2 Installing Socrates on page 16

Table A-3: Differences between issues 0102-00 and issue 0103-00

Change	Location
Updated for 1.3 requirements	3.2 Installation requirements on page 13
Added information about changing memory setting for Java heap sizes	3.3 Memory settings on page 14

Table A-4: Differences between issues 0103-00 and issue 010301-00

Change	Location
Updated FlexNet Licensing version	5.1 Setting up the license environment on page 20
Updated description of arm_corelink_cmn_600_cml	5.2 Required licenses on page 21

Table A-5: Differences between issue 010301-00 and issue 010302-00

Change	Location
Updated to 1.3.2 release	-

Table A-6: Differences between issue 010302-00 and issue 010303-00

Change	Location
Added new Arm Flexible Access license information	5.2 Required licenses on page 21

Table A-7: Differences between issue 010303-00 and issue 010304-00

Change	Location
Added new license information for CMN products	5.2 Required licenses on page 21

Table A-8: Differences between issue 010304-00 and 0104-00

Change	Location
Updated information for product bundle downloading	4.1 Product packages on page 16

Change	Location
Clarified third-party requirements <code>compat-libstdc++</code> for RHEL6 and RHEL7	3.2 Installation requirements on page 13
Added new information regarding starting Socrates™	4.4 Starting Socrates on page 17
Added configuration only license information	5.2 Required licenses on page 21

Table A-9: Differences between issue 0104-00 and 010401-00

Change	Location
Updated installation instructions to version 1.4.1 and reworded for clarity	4.2 Installing Socrates on page 16
Updated licenses for CMN-600AE	5.2 Required licenses on page 21

Table A-10: Differences between issue 010401-00 and 0105-00

Change	Location
First Non-Confidential release	-

Table A-11: Differences between issue 0105-00 and 0105-01

Change	Location
No technical or functional changes	-

Table A-12: Differences between issue 0105-01 and 1.6.0-01

Change	Location
Editorial changes, including product version and document issue styles	Throughout
Updated reference to Arm Flexible Access	4.1 Product packages on page 16
Updated description of product version	4.2 Installing Socrates on page 16
Added reference to Release Note	4.5 Troubleshooting on page 17
Added Troubleshooting section	4.5.5 Help content or training videos do not open on page 19
Updated license information	5.2 Required licenses on page 21

Table A-13: Differences between issue 1.6.0-01 and 1.6.1-02

Change	Location
Updated configuration licenses information	5.2 Required licenses on page 21

Table A-14: Differences between issue 1.6.0-02 and 1.7.0-03

Change	Location
Added requirement for 128MB space in <code><home directory></code> , removed out-of-date information	3.2 Installation requirements on page 13
Removed out-of-date GTK section	-
Updated troubleshooting format	4.5 Troubleshooting on page 17

Table A-15: Differences between issue 1.7.0-03 and 1.7.1-04

Change	Location
Updated document version for 1.7.1 REL release	-
Updated Red Hat operating system information	3.2 Installation requirements on page 13

Table A-16: Differences between issue 1.7.1-04 and 1.7.2-05

Change	Location
Updated information and terminology for IP delivery	Throughout, including 5. Setting up licensing on page 20