



Arm Toolchain for Linux Release Note

Version 22.1.0

Non-Confidential

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Issue 01

110476_221_01_en



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This document (110476_221_01_en) was issued on 2026-03-05. There might be a later issue at <https://developer.arm.com/documentation/110476>

The product version is 22.1.0.

See also: [Proprietary notice](#) | [Product and document information](#) | [Useful resources](#)

Start reading

If you prefer, you can skip to [the start of the content](#).

Intended audience

Software developers

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.

We believe that this document contains no offensive language. To report offensive language in this document, email terms@arm.com.

Feedback

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

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1. Changelog

All notable changes to this project will be documented in this file.

1.1 [22.1.0]

This is the third release of the Arm Toolchain for Linux (ATfL), a successor of the Arm Compiler for Linux (ACfL).

Although ATfL is based entirely on LLVM version 22.1.0, several changes have been introduced specifically for this toolchain. The most notable include:

- The compiler uses a config file by default, which improves performance-specific optimizations; most notably, it encourages the use of the vectorized mathematical routines in the Loop Vectorizer which enables the possibility of vectorizing loops containing the calls to the mathematical library functions.
- The Bash autocompletion has been extended to cover `armclang`, `armclang++` and `armflang`.
- The Amazon Linux target triple is properly recognized, which enables vectorizations of the pieces of code calling the `sincos*` functions. See [this pull request](#) for more details.
- New Fortran directives supported by `armflang`: `vector`, `vectorlength`, `prefetch`, `inline`, `forceinline`, `noinline`.
- Non-standard `rtc` Fortran intrinsic implemented as an alias for `time`.
- `threadprivate` common block variables appearing in equivalence in a Fortran/OpenMP code are allowed.
- The Arm Toolchains package repositories are transitioning to a new and improved structure. Users who have previously installed using the native package manager can update to ATfL 22.1.0 automatically. New users must follow the updated instructions in the `Installation.md` file.

1.2 [21.1.1]

This is the second release of the Arm Toolchain for Linux (ATfL), a successor of the Arm Compiler for Linux (ACfL).

Although ATfL is based entirely on LLVM version 21.1.1, several changes have been introduced specifically for this toolchain. The most notable include:

- The compiler uses a config file by default, which improves performance-specific optimizations; most notably, it encourages the use of the vectorized mathematical routines in the Loop Vectorizer which enables the possibility of vectorizing loops containing the calls to the mathematical library functions.
- The Bash autocompletion has been extended to cover `armclang`, `armclang++` and `armflang`.
- BOLT is now included as a part of the toolchain.

- The Amazon Linux target triple is properly recognized, which enables vectorizations of the pieces of code calling the `sincos*` functions. See [this pull request](#) for more details.
- Passing non-contiguous arrays to an MPI procedure causes issues in MPICH. [This bug report](#) provides more details. The issue is scheduled to be fixed in the 22.x release.

1.3 [20.1.0]

This is the first release of the Arm Toolchain for Linux (ATfL), a successor of the Arm Compiler for Linux (ACfL).

Although ATfL is based entirely on LLVM version 20.1, several changes have been introduced specifically for this toolchain. The most notable include:

- The compiler uses a config file by default, which improves performance-specific optimizations; most notably, it encourages the use of the vectorized mathematical routines in the Loop Vectorizer which enables the possibility of vectorizing loops containing the calls to the mathematical library functions.
- For function whose `vscale_range` is limited to a single value, ATfL can size scalable vectors. The compiler can now perform bitcast-like operations between fixed and scalable vectors, improving optimization opportunities for code utilizing scalable vector types. See [this pull request](#) for more details.
- A part of transformation in the Loop Vectorizer causing 'Verification Error' on the WRF benchmark has been deactivated. See [this bug report](#) for more details.
- The Bash autocompletion has been extended to cover `armclang`, `armclang++` and `armflang`.

Please examine the `docs` directory for more details specific to the Arm Toolchain for Linux.

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PRE-1121-V1.0

Product and document information

Read the information in these sections to understand the release status of the product and documentation, and the conventions used in Arm documents.

Product status

All products and services provided by Arm require deliverables to be prepared and made available at different levels of completeness. The information in this document indicates the appropriate level of completeness for the associated deliverables.

Product completeness status

The information in this document is Final, that is for a developed product.

Revision history

These sections can help you understand how the document has changed over time.

Document release information

The Document history table gives the issue number and the released date for each released issue of this document.

Document history

Issue	Date	Confidentiality	Change
221-01	5 March 2026	Non-Confidential	Release based on upstream LLVM 22.1.0
211-01	21 October 2025	Non-Confidential	Release based on upstream LLVM 21.1.1
201-00	30 April 2025	Non-Confidential	Initial release

Change history

The Change history tables describe the technical changes between released issues of this document in reverse order. Issue numbers match the revision history in [Document release information](#) on page 8.

Table 2: Differences between issues

Change	Location
Initial release	-
Updated with 21.1 release details	-
Updated with 22.1 release details	-

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.

Typographic conventions


Arm documentation uses typographical conventions to convey specific meaning.

Convention	Use
italic	Citations.
bold	Interface elements, such as menu names. 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: <div>MRC p15, 0, <Rd>, <CRn>, <CRm>, <Opcode_2></div>
SMALL CAPITALS	Terms that have specific technical meanings as defined in the Arm® Glossary. For example, IMPLEMENTATION DEFINED , IMPLEMENTATION SPECIFIC , UNKNOWN , and UNPREDICTABLE .



Caution

We recommend the following. If you do not follow these recommendations your system might not work.



Warning

Your system requires the following. If you do not follow these requirements your system will not work.



You are at risk of causing permanent damage to your system or your equipment, or harming yourself.



This information is important and 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.

Useful resources

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

Arm documents are available on developer.arm.com/documentation.

Confidential documents are only available to licensees, when logged in. Each document link in the following tables provides direct access to the online version of the document.