



# Release notes for features names in A profile architecture

2025-06

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## Release information

### Document history

Issue	Date	Confidentiality	Change
2025-06_01	30 June 2025	Non-Confidential	2025-06 release
2025-03_01	30 March 2025	Non-Confidential	2025-03 release
2024-12_01	30 December 2024	Non-Confidential	2024-12 release
2024-09_01	30 September 2024	Non-Confidential	2024-09 release
2024-06_01	5 July 2024	Non-Confidential	2024-06 release

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# 1. Features in Arm A-profile architecture (2025-06)

30 June 2025

## Product Status

The content relating to all features, including the 2024 extensions is at Beta quality. Beta quality means that all major features of the specification are described, but some details might be missing.

## Change History

- FEAT\_NV2p1 is updated to be optional from Armv8.4.
- FEAT\_ETS3 has been clarified to state that if FEAT\_ETS3 is implemented, then FEAT\_ETS2 is implemented.
- The descriptions of FEAT\_CSV2\_3, FEAT\_CLRBHB and FEAT\_ECBHB are clarified to apply to all forms of prediction that use branch history.
- A new feature, FEAT\_MPAMv1p0 is introduced to represent the specific release, and the existing feature FEAT\_MPAM is redesignated to represent implementation of any MPAM feature from MPAMv0p1 onwards.
- FEAT\_BBML is subdivided into FEAT\_BBML1 and FEAT\_BBML2. ID\_AA64MMFR2\_EL1.BBM is updated to refer to the new features.
- The description of FEAT\_D128 is clarified to only require FEAT\_S2PIE if EL2 is implemented, and clarified that it supports rather than mandates up to 56-bit addresses.
- The description for FEAT\_CMOW is updated to clarify that it controls the required permissions for cache maintenance instructions subject to translation, specifying that Stage 1 and Stage 2 can be configured to generate Permission faults if write permission is not present.
- The definition of FEAT\_PRFMSLC is updated to include support for the SLC target in PRFUM.
- The ID fields for the following features are added to the feature definitions:
  - FEAT\_F8F16MM.
  - FEAT\_F8F32MM.
  - FEAT\_PoPS.
  - FEAT\_SMEv2p2.
  - FEAT\_SRMASK.
  - FEAT\_SVE\_F16F32MM.
- RAS SA features including FEAT\_RASSA\_ACR are added.

Many simple clarifications and corrections are also present, but are too small to be listed here. Some minor formatting changes are suppressed and not highlighted in the diff output.

## Known Issues

All issues identified in the below list will be fixed in a future release.

- FEAT\_TME will be obsoleted in all versions of the architecture.
- The following features will be introduced to describe architectural support for endianness at different Exception levels:
  - FEAT\_BigEnd.
  - FEAT\_LittleEnd.
  - FEAT\_BigEndELO.
  - FEAT\_LittleEndELO.
- The description of FEAT\_RASv2 will be updated to make FEAT\_RASSAv2 optional.
- FEAT\_SME2p2 will be relaxed to no longer require FEAT\_SSVE\_BitPerm. Related clarifications will be made to the descriptions of FEAT\_SME2p2, FEAT\_SSVE\_BitPerm and the behavior of bit permute instructions in Streaming SVE mode.

## Upcoming Changes

To align with updated ASLRef syntax and reduce ambiguity in parsing, the syntax for certain arrow operators is being revised in the Features.json. Specifically, the `-->` operator will be replaced with `==>`, and `<->` is being replaced with `<=>`. These changes will improve consistency across ASL sources and support enhanced tooling in future ASL releases.

## Intention and quality statements for all ArmARM architecture releases

The intention and scope of the Architecture releases is to describe changes from the existing architecture to the next release. The quality of the architecture releases refers to the accuracy and completeness of the changes described in the specifications.

The intention and scope of the AARCHMRS and Data releases is to describe the content and behavior of the registers, system registers, instructions, pseudocode and features of the architecture in full, for human readers in a way that enables correct information for the current or any previous release can be deduced. The quality of the XML releases refers to the accuracy and completeness of the content to a human reader.

The intention and scope of the JSON releases is to describe aspects of the AARCHMRS and Data releases in a structured, machine readable format. The content of the AARCHMRS and Data architectural content will be approximately equivalent to the corresponding XML release. However there are some aspects of the architecture which cannot yet be represented in a machine readable format. The content of the AARCHMRS architectural content will be approximately equivalent to the corresponding Data release.

The intention and scope of the Schema for the JSON releases is to describe the syntax and format of the json files used in the json releases. The schema is still under development and is subject to change.