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Reconfigurable Radio Systems (RRS); Feasibility study of the usage of software reconfiguration for Radio Equipment Directive and Proposal for Cyber Resilience Act

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Reconfigurable Radio Systems (RRS).

Modal verbs terminology

In the present document "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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Executive summary

The present document analyses the viability of the existing ETSI framework of Software Reconfiguration to address the needs of the Radio Equipment Directive [i.16] and the draft Cyber Resilience Act [i.17] in the context of "Software" updates.

ETSI has published a generalized software reconfiguration approach which enables reconfiguration of radio equipment through software as specified in ETSI EN 303 641 [i.1], ETSI EN 303 648 [i.2], ETSI EN 303 681-1 [i.3], ETSI EN 303 681-2 [i.4], ETSI EN 303 681-3 [i.5], ETSI EN 303 681-4 [i.6] and in support of use cases identified in ETSI TR 103 585 [i.7]; the overall framework is complemented by security solutions in ETSI TS 103 436 [i.14] and the definition of a Radio Application Package [i.15]. The specific case of Mobile Device reconfiguration is addressed in ETSI EN 303 095 [i.8], ETSI EN 303 146-1 [i.9], ETSI EN 303 146-2 [i.10], ETSI EN 303 146-3 [i.11], ETSI EN 303 146-4 [i.12], ETSI TR 103 087 [i.13] and ETSI TS 103 436 [i.14]. The ETSI software reconfiguration framework is a general approach; the upload of software components, including firmware, patches and configuration files is a subset of this framework. The present document is focusing on this sub-set.

The results of the present document indicate that for both cases, i.e. the Radio Equipment Directive and the draft Cyber Resilience Act, the existing ETSI framework of Software Reconfiguration provides a suitable base to meet inherent requirements.

Introduction

ETSI has published a generalized software reconfiguration approach which enables reconfiguration of radio equipment through software as specified in ETSI EN 303 641 [i.1], ETSI EN 303 648 [i.2], ETSI EN 303 681-1 [i.3], ETSI EN 303 681-2 [i.4], ETSI EN 303 681-3 [i.5], ETSI EN 303 681-4 [i.6] and in support of use cases identified in ETSI TR 103 585 [i.7]; the overall framework is complemented by security solutions in ETSI TS 103 436 [i.14] and the definition of a Radio Application Package [i.15]. The specific case of Mobile Device reconfiguration is addressed in ETSI EN 303 095 [i.8], ETSI EN 303 146-1 [i.9], ETSI EN 303 146-2 [i.10], ETSI EN 303 146-3 [i.11], ETSI EN 303 146-4 [i.12], ETSI TR 103 087 [i.13] and ETSI TS 103 436 [i.14]. The ETSI software reconfiguration framework is a general approach; the upload of software components, including firmware, patches and configuration files, is a subset of this framework. The present document is focusing on this sub-set.

The present document analyses the viability of the existing ETSI framework of Software Reconfiguration to address the needs of the Radio Equipment Directive [i.16] and the draft Cyber Resilience Act [i.17] in the context of "Software" updates.

1 Scope

The present document analyses the applicability of available ETSI deliverables on Software Reconfiguration to the implementation of regulation initiatives currently under way, including specifically:

- Radio Equipment Directive Article 3(3)(i) and Article (4) [i.16].

NOTE: One aspect of those Articles relates to the combination of Software and Hardware.

- Cyber Resilience Act [i.17].

2 References

2.1 Normative references

Normative references are not applicable in the present document.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI EN 303 641 (V1.1.2): "Reconfigurable Radio Systems (RRS); Radio Equipment (RE) reconfiguration requirements".

[i.2] ETSI EN 303 648 (V1.1.2): "Reconfigurable Radio Systems (RRS); Radio Equipment (RE) reconfiguration architecture".

[i.3] ETSI EN 303 681-1 (V1.1.2): "Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 1: generalized Multiradio Interface (gMURI)".

[i.4] ETSI EN 303 681-2 (V1.1.2): "Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 2: generalized Reconfigurable Radio Frequency Interface (gRRFI)".

[i.5] ETSI EN 303 681-3 (V1.1.2): "Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 3: generalized Unified Radio Application Interface (gURAI)".

[i.6] ETSI EN 303 681-4 (V1.1.2): "Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 4: generalized Radio Programming Interface (gRPI)".

[i.7] ETSI TR 103 585 (V1.2.1): "Reconfigurable Radio Systems (RRS); Radio Equipment (RE) reconfiguration use cases".

[i.8] ETSI EN 303 095 (V1.3.1): "Reconfigurable Radio Systems (RRS); Radio reconfiguration related architecture for Mobile Devices (MD)".

[i.9] ETSI EN 303 146-1 (V1.3.1): "Reconfigurable Radio Systems (RRS); Mobile Device (MD) information models and protocols; Part 1: Multiradio Interface (MURI)".