

From Specification to Standard: A Meta-Terminological Evolution in ASD-STE100 Issue 9

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Abstract

The release of Issue 9 marks the transition of ASD-STE100 Simplified Technical English (STE) from specification to international standard. This paper outlines the key meta-terminological updates, focusing on user information needs, accessibility, and alignment with international terminological standards. The evolution of ASD-STE100 from its legacy to a more structured, user-centric standard is examined, drawing connections to the meta-terminology review conducted in the paper published in the proceedings of MDTT2023. The updates align with FAIR principles, enhancing both usability and interoperability across various industries. This paper focuses on the meta-terminological evolution in Issue 9, addressing challenges such as aligning legacy terminology with linguistic standards and simplifying complex terms for non-expert users, particularly technical writers who may not have a linguistic background. The updates, guided by input from the ASD Simplified Technical English Maintenance Group (STEMG) and STE National and Multi-Country Support Teams (STEST), aim to ensure that the standard remains practical and accessible.

Keywords

Simplified Technical English, ASD-STE100, standard, meta-terminology, subject fields, FAIR

1. Introduction

As a controlled natural language (CNL), ASD-STE100 Simplified Technical English (STE) has significantly influenced technical documentation, especially in the aerospace and defense sectors. Its primary purpose is to simplify complex technical texts, ensuring clarity and consistency across global communication platforms. Technical content written in STE is more accessible to a global audience, especially non-native English speakers. This is achieved by providing specific rules for grammar, style, and word usage, alongside a controlled dictionary of approved words.

As technical communication continues to evolve, the need for standardization and alignment with broader terminological frameworks has grown. Terminology standardization ensures that both the immediate users (technical writers and translators) and the end users can access and understand critical documentation with ease. This paper aims to highlight the meta-terminological evolution in ASD-STE100 Issue 9, focusing on how the shift from specification to standard serves the user community. This development also links directly to the meta-terminology review initiated in 2022 and discussed in [1].

2. Background

2.1. Overview of ASD-STE100

ASD-STE100, established in the 1980s as AECMA Simplified English [2], has grown in scope and importance over the decades. Originally a Guide (until Issue 2 [3]), and later a Specification (until Issue 8 [4]), it transitioned into a Standard with Issue 9 [5].

Although STE was initially created for the aerospace and defense sectors (for aircraft maintenance manuals), it is now being adopted across an increasing range of industries (especially

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in the railway, healthcare, automotive, and renewable energy sectors). These further industry sectors recognize the advantages of using a controlled language to improve the clarity and quality of their documentation, enhance safety, and support international communication. By minimizing ambiguity—particularly for readers who are not native English speakers—STE's structured methodology reduces the risk of human error and ensures that technical content remains clear, consistent, and reliable. As a result, STE has become a valuable resource well beyond its original scope. The copyright and trademark of the ASD-STE100 standard are fully owned by the Aerospace, Security and Defense Industries Association of Europe (ASD) [6].

The ASD-STE100 document is divided into two parts: the writing rules and the dictionary. The writing rules (53 rules in 9 sections) provide strict guidelines for grammar and style, while the dictionary lists approved words and their meaning (in bold uppercase, 875 entries), in addition to words that are not approved (in bold lowercase, approximately 1400 entries) and their related approved alternatives, together with a total of approximately 3000 from existing technical documentation. Special terms that are not included in the dictionary are categorized, depending on their role in technical documentation and their related subject field. The main challenge with these terms has been their inconsistency and the lack of alignment of meta-terminology with contemporary terminological standards. As for legacy meta-terminology, the designations *technical name* and *technical verb* had been historically used to designate such concepts outside the standard dictionary. Issue 9 seeks to update and harmonize these designations and other terms with linguistic standards, leading to greater clarity and usability.

Word (part of speech)	Approved meaning/ ALTERNATIVES	STE EXAMPLE	Non-STE example
ACTIVE (adj)	A system, function, or feature in a state of action	DOWNLOAD THE EXPORT FILE FROM THE ACTIVE SERVER UNIT.	
activity (n)	TASK (n)	A SUBCONTRACTOR CAN DO THESE MAINTENANCE TASKS.	These maintenance activities can be done by a subcontractor.
	PROCEDURE (n)	DO THIS PROCEDURE AT THE AMBIENT TEMPERATURE.	Do this activity at the ambient temperature.
	WORK (n)	DO THIS WORK IN A CLEAN AREA.	Do this activity in a clean area.

Figure 1. Example of dictionary entries

Section 5 - Procedural writing	
Summary of the rules	
Sentences	
Rule 5.1	Write short sentences. Use a maximum of 20 words in each sentence.
Rule 5.2	Write only one instruction in each sentence unless two or more actions occur at the same time.
Verbs in procedures	
Rule 5.3	Write instructions in the imperative (command) form.
Descriptive statements in instructions	
Rule 5.4	When there is a condition that the reader must know about first, start the instruction with a descriptive statement. Then, divide that descriptive statement from the command with a comma.
Notes	
Rule 5.5	Write notes only to give information, not instructions.

Figure 2. Example of writing rules

2.2. Key findings from the 2023 study

In [1], the authors explored the challenges in harmonizing legacy terminology and the possible methods to be applied. Notably, the FAIR methodology was applied to categorize and standardize terms related to specific domains or subject fields. The study focused on the subject field classification, aiming to create a more structured approach.

- **Subject Field Classification:** The 2023 study revealed that the existing subject field categories were outdated and insufficient for modern technical communication needs. This led to a proposal to refine these categories and adopt a more structured terminology management approach. The study also highlighted the need for a structured subject field classification system that would allow for easier integration of new terms as technical fields continue to expand.
- **FAIR Methodology:** A critical aspect of this review was the adoption of the FAIR guiding principles (Findable, Accessible, Interoperable, and Reusable) [7] to create concept entries that would enhance the findability and reusability of terms in multiple contexts.

3. Meta-terminology in ASD-STE100 Issue 9

3.1. Objectives of the review

The meta-terminology review undertaken for Issue 9 was driven by two main goals:

- **Clarity and consistency:** The main aim was to simplify and clarify the meta-terminology used within the document and the technical terminology.
- **Harmonization:** One of the key findings was that while legacy technical terminology in the ASD-STE100 document was useful, it lacked consistency with modern terminological approaches. This led to the proposal of updating the designations *technical name* and *technical verb*.

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The review also aimed to ensure that all changes would enhance the usability of the standard without alienating its primary users – technical writers. These professionals, while highly skilled in their respective fields, do not always have an academic background in linguistics. Thus, the goal was to keep the changes simple and practical, avoiding overly complex lexicographic terminology while ensuring that the terms were specific enough to meet the needs of technical documentation.

The review process involved intense collaboration within the STEMG [8] and its seven STEST [9]. Defining verb types and forms was particularly challenging, as it required balancing linguistic precision with clarity for technical writers, who often lack formal linguistic training. The introduction to the dictionary in Issue 9 now includes simple yet accurate definitions of the types of approved verbs in the dictionary (regular, irregular, irregular auxiliary, and defective modal verbs).




Irregular auxiliary verbs Auxiliary verbs that have unusual forms for tenses.			
Example:			
Word (part of speech)	Approved meaning/ ALTERNATIVES	STE EXAMPLE	Non-STE example
BE (v), IS, WAS (also ARE, WERE)  No other verb forms.	1. To occur, exist	IF THERE IS CORROSION ON THE PUMP VANES, REPLACE THE PUMP.	
	2. To have a property to be equal to	ACID SOLUTIONS ARE DANGEROUS.	
Defective modal verbs Modal verbs in which some verb forms are missing.			
Example:			
Word (part of speech)	Approved meaning/ ALTERNATIVES	STE EXAMPLE	Non-STE example
CAN (v), CAN, COULD  No other verb forms.	Auxiliary modal verb that means to be possible, to be able to, or to be permitted to	A MIXTURE OF FUEL AND OXYGEN CAN CAUSE AN EXPLOSION.	
		YOU CAN CLEAN THE DRAIN HOLES WITH THE CLEANING TOOL.	
	 Do not use COULD (v) to show possibility	IF YOU DO NOT OBEY THIS WARNING, AN EXPLOSION CAN OCCUR.	If you do not obey this warning, an explosion could occur.

Figure 3. Example of verb types in the introduction to the dictionary

3.2. Proposed changes

A major change introduced in Issue 9 was the replacement of the term *technical name* with *technical noun (term)*, reflecting a shift toward a more standardized terminology approach. This change was made to improve clarity and to better align with [10], which defines a *term* as a “designation that represents a general concept by linguistic means”. This change helps remove ambiguity, especially for non-expert users, as *name* could imply something different in a technical context. Notably, *term* appears only in the definitions and explanatory text for Rules 1.5 and 1.12. The addition of *noun term* in the explanatory text for the new designation emphasizes that while a technical noun is a term, a term is not always a noun, as it can also include verbs (modification similarly applied to the explanatory text for technical verbs: “A technical verb is a verb term that refers to a specified concept or process and is applicable to a subject field.”)

This clarification addresses a historical inconsistency in ASD-STE100, as analyzed in [1], which examined the evolution of technical terminology in the specification. In pre-release Issue 0 (1985), the designation *technical term* was used for both nouns and other linguistic units, such as numbers and symbols. However, in Issue 1 (1986), this was changed to *technical name*, a designation that remained in use despite the expansion of the category to include abstract concepts, numbers, and even adjectives for colors. Similarly, the classification for approved verbs outside the dictionary evolved from *manufacturing processes* to *technical verbs* in Issue 1, Revision 2 (2001).

While in [1] the authors had proposed reinstating *technical term* as a more accurate alternative, further deliberations—based on the final submitted Change Form that proposed *noun-type term* and *verb-type term*—led to the adoption of *technical noun* and the reconfirmation of *technical verb* in Issue 9. Furthermore, in the tekomp Europe e.V. (European Association for Technical Communication) terminology database for technical communication [11], *technical term* and *specialized term* are explicitly labeled as not to be used.

These meta-terminology changes followed ASD-STE100’s structured change proposal process, where modifications must be submitted to the STEMG using a Change Form. Each Change Form undergoes rigorous analysis and discussion during STEMG meetings before acceptance. If approved, the change is incorporated into the next issue of the standard. The final Change Form submitted by the authors (who are longstanding STEMG participants) proposed *noun-type term* and *verb-type term*. However, other STEMG participants strongly advocated to retain the adjective *technical*, despite the above-mentioned clear-cut definition of *term* in [10]. Therefore, the shift from *technical name* to *technical noun* and the reconfirmation of *technical verb* in Issue 9 were the outcomes of an extensive review and structured decision-making process. The final decision ensures that ASD-STE100 maintains a clear distinction between noun-based and verb-based

controlled vocabulary, while still acknowledging the broader classification of terms within terminology science.

Other key changes included:

- Streamlining of subject field categories: The review also resulted in a restructuring of technical noun categories to make them more accessible and easier to navigate. For example, new subject field categories, such as *Law and regulations* and *Animals, plants, and other life forms* have been added under Rule 1.5. A similar restructuring was also applied to subject field categories for technical verbs in Rule 1.12.
- Updating of examples in the dictionary: Examples for the dictionary entries have been revised to better represent contemporary technical fields, reducing the percentage of legacy examples related to aerospace and defense (from 15% in [2] to 3% in [5]).

These updates improve usability for a wider audience and ensure that terminology and terminology management are accessible to users from multiple sectors.

20. Civil and military operations Terms that refer to concepts and activities, service delivery, product management, and customer and life-cycle support in civil and military operations. armed forces, assault, bomb, bullet, checkpoint, combat plan, contractor, customer, customer support, customer service, deployment, echelon, ejection seat, end item, end user, evacuation, formation, ground zero, gun, Integrated Product Support (IPS), know-how, lifecycle, machine gun, maintenance concept, mission, obsolescence, operator, Original Equipment Manufacturer (OEM), patrol
21. Law and regulations Terms that refer to legal and regulatory texts. For example, contracts, warranty texts, certificates, standards and specifications, and legal papers. action, ambiguity, appeal, arbitration, bankruptcy, communication, competence, compliance, concession, contract, court, damages, explanation, explanatory text, impeachment, jury, law, judgement, jurisdiction, purpose, recommendation, scope, serious incident, serious offense, signature, statute, term, trade, waiver, wording
22. Animals, plants, and other life forms Terms that refer to biological entities in technical and environmental contexts. bacteria, bird, cassowary, cat, conifer, cow, dog, emu, fern, ferret, fungi, horse, insect, leopard, monkey, moss, mouse, pocket gopher, rose, termite, wombat

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Part 1 - Writing rules

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Figure 4. Example of technical noun categories and related example list

3.3. Challenges of the review process

Defining English verb forms and tenses in a way that was both linguistically accurate and clear for users sparked thought-provoking debates within the STEMG. These discussions centered around finding the right balance between precision and usability.

The challenge was to explain verb forms in a manner that was simple enough for technical writers to understand and apply without needing an in-depth knowledge of linguistics. Participants of the STEMG emphasized the importance of maintaining the spirit of ASD-STE100 by ensuring that its rules remained straightforward and practical for technical writers. While linguistic precision was considered, simplicity was prioritized to serve the needs of users.

A further key decision in the review process was to keep the dictionary entry column designation simple by using the term *word* instead of terms derived from lexicography, such as *headword* or *lemma*, which have a higher linguistic register. This decision was based on the understanding that the goal was not to create an academic resource but rather a practical guide for those who rely on ASD-STE100 in their daily work, such as technical authors, translators, and editors. Until Issue 7, the dictionary entry column was actually labeled *keyword*. This choice aligns with STE's purpose as a controlled language first and foremost for written technical communication, not as an academic linguistic resource. While pronunciation is not covered in STE, the dictionary does include usage examples with both STE and non-STE sentences to guide users. Other elements of lexicography, such as etymology, are excluded as they are not essential for technical authors. Regarding verb forms, only the approved inflections appear in dictionary entries.

Unlike general dictionaries, STE does not list true synonyms, adhering to its guiding principle of "one word, one meaning, one part of speech." When an alternative is suggested, it is either a less ambiguous synonym—even if not identical in meaning (e.g., "CAN (v)" instead of "MAY (v)")—or a word with a different part of speech that leads to a restructured sentence. Additionally, antonyms are not included in the controlled dictionary, though they may be considered for future revisions (the release of Issue 10 is scheduled for 2028). Phrasal verbs are strictly prohibited in STE under Rule 9.3, which states that an approved verb and preposition must not be combined to create a new phrase with a meaning different from its components. For example, "put out" (as in *put out the fire*) introduces ambiguity, so STE requires the use of "extinguish" instead. Only a few phrasal verbs, such as "put on" and "come on," are permitted with restricted meanings. Collocations are also unnecessary, provided that the dictionary is used correctly. Finally, as per Rule 1.10, STE excludes regional terms, slang, and jargon from technical noun usage, ensuring clarity and consistency across industries

4. User-centric digital terminology design

4.1. User information needs

The meta-terminology review plays a crucial role in addressing user information needs by enhancing accessibility and comprehension. By simplifying and standardizing meta-terminology, Issue 9 makes it easier for technical writers — regardless of their linguistic expertise — to understand and apply the writing rules consistently. This also aligns with user-centric design principles, which advocate for designing documentation with the user's needs in mind. As the standard becomes more accessible, the barrier to entry for non-expert users is lowered, making it easier to adopt ASD-STE100 in a wide variety of fields.

4.2. Terminological standards and harmonization

Harmonization with related ISO standards [12] [13] is a significant aspect of in the review work carried out for Issue 9. The new structure of technical nouns and technical verbs is not only consistent with the definition of *term* in [10] but also with the principles outlined in [14] and [15], which cover the management of terminology resources.

4.3. Technical communication and Natural Language Processing

The improvements in the dictionary entry examples and in the subject field terminology categories have implications for Natural Language Processing (NLP). These updates make it easier to automate the processing and management of technical documentation, in particular of texts written in a Controlled Natural Language. This could lead to more efficient NLP tools that assist with terminology management, translation, and content generation.

5. Conclusions and future work

The harmonization of meta-terminology and the updating of the examples related to dictionary entries in ASD-STE100 Issue 9 will have long-term benefits for the technical communication field. Key areas for future work include:

- Extending FAIR guiding principles: The next step is to further extend the FAIR methodology [16] across additional domains, ensuring that terminology is standardized and easily accessible for multiple industries.
- Collaborative tools: There is an opportunity to develop collaborative tools that integrate with controlled natural languages, enabling real-time updates and collaboration in terminology management.

- **Exploring AI integration:** A task team composed of participants from the STEMG and the STEST is exploring the potential of Artificial Intelligence (AI) for enhancing the implementation of Simplified Technical English. Through collaborations with university research projects, innovative AI-driven tools can be developed to streamline compliance checks, provide real-time feedback, and automate the adaptation of terminological updates. These efforts would further align STE with current and future technologies, increasing its accessibility and usability across industries while promoting interoperability in multilingual technical communication.

The transition of ASD-STE100 from specification to standard significantly enhances the accessibility, clarity, and consistency of the standard itself (for technical writers, the immediate users) and of the resulting technical documentation (for the readers, the end users). The review of the categorization of subject fields in Rules 1.5 and 1.12 of Issue 9 addresses the need for updated terminology and aligns with the guidelines of international standards on technical communication and terminology management, providing a user-focused design that serves a wide range of users. The meta-terminology review ensures that ASD-STE100 continues to meet the needs of technical communicators and supports ongoing development and collaboration in the field.

Declaration on Generative AI

During the preparation of this work, the authors used ChatGPT-4o in order to: Draft the structure of the content, paraphrase and reword, complete grammar and spelling checks. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the publication's content.

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