



Global Standards Management Process

Digital Signatures

Mission-specific working group

Call to Action



What business challenges are being solved?

Counterfeiting is a growing problem for the global economy: \$500 Billion* of counterfeit goods are being traded internationally. Counterfeits not only jeopardise the reputations of real brands but can lead to issues with consumers' health and safety. With the increase of regulations at the national and regional level, there are various approaches and different emerging solutions being proposed to combat counterfeiting, diversion and illicit trade. Divergent approaches and solutions pose a risk of adding complexity and cost to the supply chain, and they also conflict with GS1 standards and standards-based implementations. There are emerging solutions and regulations that leverage the technology called "digital signatures" (a form of cryptographic "signing" of information/data) for traceability and anticounterfeit business applications. A common approach to digital signatures is needed to set a path for future development that is in harmony with the GS1 System.

* Organisation for Economic Cooperation and Development (OECD) report, which details a 154 percent increase in counterfeits traded internationally — from \$200 billion in 2005 to \$509 billion in 2016. This group will address development of a standard approach, leveraging cryptographic signing of data in line with GS1 System.

Background

While the first regulation of digital signatures is focused on assignment/use by a solution provider rather than brand owners and carrying them in a barcode, the best approach for GS1 would focus on brand owner assignment and retrieval via data sharing solutions rather than embedding within a barcode.

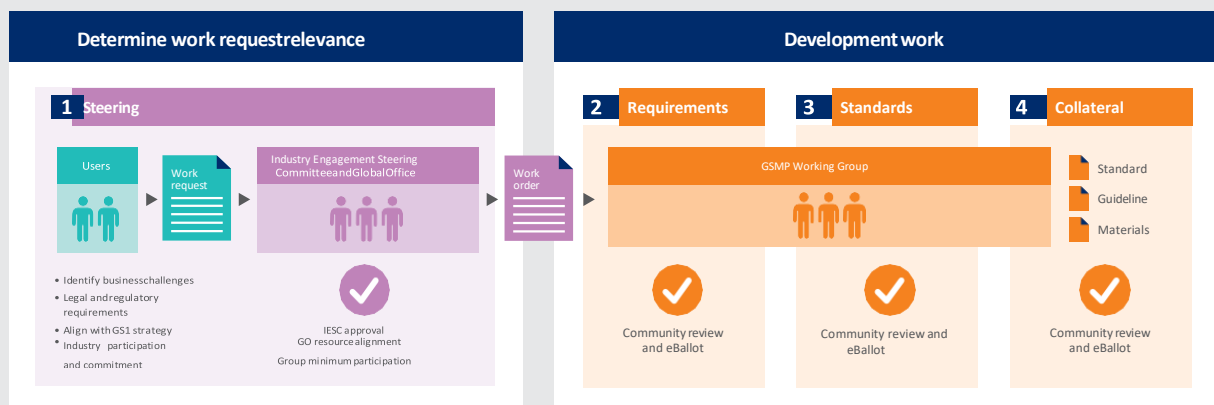
The use of barcodes to carry digital signatures** is emerging and, without a globally agreed approach, there will be disruptive or divergent solutions being implemented that drive cost to the industry and limit interoperability. For example, GS1 Application Identifiers (that are defined for internal use by GS1 members) have been adopted by a regulator for use in the open supply chain. This can cause disruption wherever products carrying these AIs encounter an internal system. GS1 has determined that there are no existing GS1 AIs that can meet the new business need and, therefore, to avoid disruption, new AI values must be assigned.

With that said, the solution for which the new AIs are needed do not reflect a best practice of digital signatures that are constructed by the brand owner and can be independently verified by anyone. It is also best practice to retrieve digital signatures online rather than via barcodes. This group aims to develop a best practice solution which can be used by regulatory bodies and industry. Once the GS1 System includes new standards for the purpose of brand owners supporting open verification of digital signatures, industry will be able to verify the provenance of products. These new standards and best practice guidance must support generation of digital signatures by the brand owner and open verification/validation and be capable of deployment in any global market and sector.

**A digital signature is constructed using asymmetric cryptography and enables anyone to verify who constructed the digital signature and that the data has not been altered. For product provenance solutions, the digital signature should be created by the brand owner.

The GSMP is a community-based forum for businesses facing similar problems to work together and develop standards-based solutions to address them. Active GSMP participants represent industries ranging from retail and consumer goods to fresh foods, healthcare, transport and logistics, government and more—a healthy mix of business and technical people from nearly 60 countries.

4-step consensus-driven process



Impact

A critical step in achieving this goal is to clearly understand and note industry specific use cases and requirements, some of which may be distinct from one sector to another, then as needed, support industry and regulators with a standards-based solution, whether that includes an open, brand owner determined digital signature solution or not.

- Protect industry's decades long investment in GS1-based solutions by adapting GS1 standards to support regulatory requirements and promote an interoperable solution for supply chain and regulatory use cases.
- Support the intention and commitment of GS1 members to brand owner-determined identification, inclusive of serialisation and, now, digital signatures.

Why is this work needed?

The GS1 standard solution approach to digital signatures is needed. Otherwise, there will be no open, brand owner determined digital signatures to set as an alternative to proprietary digital signature use in barcodes with GS1 standards.

Working group objectives

This working group will focus on achieving three objectives:

- Application Identifiers:** To eliminate the disruption caused by using AIs that are defined for internal use in an open supply chain.
- Broader Future Solution:** Define a best practice approach aligned with international standards for digital signatures (e.g. XML Digital Signatures, JSON Web Signatures) that reinforces the principle that GS1 trade item identifiers and digital signatures should be determined by brand owners.
- Implementation Guideline:** Based on GS1's best practice approach for digital signatures, build an implementation guideline to enable our communities to have a common approach.

Who should join this working group?

Aside from typical supply chain representation, expertise in security, brand protection, regulation, governance and public policy would be valuable.

GS1 Member Organisations, Manufacturers, Retailers, Solution Providers, Industry Associations

How will the working group operate?

This working group will follow GS1's standards development process:

- Participation Requirements—organisations who wish to participate in this GSMP working group must sign the GS1 IP Policy and the opt-in agreement. Voting members must be a member of GS1. These policies help GS1 continue to offer neutral, open supply chain standards that can be implemented on a royalty-free basis.
- GSMP Process—the development of this work will follow the GSMP four-step process, shown above

Next Steps

- Join the working group by 15 April 2020:
<https://www.gs1.org/standards/development-work-groups#DigitalSignature>
- Kick-off Teleconference: 16 April 2020 (07:30-09:00 EDT / 13:30-15:00 CEST)

Help, questions, or need for more information, please contact:

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