UPI Implementation guide

This is a document that describes how to implement the Unique product identifier criteria in TCO Certified generation 10. It contains Q & A, examples and extended clarifications.
It is a living document with the purpose to be helpful in the implementation process.

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Q&A

The Q&A section contains a compilation of answers to commonly asked questions regarding the implementation or verification of the UPI criteria.

Q1: How many digits should the GTINs have (12, 13 or 14 digits)?

Tags: GTIN format, all product categories
The brand owner can choose the format for the GTINs submitted to TCO Development and the GTINs shown on the websites. Although, if you are going to have the GTIN in the URL encoded into the data carrier as shown in example 1 in the criteria document (see image below) Then you should express the GTIN value using 14 digits, (prefixing the number with leading zeros to get the correct length)

Examples of Unique product identifiers
All the examples below are compliant but it is recommended to implement a solution according to an example with as low a number as possible. (Example 1 = best practice, Example 4 = least recommended). Example 1 is the direction for this criterion in coming generations of TCO Certified and likely other relevant standards currently under development.

Example 1: Standardized full product identifier (recommended)
URL: https://www.exampledoimain.com/01/GTIN/21/serial number
The brand uses GTIN, model name, (GIAI or own) serial number in offline data carriers.

This is described on page 18 of GS1 Digital Link Standard: URI Syntax
([https://ref.gs1.org/standards/digital-link/uri-syntax/ [ref.gs1.org]](https://ref.gs1.org/standards/digital-link/uri-syntax/))

"As of version 1.4.0, the GS1 Digital Link standard: URI syntax now expects the GTIN value to be expressed using 14 digits, for consistency with how a GTIN value is expressed in element strings.

This means that the value of a GTIN-8, GTIN-12 or GTIN-13 SHALL be prefixed with leading zeroes serving as filler digits to reach a total of 14 digits, exactly as explained in section 2.1.1.10 of the GS1 General Specifications. "

Q2: Can the data carrier be shown in a digital format on the On-screen-display (OSD)?

Tags: Data carrier, Displays

The data carrier needs to be a physical marking on the product. It is okay to have the data carrier on the OSD in addition to a physical marking on the product. The reason why the data carrier can not only be on the OSD is that it would require the product to be functional and switched on in order to access the product id. A major use case for accessing the product id is when the product needs some type of repair, and therefore it is not suitable to have only a digital data carrier on the OSD.

Q3: Does the QR-code have to be printed on the outer box of the product? Or be placed in the user manual? Or be affixed on the display casing as a sticker?

Tags: QR-code, packaging, all product categories

The qr code needs to be affixed to the display casing, either as a sticker or by using another type of technique to permanently label the product casing for example by using laser etching. Although if you want to have the Qr- code on the product packaging, it is allowed as an addition to the data carrier on the product.

Q4: Is it allowed to have a language selection pop-up?

Tags: destination website, all product categories

Yes, It is allowed to have a language selection pop-up. If a language selection is presented, only one subdirectory is allowed to be changed in the URL after a language has been selected (this will be changed in the next revision of the criteria document, then it will say "Maximum 2 subdirectories, one that specifies language and one that specifies region"). See the underlined text in the example below:

Select your country/region and language

Americas		Europe, Middle East, Africa			Asia Pacific and Oceania
América Central	Venezuela	Africa	Казахстан	Slovenia	Australia
Argentina		Afrique	Latvia	South Africa	中国
Bolivia		België	Lithuania	Suomi	香港特別行政區
Brasil		Belgique	Magyarország	Sverige	Hong Kong SAR
Canada		Bulgaria	Middle East	Türkiye	臺灣地區
Canada - Français		Česká republika	العربية	United Kingdom	Indonesia
Caribbean		Croatia	Nederland	Україна	India
Chile		Danmark	Norge		日本
Colombia		Deutschland	Österreich		한국
Ecuador		Estonia	Polska		Malaysia
México		España	Portugal		New Zealand
Paraguay		France	Romania		Philippines
Perú		Ελλάδα	Schweiz		Singapore
Puerto Rico		Ireland	Suisse		Thailand
United States		ישראל	Serbia		ไทย
Uruguay		Italia	Slovakia		Vietnam

Examples:

Example 1:

https://support.brand.com/us-en/product/model-123-abc-notebook-pc/sn
https://support.brand.com/se-sv/product/model-123-abc-notebook-pc/sn

Example 2:

https://support.brand2.com/se-sv/product/details/brand2-notebook-100-g9-notebook-pc/sn
https://support.brand2.com/us-en/product/details/brand2-notebook-100-g9-notebook-pc/sn

Example 3:

https://pcsupport.brand3.com/us/en/products/laptops-and-netbooks/x-series-laptops/x1337/13a/13aq005qus/sn
https://pcsupport.brand3.com/se/sv/products/laptops-and-netbooks/x-series-laptops/x1337/13a/13a005qus/sn

Q5: What language should be used on the website:

The website shall be available in the local languages where the product is sold or english.
In case that english is not available, then the verifier must translate the website to english and send it to TCO development.

Q6: What does the process for the initial implementation period look like?

Tags: initial implementation period, all product categories

1. A person (that is authorized to sign for the company) representing the brand that wants the initial implementation period contacts TCO Development at
   hannes.maki@tcodevelopment.com

2. A form to fill in some basic information, such as which brand that the Initial implementation period is for, and that the rules for granting the IIP are understood, is sent in the reply.
3. The form is filled in and sent back to TCO Development.
4. If the form is filled in correctly the Initial implementation period is now granted, this can be seen in the TCO Certified Portal.
5. At the next certificate date of a product from that brand, the initial implementation period starts.
6. 12 months later the initial implementation period ends.

Q7: What is included in the initial implementation period?

Tags: initial implementation period, all product categories
The initial implementation period is only for part 3 of the criteria. There is no implementation period for marking the products with data carriers, only for setting up the redirection to a website showing GTIN, Model Name and Serial Number.

Q8: When does the initial implementation period start?

Tags: initial implementation period, all product categories
It starts at the date of certification of the first certified product from each brand.
For applications that are approved before the launch date (December 3, 2024), the initial implementation period starts December 3rd.

Q9: If a brand gets a generation 10 certificate for a display and completes part 3 of the UPI criteria 1.3, does it mean that the brand has already used their initial implementation period and can not use it for their next product?

Tags: initial implementation period, all product categories
The initial implementation period is granted once for each brand and based on time. So when the initial implementation period is started, the brand have 12 months to become compliant for all their certified products (products certified according to TCO Certified, generation 10)

Here is an image that explains how it works.
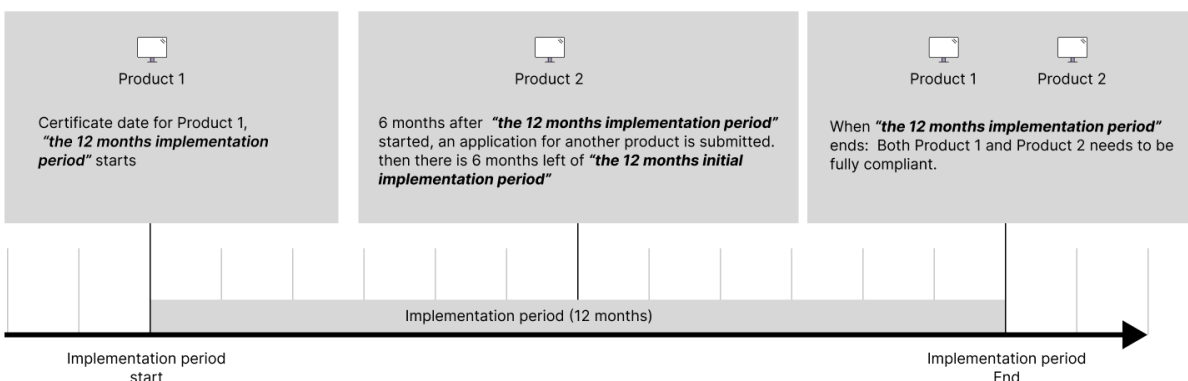
Q10: Should the URL linked to by the QR-code "only" contain three pieces of information (GTIN/EAN, Model name, Serial number)?

Tags: website, product information, all product categories
Yes, but it is allowed to display more information on the web page as well, for example information about warranties, access to spare parts and repairs. In TCO Certified, generation 10 we are focusing on product identification, but in future generations we are planning to require information that enables product lifetime extension (such as, warranty extensions, access to spare parts)

Q11: Data carrier placement for headsets & general products says "No mandatory data carrier - serial number only required" Does it mean the headsets & general products do not need to be marked with a data carrier? or does it just mean that the data carrier of the headsets & general products doesn't have the mandatory placement?

Tags: Data carrier, headsets and general product category
It means that headsets and the general product category in TCO Certified, generation 10 do not need to have a data carrier.

Q12: In the table "Data carrier placement" some product categories have "No mandatory data carrier - serial number only required" Does it mean that those products do not need to be marked with a data carrier? or does it just mean that they don't have a mandatory placement?

Tags: Data carrier, headsets and general product category

The first is correct, those product categories don't need to have a data carrier.

Q13: Is there a size requirement for QR code and data matrix?

Tags: Data carrier, Size requirement

No, the only requirement is that the 2d-barcode can be read by a smartphone.
The readability of a barcode depends on several factors, where the size is just one of them.

Q14: What should an OEM/Brand submit to a verifier in an application?

Tags: Application

1. Documentation showing how the product will be marked.
    - An image or drawings that clearly shows where on the product the data carrier will be placed.
    - Size of data carrier.
    - Type of 2d-barcode that is used (QR-code or data matrix)
    - Description of marking technique.
2. Sample URL as encoded in the data carrier
3. Sample URL for the destination website, displaying item-specific product information. (Not required during the initial implementation period)

Q15: When should the GTINs be submitted?

Tags: GTIN submission, all product categories

The first batch of GTINs needs to be submitted within 3 months of the certificate date.

GTINs for multiple products (from the same brand) can be submitted in the same template.
We suggest setting up a routine of sending in updated GTINs once every 3 months, where GTIN updates for all

Q16: In the UPI template, Who should be the "submitter-email" column? Should it be a brand owner representative or OEM?

Tags: GTIN submission, all product categories
It could be either, the submitter should be the one who does the submission,
The reason why we have that field is to have a person to contact if there is any issue with the submitted GTINs,

Extended clarifications

When the Initial Implementation period ends:

If a brand has certified multiple products during the initial implementation period.
If all those products uses the same URL structure, it is enough to provide one sample URL
Along with a declaration that states that the same solution is used on all certified products where the initial implementation period was used in the application process.

Unique product identifier, Clarification about GTIN for web CTO-Configurations.

"If a product configuration can only be ordered through an online configurator on the brand owner website, and is not sold in batches of more than 20 units, It is not required to create GTINs for that product configuration. If a GTIN is created it must be submitted."


In the images below are typical examples of web CTO-Configurations.
Tags: GTIN submission, configuration to order, all product categories

How to fulfill 1.1.1 B - labeling of the product and packaging

As described in 1.1.1, it is now possible to fulfill 1.1.1 B - labeling of the product and packaging using the website that is redirected to when scanning the data carrier. In order to do that the following information needs to be shown:

1. Version and generation of TCO Certified
2. Certificate nr, that is a link to the product page in TCO Certified Product finder.
3. An Image of the TCO Certified Logo
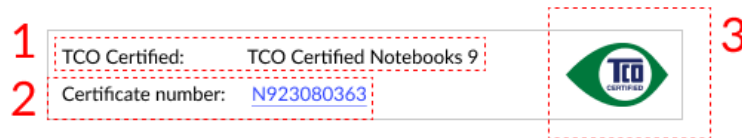
How to fulfill 1.1.1 A - information document for end users

As described in 1.1.1, it is also possible to fulfill 1.1.1 A - labeling of the product and packaging using the website that is redirected to when scanning the data carrier.
In order to do that the following information needs to be shown:

1. Link to the digital document.

Examples

Example of UPI implementation

In this example, we use a notebook with the serial number abc1

sn = abc1

Step 1. Decide on a domain to use in the Data carriers:

https://id.brand.com/

Step 2. Decide on the structure for the UPI in the URL

In this example the UPI is placed in a URL parameter called upi. https://id.brand.com?upi=abc1

This is the data that should be encoded into the data carrier (step 7.2)

Step 3. Decide on the URL for the destination of the redirect,

 In this example we use the support page for the product

https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc1

Step 4. Decide on how to match the URL in the data carrier with the correct destination URL.

https://id.brand.com/?upi=abc1 ->

https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc1

Lets say that we store the Urls for redirection in a simple dictionary where the keys are UPIs

Dictionary_of_URLs = {
   "abc1": "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc1",
   "abc2": "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc2",
   "abc3": "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc3"
  };

So to get the correct redirect URL, we just have to look up the UPI in the dictionary

when new units are registered they should be added to the dictionary (step 7.4).

Step 5. Write redirection code

See example in appendix 1.

Step 6.Deploy the redirection code on your domain

Deploy your code to https://id.brand.com/ Now we have a working solution.

Labeling of a product

In this part of the example, we will show how to add a notebook with the serial number xyz52 to the solution created in step 1-6.

sn = xyz52

Step 7. Create UPI

https://id.brand.com?upi=xyz52
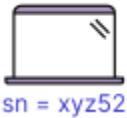
Step 8. Create data carrier containing UPI based URL,

According to the structure that were chosen in step 2

https://id.brand.com?upi=xyz52

Step 9. Label product with data carrier,

Using laser etching, a permanent sticker or other permanent labeling technique.

Step 10. Add new UPI to redirection dictionary (described in step 4)

In this example we are using a simple dictionary, so then we just add the new UPI to that dictionary

```
Dictionary_of_URLs = {
    "abc1": "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc1",
    "abc2": "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc2",
    "abc3": "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc3",
    "xyz52": "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/xyz52"
};
```

In the real world application, it would likely be a more advanced data storage solution.

Alternatively that the storage is replaced with a set of rules that builds the redirection destination instead of retrieving it from some type of data storage.

const sn = "xyz52";
Redirection_url = "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/${sn}" ;

Data carrier URL examples:

Example 1: Standardized full product identifier (recommended)
URL: *https://www.exampledoimain.com/01/GTIN/21/serial number*
The brand uses GTIN, model name, (GIAI or own) serial number in offline data carriers.

Note! Other data can also be added, but then they should also use correct application identifiers according to the GS1 Digital link URI syntax. (The /01/ is the application identifier for GTIN and /21/ is the AI for serial number)

Example 2: Standardized serial number in a GS1 digital link URI syntax URL
URL: *https://www.exampledoimain.com/21/GIAI*
The brand uses the GS1 identifier (GIAI) Global individual asset identifier using the GS1 digital link URI syntax.

Example 3: Brand owner serial number in URL according to GS1 digital link URI syntax
URL: *https://www.exampledoimain.com/21/brandowner serial number*
The brand uses its own non-standardized serial numbers.

Example 4: *Brand owner serial number in non-standardized URL.*
URL: *https://www.exampledoimain.com/support /productid?sn=brandowner serial number*
The brand uses its own non-standardized serial numbers and its own URL syntax.

Appendix

Appendix 1: Example redirection code

```html
<!-- This is a simple example of a redirection code that redirects the from the
URL encoded into the data carrier to the destination URL where unit specific
product information is shown -->

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Redirecting...</title>
    <script>
      <!-- set up a matching dictionary as described in step 4. In a real world
application, this would be a more advanced data storage solution.

 -->
        const Dictionary_of_URLs = {
            "abc1": "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc1",
            "abc2": "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc2",
            "abc3": "https://support.brand.com/us-en/product/model-xyz-123-notebook-pc/abc3"
        };

        function getQueryParam(param) {
            const urlParams = new URLSearchParams(window.location.search);
            return urlParams.get(param);
        }
      <!-- set up a function that redirects to the correct URL -->
        function redirectToURL() {
            const upi = getQueryParam('upi');
            if (upi && Dictionary_of_URLs[upi]) {
                const newUrl = Dictionary_of_URLs[upi];
                window.location.replace(newUrl);
            } else {
                window.location.replace(newUrl);
                document.getElementById('message').textContent = 'add "?upi=abc1"  at the end of the url';
                const link = document.getElementById('redirectLink');
            }
        }
<!-- Run the redirection function on load -->
        window.onload = redirectToURL;
    </script>
</head>
```

```
<body>
</body>
</html>
```