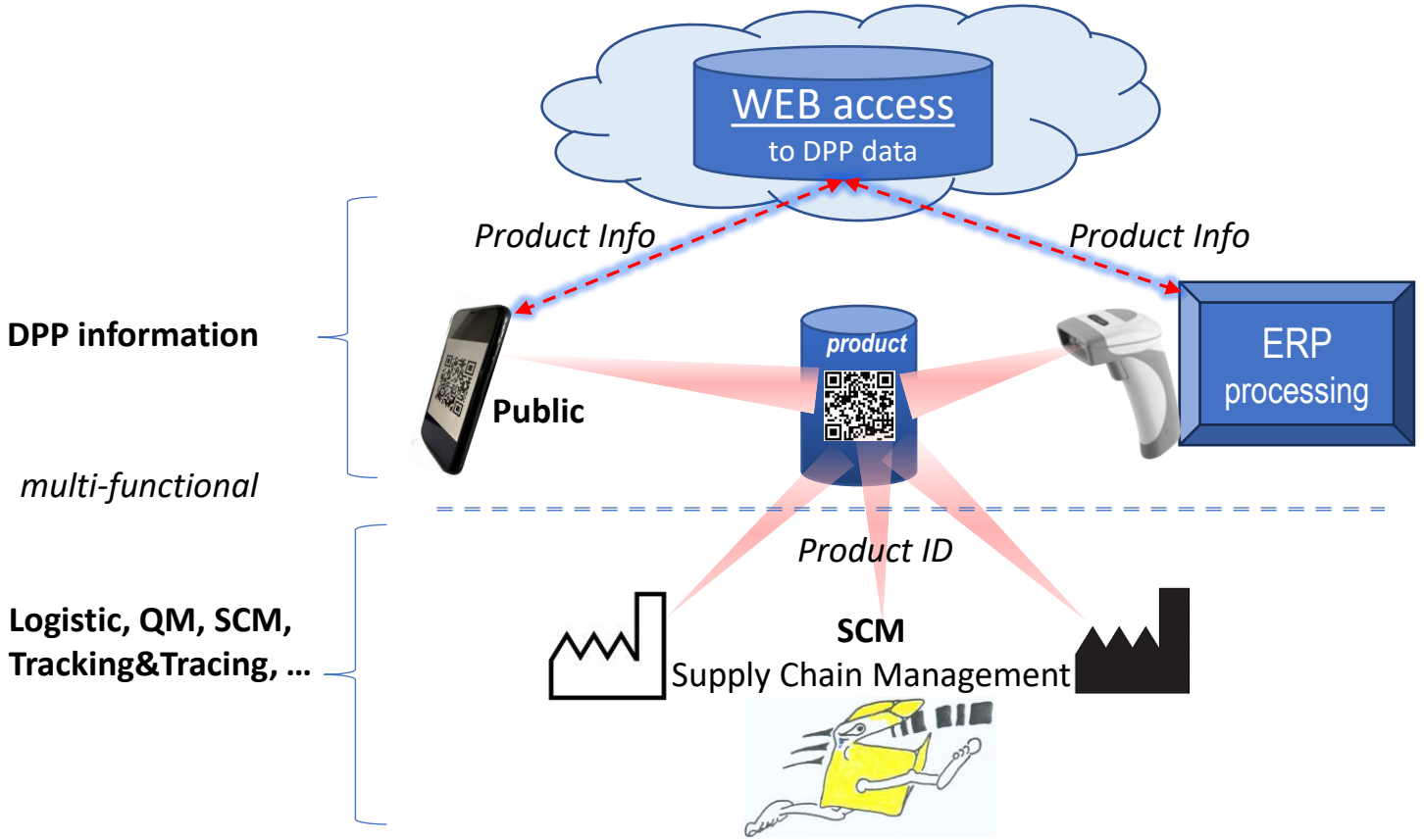
Illustrations of DPP identifiers: CEN ID schemes 1 to 5 (6-9) according to prEN 18219



®EDCi_2025-06-11/r2026-02-19, Editors: Heinrich Oehlmann, Olaf Wilmsmeyer
www.e-d-c.info

DPP Identification Schemes 1 to 5, 6 to 9

according to prEN 18219 v02, Febr. 2025

ID Scheme for products	18219 chapter	Standards	Company ID	Features	
1 Web enabled	5.2	ISO/IEC 18975 + ISO/IEC 15459			
1.1 structured path	5.2.2.1	GS1 Digital Link, ISO/IEC 15418 AIs IL IEC 61406-2, ISO/IEC 15418 DIs	GS1-GLN *IAC-CIN	Offline parsing (SCM) + WEB Offline parsing (SCM) + WEB	
1.2. query string	5.2.2.2	AutoID-URL1.3/DIN32793, ISO/IEC15418 DIs	*IAC-CIN	Offline parsing (SCM) + WEB	
2 Identification Link (IL)	5.3	IEC 61406-1/-2			
2.1 IEC 61406-1	5.3.2	IEC 61406-1	Domain	Domain-ID+free text	
2.2 IEC 61406-2	5.3.3.b	IEC 61406-2, ISO/IEC15418 DIs	Domain	Domain-ID + parsing DIs+WEB	
3 Decentralized identifiers (DID)	5.4	W3C, DIDs v1.0:2022	In portal	Self issued identifier	
4 ID for products & groups	5.5	ISO/IEC 15434-f6, DIN 16598 (2D); IISO/IEC15961-1, SO/IEC17360 EPC (RFID); ISO/IEC 18975, ISO/IEC 15418 AIs, DIs	*IAC-CIN	Offline parsing (SCM) + WEB	
5 Digital Object Identifier (DOI)	5.6	ISO 26324 Digital object identifier system	In portal	Issued prefix + constructed suffix (by operator or agency).	

6-9 for Economic operators & facilities - not illustrated	6	ID schemes 6 to 9 for economic operator and facility identification are primarily intended as data elements within the DPP portals and in the DPP registry.	*ISO/IEC 15459 IAC-CIN

DPP Identification Schemes 1 to 5

according to prEN 18219 v02, Febr. 2025:

Identification scheme 1: Web enabled, structured path and query string
Identification scheme 2: Identification link
Identification scheme 3: Decentralized identifiers, DIDs
Identification scheme 4: Identification for products and product groups (RFID, Barcode)
Identification scheme 5: Digital Object Identifier (DOI) for products
Identification scheme 6-9: ID schemes for economic operators and facilities [not illustrated]

Illustrations/examples for CEN DPP schemes 1 to 4 (of 6)

ID scheme 1 ISO/IEC 18975+15459		ID scheme 2		ID scheme 3	ID scheme 4 ISO/IEC15434	ID scheme 5	*ID scheme 6-9*
1.1: URL Structured path e.g. GS1 DL	1.2: URL Query string e.g. AutoID-URL	2.1: IEC 61406-1 IDL	2.2: IEC 61406-2 IDL	3: DIDs	4: RFID, BC	5: DOI	*Organizations & facilities*

GS1

https://id.gs1.org/01/09520123456788/21/123456XYZ

DPP

HTTPS://WWW.E-D-C.INFO/AUTOID/?.25P=QCELMIBATT01X&.S=123456XYZ

https://www.domain-abc.com/freetext

DPP

HTTPS://WWW.COMP.DOMAINXY/?.1P=BATT01X&.S=123456XYZ

https://api.godiddy.com/0.1.0/universalresolver/identifiers/did:web:acme.dpp.spherity.com:battery:7be3b99c-33a3-4d72-a747-feeb2c2ed263?service=product

ID

[)><rs>06<gs>25PQCELMIBATT01X<gs>S123456XYZ<gs>34LHTTP://ELMICRON.DE/P2P/S=<rs><eot>

https://doi.org/10.1000/N44APB7E

Not illustrated

RFID

Alternative to ISO/IEC15434: DIN 16598 KB&WEB compatible syntax
.25PQCELMIBATT01X^S123456XYZ
^34LHTTP://ELMICRON.DE/P2P/S=

Identification scheme 1: Web enabled, structured path and query
1.1 Structured path, example GS1 Digital Link

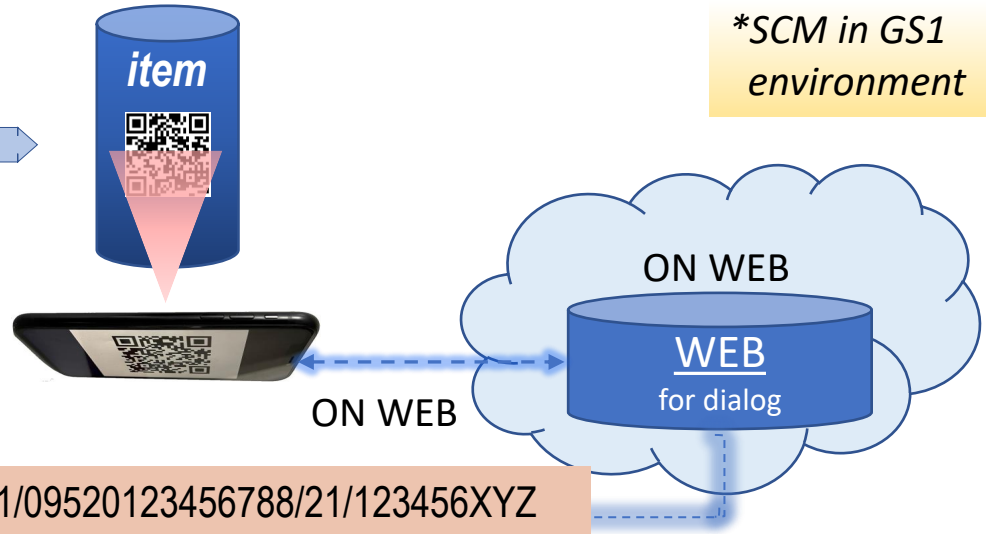
For DPP+*SCM with GS1 AIs, ISO/IEC 15459 conforming

Unique identification method					
1.1 Structured path GS1 Digital Link					

„U„URL first“ WEB compatible + ERP parsing, online & offline	Example with GS1 AIs
GS1 Digital Link Standard - URI Syntax: 2022	WEB addr. + AI/GTIN/AI/Attribute/…
	| |
GS1 Digital Link Standard based on data standards: ISO/IEC 18975 Encoding and resolving identifiers over HTTP RFC 3986 syntax + ISO/IEC 15418, part GS1 Application Identifiers, ISO/IEC 15459 properties for company IDs.	

New potential application areas:
- All industries and healthcare using GS1 structure

Example GS1 Digital Link :
https://id.gs1.org/01/09520123456788/21/123456XYZ
URL root | └AI | └GTIN | └AI | └Serial no.

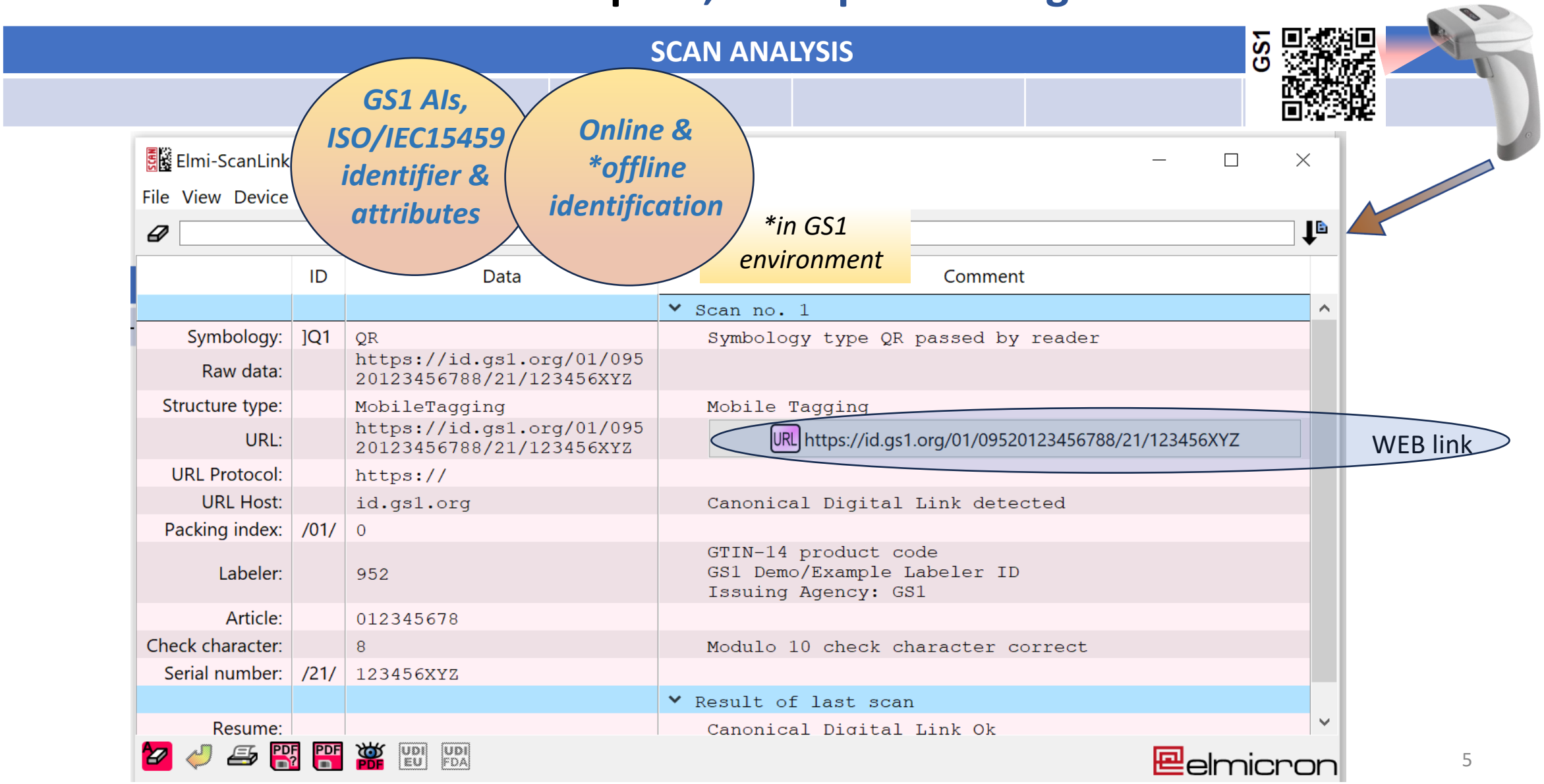


*SCM in GS1 environment

Code ready for direct WEB access → **https://id.gs1.org**/01/09520123456788/21/123456XYZ

*Other examples see: GS1 Digital Link Standard: URI Syntax, chapter 5.3: GTIN+Batch → https://ref.gs1.org/standards/digital-link/uri-syntax/

Identification scheme 1: Web enabled, structured path and query
1.1 Structured path, example GS1 Digital Link



Identification scheme 1: Web enabled, structured path and query
1.2: Query string, e.g. AutoID URL 1.3 →→ DIN *ObjectID URL

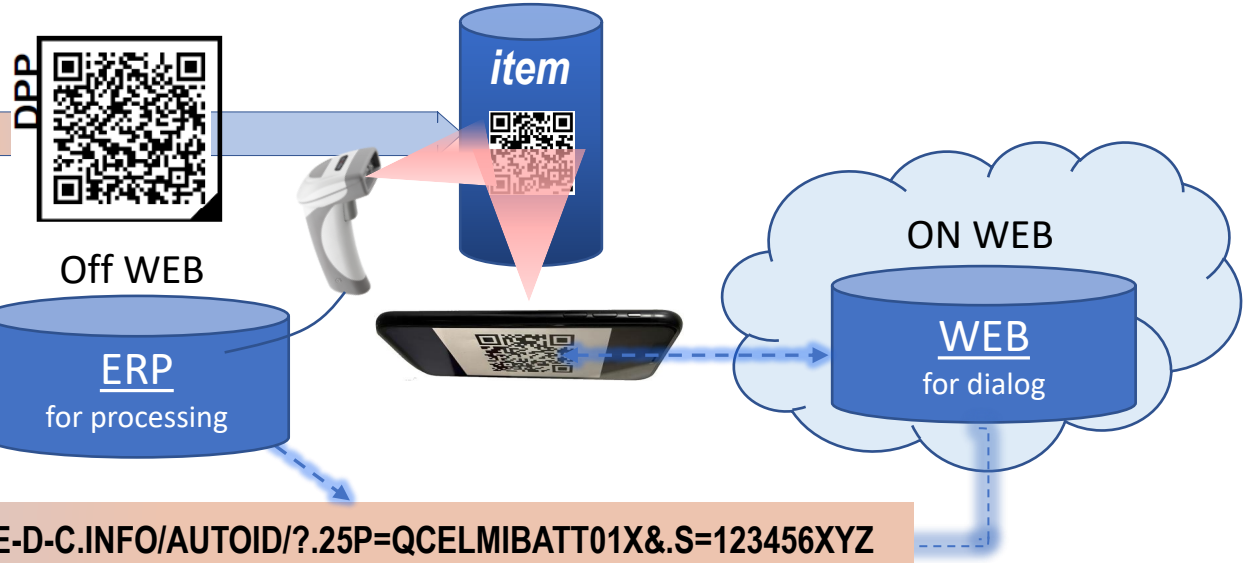
For DPP+SCM with ASC DIs, ISO/IEC15459 conforming

Unique identification method URL first, data elements applied with ASC DIs					
1.2 Query string, e.g. AutoID URL 1.3	*(DIN 32793 ObjectID-URL)*				

New potential application areas:
- All industries and healthcare using ASC DI structure and ISO/IEC 15459 properties

„URL first“ WEB compatible + ERP parsing, online & offline	Example with ASC DIs
AutoID URL 1.3: 2022 (uniqueness by ISO/IEC 15459)	WEB addr. + (25P) IAC.CIN PN + (S) SN
Specifications based on data standards: ISO/IEC 18975 Encoding and resolving identifiers over HTTP RFC 3986 syntax + ISO/IEC 15418, part ASC Data Identifiers, ISO/IEC 15459 properties (option for IEC 61406-2)	

Example codes AutoID URL for WEB access & ERP parsing:
HTTPS://WWW.E-D-C.INFO/AUTOID/?.25P=QCELMIBATT01X&.S=123456XYZ
| | | | | └ Part No. └ SN
URL root with „?“ for query | | IAC+CIN (ISO/IEC15459)
| └ ASC DI 25P for unique product ref.
└ . System ID for ASC DIs



Code ready for parsing data elements for ERP field entry →

Code ready for direct WEB access → **HTTPS://WWW.E-D-C.INFO/AUTOID/?.25P=QCELMIBATT01X&.S=123456XYZ**

**Project DIN 32793 ObjectID-URL*

Identification scheme 1: Web enabled, structured path and query
CEN 1.2: AutoID URL 1.3

SCAN ANALYSIS

ASC DIs, ISO/IEC15459 identifier & attributes

Online & offline identificationen

File

			Comment
			Scan no. 1
Symbology:	]Q1	QR	Symbology type QR passed by reader
Raw data:		HTTPS://WWW.E-D-C.INFO/AUTOID/?.25P=QCELMIBATT01X&.S=123456XYZ	
Structure type:		MobileTagging	Mobile Tagging
URL:		HTTPS://WWW.E-D-C.INFO/AUTOID/?.25P=QCELMIBATT01X&.S=123456XYZ	URL HTTPS://WWW.E-D-C.INFO/AUTOID/?.25P=QCELMIBATT01X&.S=123456X
URL Protocol:		HTTPS://	
URL Host:		WWW.E-D-C.INFO	
URL Path:		/AUTOID/	
Labeler:	?.25P=	QCELMI	ELMICRON GmbH Issuing Agency: Eurodata Council
Article:		BATT01X	
Serial number:	&.S=	123456XYZ	
			Result of last scan
Resume:			AutoID-URL Ok

WEB link

elmicron

Identification scheme 2: Identification link

2.1: IEC 61406-1

Unique identification scheme 2.1 – no data parsing				
2.1 IEC ID link				

*URL ID for online functions (*ID=free text)*

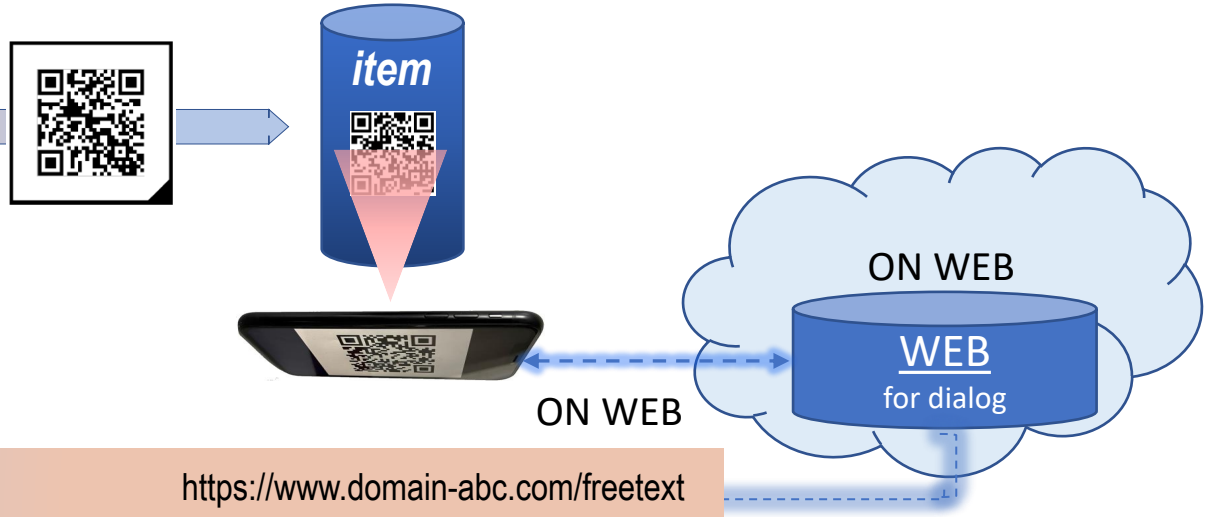
**ID generation up to the labeller*

„URL first“ WEB compatible	
IEC 61406-1 Identification Link : 2022	WEB domain as ID + free text,
Specification based on data standards: RFC 3986 syntax	*no offline data parsing by users in global SCM*

New potential application areas:

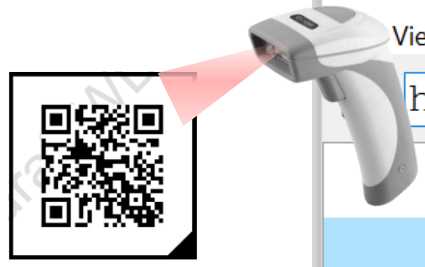
- Electronic and related industries

*Example IEC 61406-1: WEB domain as company ID and labellers construct
https://www.domain-abc.com/freetext
Source: IEC 61406-1, figure 6)



IEC 61406-1 Code ready for direct WEB access → https://www.domain-abc.com/freetext

Identification scheme 2: Identification link
2.1: IEC 61406-1
Scan analysis



QR source:
IEC 61406-1, fig. 6

Company ID is Domain ID

Elmi-ScanLink Verify

View Device Parse Config Help

https://www.domain-abc.com/freetext

	ID	Data	Comment
			Scan no. 1
Symbology:	]Q1	QR	Symbology type QR passed by reader
Raw data:		https://www.domain-abc.com/freetext	
Structure type:		MobileTagging	Mobile Tagging
URL:		https://www.domain-abc.com/freetext	URL https://www.domain-abc.com/freetext
			Result of last scan
Resume:			MobileTagging structure OK

WEB link

Analysis Tree Process editor elmicron

Identification scheme 2: Identification link
2.2: IEC 61406-2

Unique identification scheme 2.2 Web access & data parsing

2.2: IEC 61406-2					

*Online & offline identificationen, *Company ID = Domain ID*

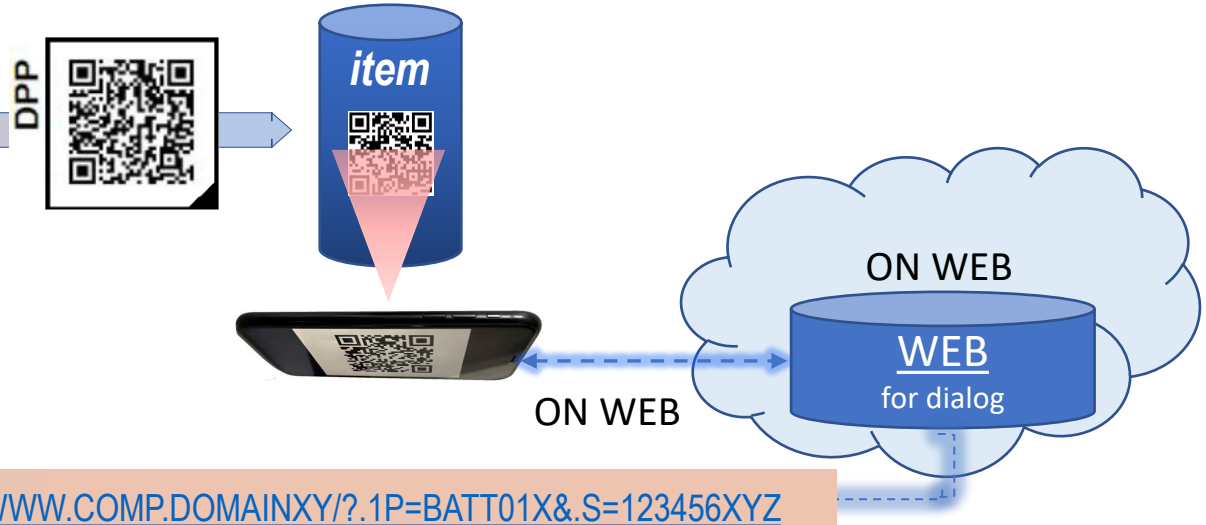
„URL first“ WEB compatible	Example with ASC DIs
IEC 61406-2 – Domain ID + ASC DIs for parsing	WEB addr. + (1P)PN + (1T) Batch
IEC 61406-2 based on data standards: RFC 3986 syntax + ISO/IEC 15418, part ASC Data Identifiers, option ISO/IEC 15459 properties	

2.2: IEC 61406-2

*Option ISO/IEC15459 ID for special cases

New potential application areas:
- Electronic and related industries

Example IEC 61406-2: WEB domain as company ID and ASC DI attributes, Domain = Company ID, PN applied with ASC DI „1P“

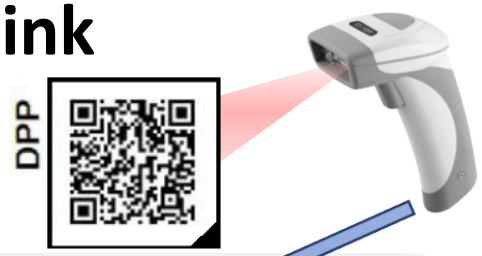


IEC 61406-2 Code ready for direct WEB access → HTTPS://WWW.COMP.DOMAINXY/?.1P=BATT01X&.S=123456XYZ

Identification scheme 2: Identification link

2.2: IEC 61406-2

Scan analysis



Default example Company ID is the Domain ID

Online & offline identificationen of attributes

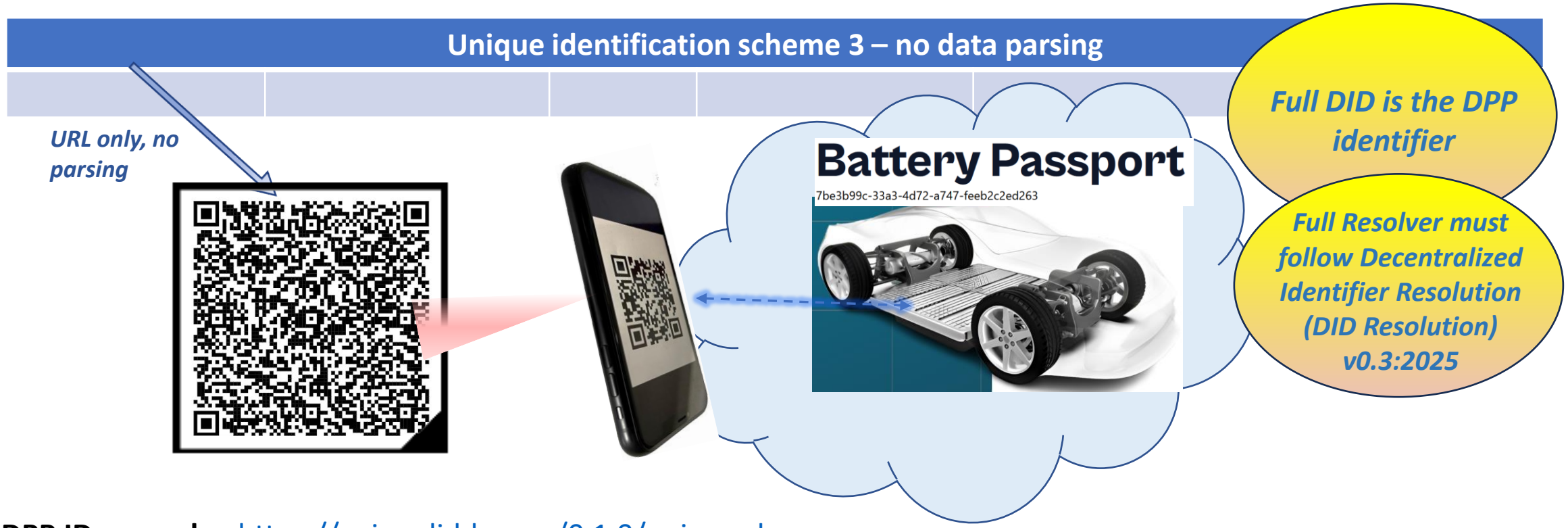
Elmi-ScanLink Verify

File View Device Parse Config Help

	ID	Data	Comment
			Scan no. 1
Symbology:	]Q1	QR	Symbology type QR passed by reader
Raw data:		HTTPS://WWW.COMP.DOMAINXY/?.1P=BATT01X&.S=123456XYZ	
Structure type:		MobileTagging	Mobile Tagging
URL:		HTTPS://WWW.COMP.DOMAINXY/?.1P=BATT01X&.S=123456XYZ	URL HTTPS://WWW.COMP.DOMAINXY/?.1P=BATT01X&.S=12345(
URL Protocol:		HTTPS://	
URL Host:		WWW.COMP.DOMAINXY	
URL Path:		/	
Article:	?.1P=	BATT01X	
Serial number:	&.S=	123456XYZ	

WEB link

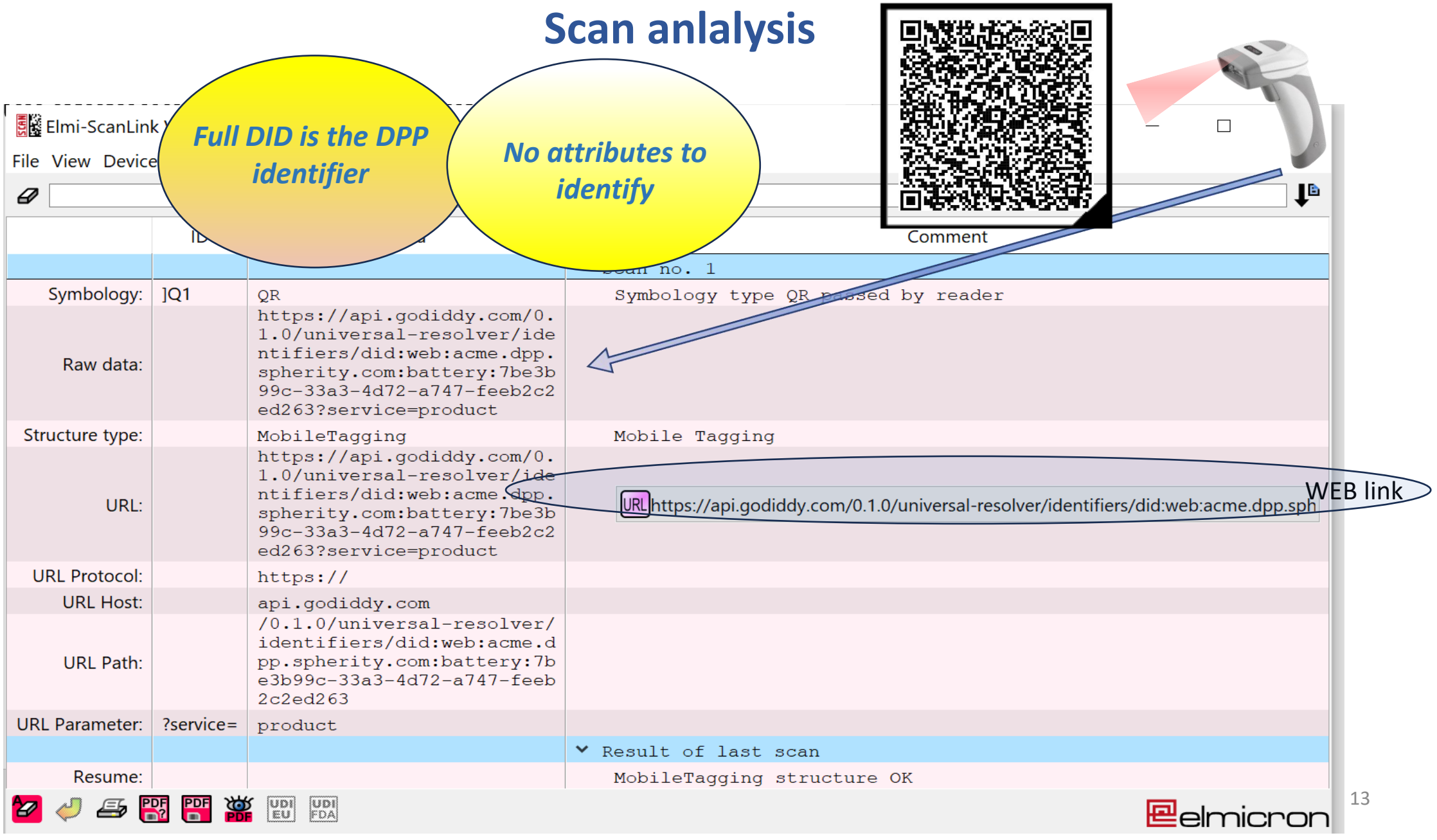
Identification scheme 3: Decentralized identifiers, DIDs



DPP ID example: https://api.godiddy.com/0.1.0/universal-resolver/identifiers/did:web:acme.dpp.spherity.com:battery:7be3b99c-33a3-4d72-a747-feeb2c2ed263?service=product

Source of example: Presentation Dr. Susanne Guth-Orlowsky, doc. DIN NA 043-04-31 AA N 9147

Identification scheme 3: Decentralized identifiers, DIDs
Scan anlalysis



Identification scheme 4: Identification for products (RFID, Barcode)

a) High capacity media syntax, not KB compatible

Unique identification method UID first, data elements applied with ASC DIs

Example generated according to referenced standards to ID scheme 4, ISO/IEC 15434 format 06 + option for KB&WEB compatibility.

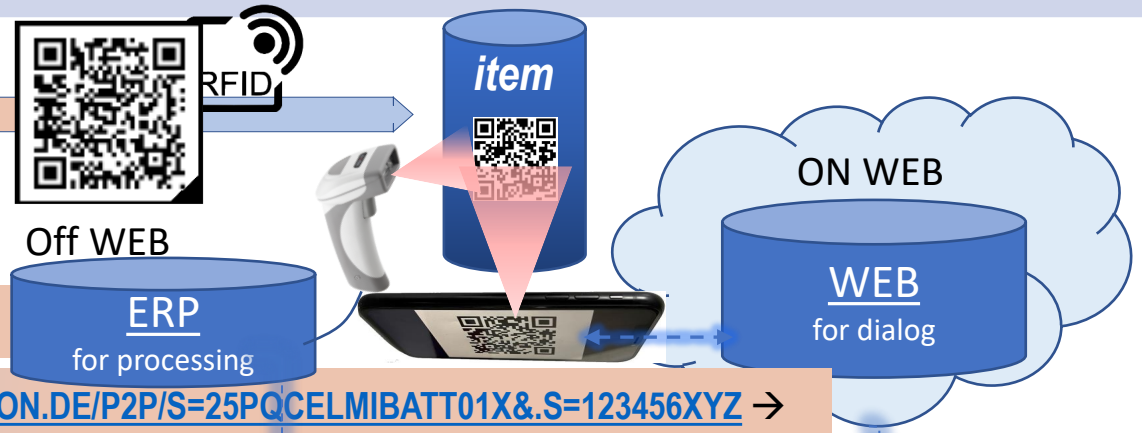
For **existing** and new application areas:
- All industries and healthcare using ASC DI structure and ISO/IEC 15459 properties, automated processes, etc.

„URL first“ WEB compatible + ERP parsing, online & offline	Example with ASC DIs
Specifications based standards: ISO/IEC 15418 ASC Data Identifiers, ISO/IEC 15459, Syntax: ISO/IEC 15434 or DIN 16598 KB & WEB compatible syntax, ISO/IEC ISO/IEC 15961-1/-2 RFID data protocol, ISO 17360 RFID, RFC 3986,	

4a) Example code for ERP parsing + WEB access, encoded in **ISO/IEC15434 syntax**:

[)><rs>06<gs>25PQCELMIBATT01X<gs>S123456XYZ<gs>34LHTTP://ELMICRON.DE/P2P/S=<rs><eot>

- 15434 header sequence for DIs
- <gs> Group Separator
- DI 25P with 15459-PN
- DI „S“ with Serial No.
- P2P DI with portal addr.
- 15434 terminator



Code ready for parsing data elements for ERP field entry →

Code converted for direct WEB access → HTTP://ELMICRON.DE/P2P/S=25PQCELMIBATT01X&.S=123456XYZ →

b)Same data in key-board & web compatible syntax

4b) Example same data as 4a) but encoded in DIN 16598 **keyboard & WEB compatible**:

.25PQCELMIBATT01X^S123456XYZ^34LHTTP://ELMICRON.DE/P2P/S=

- <.> System Identifier for DIs
- DI „25P“ with 15459-PN
- <^> Separator
- DI“S“ with Serial No.
- P2P DI „34L“ with portal addr.

Note to 4b: DIN16598 KB&WEB compatible syntax is avoiding the non-printable control characters ISO/IEC15434 is using. Data content remains exactly the same.

Code ready for parsing data elements for ERP field entry

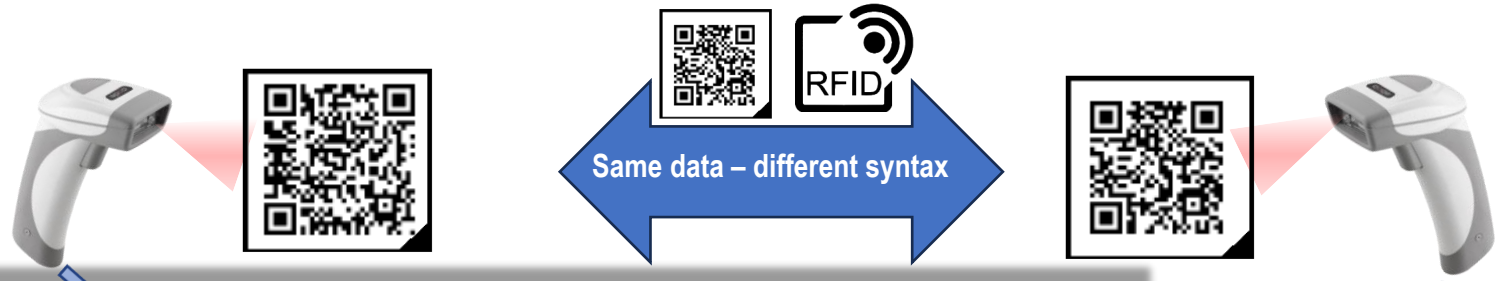
Code converted for direct WEB access → **HTTP://ELMICRON.DE/P2P/S=25PQCELMIBATT01X&.S=123456XYZ**

Identification scheme 4: Identification for products (RFID, Barcode)

SCAN ANALYSIS

Example with ISO/IEC15434 syntax for high capacity media contains non-printable control characters

Example with DIN 16598 KB&WEB compatible syntax without non-printable characters



ASC DIs, ISO/IEC15459 identifier & attributes

Online & offline identification

UID first, URL last, ERP & logistic friendly

	ID	Data	Comment
			Scan no. 1
Symbology:	]Q1	QR	Symbology type QR passed by reader
Raw data:		[]><rs>06<gs>25PQCELMIBATT01X<gs>S123456XYZ<gs>34LHTTP://ELMICRON.DE/P2P/S=<rs><eot>	
Structure type:		ADC	ISO/IEC15434 container
ADC format type:	[]><rs>	06	ADC format # 1 of type ASC: ANS MH10.8.2 DI
ADC field separator:		<gs>	
Labeler:	25P	QCELMI	ELMICRON GmbH Issuing Agency: Eurodata Council
Article:		BATT01X	
Serial number:	S	123456XYZ	
URL:	34L	HTTP://ELMICRON.DE/P2P/S=25PQCELMIBATT01X%1DS123456XYZ	URL HTTP://ELMICRON.DE/P2P/S=25PQCELMIBATT01X%1DS123456XYZ
URL Protocol:		HTTP://	
URL Host:		ELMICRON.DE	
URL Path:		/P2P/S=25PQCELMIBATT01X%1DS123456XYZ	
ADC format trailer:		<rs>	
ADC End:		<eot>	

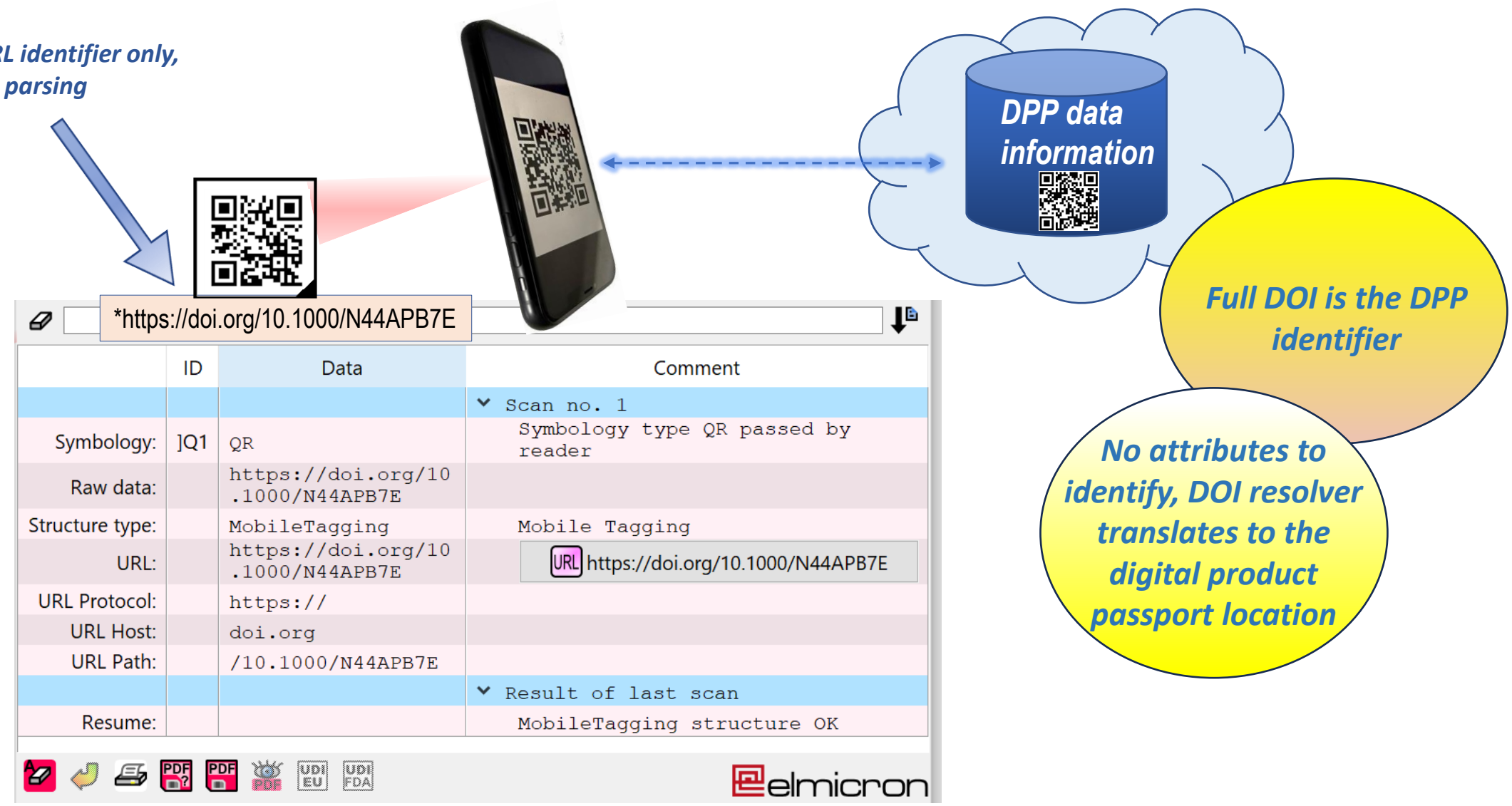
Elmi-ScanLink Verify

File View Device Parse Config Help

	ID	Data	
			Scan no. 1
Symbology:	]Q1	QR	Symbology type QR passed by reader
Raw data:		.25PQCELMIBATT01X^S123456XYZ^34LHTTP://ELMICRON.DE/P2P/S=	
Structure type:	.	ASC	Data Identifier (DI) following ISO/IEC15418 (with CSID '.')
Labeler:	25P	QCELMI	ELMICRON GmbH Issuing Agency: Eurodata Council
Article:		BATT01X	
Serial number:	S	123456XYZ	
URL:	34L	HTTP://ELMICRON.DE/P2P/S=25PQCELMIBATT01X%1DS123456XYZ	URL HTTP://ELMICRON.DE/P2P/S=25PQCELMIBATT01X%1DS123456XYZ
URL Protocol:		HTTP://	
URL Host:		ELMICRON.DE	
URL Path:		/P2P/S=25PQCELMIBATT01X%1DS123456XYZ	

Identification scheme 5: Digital Object Identifier for products, DOI

URL identifier only, no parsing



**Source of DOI code example: PreEN 18219, table B.22*

Processing demo to CEN ID scheme 1.2
AutoID URL 1.3, ISO/IEC 18975 and ISO/IEC 15459 conforming

ASC DIs, ISO/IEC15459 identifier & attributes

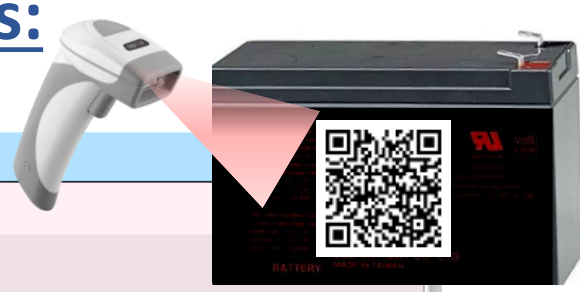
Online & offline identification

Parse data for ERP applications
And/or ccess WEB portal with the DPP data

Demo to CEN ID scheme 1.2
AutoID URL 1.3, ISO/IEC 18975 and ISO/IEC 15459 conforming
Scan DEMO data parsing & WEB access:

	ID	Data	Comment
			Scan no. 1
Symbology:	]Q1	QR	Symbology type QR
Raw data:		HTTPS://WWW.E-D-C.INFO/AUTOID?.25P=QCELMIBATT01X&.S=4221117	
Structure type:		MobileTagging	Mobile Tagging
URL:		HTTPS://WWW.E-D-C.INFO/AUTOID?.25P=QCELMIBATT01X&.S=4221117	
			Contained AutoID URL fields
Labeler:	25P	QCELMI	ELMICRON Issuing Agency: Eurodata Council
Article:		BATT01X	
Serial number:	S	4221117	
			Result of last scan
Resume:			AutoID URL Ok

Offline ID & attribute identification



URL HTTPS://WWW.E-D-C.INFO/AUTOID?.25P=QCELMIBATT01X&.S=4221117 ←. TRANSMIT

To CEN ID scheme 1.2
AutoID URL 1.3, ISO/IEC 18975 and ISO/IEC 15459 conforming
Scan DEMO response from the WEB portal:

online ID & attribute & DPP information

AutoID URL Demo

Item information

Product Code	QCELMIBATT01X
Description	6V Power Battery
Image	
Serial number	4221117
Status	Charged
Location	On stock 4

Processing demo to ID Scheme 4:
Example “ISO/IEC 15459 UID first + WEB link” for legacy systems and updates.

SCAN →

→ Parse and identify offline and/or TRANSMIT to DPP portal →

Offline data capture and processing at ERP and/or access to DPP data through the WEB →

Demo to ID Scheme 4: ISO/IEC 15459 UID first + WEB link

SCAN →

DEMO with APP SCANLINK

Elmi-ScanLink Verify

File View Device Parse Config Help

.25PQCELMIAQ7B4^S400D02^34LHTTP://ELMICRON.DE/P2P/?S=

offline ID & attribute identification

	ID	Data	Comment
			Scan no. 1
Raw data:		.25PQCELMIAQ7B4^S400D02^34LHTTP://ELMICRON.DE/P2P/?S=	
Structure type:	.	ASC	Data Identifier (DI) following ISO/IEC15418 (with CSID '.')
Labeler:	25P	QCELMI	ELMICRON Issuing Agency: Eurodata Council
Article:		AQ7B4	
Serial number:	S	400D02	
URL:	34L	HTTP://ELMICRON.DE/P2P/?S=	URL HTTP://ELMICRON.DE/P2P/?S=25PQCELMIAQ7B4%1DS400D02
			Result of last scan
Resume:			ASC structure OK

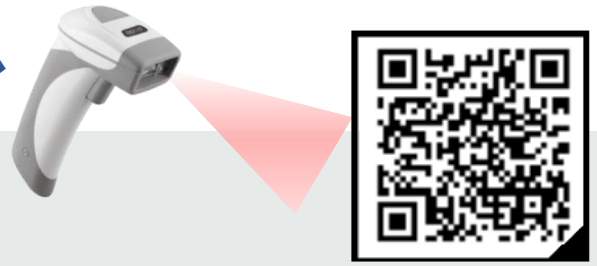
34L rules for WEB access:
Turn the string for WEB access
(omit 34L and AIDC-Syntax)

←. CONVERT

TRANSMIT →

Demo to ID Scheme 4: ISO/IEC 15459 UID first + WEB link

SCAN →



online ID & attribute & DPP information

→ Response from the WEB portal

Item information

Product Code	QCELMIAQ7B4
Description	Pum engine
Image	
Serial number	400D02
Status	Active
Location	Filling Station 2

References

ANSI MH 10.8.2 Data Identifiers
AutoID URL 1.3:2022 EDCi (DIN WD)
DIN 16589 Pointer to Process (P2P)
DIN 16598 Syntax keyboard and Web compatible encoding of data elements
in machine readable symbols applied with ASC Data Identifiers
GS1 Digital Link; GS1 EPC
IEC 61406-1 Identification Link - Part 1: General requirements
IEC 61406-2 Identification Link - Part 2: Types/Models, Lots/Batches, Items and Characteristics
ISO 26324 Digital object identifier system
ISO/IEC 15418 GS1 Application Identifiers and ASC MH10 Data Identifiers
ISO/IEC 15459 Unique Identification
ISO/IEC 18975 Encoding and resolving identifiers over HTTP
RFC 3986 Uniform Resource Identifier (URI) - Generic Syntax

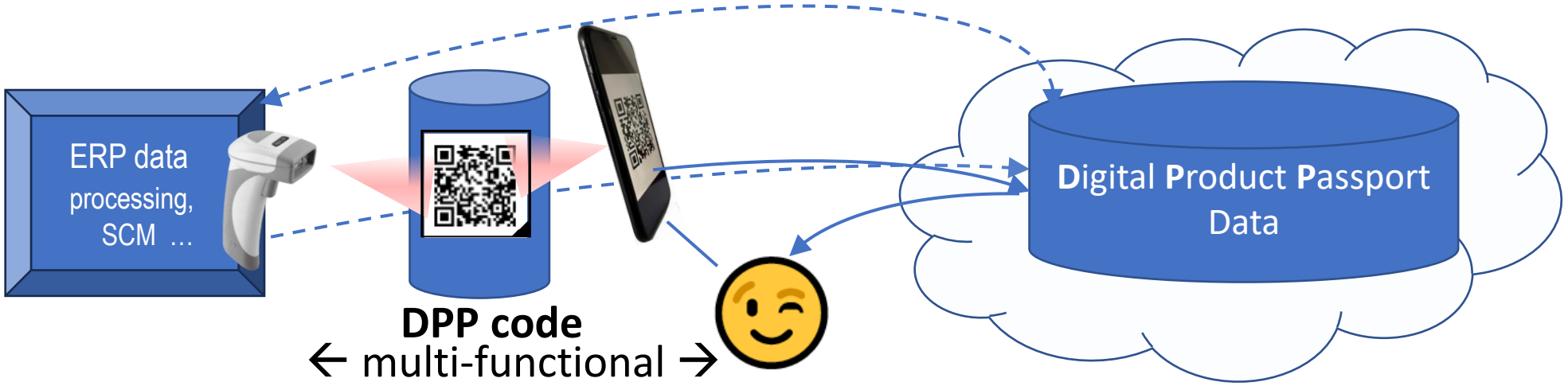
→ DPP SERVICES for manufacturers/labellers for finding the most suitable DPP IDENTIFIER

The EDCi DPP Support Team offers assistance for finding the most suitable DPP IDENTIFIER construct.
Please don't hesitate to submit examples of your today's or future product IDs and attributes (if there are any) used for product marking and identification, then we will illustrate one or more possibilities for suitable generation of the DPP Identifier for the specific DPP application.
The strategy: As less change as possible for product marking but as efficient as possible for both:
"Compatible ERP identification (SCM) with update for WEB application (DPP)"

Examples of relevant data elements for generation of DPP IDs:

- Product/Article number: _____
- Manufacturing Date: _____
- Expiry Date: _____
- LOT number: _____
- Serial number: _____
- ISO/IEC 15459 Company ID:
- WEB Domain ID: _____
- Other data elements: _____
- _____

Sample of an existing label for potential upgrade to DPP compatibility



Questions, contributions, suggestions are appreciated

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