The use case "Unique Identification" defined in NE176 NOA Information Model uses static data for the unique identification of field devices.

It is imperative to verify that the proper device is installed in its designated location. Additionally, verifying secure device identification ensures that the device has been sourced directly from the Original Equipment Manufacturer. Accurate device identification is critical for various applications, including retrieving the correct process value in case of malfunction, updating firmware, maintaining spare parts for assets, and enabling zero-touch provisioning.

Parameter Name	IEC CDD IRDI
Serial Number	0112/2///61987#ABA951
ProductCode	0112/2///61987#ABA300
Manufacturer	0112/2///61987#ABA565
ManufacturerUri	0112/2///61987#ABN591
Model	0112/2///61987#ABA567
SoftwareRevision	0112/2///61987#ABA601
HardwareRevision	0112/2///61987#ABA926
ProductInstanceUri	0112/2///61987#ABN590
SignalTag*	0112/2///61987#ABA271

A device is a physical component with a globally unique identifier labeled as the BrowseName "ProductInstanceUri." This identifier value is the Identification Link string, also known as the IL string, which is defined by the manufacturer and can be accessed from the device. The Identification Link is typically imprinted on the exterior of the device as a QR code. The IL string can be used as URL according to IEC 61987 (IEC CDD) IRDI Code 0112/2///61987#ABN590. The IL string is a component of the Digital Name plate, which also includes a QR code containing additional information.

An AssetId is a user-writable alphanumeric character sequence that uniquely identifies a device. The default value could be the same as the ProductInstanceUri or Identification Link string. The term AssetId is used in Industrie 4.0 to identify the Asset Administrative Shell.

A SignalTag is an alphanumeric character sequence that is user-writable and unique to identify a measuring or control point, which is referred to as a signal. A device may have multiple signals.

ProductInstanceUri
Device
Vendor – read-only
(1)

AssetId
Device
User – read/write
(1)

SignalTag
Measuring or Control Point
User – read/write
(n)

The IL string can be used to identify the device address in advance before connecting to the device. For example, if a Device Engineer knows the IL string, they can use a mobile device to scan the Identification Link (QR-code). The software on the mobile device is capable of generating the default hostname if the manufacturer follows Annex E of IEC 61406-2. This default hostname can be used to connect directly to the device for configuration purposes.

The IL string can link a digital certificate known as IDevID (IEEE 802.1AR) with a specific device instance. An ILString is a standardized, vendor-neutral, and technology-neutral method for identifying devices. IDevIDs should be issued in a standardized, vendor-neutral, and technology-neutral manner. ILStrings serve as a common denominator for vendor- and technology-neutral device identification in IDevIDs.

Secure Device Commissioning
DevID IEEE 802.1AR – Secure Device Identity
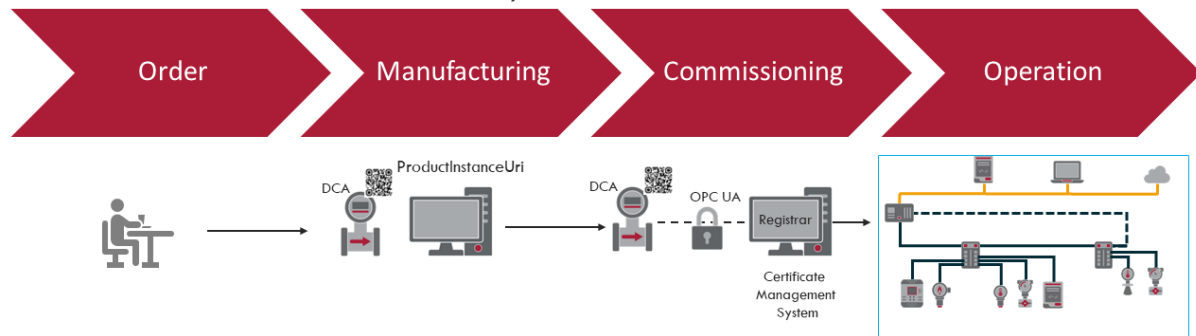
Order
The customer places an order for a new Device.

Manufacturing

During the manufacturing phase, a **Device Configuration Application (DCA)** is used to:

- Generate Private/Public key pair
- Get an Initial Device Identity Certificate (IDevID)
- The IDevID contains the ProductInstanceUri
- The ProductInstanceUri is printed as a QR Code on the device housing

Commissioning

During the commissioning phase of a device, a **Registrar** is used to authenticate the device. A Registrar employs an automated authentication process by a Certificate Management System (CMS) as follows:

- Import trusted vendor' root certificates
- Authenticate the device with IDevID and check if the device vendor is trusted
- Establish a secure connection to the Device using the selected IDevID Certificate
- Enroll the Device into the System-Network by one of the following actions:
  - Manually issuing a new Local Device Identity Certificate (LDevID)
  - Automatically issuing a new LDevID
  - Keep using the IDevID

Operation

Proceed with the normal operation of the device.