QCTS

Government Owned IUID Tools

Applied Enterprise Solutions

Problem

- The DoD IUID mandates are **approaching fast.**

- Project managers need tools to mark, register, and **ensure compliance**.

- Resources not available to **overhaul or replace** existing AISs.

QCTS:
The Quick Compliance Tool Suite

- A suite of government **owned** tools that **simplify** and **expedite** legacy item marking.

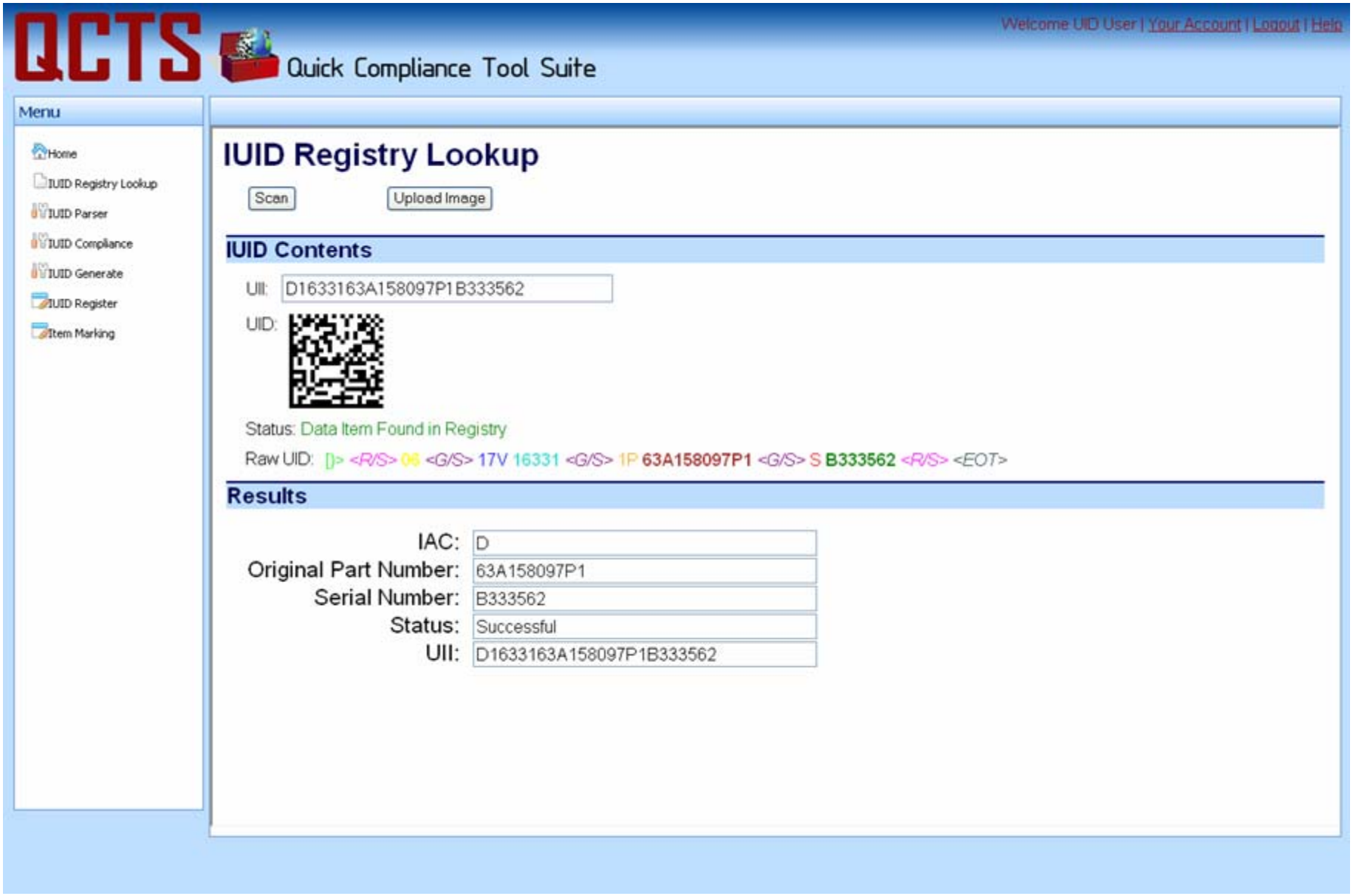
- The tools are **web based**.

- QCTS is compatible with existing hardware and doesn't require **rewriting existing software**.

Problem:
How do I determine if an item is **registered**?

```
<?xml version="1.0" encoding="UTF-8" ?>
- <ElementsRetrieval xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceS                chema_V1.xsd">
    <Version>1.0</Version>
  - <Contact>
      <Name>UID User</Name>
      <Organization>User's Organization</Organization>
      <Phone>555-123-4567</Phone>
    </Contact>
  - <UIIList>
      <UII>D00001258474</UII>
      <UII>D00024579561</UII>
```

```
<?xml version="1.0" encoding="utf-8" ?>
- <ElementsRetrievalResponse xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <Version>1.0</Version>
    <ProcessDate>2006-05-15T16:44:54.0000000-05:00</ProcessDate>
  - <ResultStatus>
      <Success>true</Success>
    </ResultStatus>
  - <RetrievalResult>
    - <ElementResult>
        <UII>D00001258474</UII>
        ☐ In IUID Registry with no Batch/Lot data
      - <RetrievalInfo>
          <EnterpriseIdentifier>00000</EnterpriseIdentifier>
          <SerialNumber>123456</SerialNumber>
          <PartNumber>20E10201</PartNumber>
          <BatchLot>none</BatchLot>
        </RetrievalInfo>
      - <ResultStatus>
          <Success>true</Success>
        </ResultStatus>
      </ElementResult>
    - <ElementResult>
        <UII>D00024579561</UII>
```


QCTS
Quick Compliance Tool Suite
Welcome UID User | Your Account | Logout | Help
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IUID Registry Lookup
IUID Parser
IUID Compliance
IUID Generate
IUID Register
Item Marking
IUID Registry Lookup
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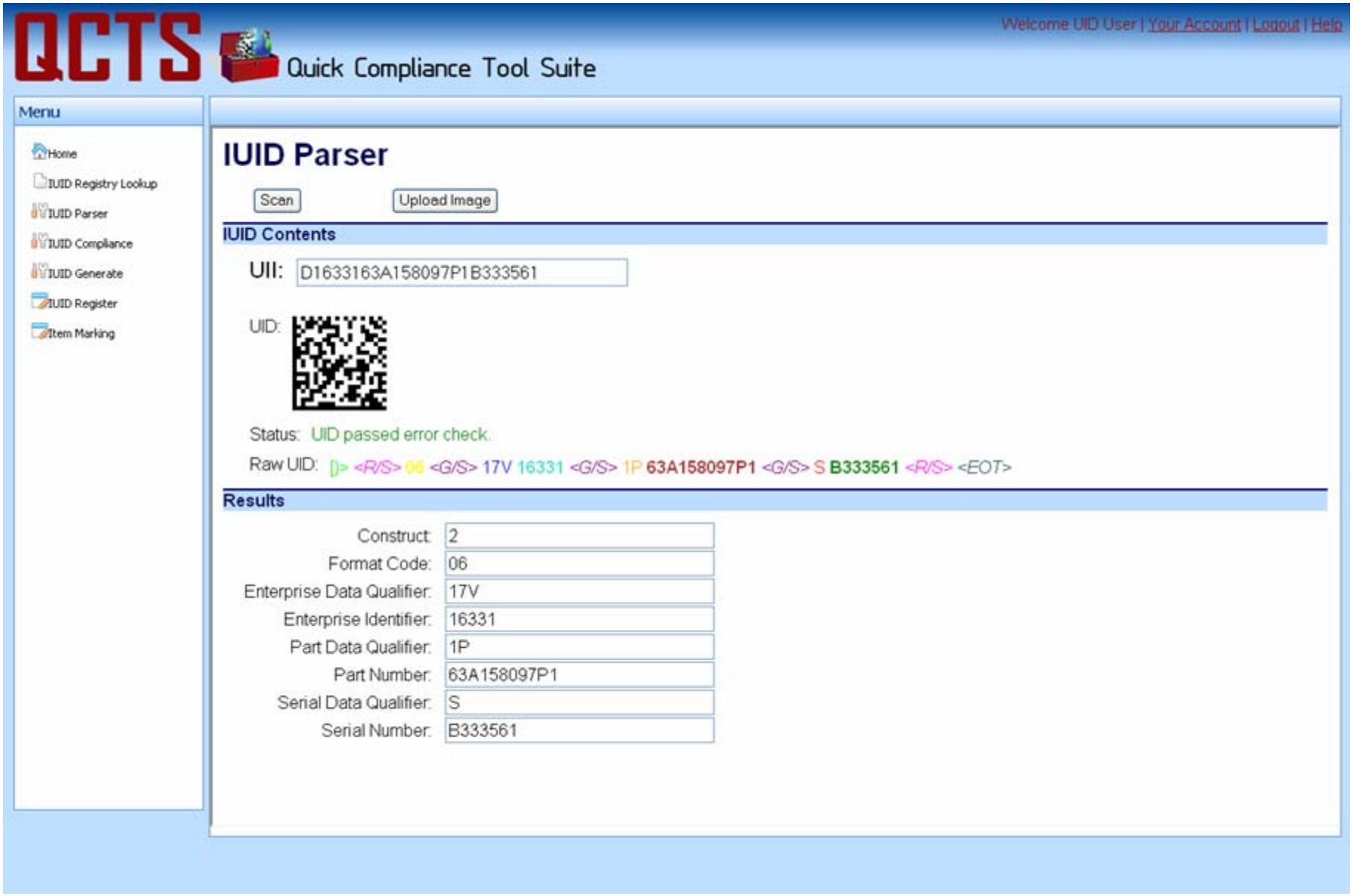
Upload Image
IUID Contents
UII: D1633163A158097P1B333562
UID:
Status: Data Item Found in Registry
Raw UID: []> <R/S> 06 <G/S> 17V 16331 <G/S> 1P 63A158097P1 <G/S> S B333562 <R/S> <EOT>
Results
IAC: D
Original Part Number: 63A158097P1
Serial Number: B333562
Status: Successful
UII: D1633163A158097P1B333562

Problem:
How do I know what **data** is in the IUID Data Matrix?

D89536111123456					
UN123456789111123456					
'0614141111123456					
D12345111123456					
D89536111123456					
D89536111123456					
UN123456789111123456					
0614141111123456					
D12345111123456					
D89536111123456					
D89536111123456					
UN123456789111123456					
0614141111123456					
D12345111123456					

16204120700					
0061414112345212345678901					
0614141312 2A02965					
0061414199999961ADB9C3D6					
0614141111312 2A02965					
D89636312 2A02965					
UN0779912896 74A36458					
16420412 0700					
1FALPE2W4WH128703					
0614141893 2A3122A02965					
D89536893 2A3122A02965					
UN123456789893 2A3122A02965					
LDM000008932A3122A02965					
D89536893 2A3122A02965					
0614141111 3122A02965					
D89536111 3122A02965					
UN123456789111 3122A02965					

LDM000001113122A02965			2	06	LD + 7L + 1T + S
D89536111 3122A02965			2	06	1SV + 1T + S
D89536312 2A02965			1	12	D + MFR + SER
D89536312 2A02965			1	12	D + CAG + SER
UN123456789 3122A02965			1	12	UN + DUN + SER
0614141 3122A02965			1	12	EUC + SER
D12345 1A283			1	12	D + SPL + UCN
D89536 1A283			1	12	D + CAG + UCN
UN123456789 1A283			1	12	UN + DUN + UCN
0614141 1A283			1	12	EUC + UCN
D89536312 2A02965			1	12	D + USN
D12345 1A283			1	12	D + UST
D89636312 2A02965			1	12	UID
D89536893 2A123456			2	12	D + MFR + PNO + SEQ
D89536893 2A123456			2	12	D + CAG + PNO + SEQ
UN123456789893 2A123456			2	12	UN + DUN + PNO + SEQ
0614141893 2A123456			2	12	EUC + PNO + SEQ
D12345893 2A123456			2	12	D + SPL + PNO + SEQ
D89536111123456			2	12	D + MFR + LOT + SEQ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IUID Parser
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Upload Image
IUID Contents
UII: D1633163A158097P1B333561
UID:
Status: UID passed error check.
Raw UID: []> <R/S> 06 <G/S> 17V 16331 <G/S> 1P 63A158097P1 <G/S> S B333561 <R/S> <EOT>
Results
Construct: 2
Format Code: 06
Enterprise Data Qualifier: 17V
Enterprise Identifier: 16331
Part Data Qualifier: 1P
Part Number: 63A158097P1
Serial Data Qualifier: S
Serial Number: B333561

Problem:
How do I know that the IUID Data Matrix is **valid**?

e. If the AI is "95" (ASCII 57
length is greater than 30 t
for **"Invalid Number/SC**

Format Code 5, Construct 1 Vali

a. If the AI is "8002" (ASCII
(ASCII 50) and:

1. If the data string is 11

a. If the first 3 char
in the range "001
tested has failed
Manufacturer C

b. If the data string
numeric (ASCII 4
for **"Invalid UID**

2. If the data string is 8 c

a. If the first 2 char
to "FF" then the U
"Invalid UID – I

b. If the data string
numeric (ASCII 4
being checked fai
Hexadecimal"

3. If the data string is lon
being checked fails for

4. If the data string is sho
being checked fails for

Note: ANSI MH10.
ESN as n4+an...20

b. If the AI is "8003" (ASCII
(ASCII 51) and:

alphabetic characters plus a space,
each segment. The remainder of t
string.

Text Element Identifier Validity

a. For all TEIs the data string
English alphabet character
numeric characters 0 thro
32), and the special chara
(ASCII 47)

b. If the TEI is "EUC " then t

1. If the data string is lon
(ASCII 48 – ASCII 57)
"Invalid GS1 US Com

2. If the data string is sho
(ASCII 48 – ASCII 57)
"Invalid GS1 US Com

3. If the data string is con
numeric characters (AS
checked fails for **"Inva**
Non-numeric Charact

c. If the TEI is "SER " and th
than 30 characters, the UI
Serial Number – Too Lo

d. If the TEI is "SEQ " and th
than 30 characters, the UI
Serial Number – Too Lo

e. If the TEI is "PNO " (ASCI
the data string is longer th
checked fails for **"Invalid**
Long"

f. If the TEI is "MFR " or "SP

APPENDIX A

A properly constructed UID can be created using many possible combinations of formats and data. The following paragraphs define the permissible combinations that meet the IUID program requirements.

IS0 15434 syntax

The UID must be constructed using ISO 15434 syntax. The first 3 characters of must be "[" – (ASCII character 91), ")" – (ASCII character 41), and ">" – (ASCII character 62) (i.e."[)>"). This combination is the ISO 15434 Start String, a three character string indicating ISO/IEC 15434 compliance.

The data string must end with an EOT (End of Transmission - ASCII character 004). The EOT is a message trailer that identifies the end of the UID within the ISO 15434 data string.

Between the Start String and the EOT the UID must contain at least one record and one data element. A record begins and ends with an RS (Record Separator - ASCII character 30).

Within the record, e.g. between the record separators, there must be a two digit format code (05, 06, or 12) defining the type of data in the record followed by a GS (Group Separator – ASCII character 29) in front of each data element in the record.

FORMAT CODE 05

If the format code for the record is "05" then the remainder of the string will be broken into segments beginning with a Group Separator followed by a 2 or 4 digit Application Identifier. The remainder of the segment will contain the data string.

The following are the acceptable Application Identifiers:

a. "01" (ASCII 48) + (ASCII 49)

An AI of "01" indicates the remaining characters in that segment are a Global Trade Item Number. The GTIN is defined as a globally unique EAN.UCC System identification

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IUID Compliance Test
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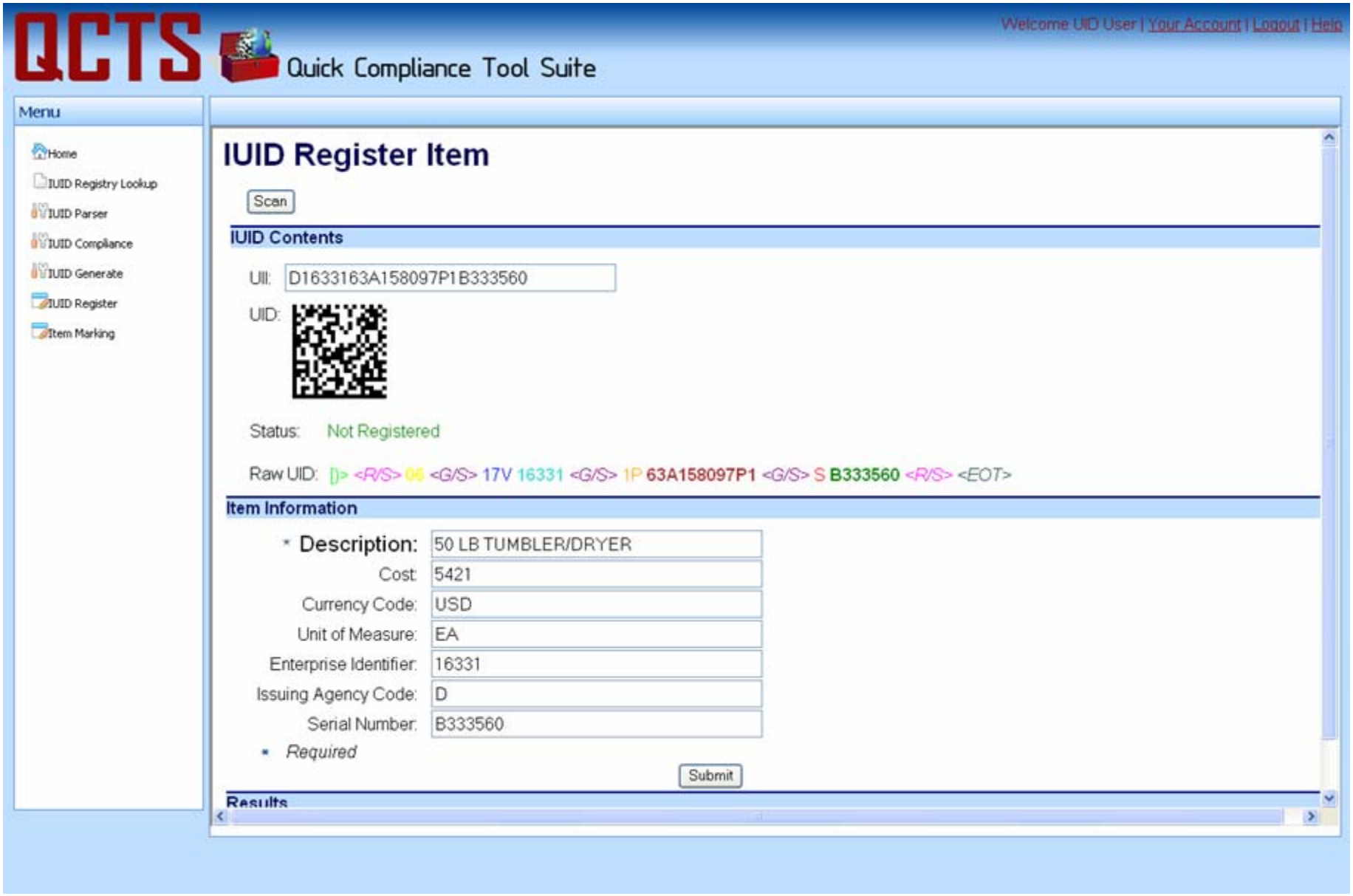
IUID Contents
UII: D1633163A158097P1B333554
Format: 06
IAC: D
Enterprise Identifier: 16331
Serial Number: B333554
Original Part Number: 63A158097P1
Construct: 2
UID:
Raw UID: []> <R/S> 06 <G/S> 17V 16331 <G/S> 1P 63A158097P1 <G/S> S B333554 <R/S> <EOT>
Results
UID passed error check.

Problem:
How do I **register** an item?

You a ed a

```
<?xml version="1.0" encoding="UTF-8" ?>
- <UidDocument>
    <LegacyOrNewCode>LEGACY</LegacyOrNewCode>
    <Version>3.4</Version>
  - <Contact>
      <Email>michael.hardy@aes-global.com</Email>
      <Name>michael hardy</Name>
      <Organization>12345</Organization>
      <Phone>662-513-2260</Phone>
    </Contact>
  - <AddItem>
    - <EndProduct>
      - <ContractInfo>
          <AcquisitionCost>5001</AcquisitionCost>
          <Description>Pump</Description>
          <ForeignCurrencyCode>USD</ForeignCurrencyCode>
          <UnitOfMeasure>EA</UnitOfMeasure>
        - <UidList>
            <EnterpriseIdentifier>55555</EnterpriseIdentifier>
            <IssuingAgencyCode>D</IssuingAgencyCode>
            <SerialNumber>897740</SerialNumber>
            <Uid>D55555897740</Uid>
            <UidType>UID1</UidType>
          - <Mark>
              <BaggedOrTaggedCode>N</BaggedOrTaggedCode>
              <Contents>UID</Contents>
              <EffectiveDate>2008-05-29</EffectiveDate>
              <AddedOrRemovedCode>A</AddedOrRemovedCode>
              <MarkerCode>D</MarkerCode>
              <MarkerIdentifier>55555</MarkerIdentifier>
              <MediumCode>2D COMPLIANT</MediumCode>
              <Set>SET 1</Set>
            </Mark>
          </UidList>
        </ContractInfo>
      </EndProduct>
    </AddItem>
  </UidDocument>
```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IUID Compliance
IUID Generate
IUID Register
Item Marking
IUID Register Item
Scan
IUID Contents
UII: D1633163A158097P1B333560
UID:
Status: Not Registered
Raw UID: []> <R/S> 06 <G/S> 17V 16331 <G/S> 1P 63A158097P1 <G/S> S B333560 <R/S> <EOT>
Item Information
* Description: 50 LB TUMBLER/DRYER
Cost: 5421
Currency Code: USD
Unit of Measure: EA
Enterprise Identifier: 16331
Issuing Agency Code: D
Serial Number: B333560
* Required
Submit
Results

QCTS Tools in Development

Mobile **QCTS**
Data Matrix **Builder**
XML File **Compliance**
IUID Wiki
Registry Item **Update**
Registry Item **Delete**
Data File **Upload**
DoN **Central** IUID Database

Other Issues

- Most legacy systems are not IUID capable
- IUID could provide some immediate benefit if legacy systems were 2D matrix aware
- Modifying legacy systems is expensive, dangerous and usually forbidden
- Fast, cheap, inexpensive alternative needed

Alternative Approach

- Non-intrusive Front End (NiFE)
  - Independent software module
  - Sits between legacy system and user
  - Supports 2D data matrix and scanners
  - Translates UII into legacy key data

- Requires no modification of Legacy System
  - No software changes
  - No Database changes
  - No Regression testing
  - No Risk

NiFE

- NiFE is a family of Tools
  - Each supports different technical challenge areas.

- All systems in a common area share common NiFE tools
  - Lower Cost
  - Better Product
  - Faster implementation