Best Practices in Variant Configuration

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NTT DATA Enterprise Application Services Inc.
# NTT DATA Overview

## About NTT DATA

<table>
<thead>
<tr>
<th>Description</th>
<th>Headquartered in Tokyo, Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7&lt;sup&gt;th&lt;/sup&gt; largest IT Service Provider. NTT DATA is the IT solutions arm of the NTT Group, specializing in providing IT solutions and Systems Integration services.</td>
</tr>
</tbody>
</table>

### Ownership

- NTT Group is one of the 50 largest companies in the world*, specializing in IT & Telecommunications (NTT Group is $104 billion in revenue)

### Employees

- 55,000

### Revenue

- JPY 1.3 trillion (USD 14.0 billion)

### Global Presence

- North America, Europe, Japan, China, India, Middle East and Australia

## About NTT Data Americas

<table>
<thead>
<tr>
<th>Description</th>
<th>Headquartered in Boston, MA, USA</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Strong player in the IT Services – Advisory, ADM, EAS, Infra, BPO, Analytics</td>
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</tbody>
</table>

### Employees

- NTT Data Americas: 17,000 + employees

### Certifications

- SEI CMMI Level-5 AND ISO 9001:2000

### Verticals

- High-Tech, Discrete Mfg, Life Sciences, Consumer & Retail

### Ownership

- 100% Subsidiary of NTT DATA, A US$14 Billion Japanese IT Services Firm

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* "FT Global 500 December 2008"
**Global SAP Practice**

- **More than 800+ SAP Projects** executed across various SAP suite of Products
  - 7 practices – SCM, CRM, FI-HR, NTW, BA, Basis, ESOA
  - 22 Competency groups globally
  - Organized by process & technology

- **Tools and Solutions**
  - BAIO for Prof. Service
  - BAIO for High-tech / Discrete Mfg
  - BAIO for Life Sciences
  - BAIO for CRM and HCM
  - SCEA
  - BEST
  - SAP Health Check
  - Impact Analyzer
  - Optimizer
  - HotPac Analyzer
  - ArchivePac
  - Speed

- **Alliances and Awards**
  - SAP represents 70% of total revenue: Focus on SAP, ERP and extended ERP Services.
  - 2000 + SAP Consultants

- **Analyst View**
  - IntelliGroup is able to compete with top-tier Indian and US vendors because of its SAP strength. It has 1,300 SAP consultants, putting the company on par with vendors 10 times its size in terms of SAP headcount.

- **Verticals**
  - Depth of expertise in High Tech, Discrete Manufacturing
  - Depth of process expertise in Professional Services, Consumer Products
  - Depth of expertise in Life Sciences - Pharmaceutical, Medical devices, Biomedical

**Real Experience. Real Advantage.**
Learning Points

- Why Variant Configuration (VC) ?
- Easy Naming convention
- Engineering change management
- Dependencies maintenance
- VC Golden client Strategy
- Data transfer using ALE
- VC roles
Why Variant Configuration (VC) ?

- Variant configuration is a tool which helps to simplify the complex manufacturing of products with multiple variants
- In VC, customer determines the features of the product
Easy naming convention

- In hi-tech manufacturing company, it has always been a challenge to maintain the Variant configuration (VC) Master Data.

- While creating the VC master data, use of prefixes in the naming conventions is followed as a best practice.
## Easy naming convention (Cont’d)

<table>
<thead>
<tr>
<th>Master data</th>
<th>Prefix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td>CH Example: (CH_CHAR1)</td>
</tr>
<tr>
<td>CLASS</td>
<td>CL Example: (CL_MODEL)</td>
</tr>
<tr>
<td>Reference Characteristics</td>
<td>CH_REF Example: CH_REF_PRICING, CH_REF_BOM_QTY</td>
</tr>
<tr>
<td>Pre-condition</td>
<td>PRE Example: PRE_123</td>
</tr>
<tr>
<td>Select condition</td>
<td>SEL Example: SEL_123</td>
</tr>
<tr>
<td>Procedure</td>
<td>PRO Example: PRO_123</td>
</tr>
<tr>
<td>Dependency Nets</td>
<td>DNT Example: DNT_123</td>
</tr>
<tr>
<td>Constraints</td>
<td>CON Example: CON_123</td>
</tr>
</tbody>
</table>
Business Benefits

- For example: In the dependency list (Transaction: CU04), by entering *SEL* in the dependency field, all the valid dependencies (Selection conditions) can be displayed.

![Dependency List](image)
Business Benefits

- Easy master data maintenance
- Easy retrieval of data using reports
- Easy to check if the right data has been transported to the production client
- From the name of the dependency, one can easily identify the dependency type
Engineering change management (ECM)

- Changes to a product occur frequently in hi-tech engineering environments, where initial product designs are often continuously evolving prototypes. This rapid and efficient change process can be achieved through ECM.

<table>
<thead>
<tr>
<th>ECM Usage in VC objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
</tr>
<tr>
<td>Class</td>
</tr>
<tr>
<td>Super Bill of Material (BOM)</td>
</tr>
<tr>
<td>Super Routing</td>
</tr>
<tr>
<td>Configuration profile</td>
</tr>
<tr>
<td>Dependencies (Pre-condition, Selection condition, Procedure, Dependency Nets)</td>
</tr>
<tr>
<td>Variant Table (Change Contents)</td>
</tr>
</tbody>
</table>
Engineering change management (ECM) (Cont’d)

- Business Benefits
  - The effectivity date of the ECM helps to manage future changes
  - Easy tracking of VC Data changes
  - Easy reporting of VC Data changes
  - Saving cost, time & effort

**Dependency List**

- Creation Date: [ ] to [ ]
- Dependency: [ ] to [ ]
- Dependency Type: [ ]
- Dependency Group: [ ]
- Created By: [ ]
- Status: [ ]
- Change Number: CHANGE0001
- Validity Date: 28.03.2012
- Maximum Number of Hits: 500
Dependencies maintenance

- Simplified Business rule

**Sample code of a business rule**

```sql
CH_CHAR1 <> '1' AND
CH_CHAR1 <> '2' AND
CH_CHAR1 <> '3'
```

Can be written as

**Simple business rule**

```sql
NOT CH_CHAR1 IN( '1', '2', '3' )
```
Dependencies maintenance (Cont’d)

- For a pricing rule, where same pricing variant is referred multiple times, reference characteristics (Counters), can be used to get the multiplication factor.

### Use of reference characteristics (Counters) in Procedures

<table>
<thead>
<tr>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>$SELF.CH_REF_COUNTER = 0,</td>
</tr>
<tr>
<td>$SELF.CH_REF_COUNTER = CH_REF_COUNTER + 1</td>
</tr>
<tr>
<td>IF $SELF.CH_CHAR1 = ‘1’,</td>
</tr>
<tr>
<td>$SELF.CH_REF_COUNTER = CH_REF_COUNTER + 1</td>
</tr>
<tr>
<td>IF $SELF.CH_CHAR2 = ‘1’,</td>
</tr>
<tr>
<td>($SELF.CH_REF_PRICING =‘PRICE01’,</td>
</tr>
<tr>
<td>$SET_PRICING_FACTOR($SELF,CH_REF_PRICING,' PRICE01 ' ,</td>
</tr>
<tr>
<td>CH_REF_COUNTER))</td>
</tr>
<tr>
<td>IF $SELF.CH_REF_COUNTER &gt; 0</td>
</tr>
</tbody>
</table>
Best Practices

- VC Golden client Strategy
- Business Pain Point:
  Risk involved in writing the dependencies directly in the (Production) PRD client
- Recommended Solution:

<table>
<thead>
<tr>
<th>VC Golden client Strategy</th>
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<tbody>
<tr>
<td>VC Golden Client</td>
</tr>
<tr>
<td>To create / change Characteristics, Class, Configuration Profile</td>
</tr>
<tr>
<td>To create / change dependencies</td>
</tr>
<tr>
<td>To Test the changes</td>
</tr>
</tbody>
</table>

- Once testing is done successfully, use standard SAP IDOC’s to transfer the VC objects to PRD client
Best Practices

- Data transfer using ALE
  - Transfer ECM, MM and BOM changes from PRD client to VC client with change pointers using scheduled programs
  - Transfer Characteristics, Class, Configuration profile and Dependencies from VC client to PRD client using IDOC’s after testing.

VC Client
- Characteristics
- Class
- Configuration Profile
- Dependencies

Production Client
- Change Number (ECM)
- Material Master
- BOM
- Routing
### Best Practices

- **VC Roles**

<table>
<thead>
<tr>
<th>VC Roles</th>
<th>Responsibility</th>
</tr>
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<tbody>
<tr>
<td>VC Expert</td>
<td>To create / change VC Data in the VC client</td>
</tr>
<tr>
<td>VC Reviewer</td>
<td>To review the VC Data changes</td>
</tr>
<tr>
<td>VC Approver</td>
<td>To approve &amp; transfer the changes from VC client to PRD client</td>
</tr>
</tbody>
</table>
Best Practices

- VC Roles (Cont’d)

VC Dependency Update Process - VC Roles

- **R & D:** Engineering Changes
- **VC Expert:** Enter the dependencies in VC Golden client
- **VC Reviewer:** Test changes in VC golden client
- **VC Approver:** Approve changes

Changes needed? -> YES

NO -> NO

YES -> ALE to production client
Business Benefits

- Easy data maintenance for the VC master data team & co-ordination with other functional teams like MM, PP & SD
- Reduces configuration errors
- Customer satisfaction
  - Right product delivered at right time
Key Learnings

- Unique method to manage master data changes with
  - Easy naming convention
  - ECM
  - VC Golden Client Strategy
- Recommendation of roles and methods in which VC changes are done in a controlled environment
Thank you for participating.

Please remember to complete and return your evaluation form following this session.

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