IEC 61968-6 Maintenance & Construction from Design to the SOA Implementation

Developing Utility Industry Standards to Help Utilities Lower Life-Cycle Costs for Enterprise Application Integration

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Topics

- Status of 61968-6
- Work Management Interface Reference Model
- Process for Work Integration Development
- CIM Models for Work
- Use Cases & Message Design
- Interoperability testing; CIM SOA implementation (Part 100)
Status of 61968-6

- Completed CDV stage (Committee Draft for Validation)
- First Draft International Standard (FDIS) created and updated with comments from IEC National Committees
- Currently applying final updates to the CIM Normative
- FDIS submission expected by the end of August
- IS may be published first half of the next year
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Interface Reference Model (IRM) identifies information exchange requirements among utility business functions; IEC 61968 sequence diagrams are organised by IRM.
Work management in context of Enterprise Asset Management; Diagram illustrates asset life cycle and transition between ‘Asset’ and ‘Operational Equipment’ point of view.
Work is created any time a person is required to perform an activity related to company assets. Examples of work include

- Construction work (e.g. service installations, line extensions, and system betterment projects)
- Service work (e.g. meter replacements, Turn-on, Turn-off, etc.)
- Maintenance work (e.g. routine oil changes, painting, etc.)
- Inspection work (e.g. pole inspections, vault inspections, Substation inspections)
- Trouble work (e.g. Power outage, voltage quality problem, etc.)
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Information Models, Profiles and Messages
CIM Integration Development Process Implemented to Work Business Domain

Part 100 supports some of technologies than just JMS
Work Management Profiles Design in CIM Tool pointing to Maintenance Order
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Asset CIM Model is used for work messages
Service Orders require CIM model of Customer
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Below sequence diagram illustrates an example use case:

Maintenance of High Voltage Transformer
From CIM to the specific Work message; Example of Maintenance Order XML schema
Example of use case for Meter Installation and Removal

Meter exchange can be initiated by other actors.

Assumptions: Meters are returned to the meter shop for repair and return to inventory, or disposal.
Service Order message

Common part of the message is the same as in Maintenance Order. Specifics for providing Customer and Appointment details added. Necessary Meter details also added.
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These messages were tested in the CIM international IOP; One of tested use cases was a corrective maintenance as per below diagrams

1. (Corrective Maintenance)

   Alstom Grid DMS initiates a new work request to the WMS on a transformer asset due to an alarm.

   EDF R&D Simulator initiates a new work request to the WMS on a transformer asset due to an alarm.

   Create(WorkRequests)
Testing applied SOA implementation of CIM messages (Part 100) with ESB and web services
And this is how it works!

Network Operations

Asset & Work Mgmt

(*) IEC 61968 Part 6 - 2011 CIM Interop 28 March - 1 April, 2011 - Paris, France