Introduction to Collaborative Data Management

Haraldur H. Haraldsson
AIMMS Optimization Specialist
Agenda

> Data Management

> Collaborative Data Management

> AIMMS CDM Library

> Demo: Multi User Application
Data Management
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> Demo: Multi User Application
Collaborative Data Management (CDM)

- Provides a version control for multi-dimensional data
  - Committed data changes are stored in a new version
  - Keeps an historic record of the version

- The version control is backed by a central data repository
  - SQLite
  - Postgres
  - ...

- Uses a Runtime Library
Collaborative Data Management (CDM)

> Multiple version control actions

- Commit sparse data changes
- Pull sparse data changes
- Check data snapshot from a particular version
- Create new data branch
- Check data snapshot for a particular branch
- Switch between branches
Collaborative Data Management (CDM)

> Automation possibilities
  - Automatic commits of changes in data
  - Automatic pulling of change in data committed by others

> Callback procedures
  - Local data change actions
  - Remote commit notification
  - Set commit info, author and comment
Collaborative Data Management
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AIMMS CDM Library

> AimmsCDM Library
  • Identifiers / Procedures
  • DLL files
  • Annotations

> AIMMS Collaborative Data Management Service
  • Needed for the CDM communication
  • Contains configuration file “CDMConfig.xml” to configure;
    • database system,
    • temporary data folder,
    • etc…
AIMMS CDM Library

AIMMS Collaborative Data Management Service

> To install

- Run Command Prompt in Administrative mode
- From the CDMService folder do “CDMService -install”
- Open “Services” and start the service

> To configure via “CDMConfig.xml”

- Located in the CDMService folder

```xml
<?xml version="1.0" standalone="yes" ?>
<CDMConfig>
    <ListenPort>19999</ListenPort>
    <DBType>SQLite</DBType>
    <DBConnectString>c:/temp/CDM</DBConnectString>
    <DBUser></DBUser>
    <DBPassword></DBPassword>
    <DBMaxInserts>1</DBMaxInserts>
    <DBStringFieldType>text</DBStringFieldType>
</CDMConfig>
```
Categories

• Select different categories for the identifiers
• Committing, pulling and checkout actions in the AIMMS CDM is treated independently on categories
• Categories set using annotations
Annotations

- User defined attribute
- Allow us to categorize identifiers based on their annotations setting
- Can be set on a Declaration or section level to include all objects in the subsections
AIMMS CDM Library

> Communicates sparse data
  - Only commits or pull changed data
  - Pulled data will overwrite local uncommitted data
  - Local uncommitted data that is not part of pulled data changes will remain

> Different branches allow users to explore without affecting the master set
AIMMS CDM Library

Steps To Create a CDM Application Database

- Create a Runtime Library
- Create Application Database
- Create Categories
- Enumerate Branches
- Get Global Branch
- Set Revision for each Category
AIMMS CDM Library

> Steps To Connect to a CDM Application Database

Create a Runtime Library
Connect to Application Database
Get Global Branch
Connect to Each Category
Enumerate Branches
Checkout Data Snapshots
AIMMS CDM Library

Category related actions

- **Commit** - `cdm::CommitSelectedCategory`
  - Commits local data changes to the central data repository
    - Selected Category
    - Database
    - Branch

- **Rollback** - `cdm::RollbackChanges`
  - Rollback on uncommitted local data changes
    - Selected Category
AIMMS CDM Library

Category related actions

- **Pull** - cdm::PullSelectedChanges
  - Pull data from the data repository
    - Selected Category

- **Checkout** - cdm::CheckoutSelectedCategory
  - Load a complete data from data repository
    - Selected Category
    - Branch
AIMMS CDM Library

Revision related actions

- **Create Branch** - cdm::CreateBranchSelectedRevision
  - Creates a new branch of data

  Branch Name  Selected Branch
  Selected Database  Revision
  Author / Comment

- **Checkout All Categories** - cdm::CheckoutCategoriesSelectedBranch
  - Checkout data snapshot for all categories

  Category  Branch

- **Checkout All Categories to Revision** - cdm::CheckoutCategoriesSelectedRevision
  - Checkout data snapshot for all categories to selected revision

  Category  Selected Branch
  Revision
AIMMS CDM Library

> Revision related actions

- **Revert All Categories to Revision** – cdm::RevertCategoriesSelectedRevision
  - Reverts all categories to a selected revision
    
    Categories Selected Branch

- **Pull All Categories** – cdm::PullCategoriesSelectedBranch
  - Pull data from the data repository for all categories for selected branch
    
    Categories Selected Branch

- **Retrieve Revisions** – cdm::GetRevisionSelectedBranch
  - Retrieves latest revision information
    
    Selected Database Selected Branch
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Announcement of next webinar

The next webinar in this series will be on “Solving mixed-integer nonlinear programming (MINLP) problems” and will be presented by Marcel Hunting.

Join us – June 15, 2016:

• 5 PM CET / 11 AM EDT / 8AM PDT
Questions

Contact AIMMS support at

support@aimms.com

if you have any further questions.
Thank you!

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