Customizing and Automating PTC Creo

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Objectives:

• Give suggestions about what kinds of customizations are possible in Creo

• Give an overview of tools (APIs) for customizing Creo

• Provide criteria that allow you to choose the right tool for your requirements
This presentation is not about

Mapkeys
Skeleton models
UDFs
config.win
Ribbon customization
Relations
Notebooks/
Layouts
Pro/PROGRAM

It is about Application *Programming* Interfaces
Customization Examples: Support for Editing Specific Model Types

Hydraulics

Bus bars
Customization Examples: Check Tools to Improve Data Quality

- WALLCHECK – Wall thickness check for casting parts
- GEOCHECK – Checks for geometric data quality
  - Gaps between surfaces
  - Tiny surfaces and edges
  - …
- QCHECK – A ModelCheck alternative
- ModelCheck extensions – Additional checks, fully integrated into ModelCheck
Customization Examples: Configurators/Automated Model Creation

Customer specific modules

- Database
- Excel Sheets
- ...

Design rules

XML input

Instructions:
- Configure template model
- Assemble component
- Place UDF

Creo

Start models

UDFs

Design Configurator

Assembly

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Customization Examples: Data Exchange with Other Systems

THERMCUT: Export of sheetmetal cutting data

- Sheetmetal part
- Flat instance from family table
- Calculatory data
- Cutting centre
- File system/database
- DXF/IGES file exported straight from 3D geometry
History of Pro/ENGINEER and Creo APIs

- Early 1990s: pro/develop
- 1998: Pro/TOOLKIT (Deprecated since ~2000, no longer works with Creo 3.0)
- 2001: J-Link
- Creo 2.0: OTK (C++)
- Creo 3.0: OTK (Java)

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Criterion 1: Programming Language

- **Pro/TOOLKIT**: C or C++
- **OTK (C++)**: C++
- **VB API**: Visual Basic
- **J-Link**: Java
- **OTK (Java)**: Java
- **Web.Link**: JavaScript
Criterion 2: Functionality Covered

Planned for Creo 6

- J-Link
- Web.Link
- OTK (Java)
- OTK (C++)
- VB API
- Pro/TOOLKIT

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Criterion 3: Performance

- **Interpreted languages**
- **VB API**
  - Asynchronous mode only
- **Web.Link**
- **J-Link**
- **OTK (Java)**
- **OTK (C++)**
- **Pro/TOOLKIT**

**Performance:**
- Slow
- Fast
Synchronous Mode (single process mode)

- Creo started
- Application started
- User starts application action
- Creo is blocked

Single process

Application initializing
Application performs action

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Asynchronous Mode (multiprocess mode)

Application started

Creo started by application
(or application connects to an already running Cro session)

Interprocess communication (slow!)
Interoperability

- J-Link
- OTK (Java)
- OTK (C++)
- Web.Link
- VB API
- Pro/TOOLKIT

Runs as
Can be mixed
Run task