

Kickstart

- Ad Hoc Project Start-Up
- Structured Project Template
- Elements of a Productive Project Template
 - ▶ Pre-defined Schema
 - ▶ Pre-defined Link Strategy, Link Management, and Link Enforcement
 - ▶ Pre-defined Document Framework
 - ▶ Pre-defined Attributes and Attribute Types
 - ▶ Pre-defined Views
 - ▶ Baselines and Baseline Sets
 - ▶ Report Generation using RPE
- Infrastructure for enterprise access to DXL scripts
 - ▶ Central script repository



How Do YOU Begin A Project in DOORS?

- How did you decide:
 - ▶ What requirement documents to include in DOORS
 - User? System? Subsystem? Component?
 - ▶ What validation and verification documents to include in DOORS
 - User Validation? System Verification? Subsystem Verification? Component Verification?
 - Test results?
 - ▶ What other documents to include in DOORS
 - ▶ What document/module naming convention to use
 - ▶ How each document should be organized
 - ▶ What link convention to use
 - Top down? Bottom up?
 - ▶ Which link module each linkset should reside in
 - ▶ How to communicate above decisions to rest of project team



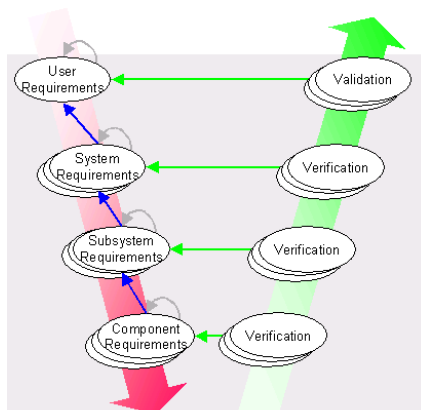
What If...

- All of those decisions were already made for you by your process experts and DOORS experts
 - Leveraging lessons learned on previous projects

- Your team was able to open a project in DOORS where the start-up infrastructure was waiting for you
 - Named and organized correctly
 - Set up to enforce allowed links and in correct link direction
 - Set up to disallow links in the wrong direction and to wrong modules
 - Your team could immediately begin capturing/flowing down/linking requirements and tests



Project Template - Schema

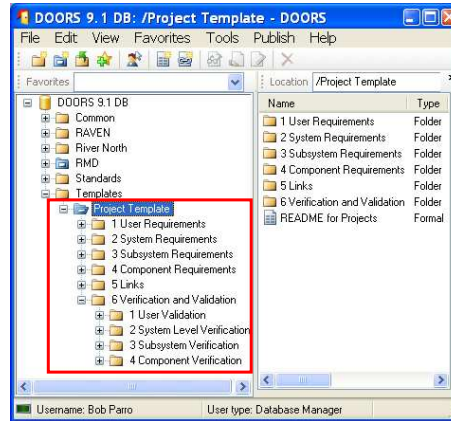
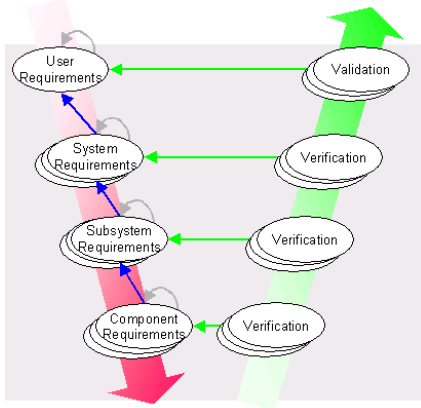


- Left side reflects requirements flowdown from the highest level at the top
- Right side reflects tests for compliance to requirements
- Lines reflect directional links
- Link color coding reflects link categories (requirements, tests, etc.)
- Link categories placed into separate link modules
 - Facilitates accurate traceability



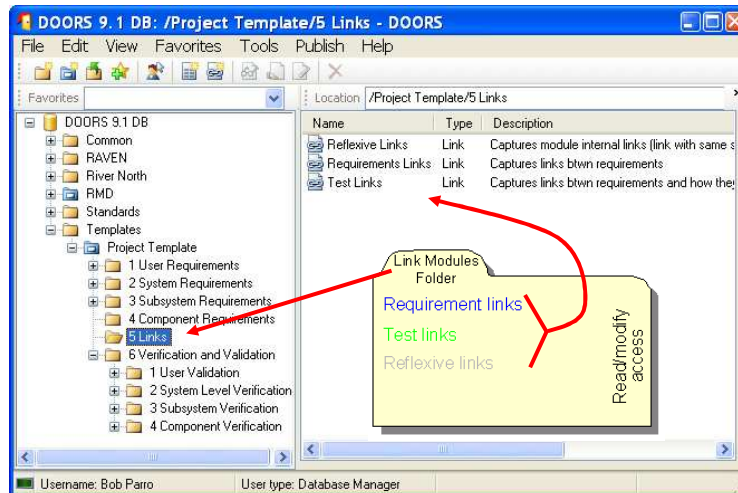
Project Template – Schema Implementation in DOORS

- Restore archived Project Template to DOORS' project workspace area, rename Project Template to Project Name



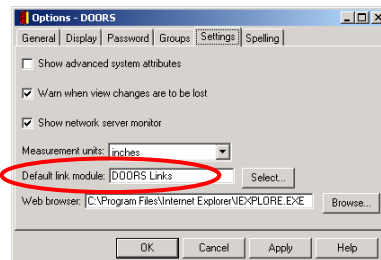
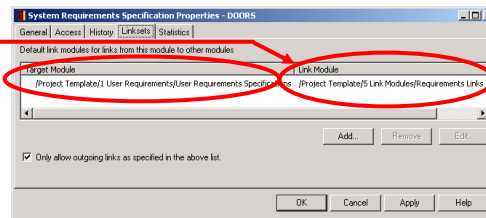
Project Template – Link Strategy/Architecture

- All link modules placed into single 'Links' folder
- Simplifies link management



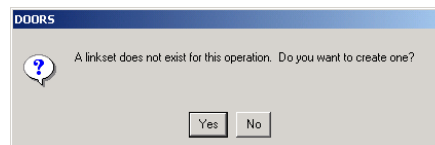
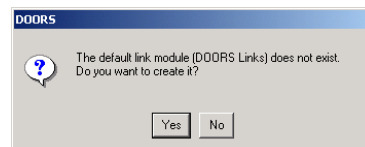
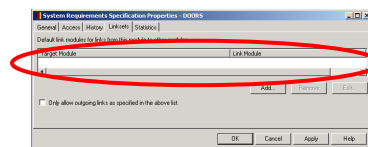
Default DOORS Link Strategy 101

- If no link module preference defined for pairs of formal modules (via File->Module Properties..., Linksets tab) – example shows preference defined
- User Default Link Module is used (DOORS Explorer, Tools->Options, Settings tab) as container of linkset



Default DOORS Link Strategy 101

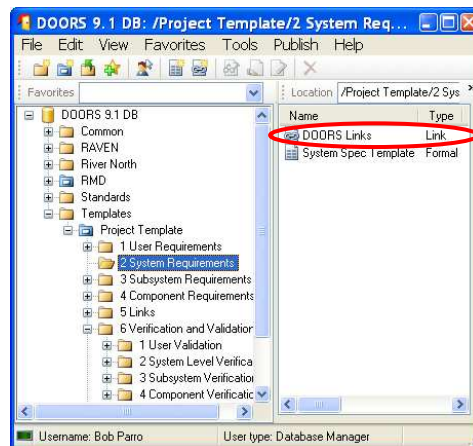
- Common Use Case:
 - ▶ Precondition: User has not defined link module preference for Source/Target module pair
 - ▶ Precondition: User has not altered the 'User Default Link Module' default, which is 'DOORS Links'
 - ▶ First link attempt between module pair results in prompt to user
 - ▶ 'Yes' results in 2nd prompt to user



Default DOORS Link Strategy 101

Common Use Case - Result:

- ▶ Each individual DOORS folder and project contain a 'DOORS Links' link module, each containing one or more linksets



Default DOORS Link Strategy 101

Common Use Case - Result:

- ▶ Each individual DOORS folder and project contain a 'DOORS Links' link module, each containing one or more linksets
- ▶ Majority of project's linksets reside in 'DOORS Links' link modules
- ▶ Requirements-only traceability impossible to show
- ▶ Test-only traceability impossible to show, etc.
- ▶ Traceability includes all categories of links, inhibiting role-specific view of data
- ▶ Requirement links distributed over multiple link modules, reducing likelihood of accurate traceability reports
- ▶ Same for all link categories (Test, etc.)

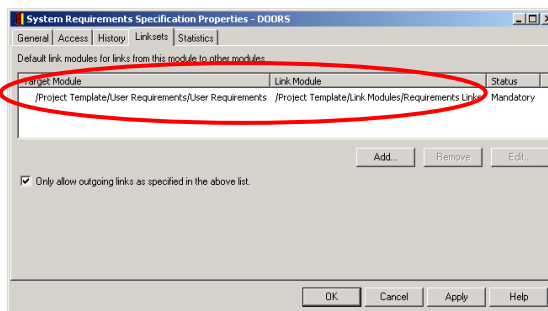
DOORS Project Jumpstart Checklist

➔ Prevent default DOORS link module behavior

Project Template – Link Management and Enforcement

Management

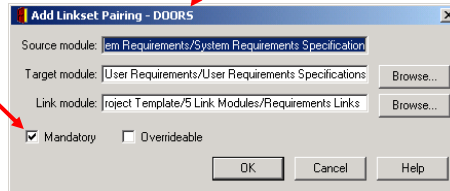
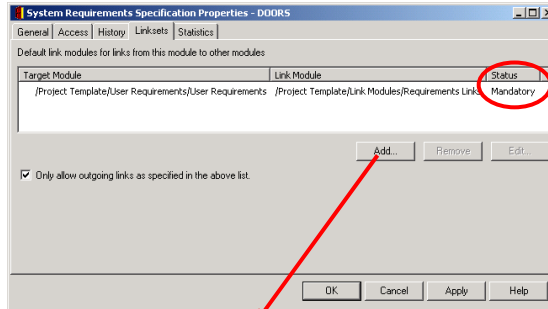
- ▶ Define link module preferences for Source/Target module pairs



Project Template – Link Management and Enforcement

Management

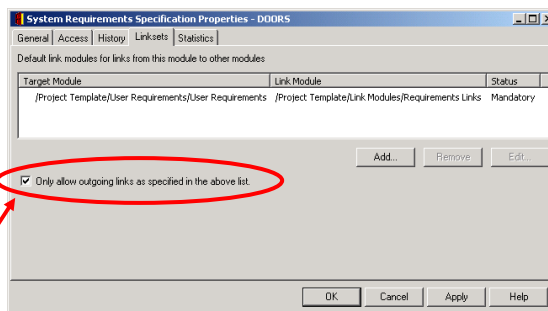
- Define link module preferences for Source/Target module pairs
- Make preferences Mandatory, not able to be overridden



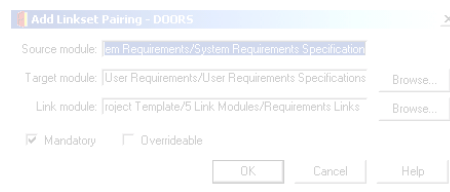
Project Template – Link Management and Enforcement

Management

- Define link module preferences for Source/Target module pairs
- Make preferences Mandatory, not able to be overridden

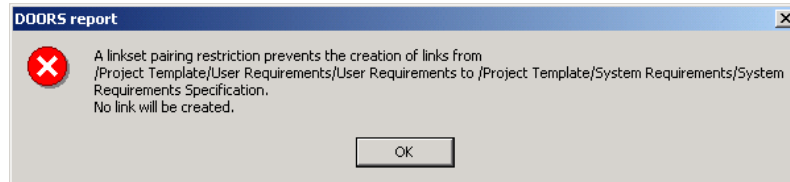


- Enforcement – check 'Only allow outgoing links as specified in the above list' box



Enforcement Encourages Correct Linking

- Window below is displayed to users that try to create disallowed links



- Increases likelihood of accurate traceability reports for
 - ▶ Impact-of-change analysis
 - ▶ Gap analysis
 - ▶ Scope creep analysis
 - ▶ Traceability analysis

DOORS Project Jumpstart Checklist

- ✓ Prevent default DOORS link module behavior
- ➔ Develop/enforce link strategy

Access Rights

- By project roles/groups
- Groups security hole
- Views
- Attributes/Types

Access Rights by Project Role

- Project roles associated to 'Groups'



ITEMS \ GROUPS	Database Admin	Project Admin	Requirement Author	Reviewer	Everyone Else
Database	RMCD A	R	R	R	R/None
Folders of Projects	RMCD A	R	R	R	R/None
Projects	RMCD A	RC(MDA)	R	R	R/None
Folders of Modules	RMCD A	RMCD A	R	R	R/None
Formal Modules	RMCD A	RMCD A	RC(MD)	RC(MD)	R/None
Objects	RMCD A	RMCD A	RCMD	RCMD	R/None
Protected Views	RMCD A	RMCD A	R	R	R/None
Attribute/Type Definitions	RMCD A	RMCD A	R	R	R/None
Link Modules	RMCD A	RMC	RM	RM	R/None

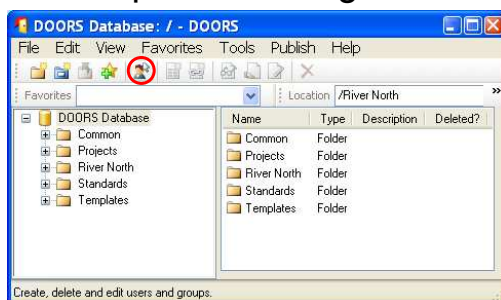
DOORS Project Jumpstart Checklist

- ✓ Prevent default DOORS link module behavior
- ✓ Develop/enforce link strategy
- ➔ Set up project 'Groups'
- ➔ Set up project access rights
- ➔ Always grant via 'Groups'



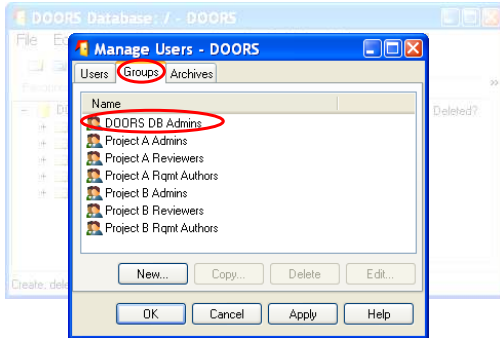
Access Rights – 'Groups' Security Hole

- 'Groups' access rights default to RMCDA for Everyone!



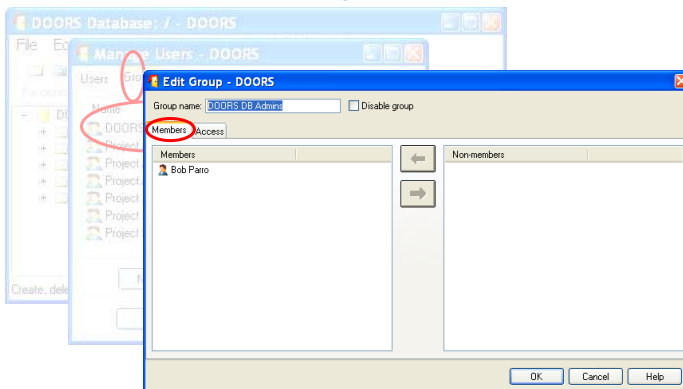
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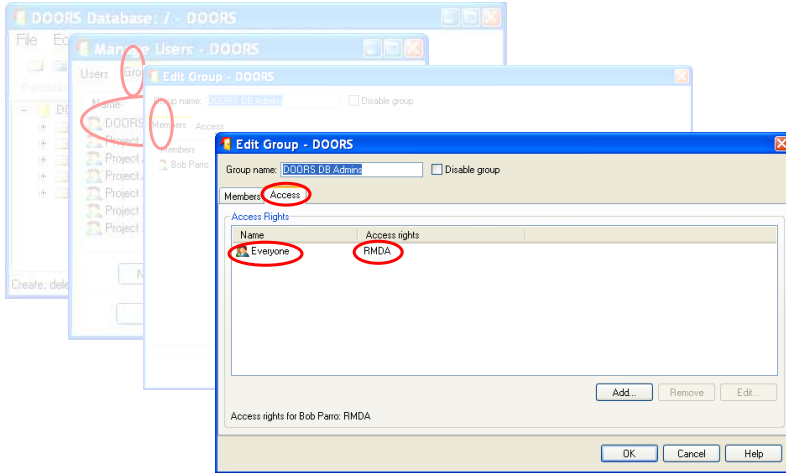
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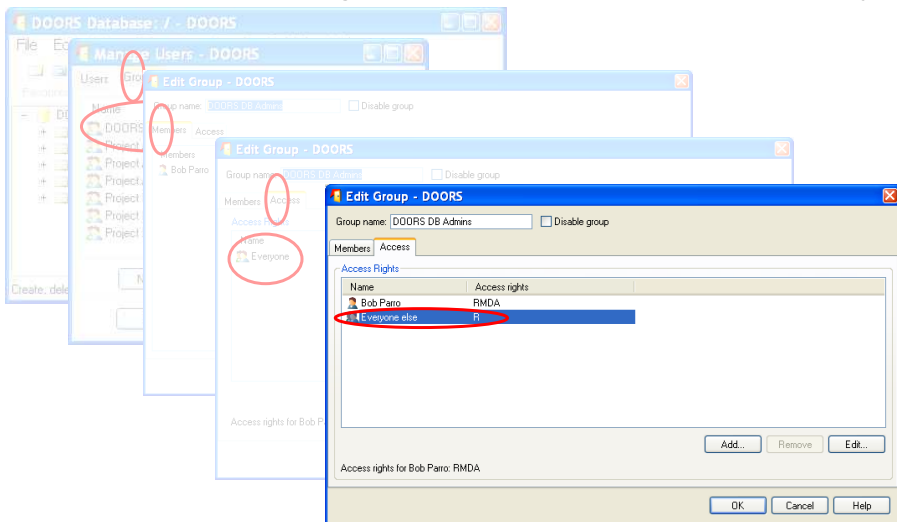
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Access Rights – ‘Groups’ Security Hole

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The screenshot shows a series of overlapping 'Edit Group - DOORS' dialog boxes. The 'New User - DOORS' dialog is also open, showing the 'Type' section with 'Project Manager' selected and 'Create groups' checked. Red circles highlight the 'Project Manager' radio button and the 'Create groups' checkbox in the 'New User' dialog, and the 'Everyone else' entry in the 'Access Rights' table of the 'Edit Group' dialog.

Access Rights – ‘Groups’ Security Hole

- ‘Groups’ access rights default to RMCDA for Everyone!

The screenshot shows a series of overlapping 'Edit Group - DOORS' dialog boxes. The 'New User - DOORS' dialog is also open, showing the 'Type' section with 'Database Manager' selected and 'Create groups' checked. Red circles highlight the 'Database Manager' radio button and the 'Create groups' checkbox in the 'New User' dialog, and the 'Everyone else' entry in the 'Access Rights' table of the 'Edit Group' dialog.

Access Rights – ‘Groups’ Security Hole

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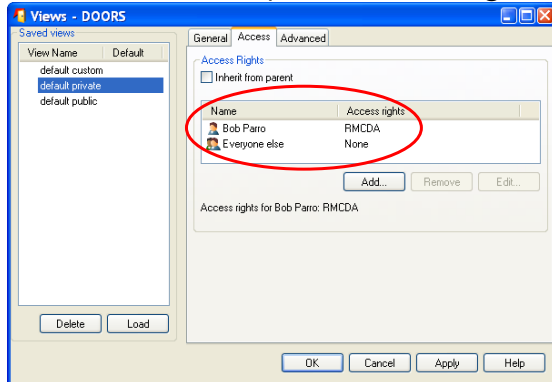
The screenshot shows the DOORS Database interface with several overlapping dialog boxes. The 'Edit Group - DOORS' dialog is in the foreground, showing a table of access rights for the group 'DOORS DB Admin'. The table has columns for 'Name' and 'Access rights'. The entry for 'Everyone else' has 'RMCDA' in the 'Access rights' column, which is circled in red. Another 'Edit Group - DOORS' dialog is visible behind it, showing the 'Members' tab with 'Everyone' listed. To the right, a 'New User - DOORS' dialog is open, showing the 'Groups' tab. The 'Type' section has 'Custom' selected (circled in red). In the 'Powers' section, 'Create groups' is checked (circled in red). Other powers like 'Create projects', 'Archive data', 'Partition data', 'Create users', and 'Manage database' are unchecked. The bottom of the slide features a Windows taskbar with various icons and the number 27.

DOORS Project Jumpstart Checklist

- ✓ Prevent default DOORS link module behavior
- ✓ Develop/enforce link strategy
- ✓ Set up project ‘Groups’
- ✓ Set up project access rights
 - ✓ Always grant via ‘Groups’
- ➔ Plug ‘Groups’ security hole

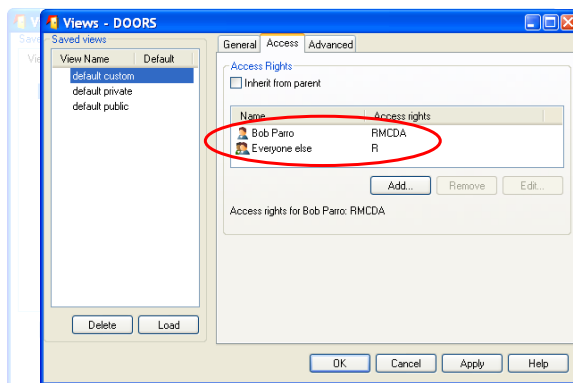
Access Rights – Views

- Private views (View->Manage Views...->Access tab)



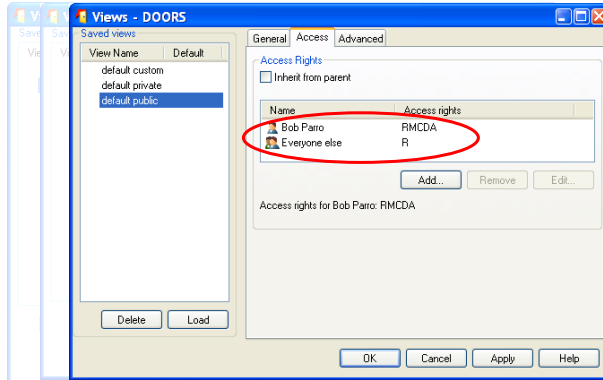
Access Rights – Views

- Custom views



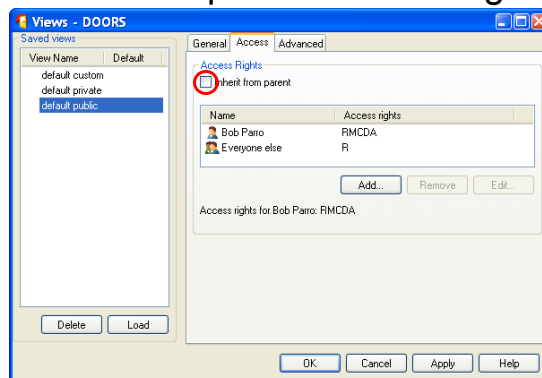
Access Rights – Views

- Public views



Access Rights – Views

- 'Fix' default access rights for collaborative views
- 'Inherit from parent' inherits rights from module



Access Rights – Views

- ‘Fix’ default access rights for collaborative views
- ‘Inherit from parent’ inherits rights from module

File->Module Properties->Access tab

View Access

SyRS Properties - DOORS

Access Rights

Inherit from parent

Name	Access rights
DOORS DB Admins	RMCD
Project A Admins	RMCD
Project A Reviewers	RC
Project A Rqmt Authors	RC
Everyone else	R

Access rights for Bob Paro: RMCD

Propagate

Propagate additional access rights with create access

Additional access:

Views - DOORS

View Name

Custom from Std view
default: custom
default: private
default: public
default: public - inherit from parent

Inherit from parent

Name	Access rights
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Project A Reviewers	RMCD
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Everyone else	R

Access rights for Bob Paro: RMCD

Access Rights – Views

- ‘Fix’ default access rights for collaborative views
- ‘Inherit from parent’ inherits rights from module

File->Module Properties->Access tab

View Access

SyRS Properties - DOORS

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Inherit from parent

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Access rights for Bob Paro: RMCD

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Additional access:

Views - DOORS

View Name

Custom from Std view
default: custom
default: private
default: public
default: public - inherit from parent

Inherit from parent

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Project A Rqmt Authors	RMCD
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Access rights for Bob Paro: RMCD

DOORS Project Jumpstart Checklist

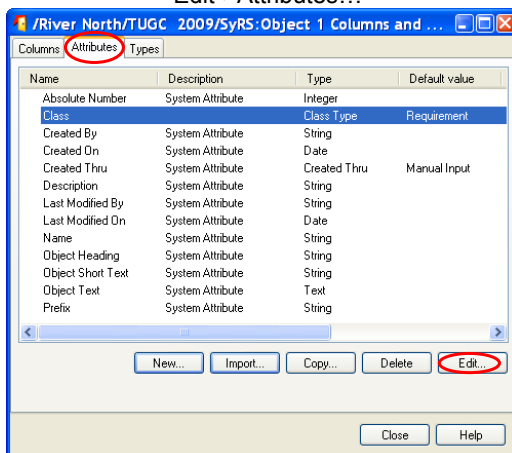
- ✓ Prevent default DOORS link module behavior
- ✓ Develop/enforce link strategy
- ✓ Set up project 'Groups'
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 - ✓ Always grant via 'Groups'
 - ✓ Seal 'Groups' security hole
 - ✓ Set access rights on 'Groups'
- ➔ Set Public views to 'Inherit from parent' (ongoing 'battle')



Access Rights – Attributes/Types

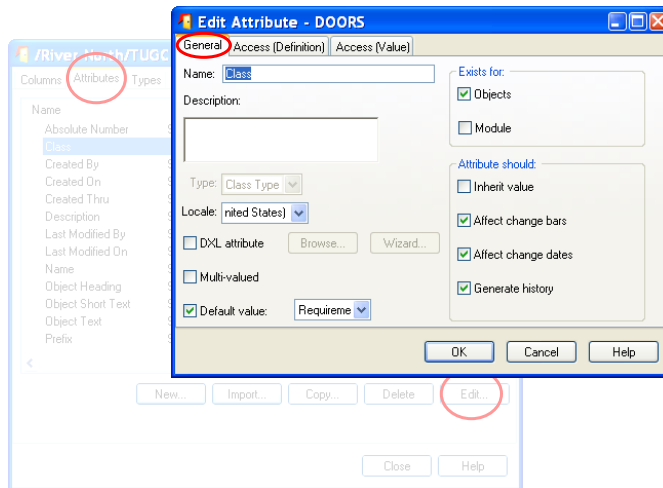
- Attribute/type consistency/redundancy

Edit->Attributes...



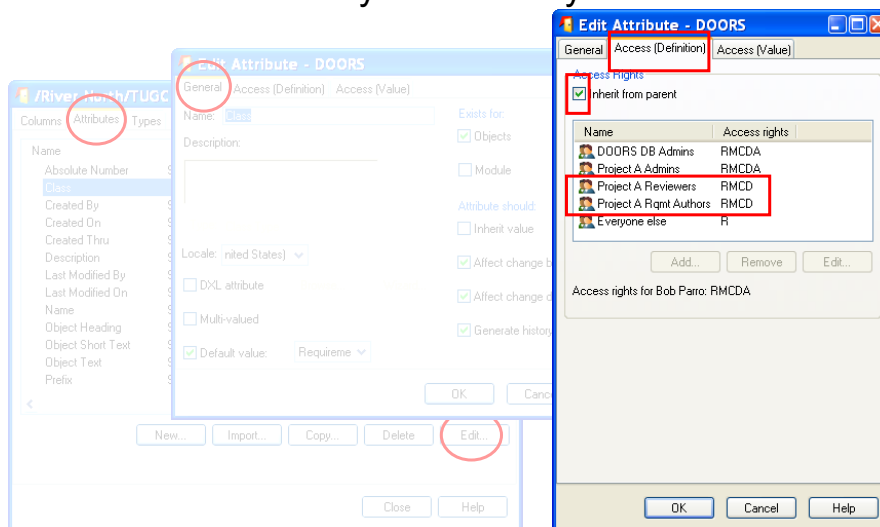
Access Rights – Attributes/Types

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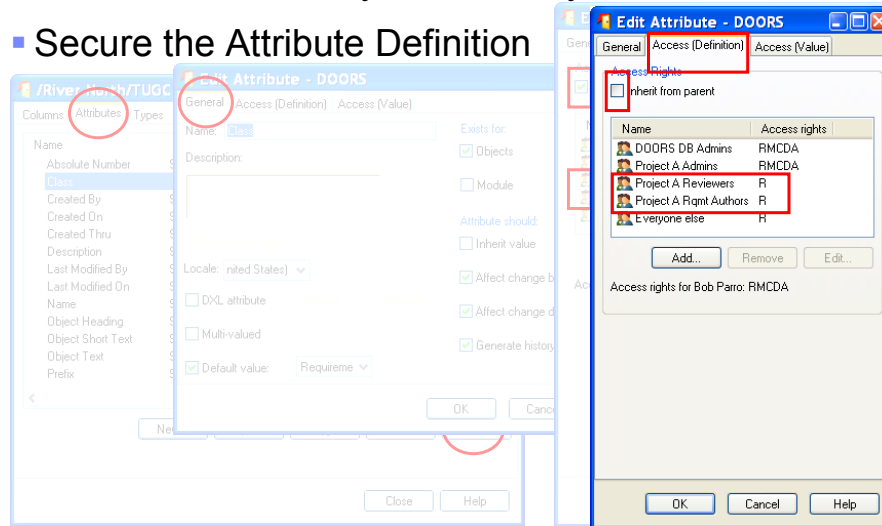
Access Rights – Attributes/Types

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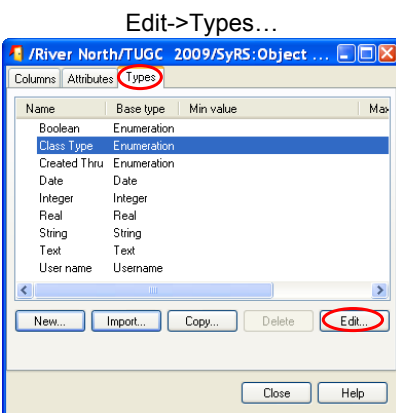
Access Rights – Attributes/Types

- Attribute consistency/redundancy
- Secure the Attribute Definition



Access Rights – Attributes/Types

- Attribute Type consistency/redundancy



Access Rights – Attributes/Types

- Attribute Type consistency/redundancy

Edit Type - DOORS

Type name: Class Type Minimum value:
Base type: Enumeration Maximum value:
Access: Enumerations

inherit from parent

Name	Access rights
DOORS DB Admins	RMCD A
Project A Admins	RMCD A
Project A Reviewers	RMCD
Project A Rqmt Authors	RMCD
Everyone else	R

Access rights for Bob Parro: RMCD A

Buttons: Add... Remove Edit... OK Cancel Help

Access Rights – Attributes/Types

- Attribute Type consistency/redundancy
- Secure the Type Definition

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Access rights for Bob Parro: RMCD A

Buttons: Add... Remove Edit... OK Cancel Help

DOORS Project Jumpstart Checklist

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 - ✓ Seal 'Groups' security hole
 - ✓ Set access rights on 'Groups'
 - ✓ Set Public views to 'Inherit from parent' (ongoing 'battle')
- ➔ Secure Attribute/Type Definitions
- ➔ Avoid granting access rights for individuals...
 - For Projects/Folders/Modules/Edit Shareable Sections/Attributes/Types/Views
- ➔ Avoid access rights at granularity of object



OLEs

- Weigh cost/benefit of saving OLEs in history
- Every time OLE is opened, gets saved...DOORS can't tell if it's been changed
- Module size/performance impact
- DB will rapidly grow in size
- Very large OLEs impact module opening, saving, scrolling

Right click DB root, click Properties...



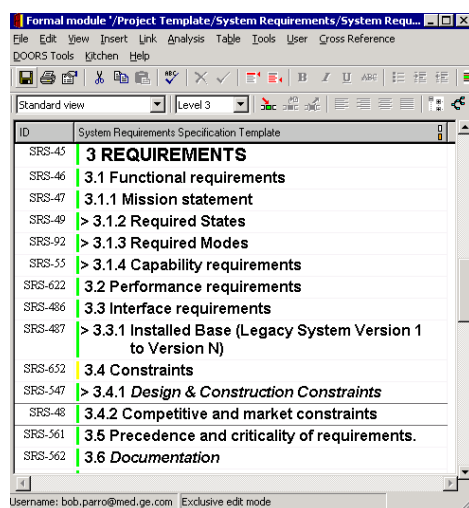
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 - ✓ Secure Attribute/Type Definitions
 - ✓ Avoid granting access rights for individuals...
 - ✓ For Projects/Folders/Modules/Edit Shareable Sections/Attributes/Types/Views
 - ✓ Avoid access rights at granularity of object
- ➔ Consider NOT saving OLE objects in attribute history



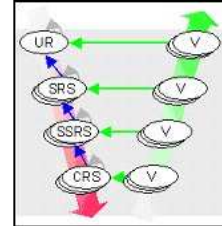
Project Template – Document Framework

- Example template for a Systems Requirements Specification
- Incorporate evolving business best practices into template
- Can discard contents in favor of project-preferred framework
 - ▶ Import into module to take advantage of other pre-defines in module



DOORS Project Jumpstart Checklist (continued)

➔ Define document framework/structure



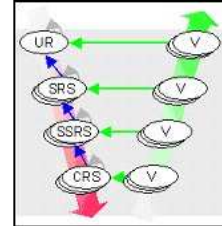
Project Template – Attribute Types

- Obtain consensus on core Attribute Types across business so everyone buys-in, benefits
- Add project-specific Attribute Types during project setup

Base Type	Enumerations	Comments
1 Attribute Types		
Object Type Type	Enumeration	Requirement, Information, Heading
Effectivity Type	Enumeration	Prod A, Prod B, Prod C, Prod D, ... All
Test Methods Type	Enumeration	Demonstration, Analysis, Inspection, Test
SSR Type	Enumeration	Safety, Regulatory
Review Phases Type	Enumeration	Draft, In-Review, Accepted, Rejected, Deferred
Subsystems Type	Enumeration	<list of Subsystems>
Document Type Affected Type	Enumeration	Online Operator Manual, Printable, Operator Manual, Pre-installation Manual, Installation Manual, Maintenance Manual, Conformance Statements, Application Training Material

DOORS Project Jumpstart Checklist (continued)

- ✓ Define document framework/structure
- ➔ Define attribute types



Project Template - Attributes

- Obtain consensus on core Attributes across business so everyone buys-in, benefits
- Add project-specific Attributes during project setup

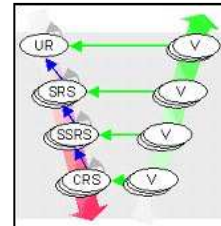
A screenshot of the DOORS software interface showing the 'Attributes View' window. The window title is 'Formal module "/>

This is a Meta Module of attributes and definitions			
Type	Default Value	M-valued ?	
2 Attributes			
Object Type	List of Object Types	Requirement	No
Guidance	Text		
SFR	Text		
SFR Notes	Text		
Effectivity	List of Effectivity		Yes
Test Method	List of Test Methods		
Safety & Regulatory	List of S&R		Yes
Misc Comments	Text		
Review Phases	List of Review Phases	Draft	
References	Text		
Subsystems	List of Subsystems		Yes
Document Type Affected	List of Document Type Affected		Yes
Test Section	Boolean	False	

Username: bob Exclusive edit mode

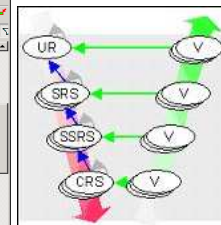
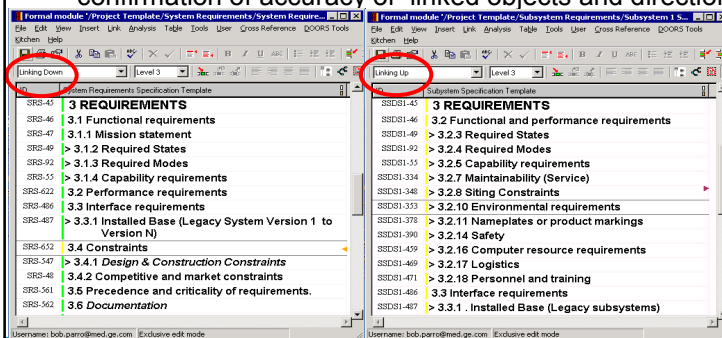
DOORS Project Jumpstart Checklist (continued)

- ✓ Define document framework/structure
- ✓ Define attribute types
- ➔ Define attributes



Project Template - Views

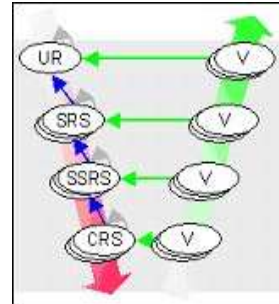
- Universal Views – example: productivity views for flowdown, linking
 - ▶ Place higher level document on left side of screen, lower level on right
 - ▶ Easy to flowdown requirement
 - ▶ Entire main column visible in both documents for immediate visual confirmation of accuracy of linked objects and direction



Project Template - Views

Role-specific Views (note color-coding)

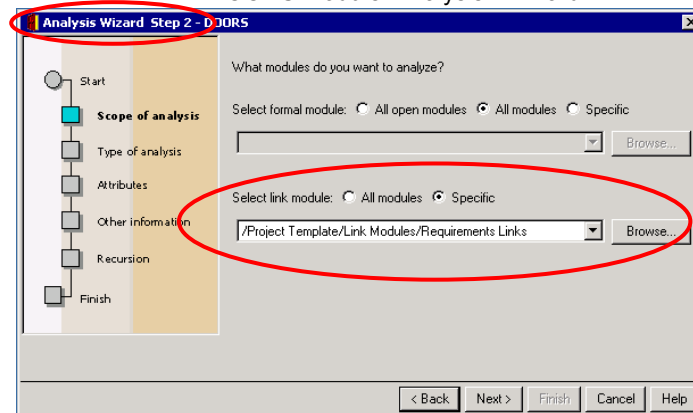
- ▶ Requirement authors
 - Requirements change impact analysis
 - Requirements flowdown gap analysis
 - Requirements scope creep analysis
 - Requirements traceability analysis
 - Suspect links
- ▶ Validation & Verification testers
 - Requirements change impact to test analysis
 - Test gap analysis
 - Test scope creep analysis
 - Test traceability analysis
 - Suspect links
- ▶ Reviewers
 - ▶ Marketing
 - ▶ Stakeholder
- ▶ Designers
 - ▶ Quality
 - ▶ Systems
- ▶ Project Managers
 - ▶ Reliability
 - ▶ Subsystems



Project Template - Views

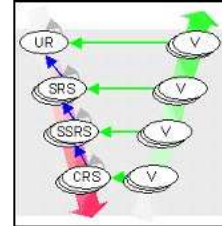
View containing Requirements Traceability column requires 'Specific' link module selection

In DOORS module: Analysis->Wizard...



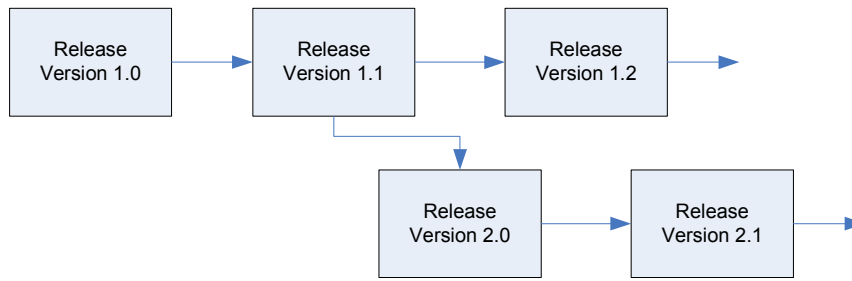
DOORS Project Jumpstart Checklist (continued)

- ✓ Define document framework/structure
- ✓ Define attribute types
- ✓ Define attributes
- ➔ Define roles
- ➔ Define views



Baselines

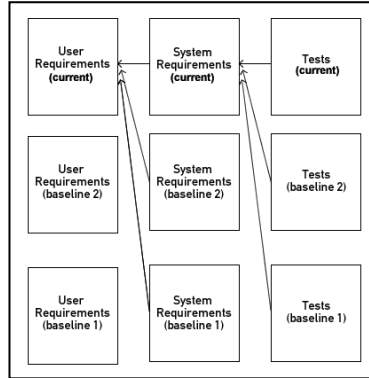
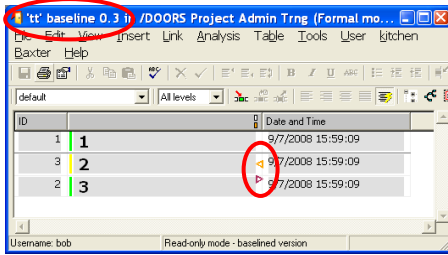
- A baseline is a reviewed and approved deliverable that constitutes an agreed basis for further evolution or development, and can be changed only through a formal change management procedure.



Baselines

▶ Baseline behavior

- Links function differently
 - Links are copied to baseline when linked modules are baselined outside a baseline set
 - These "echoed links" can only be followed from baseline to current version of source or target module
 - No corresponding link from current version to baseline

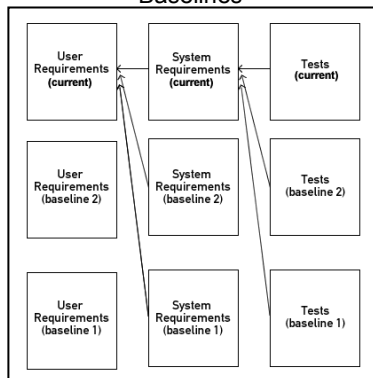


Baselines

▶ Baseline behavior

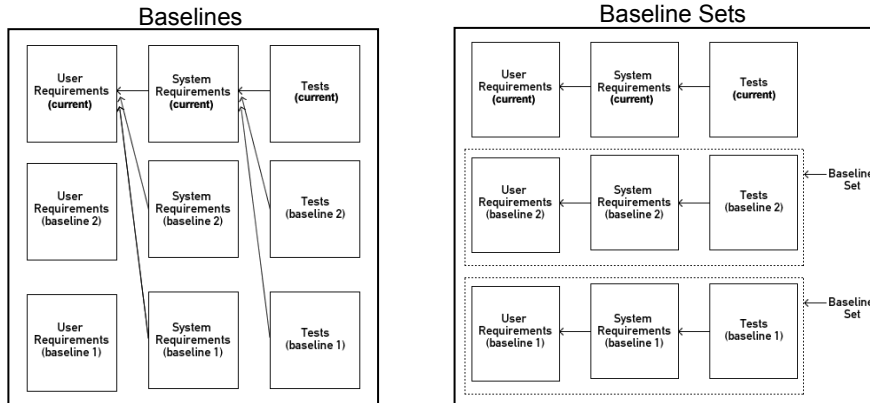
- Data baselined
- Unidirectional links FROM baseline TO current version – as current version data changes, relationship of linked baseline data may change

Baselines



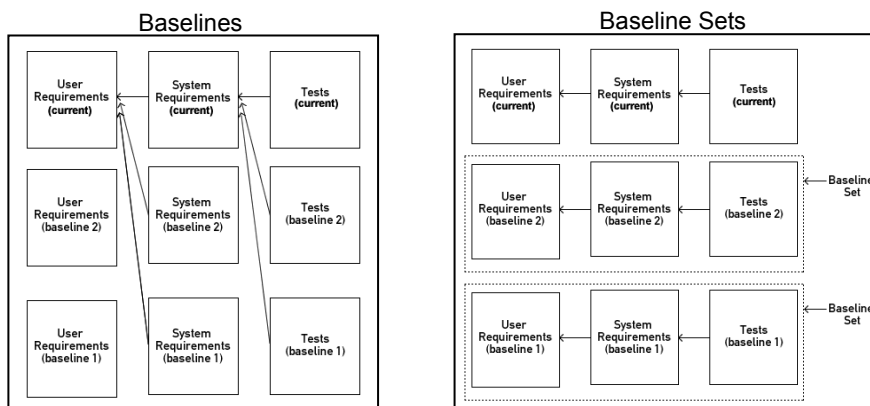
Baselines and Baseline Sets

- ▶ **Baseline behavior**
 - Data baselined
 - Unidirectional links FROM baseline TO current version – as current version data changes, relationship of linked baseline data may change
- ▶ **Baseline set behavior**
 - Snapshot of group of documents with relationships intact
 - Data baselined
 - Links baselined



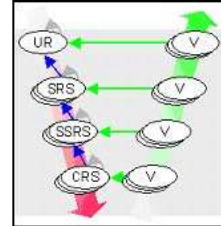
Baselines and Baseline Sets – frequent practice

- ▶ Normally, module baselines used
- ▶ Baseline Sets used much less frequently, if at all
- ▶ When Baseline Sets used, typically used once at end of project



DOORS Project Jumpstart Checklist (continued)

- ✓ Define document framework/structure
- ✓ Define attribute types
- ✓ Define attributes
- ✓ Define roles
- ✓ Define views
- ➔ Define baseline strategy/process



Report Generation Using RPE – Sample Scenario Rational Publishing Engine

- Generate complete documents
- Header and footers
- Attribute data
- Table of contents
- Cover Page
- Custom formats data

TPE Demo
Revision: X

TPE Software Requirements

1 Receiver

2000 marked the 90th anniversary of **Demon** and its parent company, Nippon Columbia Co., Ltd. Throughout its history, **Demon's** professional-use, consumer-use equipment and software products have long been internationally recognized for their originality and high standards of quality, durability and innovation. To celebrate its anniversary, **Demon** launches the world's first DTS-ES Discrete A/V component, the AVCC-A1SE. The DTS decoding option provides digital discrete surround-back channel for even better sound separation.

1.1 details

- 130 watts x 7 channels [SR-169]
- Fully assignable channels for bi-amping [SR-169]
- Rear Panel RS-232C and Ethernet ports [SR-169]
- Ethernet network port [SR-169]
- XM ready tuning [SR-169]
- Dolby® TrueHD and dts-HD™ Master Audio [SR-169]
- Second zone tone, mono mix and level control [SR-169]
- DNLA certified [SR-169]


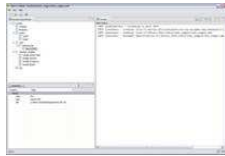


Figure 1-1



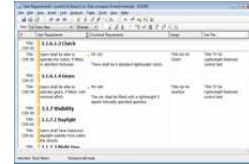
Rational Publishing Engine Components



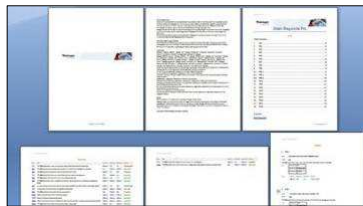
Launcher for managing document production



Document Studio for creating templates



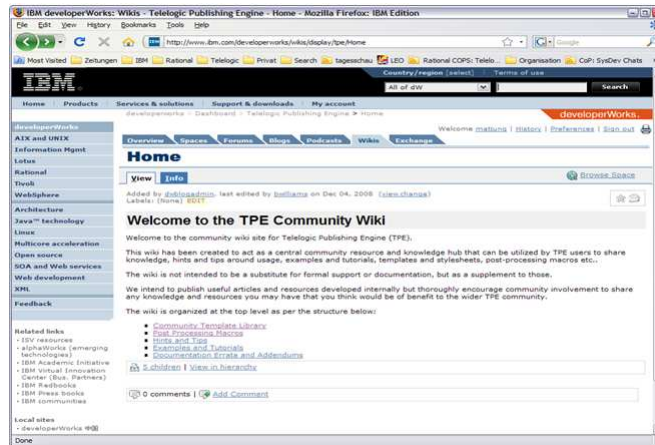
Tool Integrations for commanding document generation from within tools (e.g. DOORS, Tau, Focal Point etc.)



Reports in multiple formats (e.g. MS Word, PDF, HTML, etc.)



Moderated wiki for sharing templates and knowledge



<http://www.ibm.com/developerworks/dwwi/jsp/WSLogin.jsp>



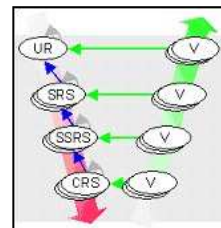
Guidance on use of RPE

- ▶ Advantages over DocExpress (DX)
 - Runs on user's desktop
 - Eliminates need for beefy server
 - Less fragile
 - Does not use clipboard
 - 20x faster
 - Lower implementation and maintenance costs



DOORS Project Jumpstart Checklist (continued)

- ✓ Define document framework/structure
- ✓ Define attribute types
- ✓ Define attributes
- ✓ Define roles
- ✓ Define views
- ✓ Define baseline strategy/process
- ➔ Define report generation approach/templates



Productive Project Template

- Now have all elements identified for productive Project Template in DOORS
 - ▶ Pre-defined Schema
 - ▶ Pre-defined Link Strategy, Link Management, and Link Enforcement
 - ▶ Pre-defined Document Framework
 - ▶ Pre-defined Attributes and Attribute Types
 - ▶ Pre-defined Views
 - ▶ Groups security hole plugged
 - ▶ Access rights strategy identified
 - ▶ Report generation implications built in
- How do we leverage ALL of the infrastructure built-in to the Project Template on a new project?

Productive Project Template

- Restore Project Template for new project
 - ▶ Pros
 - Simple to set up
 - Easy to deploy to multiple projects
 - All information contained in one file
 - ▶ Cons
 - Can't include access control settings if archive used in different database

Productive Project Template

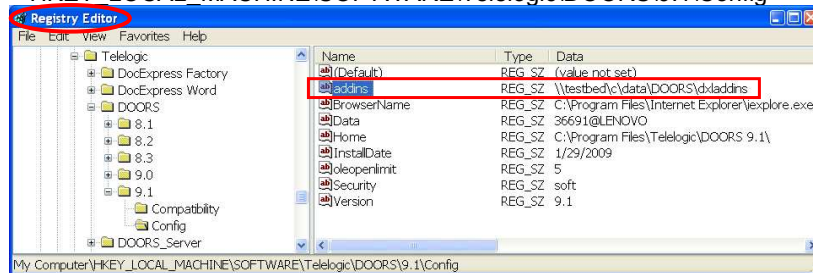
Schema updates

- ▶ Configuration control schema
- ▶ Vet all changes through change control board
- ▶ Regard as software development project – use same rigor
- ▶ Phase-in changes in non destructive manner
- ▶ Plan for managing mixed version environment
- ▶ Plan for upgrading existing projects



Enterprise access to DXL scripts

- Allows single instance of scripts to be used by entire enterprise
- Host scripts in central script repository (CSR)
 - ▶ Set DOORS clients to use DOORS remote addins:
 - `\\hostname.domain.com\DOORS\dxladdins` or equivalent
- DOORS remote addins parameter points to CSR
 - ▶ Edit Windows Registry (Start/Run->regedit) – BE CAREFUL!
 - `HKEY_LOCAL_MACHINE\SOFTWARE\Telelogic\DOORS\9.1\Config`



Summary

■ Project Template Benefits

- ▶ Accelerates project ramp-up via well crafted infrastructure
 - Product development less costly, shorter schedule => earlier market window
 - Leverage internal DOORS guru expertise on every project
 - Lower DOORS proficiency required of typical users
- ▶ Consistent Schema and Best Practices across the business
 - Eliminates delay of each project developing and implementing their own schema
 - Reduces learning curve as staff changes across projects
- ▶ Consistent language and expectations regarding Attributes
- ▶ Accurate Traceability information via enforced Link Architecture
 - Products produced have higher quality (fewer defects)
 - Better regulatory compliance
- ▶ Business-specific document templates can be immediately leveraged