



IBM Rational Software Conference 2009  
As Real as It Gets!



## IBM Rational Software Conference 2009


### Quality Management: From Requirements Management to Testing Management

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**Rational** software

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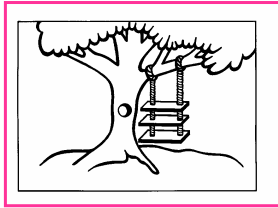
IBM Rational Software Conference 2009 

## Agenda

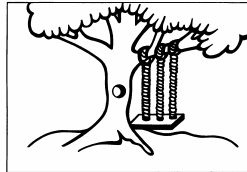
- Requirements Management
- Testing Management
- How the Integration Works
- Demo

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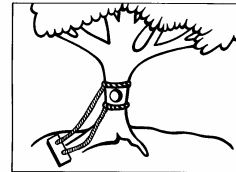
## We've know about this for a long time...



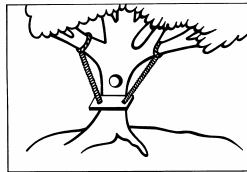
As it was requested



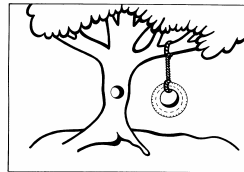
As the analyst saw it



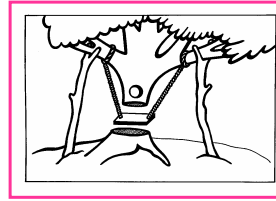
As the system was designed



As it was delivered



What the user really wanted



As it was installed



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## Why Focus on Requirements and Quality Management?

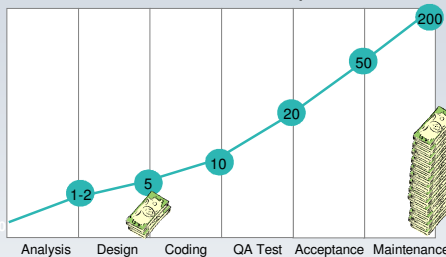
*Traditional methods yield excess rework, delays & poor quality*

### Lost Opportunity

- Late to market by 6 months or more will cost organizations **33% of the 5-year ROI**
- **41%** of projects fail to deliver expected business ROI
- **49%** of projects overrun original estimates

Standish Group

Boehm's Software Relative Cost to Repair



### Cost

- **80%** of development costs are spent identifying and correcting defects
- More than **40%** of IT development budget will be consumed by poor requirements

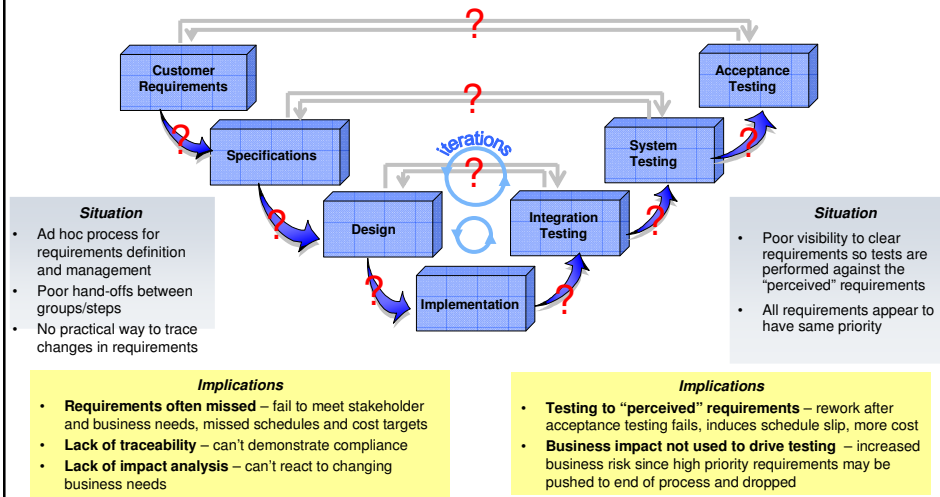
### Traditional QA Testing

- 25 – 30 % delivery time in testing (IBM Study)
- Poor upstream quality yields rework
- Compressed schedules make it worse



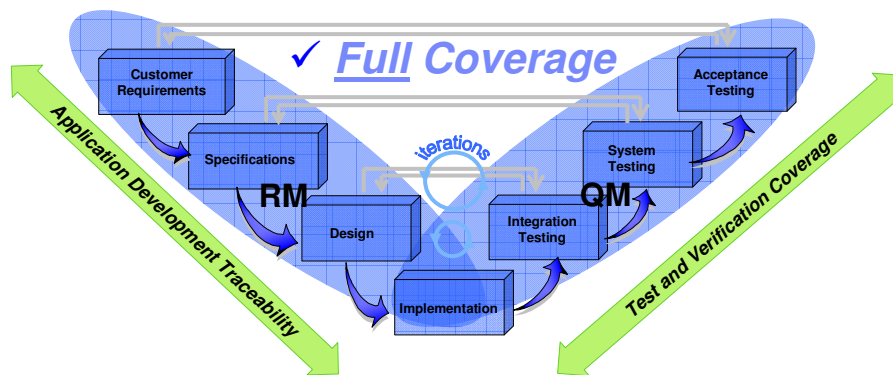
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## Today's Typical Siloed Development Lifecycle Environment



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## IBM Offers A Unique Solution That Ensures Entire Lifecycle Collaboration and Traceability



**IBM's full life cycle coverage and traceability**

- ✓ Promotes traceability through the development and QA lifecycle
- ✓ Improves collaboration between teams
- ✓ Ability to assess requirements change impact
- ✓ Ensures adherence to compliance
- ✓ Ability to determine whether requirements are covered in all stages and when test is complete
- ✓ Ability to identify most critical requirements to test
- ✓ Guides management decisions thru proper metrics



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# Requirements Management



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## Requirements are...

### ▪ Interdependent

- ▶ System Requirements depend on Users Requirements,
- ▶ User Requirements relate to Regulatory Requirements,
- ▶ Impacts project activities
- ▶ Determines the design and how code is done
- ▶ Contributes to risks
- ▶ Relates to test plans

### ▪ Dynamic

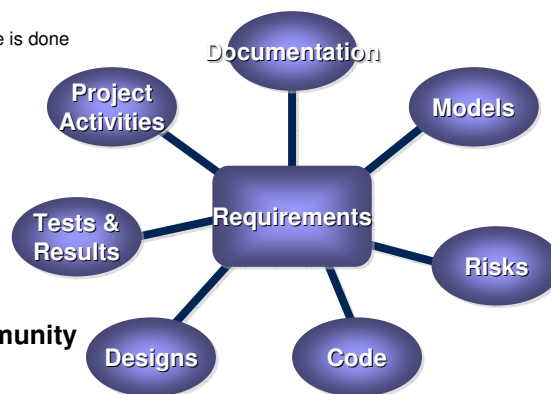
- ▶ Subject to (frequent) change
- ▶ Both the requirements and relationships

### ▪ Complex

- ▶ Many requirements

### ▪ Of interest to a wide community

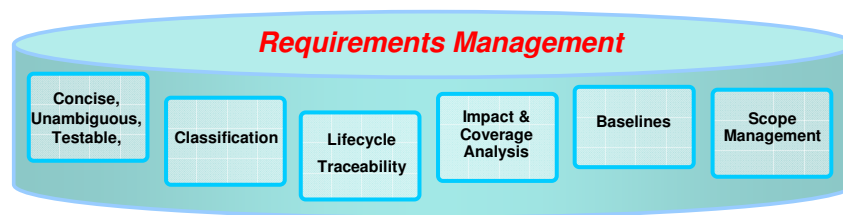
- ▶ Marketing, Sales, Engineering...



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## What is requirements management?

*The set of disciplines and activities concerned with the capture, formulation, organization, versioning, publishing, tracing, analysis, and change of requirements.*



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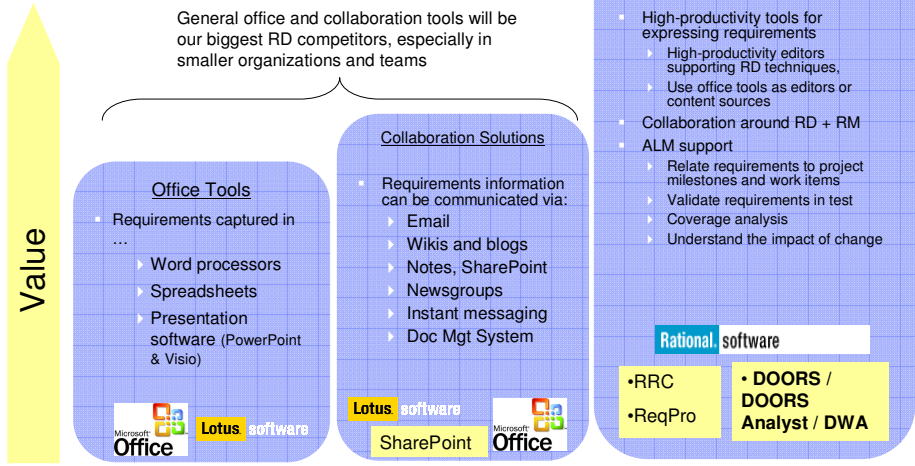
## What is IBM Rational® DOORS®?

- **Dynamic Object Oriented Requirements System**
- **The market and technology leader in Requirements Management**
  - ▶ Increases the quality of business-critical IT and software development projects
  - ▶ Improves requirements communication, collaboration, and management
- **Demonstrates strengths in capturing, linking and analyzing requirements during their lifecycle**
  - ▶ Alignment of requirement definition to the customer needs
  - ▶ Flexible, easy-to-use version management of requirements
  - ▶ Track and compare capabilities for graphical comparisons of baselines
  - ▶ Graphical tracking and browsing of dependencies
- **Capabilities**
  - ▶ **Capture and manage** requirements for complex IT or systems development projects
  - ▶ **Collaboration** capabilities for globally distributed team
  - ▶ **Scalable** to support 1000s and 10s of thousands of requirements
  - ▶ **Integration** with Rational Quality Manager, HP QualityCenter, Focal Point, Synergy Change



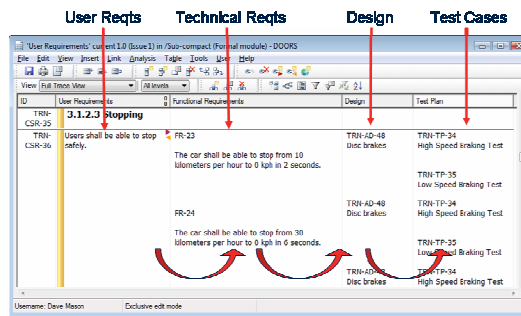
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# What is DOORS? Compared to general office tools & collaboration solutions



# How DOORS Can Address Complex IT

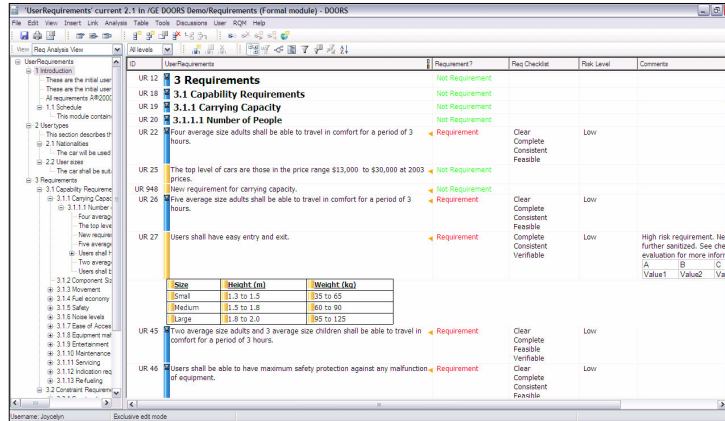
- Multiple levels of requirements Traceability
  - Provides a complete picture of traceability from user requirements to systems requirements to test requirements
  - Impact analysis
  - Coverage analysis
  - Derivation analysis
  - Provides support for external links which enables requirements to be directly associated with information outside of the DOORS domain





## How DOORS Can Address Complex IT

- **Simple document view of a database to get started quickly**
  - Point-and-click views depicting relevant data for each type of user role

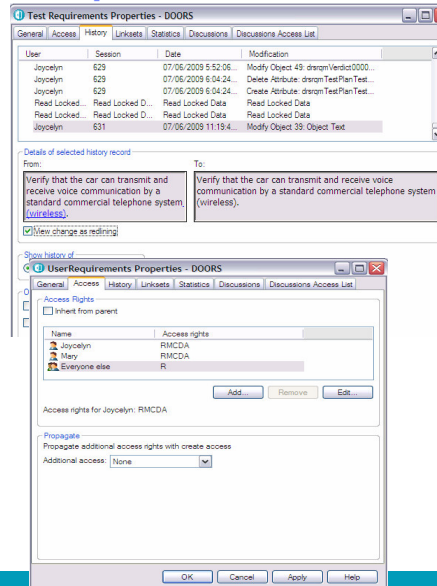


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## How DOORS Can Address Complex IT

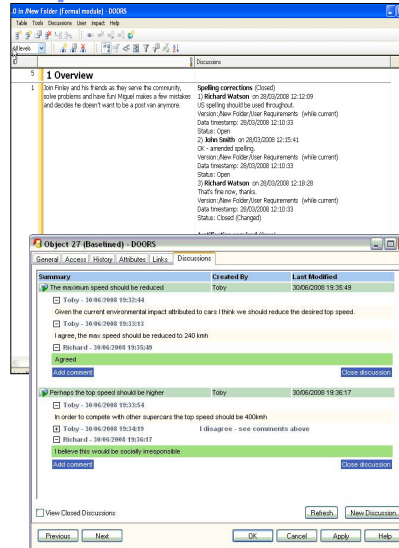
- **Rich audit trail and baseline capability**
  - Full history log of changes to requirements
  - Preserve versions of requirements documents
- **Requirements security at different levels**
  - Provides security at several levels
    - Projects
    - Document
    - Requirements
    - View
    - Attribute



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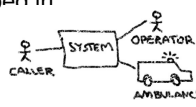
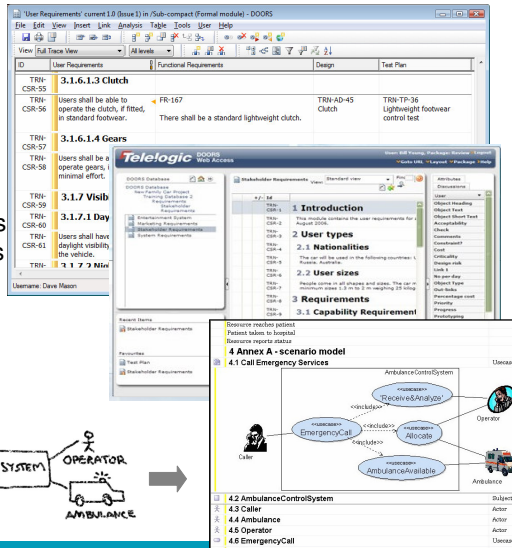
## How DOORS Can Address Complex IT

- **Standard solution across all of IT**
  - ▶ DOORS provides a collaboration across all of IT
    - Multiple users can access the same document at the same time; locking sections for edit
    - DOORS Discussions allows business users/customers to discuss the requirements



## DOORS Family of Products Designed to give each stakeholder the right capabilities

- **DOORS**
  - ▶ Provides rigorous support for detailed and complex requirements management
- **DOORS Web Access**
  - ▶ Zero-footprint, web-based access to view and discuss requirements that are managed with DOORS
- **DOORS Analyst**
  - ▶ Provides a visual modeling capabilities which allows requirements to be described in diagrams as well as text





# Testing Management

## IBM Rational raises the bar for Testing Management Scenarios that make the difference

### IBM Rational® Quality Manager

#### Mitigate Business Risk



#### Collaborate

Collaborative, continuous, and comprehensive information sharing

- ⇒ reduces defects
- ⇒ improves handoff
- ⇒ increases customer satisfaction

#### Improve Operational Efficiency



#### Automate

Automating labor-intensive activities

- ⇒ reduces time-to-market
- ⇒ increases predictability
- ⇒ consistency to improve ROI

#### Make Confident Decisions



#### Report

Moment by moment understanding of software quality metrics

- ⇒ for immediate corrective action
- ⇒ for immediate addressing of both business and IT needs

# Mitigate Business Risk - Comprehensive rich test plan

**A quality contract for the entire software delivery team**

- Collect and track all test data**
  - ▶ Central location for business objectives requirements, resources, platform and exit criteria, etc.
- Defined Responsibilities**
  - ▶ Individual sections are assigned to team members to clearly establish ownership
- Goal Oriented**
  - ▶ Formalized and documented exit criteria
- Extensible**
  - ▶ Add sections, import custom data
- Keep track of changes**
  - ▶ Snapshot version control to track plan history throughout the life of the project



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# Mitigate Business Risk - Proof of Process

**Managing approval process at different phases**

All project stakeholders can review, refine and sign-off on all quality related artifacts



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## Improve operational efficiency

*Know what others are doing, what is expected of you.*

The screenshot displays the 'Tony(Tester)'s Dashboard. On the left is a navigation sidebar with icons for Requirements, Planning, Construction, Lab Management, Execution, and Reports. The main area is divided into two sections:

- My Tasks:** A table with columns for ID, Summary, Artifact, and State. It lists two tasks:
 

ID	Summary	Artifact	State
73	Provide the ROM.KEY: TO-SUMMARY-TITLE Section for TestCase: Existing Customer Order	Existing Customer Order	New
72	Create test case for Existing Customer Order requirement	Classics Java	New
- Quality Manager Event Log (95 new):** A list of recent events:
  - [2] 39: Test Requirements (30) Yesterday
  - [14] Complete the Formal Review Section of Test Plan: Classics Java (71) Yesterday
  - \* Complete the authoring of Category: 4.0 (75) 2 days ago
  - \* Name not displayed Last First (74) 2 days ago

Below the dashboard is a 'Team Event Log' box and a footer with navigation icons and the text 'Select View/Master/Slide Master to add Session Number Here'.

## Improve operational efficiency

*Integrated manual test authoring and execution*

The screenshot shows the 'Executing New Customer Order' manual test script execution interface. It includes an environment configuration table, a progress bar at 67%, and a 'Script Steps' table.

#	Type	Result	Description	Attachment
1	RI	✓	Select a cd and click Order button	Defect
2	✓	Passed	Verify the login window displays	
3	RI		Select new customer radio button and select OK button	

Below the steps is an 'Add Defect' button and a small table for defect details:

ID	Summary

Additional fields for 'Result Attachment' and 'Comment' are visible. A callout box labeled 'Manual Test Execution' points to the script steps table.

On the right, a list of bullet points describes the features:

- ▶ Step by step capture and execution of manual tests
- ▶ Assisted data entry and validation for efficient execution
- ▶ Keyword support for integrated manual and automated testing
- ▶ Rich defect capture during execution, including screenshot and attachments

At the bottom, a footer contains navigation icons and the text 'Track execution results and defects from manual test efforts' and 'Select View/Master/Slide Master to add Session Number Here'.

# Make Confident Decisions - Constant access to quality metrics

## Lifecycle quality perspective to proactively manage risk



Manual and functional test automation results available

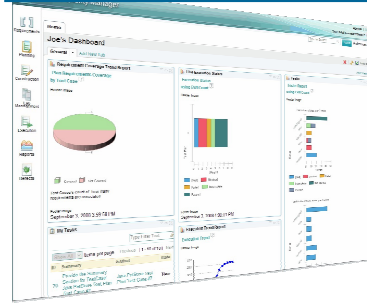


Performance risks are always visible and quickly resolved



Security risks are monitored continuously to ensure business continuity

### Quality Manager Dashboard



Testing of elements can be tracked to assure business needs are realized



Change management and defect tracking fully integrated to assure all changes to production are tested



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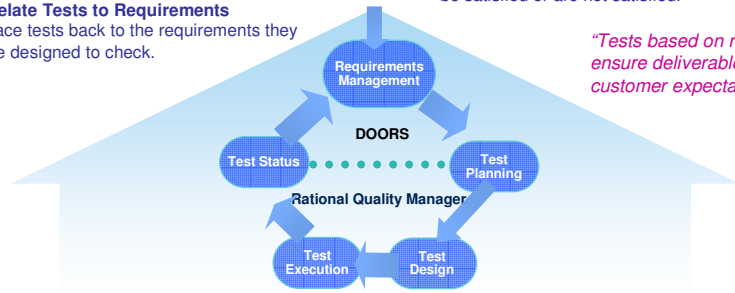
# Integrated Solution



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# Principles of an Integrated Approach to Requirements Management and Testing Management

- 1. Plan Tests Early**
  - Plan tests for each requirement as the requirement is written.
- 2. Conduct Tests Early**
  - Perform tests as early as possible in the development process.
- 3. Relate Tests to Requirements**
  - Trace tests back to the requirements they are designed to check.
- 4. Relate Defects to Requirements**
  - Trace defects back to the requirements that they are not satisfying.
- 5. Measure Progress against Requirements**
  - Set targets and measure the progress of testing in terms of those requirements that are shown to be satisfied or are not satisfied.

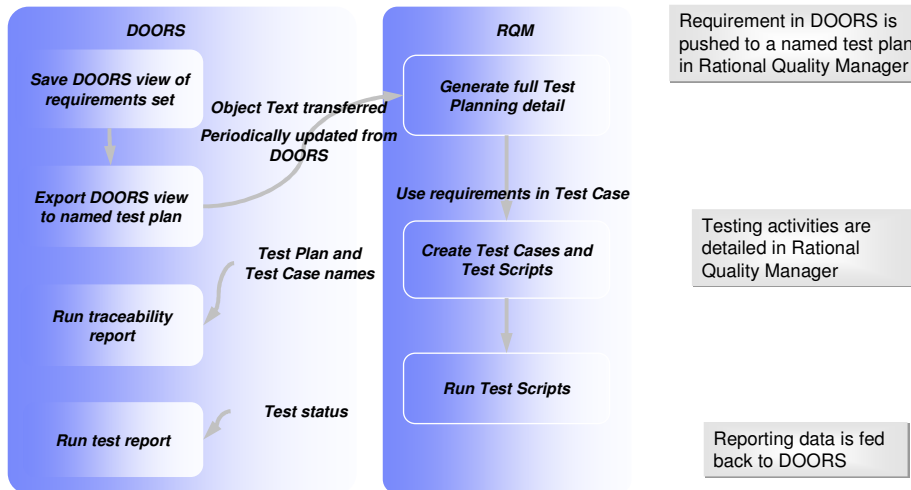


*"Tests based on requirements ensure deliverables meet customer expectations"*



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# How The Integration Works

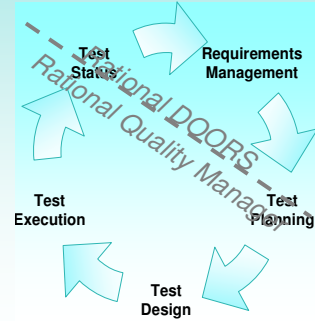


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# DEMO

**What You'll See:**

- **DOORS**
  - ▶ Traceability report
  - ▶ Audit Trail and baselining
  - ▶ Access level
  - ▶ Discussions
  - ▶ Exporting requirements to RQM
- **Rational Quality Manager**
  - ▶ Executing Test Script
  - ▶ Generate Execution Report
- **DOORS**
  - ▶ Running the Traceability report from Test Requirements to Test Plan and Test Cases
  - ▶ Running Test Report



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# Questions



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# Thank You

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