The Rational Unified Process®: For Dummies

Original created by:

Praveen Jaskal, Noble(Star Systems Corp.

for:

Northern Virginia Rational User's Group
Reston, VA, Fall 2002

Scott Barber
Chief Technology Officer
PerfTestPlus, Inc.
What You Should Walk Away With…

Understand some of the high level fundamentals of RUP
Know of Rational’s 6 best practices for software development
  – Develop s/w iteratively
  – Manage requirements
  – Use component-based architectures
  – Visually model software
  – Continuously verify software quality
  – Control changes to s/w

Be familiar with RUP’s phases & disciplines

Understand value on running projects based upon risk-driven, iterative approach to software development

Know that RUP is set of guidelines not rules
What You Should Walk Away With…

See first that the design is wise and just;
That ascertained, pursue it resolutely

-- William Shakespeare
What if…

You were asked to deliver your current project 20% sooner than you planned?
Will you able to say yes?
If you were able to do it?
What would that mean to:
- Your organization?
- Your team?
- You personally?
## Agenda Overview…

### Best Practices Agenda
- Develop Iteratively
- Manage Requirements
- Use Component
- Architecture
- Model Visually (UML)
- Continuously Verify Quality
- Manage Change

### Disciplines’ Agenda
- Business Modeling
- Requirements
- Analysis & Design
- Implementation
- Test
- Deployment
- Configuration & Change Management
- Project Management
- Environment

### Phases Agenda
- Inception
- Elaboration
- Construction
- Transition
Disciplines / Phases / Iterations

Workflows
- Business Modeling
- Requirements
- Analysis & Design
- Implementation
  - Test
  - Deployment
- Configuration & Change Mgmt
- Project Management
- Environment

Phases
- Inception
- Elaboration
- Construction
- Transition

Iterations
- Inital
- Elab #1
- Elab #2
- Const #1
- Const #2
- Const #N
- Tran #1
- Tran #2

Organization by TIME
RUP Process Made Practical

- Sustained development of quality software
- Delivered on-time and on-budget
- Requires more than “heroic” individuals
- Cohesive teamwork & common understanding of development tasks
- Ensures implementation is predictable and repeatable
The Spirit of RUP

Attack major risks early and continuously
  - ... Or they attack you

Use working software as primary measure of progress

Completed plans, requirements, and design are good - working software is better

Produce only artifacts you need
  - When in doubt, don’t produce it

Accommodate changes in requirements and design
  - Allow for changes, but manage them
The Spirit of RUP

Ensure that you deliver **value** to your customer
- Design, implementation, and testing address customer needs
- Documenting customer needs is good, implementing them is better

Baseline an executable architecture early
- First build the skeleton structure, then fill in the holes

Work closely as one team
- Affects organization, tooling and team values

Quality is a way of life, not an afterthought
- Quality from the beginning, quality by design
Agenda Phases...

Phases Agenda:
1. Inception
2. Elaboration
3. Construction
4. Transition
The software lifecycle of the Rational Unified Process (RUP) is
- Four sequential phases,
- Each concluded by a major milestone;
- At each phase-end an assessment is performed to
- determine whether the objectives of the phase have been met.
- A satisfactory assessment allows the project to move to the next phase.
### Agenda Phases: Overview…

<table>
<thead>
<tr>
<th></th>
<th>Inception</th>
<th>Elaboration</th>
<th>Construction</th>
<th>Transition</th>
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</thead>
<tbody>
<tr>
<td><strong>Effort</strong></td>
<td>~5%</td>
<td>20%</td>
<td>65%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Schedule</strong></td>
<td>10%</td>
<td>30%</td>
<td>50%</td>
<td>10%</td>
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</tbody>
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![Bar chart showing the distribution of effort and schedule across phases: Inception, Elaboration, Construction, and Transition.]
Disciplines’ Agenda:

1. Business Modeling
2. Requirements
3. Analysis & Design
4. Implementation
5. Test
6. Deployment
7. Configuration & Change Management
8. Project Management

A discipline shows all activities you may go through to produce a particular set of artifacts:

- Roles,
- Activities, and
- Artifacts that are involved
Discipline: Business Modeling

Purpose
- To understand the structure and the dynamics of the organization in the target organization
- To understand current problems in the target organization and identify improvement potentials
- To ensure that customers, end users, and developers have a common understanding of the target organization
- To derive the system requirements needed to support the target organization.

Relation to Other Disciplines
- Requirements
- Analysis & Design
- Environment
Discipline: Requirements

Purpose

- To establish agreement with the customers and other stakeholders on what the system should do
- To provide system developers with a better understanding of the system requirements
- To define the boundaries of the system
- To provide a basis for estimating cost and time to develop the system
- To define a user-interface for the system, focusing on the needs and goals of the users

Relation to Other Disciplines

- Business Modeling
- Analysis & Design
- Test
- Configuration & Change Mgt
- Project Management
- Environment
Discipline: Analysis & Design

Purpose
- To turn the requirements into a design of the system-to-be
- To develop a comprehensive architecture for the system
- To adapt the design for performance

Relation to Other Disciplines
- Business Modeling
- Requirements
- Test
- Project Management
- Environment
Discipline: Implementation

Purpose

- To define the organization of the code, in terms of subsystems organized in layers
- To implement classes and objects in terms of components (source files, executables, and others),
- To test the developed components as units
- To integrate the results produced by individual developers (or teams), into an executable system

Relation to Other Disciplines

- Requirements
- Analysis & Design
- Test
- Environment
- Deployment
- Project Management
Discipline: Deployment

Purpose
- The custom install
- The "shrink wrap" product offering
- Access to software over the Internet

Relation to Other Disciplines
- Requirements
- Test
- Configuration & Change Management
- Environment
- Project Management
Discipline: Config. & Chg Management

Purpose
- Identifying configuration items
- Restricting changes to those items
- Auditing changes made to those items
- Defining and managing configurations of those items
- Ensure completeness and correctness of the configured product
- Provide an audit trail on why, when and by whom any artifact was changed

Relation to Other Disciplines
- Business Modeling
- Requirements
- Analysis & Design
- Environment
- Deployment
- Project Management
- Test
Discipline: Project Management

Purpose

- To provide a framework for managing software-intensive projects.
- To provide practical guidelines for planning, staffing, executing, and monitoring projects.
- To provide a framework for managing risk
- Risk management
- Planning an iterative project, through the lifecycle and for a particular iteration
- Monitoring progress of an iterative project, metrics

Relation to Other Disciplines

- Business Modeling
- Requirements
- Analysis & Design
- Deployment
- Implementation
- Test
Discipline: Environment

Purpose
- To configure the process for a project
- To provide the software development organization with the software development processes and tools

Relation to Other Disciplines
- Business Modeling
- Requirements
- Analysis & Design
- Test
- Deployment
- Change and Configuration Management
- Implementation
- Project Management
Summary: Overall Benefits

With the rational unified process solution you will:

Optimize the collaboration of your complete team
- RUP helps you unify your team

Deliver the right product on time and on budget
- RUP helps you focus on delivering working software

Effectively be able to adopt new techniques and tools on your projects
- RUP helps you leverage new tools and technologies
Summary…

Best Practices Agenda
- Develop Iteratively
- Manage Requirements
- Use Component
- Architecture
- Model Visually (UML)
- Continuously Verify Quality
- Manage Change

Disciplines’ Agenda
- Business Modeling
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Phases Agenda
- Inception
- Elaboration
- Construction
- Transition
Reference Articles:

- Accessing the RUP against ISO/IEC15504.5: Information Technology – Software Process Assessment Part 5: An Assessment Model And Indicator Guidance

- Using the RUP for Small Projects: Expanding Upon eXtreme Programming by Gary Pollice, Rational Software


- www.rational.com - White Papers
Contact Info

Scott Barber
Chief Technology Officer
PerfTestPlus, Inc

E-mail: sbarber@perftestplus.com
Web Site: www.PerfTestPlus.com