



Software Developer

Agile Software Development

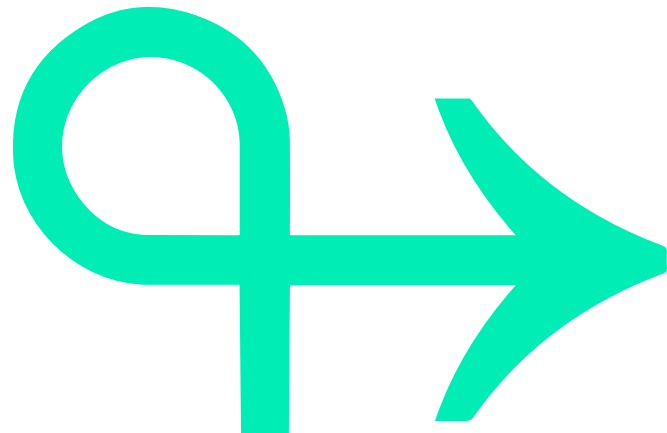
Configuration Management & Version Control





Tools and techniques

- § Why we need / what is configuration management?
- § What sort of software development artefacts might be controlled by configuration management?





Why do we need configuration management?

Understand system structure

- Ensure current design / build is known, good, and accurate.
- Not rely on tacit knowledge of team.

Accurate historical records

- Project management.
- Audit.
- Development and debugging – What changed / is causing faults?

Documentation

- Accurate requirements, designs, tests – consistent with actual system.
- Avoid reverse engineering.

An investment

- Reduce firefighting.
- Can have catastrophic consequences – NYSE.

QA What is configuration management?

Identify, track, and control software and related artefacts:

- Design documents
- Software objects
- Program code
- Test data / output
- User manuals

Functional relationship between parts, sub-systems, and systems.

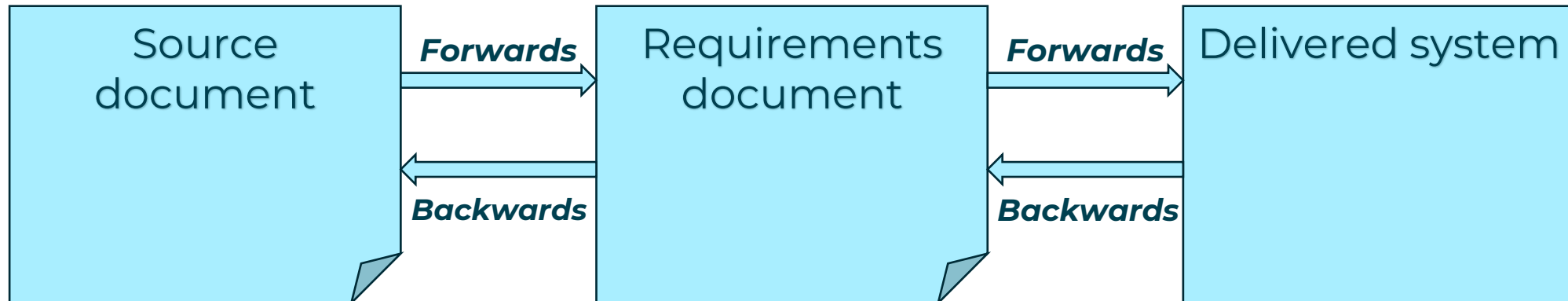
IEEE defines it as:

“The process of identifying and defining the items in the system, controlling the change of these items throughout their life cycle, recording and reporting the status of items and change requests, and verifying the completeness and correctness of items.”

QA Requirement management

Set of processes and procedures to manage requirements throughout a project:

- Configuration management.
- Current status of requirements.
- Latest version – accurate documentation reflects true status.
- How they fit together.
- Change control.
- Traceability from source to system and back.

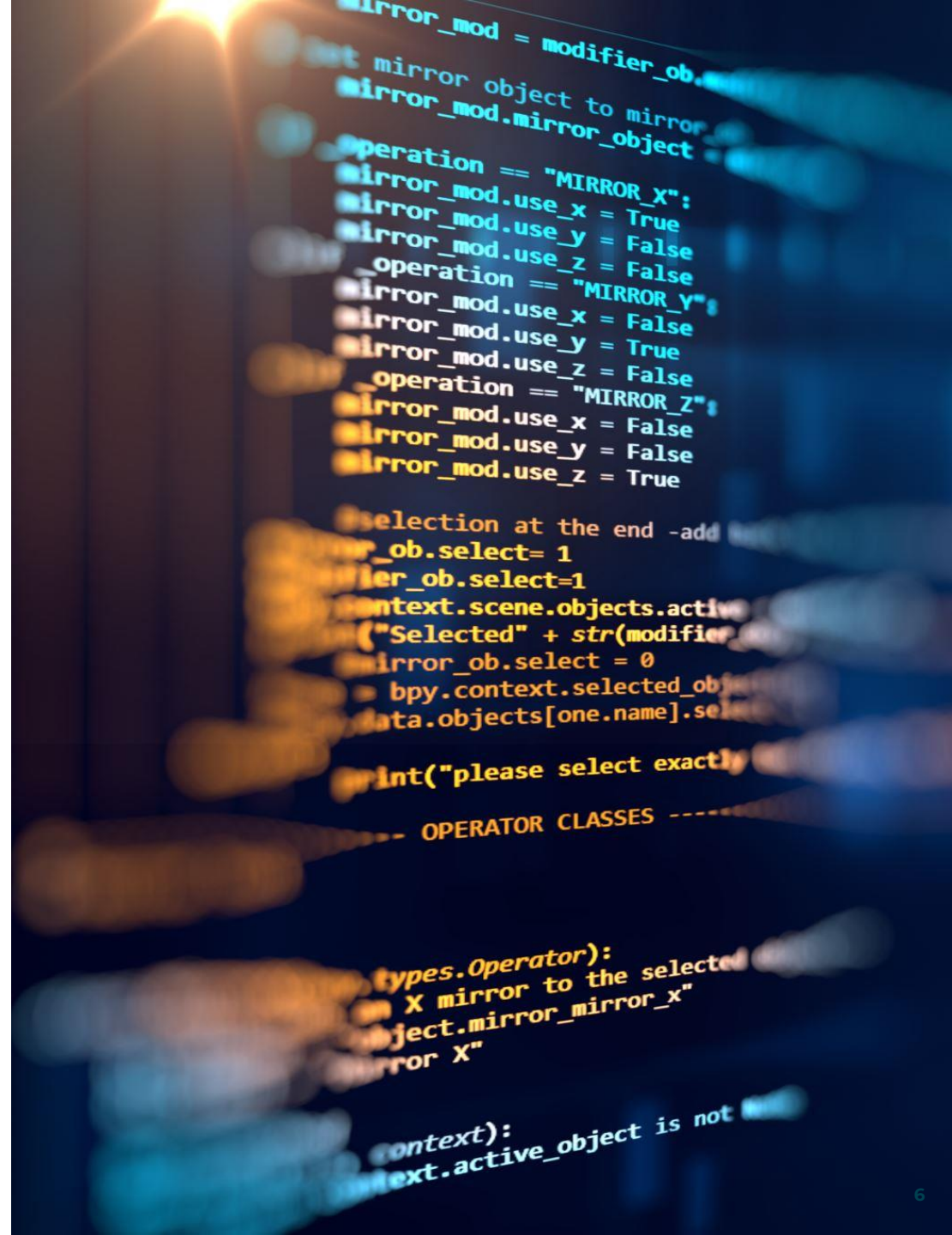
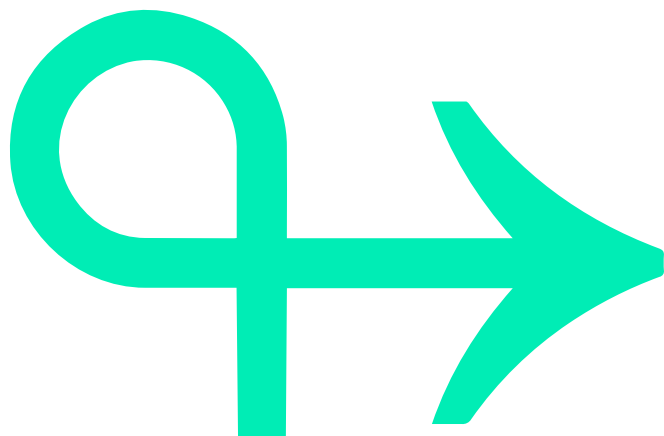




Code

Software configuration management:

- Standard processes and techniques.
- Manage changes to software products.
- Identify individual elements and configurations.
- Track changes.
- Version control and baseline.





Test scripts

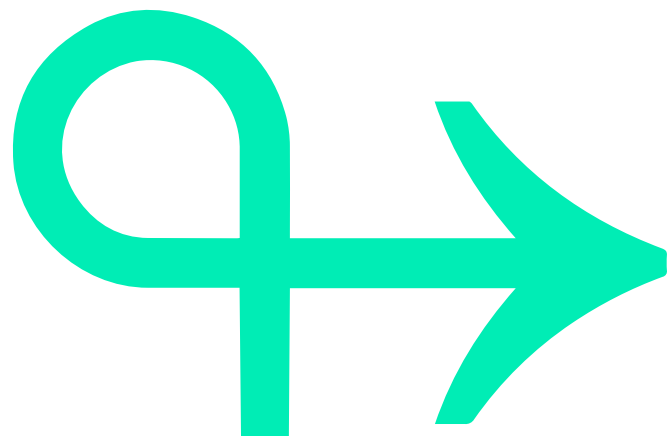
Configuration management allows testers to:

- **Manage testware and test results.**
- **support the build process:**
 - Deliver test release to test environment.
 - Critical to have a solid, reliable way of delivering test items that work and are the proper version.
- **keep a record of what is being tested:**
 - Underlying files and components.
 - Report defects against correct version.
 - Need to find defect in order to fix it.
 - Ability to trace the test results back to what exactly was tested.



Features and benefits

- What are the main features and benefits of version control for the development of code?

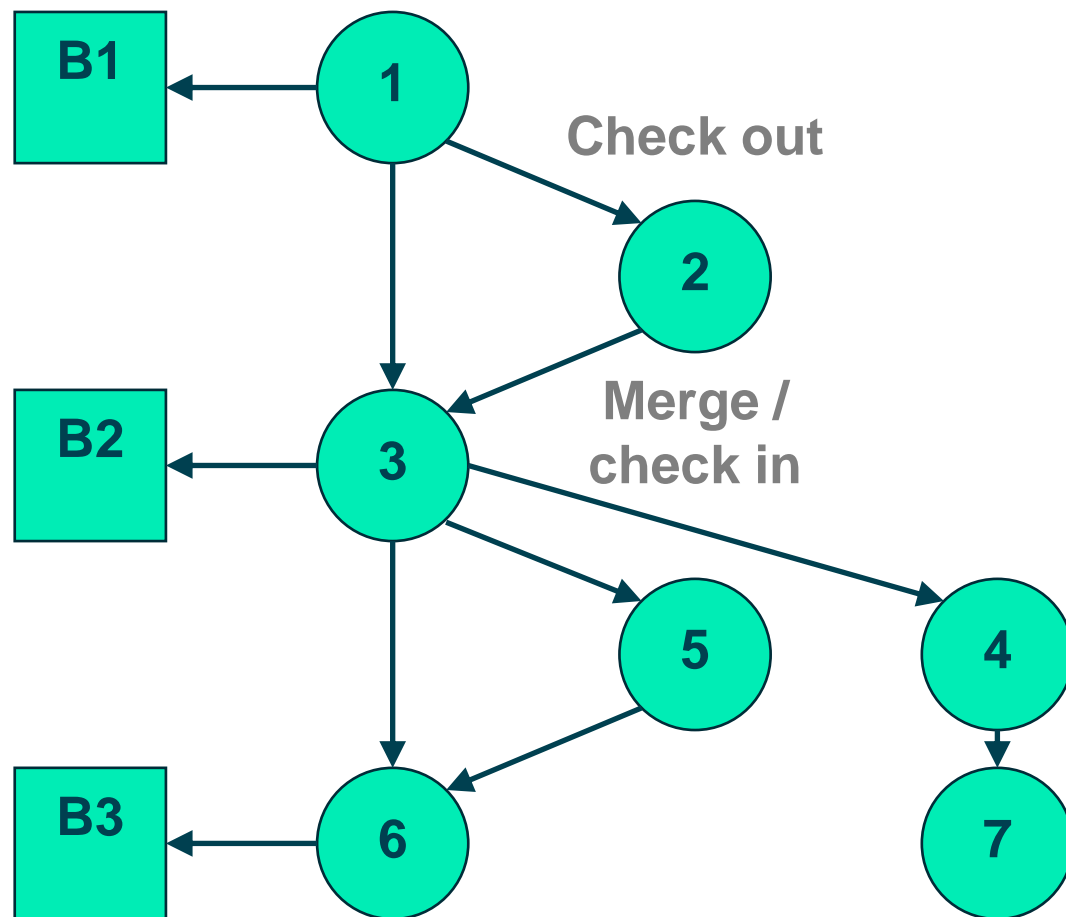
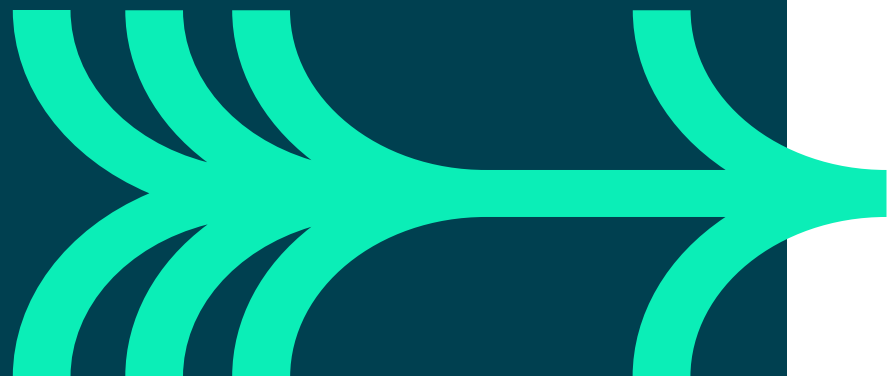


QA What is version control?

- Key component of configuration management.
- Management of changes to:
 - Documents – requirements
 - Software
 - Software artefacts – models, diagrams, tests
 - Configuration files
- Changes typically identified:
 - By ascending number / letter – version n, version n.n, version n.n.n
 - Timestamp
 - Who?
- Versions can be compared, restored, and in some cases merged.
- Software tools used to support:
 - Essential for multi-developer projects especially if multiple locations.



EXAMPLE: KEY TERMS



Develop an inventory of all authorised and unauthorised devices and software:

- Track and correct all authorised devices and software.
- Deny access to unauthorised and unmanaged products.
- Prevent unapproved software from installing or executing.

Move all assets on to security configuration management (SCM):

Reduce chance / effect of attack by:

- Proactively and continuously monitoring and hardening the security configurations.
- Environment's operating systems, applications, and network devices.



Benefits

Increased efficiency, stability and control:

- Improved visibility and tracking.
- Accurate knowledge reduces duplication.
- Rapid detection, correction of issues and restoration of service.
- Greater agility.

Change management:

- Know prior structure.
- Avoid incompatibility issues and problems.

Security:

- Decreased risk and greater levels.

Audit:

- Define and enforce formal policies and procedures.
- Asset identification and monitoring.

review





QUESTIONS AND FEEDBACK

