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| Document ID  **ITSW109** | Title  **SOFTWARE RELEASES AND UPDATES** | Print Date  **mm/dd/yyyy** |
| Revision  **0.0** | Prepared By  **Preparer’s Name / Title** | Date Prepared  **mm/dd/yyyy** |
| Effective Date  **mm/dd/yyyy** | Reviewed By  **Reviewer’s Name / Title** | Date Reviewed  **mm/dd/yyyy** |
|  | Approved By  **Final Approver’s Name / Title** | Date Approved  **mm/dd/yyyy** |

**Policy:** All releases of Company software, including updates, shall be controlled to ensure correct, up-to-date versioning and configuration.

**Purpose:** To maintain consistency and quality of software products throughout all releases and updates.

**Scope:** All Company designed and developed software products and updates.

**Responsibilities:**

The Product Manager decides how many versions of a product the company will maintain and support.

Programmers use the software component library to control all changes, comment on the changes made, and indicate version numbers.

The Quality Assurance Manager manages the software library and releases software versions that successfully pass testing.

The Software Designer determines the specific software components that make up the final product release.

**Definition:** Software version – Consists of software components and corresponding documentation. Generally, a version is a checkpoint at which a particular thing or idea varies from its previous state or condition.

Software release – A software release refers to the creation and availability of a new version of a computer software product. Each time a software program is changed, the programmers and company doing the work decide on how to distribute the changes or the changed system or program to those people using it.

**Procedure:**

### 1.0 SOFTWARE RELEASES AND UPDATES - INTRODUCTION

1.1 After a software product has been developed and tested, the Software Designer must determine the specific software components that will make up the final product.

1.2 After a product is released and work on the next update has begun, all project team members must be able to determine which software components make up each version. Control of the software includes:

* Version control;
* Configuration control; and
* Release control.

### 2.0 SOFTWARE VERSION CONTROL STANDARDS

2.1 The company assigns a sequential version number to each release of a software product. For example, the first release of a product typically is called version 1.0. The next version is 1.1 or 1.01 if it is a minor release (containing mostly bug fixes) or 2.0 if it is a major release (containing major enhancements).

2.2 The company maintains a central software component library that contains all software and documentation components. Each component is identified as part of a particular software version. If a component that is included in one version of a product is changed in a subsequent version, the library contains a separate copy of that component for each version.

2.3 Programmers use the software component library to control all changes by:

* Checking in new components;
* Checking out existing components before modifying them; and
* Checking in updated components before they are tested.

2.4 Programmers must provide comments on the changes made and indicate a version number each time they check a component in.

2.5 The Quality Assurance Manager uses the library to flag components that successfully pass testing. A release should include only those components that have passed testing.

### 3.0 SOFTWARE CONFIGURATION CONTROL STANDARDS

3.1 The company should adopt a standard development and installation configuration for the software product. Standards should address:

* Platform integration. Specify the operating systems and networks with which the software is compatible. Standardize the method for configuring the software on each platform.
* Hardware integration. Specify the equipment (such as printers, monitors, and so on) with which the software is compatible. Standardize the method for configuring the software on each piece of equipment. Specify the minimum hardware requirements for the software.
* Software access. Develop standard methods for granting users access to all or parts of the software. Typical devices include:
* Passwords;
* User codes;
* Access rights; and
* Menus.

3.2 The release and installation programs include as much of the standard configuration as possible.

### 4.0 SOFTWARE RELEASE CONTROL STANDARDS

4.1 The company should adopt standards for:

* Creating software releases, providing for two types of software release:

1. A **full release**, which includes all software components required to install a version of the software. To create a full release, copy all software components for the version from the software component library to the release medium.
2. An **update release**, which includes only those components required to update a previous version of the software to the current version. To create an update release, copy to the release medium only those software components that are required to update the oldest supported version to the current version.

* Installing a software release.
* Testing a release. The software designer defines the test plan that the quality assurance analyst uses to test that the release installs without error.

4.2 The process of installing the software should be as automated as possible. Use an installation program that:

* Prompts the user for installation parameters and then automatically installs the software components. When prompting for parameters, the program should use the standard installation configuration as a default.
* Makes the type of installation being performed transparent to the user. Users should use the same steps to install a full release as they do to install an update.
* Creates a table that tracks the names and version numbers of all the company’s products that are installed on the user’s computer.

4.3 The Product Manager must decide how many versions of a product the company will maintain and support. Customers using older versions may not receive support.

4.4 The release process must allow for accumulative updates. For example, a user should be able to update from version 2.0 to 4.0 without installing all of the intermediate updates.

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**Forms:**

* ITSW109-1 SOFTWARE LICENSE AGREEMENT
* ITSW109-2 SOFTWARE LIMITED WARRANTY
* ITSW109-3 SOFTWARE COPYRIGHT NOTICE

**References:**

* 1. **ISO/IEC 12207:2008 – SYSTEMS AND SOFTWARE ENGINEERING – SOFTWARE LIFE CYCLE PROCESSES**
  2. **IEEE/EIA 12207-2008 – SYSTEMS AND SOFTWARE ENGINEERING – SOFTWARE LIFE CYCLE PROCESSES**

This ISO standard describes the major component processes of a complete software life cycle and the high-level relations that govern their interaction. It establishes a software life cycle architecture based on two principles, modularity of processes and responsibility for processes. There are three process classes in the ISO software life cycle: primary (such as acquisition and operations); supporting (such as documentation and configuration management); and organizational (such as infrastructure and training). Each life cycle process is made up of activities, and each activity is further subdivided into tasks. The standard is based on ISO quality management principles.

The IEEE version of 12207 is more closely aligned with the ISO standard than it was in previous versions.

For more information, visit the ISO web site at <http://www.iso.org/iso/catalogue_detail.htm?csnumber=43447> or the IEEE web site at <http://standards.ieee.org/findstds/standard/12207-2008.html>.

**Additional Resources:**

1. U.S. Copyright Office, 101 Independence Avenue S.E., Washington, DC 20559-6000 / Phone: (202) 702-3000 / URL: <http://www.copyright.gov/>

File all copyright applications at the Library of Congress Electronic Copyright Office (eCO) website (<https://eco.copyright.gov/eService_enu/start.swe>).

**Revision History:**

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| **Revision** | **Date** | **Description of Changes** | **Requested By** |
| 0 | mm/dd/yyyy | Initial Release |  |
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