Preservation Action Plan: Software and Code
National Archives and Records Administration (NARA)
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Software and Code

Software comprises a set of instructions that instruct a computer to perform one or more tasks.

There are three general categories:
- System software includes device drivers, operating systems (OSs), scripts, compilers, disk formatters, text editors and utilities helping the computer to operate.
- Programming software is a set of tools to aid developers in writing programs.
- Application software is intended to perform certain tasks. Examples of application software include office suites, gaming applications, database systems and educational software. Application software can be a single piece of code or a collection of programs.

Software used to *create* government records are not considered permanent records. Software or code that is an integral part of a record, such as something required for the functionality of a dataset that is a permanent record, or that was created as part of the work of government, have the potential to be permanent records.

Significant Properties of Software and Code

Behavior and Context are important significant properties. The behavior property refers to information which describes interaction with external stimuli.

The context of the operation of the software is described by the inputs and outputs of the software, and the computing environment and architecture in which the software operates to a desired operating performance. Context also includes provenance and functional description.

Appearance

Name	Definition	Function Description
Rendering	Rendering are those factors which determine the recreation of the "message," which in the case of software is how the software is executed in a manner that approximates its original mode of operation/interaction.	What is required for the software to run/render as closely as possible to the original design/look and feel/function/intent.

Structure

Name	Definition	Function Description
Content	Uncompiled code, compiled binaries, and accompanying documentation.	The components of the software
Software Composition/ Component Structure	Documentation of the names and number of components and files; relationships and structure; test cases/suite; compiler; build instructions/scripts; and installers.	Everything needed to physically reconstruct the software object.

Behavior

Name	Definition	Function Description
Functional Description	Purpose, release notes, variant notes, manual(s), tutorial(s).	Documentation of the functional behavior of the software to inputs and outputs.
User Interaction	The user interaction model.	Model for the human-computer interactions, such as complex screen layouts, non-standard displays (such as touchscreens), audio, non-keyboard controllers, haptic interaction; anything

		outside the standard monitor-keyboard-pointer arrangement.

Context

Name	Definition	Function Description
Functional Description	Input specifications, output specifications, error handling documentation, API documentation.	
Provenance and Ownership	Package name, version identifier and license terms. Name of licensee if appropriate. License key value if needed. Name of creator (if created for US government).	
Software Environment	Required environment for the software to operate, including platform; operating system; external software dependencies; required settings; and hardware, graphics card, and controller device dependencies.	
Software Architecture	Documentation of the software architecture, programming language, and internal software package dependencies.	
Operating Performance	Specification/required performance for CPU processor; minimum required and typical memory usage for the CPU and on disk; specification/required performance for peripherals, including monitor and graphics card, audio card, etc.	

Current NARA Transfer Guidance for Software and Code
[Bulletin 2014-04](#)

No current guidance. Software should be transferred in its native/original format, but should be provided as both raw source code and a compiled runtime version, if it exists. It should also be accompanied by release notes, readme files, and user/administrative documentation, if they exist.

Current NARA Format(s) for Public Access and Reference for Software and Code

Formats for Public Access are those made available online through the National Archives Catalog. Formats for Reference are defined as those made available to researchers upon direct requests for digital copies.

Formats Available for Public Access: Content created or delivered for public access in the Catalog is delivered primarily in the following file formats: PDF (Textual and Image), JPEG (Textual and Image), MP3 (Audio), and MP4 (Audio/Video) and ASCII (Datasets). Other file formats may be present depending on when they were added to the Catalog.

Format(s) Available for Reference: When available, records may be delivered to researchers in the formats in which they are preserved.