

# Preservation Action Plan: Software and Code

## National Archives and Records Administration (NARA)

Plan Date: 202503

Template: 202105

### Software and Code

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

There are three general categories:

- System software includes device drivers, operating systems (OS), 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.

### Significant Properties of Software and Code

Behavior and Context are important categories of significant properties. Behavior 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	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.	Components that preserve the ability to accurately render software as closely as possible to the original. can include operating system details.

### Structure

Name	Definition	Function Description
------	------------	----------------------

Content	The components of the software	It is important to preserve any uncompiled code, compiled binaries, and accompanying documentation.
Software Composition/ Component Structure	Information needed to physically reconstruct the software object.	Structural information may include documentation of the names and number of components and files; relationships and structure; test cases/suite; compiler; build instructions/scripts; and installers.

## Behavior

Name	Definition	Function Description
Functional Description	Documentation of the functional behavior of the software to inputs and outputs.	Documentation may include details about the software's original purpose, release notes, variant notes, manual(s), tutorial(s).
User Interaction	The human-computer interaction (HCI) model.	HCI model information may include configuration components that render 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	Details about how the software functions and its intended use.	Descriptive details may include input specifications, output specifications, error handling documentation, API documentation.
Provenance and Ownership	Details about the originators of the software and underlying dependencies.	Information about provenance and ownership may be found in the package name, version identifier, license terms and name of creator (if

		created for US government). The name of the licensee and/or license key value may also be required.
Software Environment	Required environment for the software to operate. Specification/required performance for CPU processor; minimum required and typical memory usage for the CPU and on disk; specification/required performance for peripherals.	A software environment may include 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.	

### **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: EXE (Binary and Executable program) or 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.