



GLENN POLICY DIRECTIVE

GLPD 7150.2

Effective Date: July 19, 2016

Expiration Date: July 19, 2026

COMPLIANCE IS MANDATORY

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Responsible Organization: L/Research and Engineering Directorate

**Subject: GRC Software Engineering Requirements – Revalidated
w/Change 2 (5/18/2021)**

1. POLICY

It is NASA policy to establish and implement engineering requirements for software acquisition, development, maintenance, operations, management, and retirement for all NASA investment areas. This Glenn Policy Directive (GLPD) describes what is required by Glenn Research Center (GRC) management and specifies responsibilities and delegations of authority for carrying out the requirements of NASA Procedural Requirements (NPR) 7150.2, NASA Software Engineering Requirements.

2. APPLICABILITY

- a. This directive is applicable to all organizations at GRC Lewis Field and Neil A. Armstrong Test Facility, including contractors, grant recipients, and other parties to the extent specified in the associated contracts, grants, or agreements. This directive applies to software acquisition, development, maintenance, operations, management, retirement, and assurance activities as defined applicable in NPR 7150.2.
- b. A "project" in the context of this GLPD is defined as any effort that includes software developed, acquired, or maintained by NASA GRC. These efforts may range from NPR 7120.5, NPR 7120.7, or NPR 7120.8 defined programs/projects to subprojects managed through other NASA Centers. The "project manager" in the context of this GLPD means the roles and responsibilities of the individual assigned to lead the project. Those roles and responsibilities may be further delegated within the organization based on the scope and scale of the project.
- c. This directive is applicable to projects developed or revised after the effective date of this GLPD.
- d. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term "shall." The terms "may" denotes discretionary privilege or permission, "can" denotes statements of possibility or capability, "should" denotes a good practice and is recommended, but not required, "will" denotes expected outcome, and "are/is" denotes descriptive material.

- e. In this directive, all document citations are assumed to be the latest version, unless otherwise noted.

3. AUTHORITY

- a. NASA Policy Directive (NPD) 7120.4, NASA Engineering and Program/Project Management Policy
- b. NPR 7150.2, NASA Software Engineering Requirements

4. APPLICABLE DOCUMENTS AND FORMS

- a. NPR 7120.5, NASA Space Flight Program and Project Management Requirements
- b. NPR 7120.7, NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements
- c. NPR 7120.8, NASA Research and Technology Program and Project Management Requirements
- d. Glenn Procedure (GLP) 1120.1, NASA John H. Glenn Research Center Technical Authority Implementation Plan
- e. Software@Glenn Web site: <https://nasa.sharepoint.com/teams/grcsepg/SitePages/Software-at-Glenn.aspx>

5. RESPONSIBILITY

a. Software efforts performed by GRC for other NASA Centers will use the policies and procedures of the lead center. If the lead center does not require specific policies or procedures, this policy will be utilized or tailored as deemed appropriate, provided the tailoring is approved by the Chief of the GRC Flight Software Branch as delegated in GLP 1120.1. If the lead center policies or procedures conflict with those of GRC, the lead center policies will take precedence.

b. Project managers shall comply with requirements in NPR 7150.2 according to the appropriate class of software. The GRC Software Engineering Process Group (SEPG) has developed processes and templates to assist projects in achieving compliance with both NPR 7150.2 and Capability Maturity Model® Integration (CMMI®) Maturity Level 2 practices. The Software@Glenn Web site contains guidance and resources for software projects, including access to all SEPG processes and templates, as well as example documents, tools, training, and other references. The project manager should use the SEPG processes and templates and should tailor process steps or template content as needed.

(1) The project manager shall formally document the NPR 7150.2 tailoring.

(2) If the project manager chooses not to use the SEPG provided processes, the project manager shall formally document the processes being followed.

c. Projects shall obtain formal approval from the associated Software Engineering Technical Authority, as designated in section 6 of this policy, for the NPR 7150.2 tailoring compliance matrix.

d. All GRC Software Technical Authorities shall execute "Technical Authorities" duties and requirements as specified in NPR 7150.2 for projects within their respective delegations, including Software Engineering SWE-126, SWE-150, and SWE-153. The GRC designated Software Technical Authorities are responsible for assessing project compliance matrices, tailoring, waivers, and deviations of NPR 7150.2 requirements.

6. DELEGATION OF AUTHORITY

a. The following NPR 7150.2 "Center Director shall ..." requirements are delegated to the Chief of the Flight Software Branch (Code LSS) for implementation and execution at GRC: SWE-003, SWE-005, SWE-006, SWE-091, SWE-092, SWE-095, SWE-101, SWE-126, SWE-140, SWE 142, SWE-144, SWE-214, SWE-215, SWE-216, SWE-217.

b. Software Engineering Technical Authority delegations for NPR 7150.2 are defined in GLP 1120.1. These delegations are assigned to specific GRC organizational chiefs based on the type of software involved. Each designated Software Engineering Technical Authority is delegated authority for approving tailoring (waivers/deviations) for NPR 7150.2 requirements that have been delegated to the "Center Level," as indicated in the "Technical Authority" column of NPR 7150.2 Appendix C. This delegation satisfies the NPR 7150.2 SWE-122 requirement for tailoring of Center-level requirements to be approved by civil servant Engineering Technical Authorities.

c. The Chief of the GRC Flight Software Branch is delegated authority per GLP 1120.1 to resolve interpretations on roles, responsibilities, and delegations of authority with respect to implementation and execution of NPR 7150.2 at GRC.

7. MEASUREMENT/VERIFICATION

The GRC's Software Assurance Program will measure compliance with this directive through audits and the Office of Chief Engineer Surveys.

8. CANCELLATION

This document cancels GLPD 7150.2, GRC Software Engineering Requirements w/Change 1 (07/08/2020).

Revalidated by

LAURENCE SIVIC *Digitally signed by LAURENCE SIVIC*
Date: 2021.05.18 10:42:27 -04'00'

Laurence A. Sivic
Associate Director

Original signed by Janet L. Watkins on July 19, 2016

**Attachment A: Acronyms
Change History**

Distribution: BMS Library

Appendix A. Acronyms

BMS	Business Management System
CMMI	Capability Maturity Model® Integration
GLPD	Glenn Policy Directive
GLP	Glenn Procedure
GLPR	Glenn Procedural Requirements
GRC	Glenn Research Center
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
SEPG	Software Engineering Process Group
SWE	Software Engineering

Change History

Change	Date	Description/Comments
Basic	06/19/2016	Baseline. This GLPD replaces GLPR 7150.1A.
Change 1	07/08/2020	Administrative Changes: 4.d Update Referenced Technical Authority Implementation Plan numbering scheme 6.a Updated SWE citations per NPR 7150.2
Change 2	5/18/2021	Revalidate with Administrative Changes: 2.a Updated Plum Brook Station to Neil A. Armstrong Test Facility 4.e Updated the Software@Glenn Web site 5.a Changed Chief Engineer to Flight Software Branch Chief 5.d Removed SWE-145, no longer exists in NPR7150.2C 6.c Changed Chief Engineer to Flight Software Branch Chief Updated to meet requirements of NPR 1400.1 and GLPR 1410.1