



Vera C. Rubin Observatory
Data Management

CUI Rubin Observatory Data Security Standards Response

William O'Mullane, Russ Alberry, Yusra AlSayyad, Eric Belm, Andy Clements, Richard Dubois, Joshua Hoblitt, Cristi'an Silva, Ian Sullivan, Kian-Tat Lim

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Abstract

This is a response to the Controlled Unclassified Information (CUI) document from the agencies.

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CUI Rubin Observatory Data Security Standards Response

1 Introduction

The agencies have provided a set of requirements for security which we assess here and provide initial cost impact analysis for.

The summary requirements (from the start of the document) are :

1. Encrypt data using strong, approved encryption standard, following NIST 800-171 standard for CUI at non-federal organizations.
2. Install firewalls to prevent unauthorized network access, guided by NIST 800-171 standard for CUI at non-federal organizations.
3. Delay public release of focal plane scientific data for at least 80 hours following the observation, with Alert Vetting System allowed to withhold up to 4 images per month for up to 10 days with need only for notification to be given to NSF/DOE. Delay public release of engineering and commissioning imaging data for at least 30 days.
4. Eliminate artificial Earth-orbiting satellites from prompt alerts by (a) automatically alerting only on streaks corresponding to motions slower than 30 deg/day relative to sidereal tracking, and (b) alerting on longer (faster) streaks only after the Alert Vetting System has determined that the streak does not correspond to an artificial satellite.
5. Perform Earth-orbiting satellite processing in a separate facility operated by a “trusted broker” that has access to appropriate satellite catalogs.
6. Publish nominal collection schedules for regular sky survey 24 hours in advance.
7. Request and receive advance approval of large sky regions for use without sidereal tracking prior to initial on-sky test observations; then, approved regions (for use without sidereal tracking) will be supplied to the Rubin Observatory operations team in advance of their use.

Section 3 provides a subsection response for each of these bullets.

2 Cost Summary

3 Response to the requirements

There is an implication that we should follow NIST.SP.800-171, as for any standard that is open to some interpretation.

NIST-020 Rubin project shall provide a document showing how it intends to comply with NIST 800-171.

3.1 Encrypt Data

3.2 Install Firewalls

3.3 Delay public release

3.4 Eliminate earth orbiting satellites

3.5 Perform earth orbiting satellite processing in separate facility

3.6 Publish nominal schedule

3.7 Request approval for non sidereal tracking

4 Conclusion

A References

[**NIST.SP.800-171**], ROSS, R., VISCUSO, P., GUISSANIE, G., DEMPSEY, K., RIDDLE, M., 2020, Special publication 800-171, protecting controlled unclassified information in nonfederal

systems and organizations, URL <https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-171r2.pdf>

B Acronyms

Acronym	Description
CUI	Controlled Unclassified Information
DM	Data Management
DMTN	DM Technical Note
DOE	Department of Energy
NIST	National Institute of Standards and Technology (USA)
NSF	National Science Foundation
SP	Story Point
deg	degree; unit of angle