Assessment Information

[CoreTrustSeal Requirements 2020–2023](#)

Repository:	LAADS DAAC
Website:	https://ladsweb.modaps.eosdis.nasa.gov/
Certification period:	05 September 2023 - 04 September 2026
Requirements version:	CoreTrustSeal Requirements 2023-2025

This repository is owned by: **Level-1 Atmosphere Archive & Distribution System Distributed Active Archive Center**

CORE TRUSTWORTHY DATA REPOSITORIES REQUIREMENTS

Background Information

Re3data Identifier

Please fill you Re3data identifier from the website: https://www.re3data.org/

Compliance level:

In Progress: the repository is in the implementation phase - 0

Response:

r3d100010503

Links:

Reviews

Reviewer 1:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Reviewer 2:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Accept.

Repository type

Please select your repository type.

Compliance level:

In Progress: the repository is in the implementation phase - 0

Response:

- Specialist repository

Links:

Reviews

Reviewer 1:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Reviewer 2:

LAADS DAAC

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Accept.

Overview

Provide a short overview of key characteristics of the repository, reflecting the repository type selected. This should include information about the scope and size of data collections, data types and formats. Further contextual information may also be added.

Compliance level:

In Progress: the repository is in the implementation phase - 0

Response:

The Level-1 Atmosphere Archive & Distribution System (LAADS) Distributed Active Archive Center (DAAC) is a specialized, domain-specific data center for Level-1 calibrated radiance and geolocation products and atmospheric science that distributes large volumes of Level-1 as well as higher- level atmospheric science data products primarily from the NASA Earth Observing System's (EOS) Terra and Aqua Moderate Resolution Imaging Spectroradiometer (MODIS), and NASA-NOAA Suomi National Polar-orbiting Partnership's (SNPP) as well as Joint Polar Satellite System's (JPSS) Visible Infrared Imaging Radiometer Suite (VIIRS) missions. It further serves as a secondary archive for VIIRS and MODIS land products as well. The LAADS DAAC also serves a limited set of the European Space Agency's (ESA) Envisat Medium Resolution Imaging Spectrometer (MERIS) and Copernicus-Sentinel-3 Sea and Land Surface Temperature Radiometer (SLSTR) and Ocean and Land Colour Instrument (OLCI) collections.

The LAADS DAAC hosts and serves an archive volume of over 20 PB that comprise over 2,100 unique data products. A majority of the products served are in HDF4, HDF5, and netCDF4 formats. The last calendar year ending in September 2022 had around 158,000 unique LAADS data users.

Links:

Reviews

Reviewer 1:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Reviewer 2:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Accept.

Designated Community

A clear definition of the Designated Community demonstrates that the applicant understands the scope, knowledge base, and methodologies—including preferred software/formats—of the group(s) of users at whom the curation and preservation measures are primarily targeted. The definition should be specific so that reviewers can assess whether that community is being served in the responses to other requirements.

Compliance level:

In Progress: the repository is in the implementation phase - 0

Response:

LAADS DAAC

The LAADS DAAC primarily serves two disciplinary domains: MODIS and VIIRS Level-1 Calibrated Radiances and Geolocation, and Atmospheric science. Level-1 datasets comprise the domain-agnostic foundational inputs required to generate all higher-level data products. Level-1 products are used by other data producers besides a variety of research and applied science users.

The LAADS DAAC's atmospheric science portfolio includes a range of science data products and services. A broad categorization of the LAADS atmosphere products include Aerosol (including dark-target aerosol and deep-blue aerosol), Water Vapor, Cloud (including cloud-top properties, cloud optical properties, cloud particle phase, cloud fraction and Cirrus reflectance), and Atmospheric Profiles. MODIS continuity products include those produced by a commonly applicable algorithm that provides a continuity of approach between MODIS and VIIRS by leveraging only those spectral channels that are common to both instruments.

In addition, the LAADS DAAC serves as a secondary backup archive and distributor for products used by the terrestrial research and applications community, augmenting NASA's Land Processes DAAC (in Sioux Falls, SD).

For additional information on Level-1 products, check the following site:
https://ladsweb.modaps.eosdis.nasa.gov/#level0-level1

For additional information on atmosphere products, check the following sites:
https://ladsweb.modaps.eosdis.nasa.gov/#atmosphere
https://modis-atmos.gsfc.nasa.gov/

The following numbers provide a snapshot of the key metrics for the LAADS DAAC (last calendar year ending Sep. 2022):

Number of Unique Datasets in LAADS DAAC: 2,104
Total archive volume: 20.2 PB
Average archive growth: 3.3 PB/year
Number of distinct LAADS data users: 158,000 (calendar year ending Sep. 2022)
Number of LAADS DAAC site visits: 2.11 million (calendar year ending Sep. 2022)
Number of data products distributed: 678 million (calendar year ending Sep. 2022)
Average volume distributed: 18.2 PB (calendar year ending Sep. 2022)

Links:

Reviews

Reviewer 1:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Reviewer 2:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Accept.

Levels of Curation

Please fill you level(s) of curation.

Compliance level:

In Progress: the repository is in the implementation phase - 0

Response:

- C. Enhanced curation – e.g. conversion to new formats during ingest, enhancement of documentation and metadata

Links:

Reviews

Reviewer 1:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Reviewer 2:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Accept.

Levels of Curation - explanation

Please add the description for your Level(s) of Curation.

Compliance level:

In Progress: the repository is in the implementation phase - 0

Response:

Enhanced data-level curation at the LAADS DAAC:
The LAADS DAAC is co-located with the MODIS Adaptive Processing System (MODAPS) Science Investigator-led Processing System (SIPS) and Land SIPS, both of which are dedicated data production systems for MODIS and VIIRS data products, respectively. Data and metadata quality for all the MODAPS SIPS and Land SIPS-produced products (at the file- and pixel-levels) are evaluated by a dedicated internal group called LDOPE (Land Data Operational Product Evaluation). Data product quality is also vetted in coordination with each science product's Principal Investigator. Further details regarding LDOPE's activities are provided in the Appraisal (R08) section below.

Links:

Reviews

Reviewer 1:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Reviewer 2:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Accept.

Cooperation and outsourcing to third parties, partners and host organisations

Please describe any cooperation and outsourcing to third parties, partners and host organisations.

Compliance level:

In Progress: the repository is in the implementation phase - 0

LAADS DAAC

Response:

The LAADS DAAC's insource partners include the following entities:

MODIS Adaptive Processing SIPS (https://www.earthdata.nasa.gov/eosdis/sips/modaps-sips): The primary MODIS product generation group (Level-1, Land and Atmosphere products) that is co-located with the LAADS DAAC.

Land SIPS (https://www.earthdata.nasa.gov/eosdis/sips/land-sips): The primary VIIRS product generation group (Level-1 and Land products) that is co-located with the LAADS DAAC.

Atmosphere SIPS (https://www.earthdata.nasa.gov/eosdis/sips/atmosphere-sips): The primary VIIRS atmosphere product generation group that is located in the Space Science Engineering Center, University of Wisconsin, Madison.

MODIS Characterization Support Team (https://mcst.gsfc.nasa.gov/): The group primarily responsible for evaluating the MODIS instrument's radiometric calibration behavior and generating the calibration look-up tables used to generate the MODIS Level-1 products.

VIIRS Characterization Support Team: The group primarily responsible for evaluating the VIIRS instrument's radiometric calibration behavior and generating calibration look-up tables used to generate the VIIRS Level-1 products.

MODIS Science Team (https://modis.gsfc.nasa.gov/sci_team/): A competitively selected, NASA-funded team of scientists who represent four MODIS-specific discipline groups: Atmosphere, Land, Ocean, and Calibration.

VIIRS Science Team: A competitively selected, NASA-funded team of scientists who represent four VIIRS-specific discipline groups: Atmosphere, Land, Ocean, and Calibration.
VIIRS Land: https://viirsland.gsfc.nasa.gov
VIIRS Atmosphere:
https://atmosphere-imager.gsfc.nasa.gov/
https://www.ssec.wisc.edu/suomi_npp/Atmosphere_Team/

University of Maryland, College Park (https://firms.modaps.eosdis.nasa.gov/): The Fire Information for Resource Management System (FIRMS) project distributes Near-Real-Time (NRT) active fire data from the MODIS instrument aboard the Aqua and Terra platforms, and the VIIRS instrument aboard S-NPP and NOAA20 platforms. Globally, these data are available within 3 hours of satellite observation, but for the US and Canada, active fire detections are available in real-time. The FIRMS project is a collaboration between the University of Maryland, College Park, NASA Applied Science Program, and the United Nations Food & Agriculture Organization. The LAADS DAAC hosts the infrastructure to support the FIRMS project.

Links:

Reviews

Reviewer 1:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Reviewer 2:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Accept.

Applicants renewing their CoreTrustSeal certification: summary of significant changes since last application.

Please fill this field when you are renewing your CoreTrustSeal Certification.
This field can be marked with not applicable (N.A.) if you are acquiring a CoreTrustSeal certificate for the first time.

Compliance level:

In Progress: the repository is in the implementation phase - 0

Response:

Since the last application, the following activities represent a summary of the significant changes in the LAADS DAAC:

LAADS DAAC

LAADS DAAC User Working Group (UWG): The LAADS DAAC had empaneled a 12-member UWG around the same time that the last updated application was submitted in May 2019. This UWG serves as an objective external body of experts whose main responsibility is to provide thoughts and suggestions on a diverse array of subjects that are deemed instrumental to define, develop, and operate the LAADS DAAC as a critical provider of Level-1, atmospheric science, and related data products. The UWG acts in a surrogate capacity to represent the requirements, concerns, and issues of the Level-1, atmospheric science applications and research user communities. Since our first in-person meeting in May 2019, we have met virtually during 2020 and 2021, and have held our fourth meeting, in-person, in November 2022.

Product portfolio: Our Level-1 portfolio of calibrated top-of-atmosphere radiances and geolocation products has expanded to include both the SNPP VIIRS and NOAA20 VIIRS sources.

Our atmosphere products portfolio has grown to include three additional groups:

1) VIIRS and Cross-track Infrared Sounder (CrIS) fusion products that leverage the VIIRS and CrIS instruments' assets to create narrowband radiances based on the Aqua MODIS' spectral response functions.

2) MODIS continuity products include those produced by a commonly applicable algorithm designed to provide a continuity of approach between MODIS and VIIRS by leveraging only those spectral channels that are common to both instruments.

3) The Level-3 Cloud Feedback Model Intercomparison Project (CFMIP) Observation Simulator Package (COSP) products use both Aqua and Terra MODIS inputs, and are designed to facilitate climate scientists as they compare models and observations by producing synthetic MODIS observations from climate model integrations.

In addition, the LAADS DAAC is also preparing to on-board a new aerosol product suite derived from a NASA MEaSUREs (Making Earth System Data Records for Use in Research Environments) project that leverages both Geostationary Earth Observation (GEO) and Low-Earth Observation (LEO) sources. They include Level-2 dark-target aerosol products that are derived from the Advanced Baseline Imager (ABI) that are part of the payload on NOAA's Geostationary Operational Environmental Satellites – GOES-16 and GOES-17, and the Advanced Himawari Imager (AHI) on Japan's Himawari series. To maintain consistent products from their LEO sources, the project also provides retrievals from Terra- and Aqua-MODIS as well as SNPP-based VIIRS.

LAADS Webpage: The LAADS DAAC's webpage has constantly evolved to incorporate and address several requirements and also suggestions from our UWG. They include enhancements and additions to all major sections of the website.

LAADS DAAC Earthdata Cloud Migration: The LAADS DAAC has actively been involved in migrating its data archive to the NASA Earthdata Cloud since the fall of 2022, and is expected to continue over the next two years (CY2023 and CY 2024). User access to data products and services will continue on a hybrid basis, i.e., both on-premises and via the Cloud over the next couple of years.

EOS Mission Content Preservation: In anticipation of the potential end-of-mission for the MODIS instruments onboard the Terra and Aqua platforms in the next couple of years, and VIIRS instrument onboard the SNPP platform, the LAADS DAAC is actively involved in planning for a set of content preservation activities. They involve both long-term preservation and providing access to eight different information categories of MODIS-related artifacts: Instrument and Platform Descriptions, Science Data Products, Science Data Product Documentation, Mission Data Calibration, Science Data Product Software, Science Data Product Algorithm – Ancillary Data Inputs, Science Data Product Validation, and Science Data Software Tools. The LAADS DAAC is also pursuing plans to generate oral histories, via recorded interviews, from a handful of people who were instrumental in the early stages of planning, launching, and implementing the Terra and Aqua missions specific to the two MODIS instruments. This will include representatives from both science and engineering knowledge domains.

Long-Term Data Record (LTDR): The LTDR project was originally funded through a NASA REASoN (Research, Education and Applications Solution Network) program in 2002, and later via a MEaSUREs (Making Earth Science Data Records for Use in Research Environments) project in 2010. Currently, LTDR is being funded by a new MEaSUREs 2017 project besides the Climate Data Record Program from the NOAA National Climatic Data Center. This project produces and distributes a global land surface climate data record (CDR) that is critically important to studying global climate change.

The LTDR project is unique in that it serves as a bridge that connects data derived from the NOAA Advanced Very High Resolution Radiometer (AVHRR), ESA/EUMETSAT's (European Organisation for the Exploitation of Meteorological Satellites) Metop/AVHRR, the EOS Moderate resolution Imaging Spectroradiometer (MODIS), the Suomi National Polar-orbiting Partnership (SNPP) Visible Infrared Imaging Radiometer Suite (VIIRS), and Joint Polar Satellite System (JPSS) VIIRS missions. Starting from the 1980s decade and continuing with the present, such a wide temporal extent helps offer data products that span four decades.

Other Relevant Information

We do not directly monitor how our products are being used nor do we have a mandate to evaluate the impact of the products' uses. We get anecdotal evidence, occasionally, from users who write to acknowledge their use of specific data products in either their research or applications. We are planning to build a capability to leverage aspects of product use from published citation information, and aspects of impact from scientometrics analyses in the future.

Based on the queries received from the user community and interactions with the MODIS and VIIRS Science Teams, we have a general sense that the LAADS DAAC's products are used by a global user community. Also, given the nature of the global biogeophysical measurements provided by certain LAADS DAAC product collections, which span over a two-decade time-series, they remain relevant and useful to a wide global user community. The LAADS DAAC is one of the twelve distributed data centers that is coordinated under the NASA ESDIS Project, which is a Network Member of WDS.

Links:

Reviews

Reviewer 1:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Your description by signification changes: the Long-Term Data Record (LTDR). But it does not appear later as a change in any requirement. Short explanation please.

General question: Why are all points of "Background Information" in "in Progress" phase? This is not clear for me.

Reviewer 2:

Compliance level:

In Progress: the repository is in the implementation phase - 0

Comments:

Accept.

Organisational Infrastructure

R1 Mission & Scope (R01)

R01. The repository has an explicit mission to provide access to and preserve digital objects.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

As part of the larger EOSDIS ecosystem (https://earthdata.nasa.gov/about/daacs), the LAADS DAAC's mission is to serve as the steward for satellite-derived atmospheric science data on a global scale. It provides different levels of standard geophysical data products to address critical Earth system science investigations that have been vetted, quality-checked, and validated via established protocols and processes. As part of serving a varied, global user community, the LAADS DAAC provides mechanisms, tools, and services to order, acquire, interact with, understand, and use its atmospheric science product portfolio. Earth system science needs and requirements often cross disciplinary boundaries, and LAADS DAAC is well-positioned to serve users in such unique situations. For additional details, check the following URL: https://ladsweb.modaps.eosdis.nasa.gov/about/

As a NASA EOSDIS DAAC, LAADS is governed by the "Requirements for Archiving, Distribution and User Services in EOS Data and Information System (EOSDIS)" available via the following URL: https://cdn.earthdata.nasa.gov/conduit/upload/11349/423-10-69_ADURD_RevB.pdf

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

R2 Rights Management (R02)

R02. The repository maintains all applicable rights and monitors compliance.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The LAADS DAAC conforms to NASA's Earth Science Data and Information Policy and provides free and open access to its scientific data collections. The LAADS DAAC works directly with data providers throughout the data curation process to ensure that data contents are documented and preserved with the distribution package and appropriate credit is provided to the authors/creators of the data. Please consult the following sites for more information:

NASA Data and Information Policy: https://earthdata.nasa.gov/earth-science-data-systems-program/policies/data-information-policy

NASA Data Rights and related Issues:
https://www.earthdata.nasa.gov/engage/open-data-services-and-software/data-information-policy/data-rights-and-related-issues

The LAADS DAAC requests users to include data citations in their publications, and provides specific citation instructions:
https://modaps.modaps.eosdis.nasa.gov/services/faq/LAADS_Data-Use_Citation_Policies.pdf

Links:

- [NASA Data & Information Policy](#)
- [NASA Data Rights and related issues](#)
- [LAADS DAAC's Citation Instructions](#)

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

R3 Continuity of Service (R03)

R03. The Repository has a plan to ensure ongoing access to and preservation of its data and metadata.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The long-term stability of the LAADS DAAC depends on funding from NASA, our sponsoring agency. NASA has clearly stated that it believes that long-term stewardship of NASA-collected remote sensing and field campaign data are essential. NASA's ESDIS Project, a Network Member of WDS, is responsible for funding and managing all the NASA Earth Science DAACs. The ESDIS Project is in turn funded by the Earth Science Data Systems Program at NASA Headquarters. As indicated in the ESDIS Project Plan, the functional and performance requirements for the ESDIS Project include the following:

• Provide active archive and distribution services for data until a peer review for science merit removes the need to maintain active status.

• Secure and preserve the unique (irreplaceable) and essential (designated for archive in perpetuity) data and information until such time as they are provided to permanent archival agencies.

Each DAAC is governed by the "Requirements for Archiving, Distribution and User Services in EOS Data and Information System (EOSDIS)" available via the following URL: https://cdn.earthdata.nasa.gov/conduit/upload/11349/423-10-69_ADURD_RevB.pdf

This document states: "Requirements to archive and distribute the data for a given mission extend as long as required by the ESDIS Project. This duration is dependent on the active use of the data by NASA-funded investigators and the provisions of long-term archiving as determined by ESDIS. [DAACs] will need to ensure that the data are transitioned to the appropriate Long-Term Archive when NASA notifies the [DAAC] that it is appropriate to do so." In the unlikely event that the NASA-EOSDIS LAADS DAAC is relocated to a different host institution, the LAADS DAAC will follow NASA procedures for activity transition.

In light of the planned decommissioning of the Terra and Aqua missions that is expected to happen in the next few years, the LAADS DAAC is actively engaged in planning for content preservation of all its MODIS-related data collections and artifacts. See the "EOS Mission Content Preservation" description in the Summary of Significant Changes Since Last Application above for further details.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

R4 Legal & Ethical (R04)

R04. The repository ensures to the extent possible that data and metadata are created, curated, preserved, accessed and used in compliance with legal and ethical norms.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The LAADS DAAC does not archive any data that requires addressing explicit disclosure risk. All data products are freely available at no monetary cost, and are open to the public. The European Space Agency products (for instance, Envisat/MERIS, and Copernicus/Sentinel/SLSTR and OLCI) require users to sign a "Terms & Conditions" agreement that specifically pertain to accepting full responsibility for their use, publishing results based on such use, and data source attribution to ESA. The data archived at the LAADS DAAC pertain to information about Earth and its environment. The LAADS DAAC staff are well-trained to handle such data, and undergo both NASA-mandated and/or contractor-mandated training on an annual basis. Personal and sensitive information are not published or stored in the DAAC archive system. Any anomalous behavior from the user community is handled on a discrete basis.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

R5 Governance & Resources (R05)

R05. The repository has adequate funding and sufficient numbers of staff managed through a clear system of governance to effectively carry out the mission.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The LAADS DAAC is housed within NASA's Goddard Space Flight Center in Greenbelt, Maryland, and is funded through a five-year contract by the NASA ESDIS Project. Average spending per year is approximately $2.85M. Approximately 9.0 (work-year equivalent) staff members support the LAADS DAAC's activities. The DAAC is sufficiently funded to carry out its mission including support for staffing, IT resources, as well as any necessary training and travel.

The LAADS DAAC, located within the Terrestrial Information Systems Laboratory at NASA's GSFC, is run by a diverse array of professionals that includes earth, atmospheric, and image processing/GIS scientists, information scientists, systems engineers and architects, data systems and operations engineers/technicians, software engineers, Web developers, data quality assurance technicians, communications and outreach specialists, and user services professionals. Given its role as an atmosphere DAAC, LAADS personnel also frequently work with and consult domain scientists from the Climate and Radiation Laboratory, which is one of the twelve NASA Earth science laboratories in GSFC. The senior leadership includes the LAADS DAAC manager, deputy DAAC manager, and the DAAC project scientist.

The staff members are well-qualified and have an average of over ten years' experience in their respective fields. Many of them are members of the AGU (American Geophysical Union), ASPRS (American Society for Photogrammetry and Remote Sensing), IEEE's (Institute of Electrical and Electronics Engineers) Geoscience and Remote Sensing Society, SPIE (Society of Photographic Instrumentation Engineers), and/or ACM (Association for Computing Machinery). They remain active in annual conferences to present papers/posters highlighting their work, and network and share with their community peers as well.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

R6 Expertise & Guidance (R06)

R06. The repository adopts mechanisms to secure ongoing expertise, guidance and feedback-either in-house, or external.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The LAADS DAAC established its User Working Group (UWG) in 2019, which contains external science advisors who range from domain-specific applications and research scientists as well as experts proficient in data and information systems, and science communications. This group meets in person annually (besides quarterly telecons) and provides continuing guidance to the DAAC specific to its data collections and all related aspects that are critical to serve the larger scientific community's applications and research needs. In addition, the LAADS DAAC receives less formal input from a variety of sources including members of the MODIS and VIIRS science teams, as well as experts from NASA, other U.S. Federal agencies, and several universities that work closely with NASA.

The LAADS DAAC maintains a User Services Office (USO) whose personnel directly interact with the user community served by the DAAC. The USO is staffed with people skilled in both domain-specific branches of Earth science, and various aspects of handling and interpreting geospatial data collections specific to the LAADS DAAC.

The LAADS DAAC participates annually in the American Customer Satisfaction Index (ACSI) survey of users of the NASA EOSDIS DAACs. This survey has been conducted annually since 2004 by the CFI Group (https://cfigroup.com/), an external independent organization. The results from the survey provide a numerical index of customer satisfaction as well as detailed comments and suggestions to improve existing systems and services. These inputs are assessed regularly by the NASA ESDIS Project and the DAACs, and changes implemented as appropriate.

The LAADS DAAC regularly partners with other DAACs on data management- and data services-related activities. It also participates in expert communities such as the NASA's Earth Science Data Systems Working Groups (ESDSWG) and the Earth Science Information Partners (ESIP) Federation. The ESDSWG is a NASA organization that focuses on the exploration and development of recommendations derived from pertinent community insights of NASA's heterogeneous and distributed Earth science data systems. The LAADS staff have been involved in and have contributed to two recent working groups, one on technology infusion, and the other on FAIR (Findability, Accessibility, Interoperability, and Reusability) data principles.

The ESIP Federation is a networked community that brings together science, data, and information technology practitioners from over 120 organizations including U.S. federal agencies, universities, and commercial entities. The LAADS DAAC actively contributes to the mission of these organizations and leverages appropriate new technologies deemed relevant through such partnerships.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

Digital Object Management

R7 Provenance and authenticity (R07)

R07. The repository guarantees the authenticity of the digital objects and provides provenance information.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

As indicated earlier in the Comments to the Background Information/Context section, the LAADS DAAC is a major data producer, receiver, and distributor (that is also a secondary distributor for two other domain-specific archives). Co-located with LAADS and sharing many personnel are two NASA Science Investigator-led Processing Systems (SIPS), the MODIS Adaptive Processing System (MODAPS) (https://modaps.modaps.eosdis.nasa.gov/) and VIIRS Land SIPS, that produce Level-1 and higher-level products derived from the MODIS and VIIRS instruments, respectively. Therefore, it has in place a number of quality-specific and standards-compliant protocols that cover various aspects of its data collections' lifecycle. Following are brief descriptions of these aspects:

Data file integrity: The integrity of all LAADS-produced and -exported data files are verified through the checksum function, specifically using the md5sum algorithm. Such verification happens to both internally produced and exported data; checksums are also employed at receiving DAACs, and are provided to users to validate data after receipt. These checksums are also used to regularly check the integrity of the data store in the LAADS archive.

Metadata validation: All metadata generated by the production systems at LAADS conform to acceptable standards defined by ESDIS, and are validated at various stages from algorithm development through the science software integration and testing, and pre-product-release stages to ensure that users expectations are fairly served. LAADS DAAC also works closely with its partner DAACs, who provide feedback based on their evaluation of the science metadata to fine-tune final metadata quality and completeness.

Quality assurance: QA comprises a major component of the production workflow within LAADS, and is further described in Section-R8 on Appraisal.

Product validation: All LAADS-produced and archived products are validated based on a process followed by each individual science product's Principal Investigator (PI). Consult the following sites for additional information:

https://atmosphere-imager.gsfc.nasa.gov/documentation/validation
https://darktarget.gsfc.nasa.gov/validation
https://earth.gsfc.nasa.gov/climate/data/deep-blue/documentation
https://landval.gsfc.nasa.gov/
https://viirsland.gsfc.nasa.gov/Valstatus.html

Version management: All LAADS-produced and archived products conform to a particular "collection" with an assigned a three-digit version number that is considered the most up-to-date and currently available version to the global user community. To accommodate the evolution of the science algorithms over time in response to a number of factors (for instance, better quality data inputs, improvements in geometry, radiometric calibration, and an improved understanding, and therefore characterization of the algorithm itself), the entire product collection is reprocessed every 1 to 5 years; each reprocessed collection is assigned a new version number. Between major collection versions (e.g., 005 and 006), LAADS may decide to process interim collections (e.g., 051) to address immediate algorithm corrections and adjustments that are ultimately replaced by a subsequent reprocessing via a major collection version. Once a new collection is released, the previous one is retained in parallel for about a year before it is decommissioned. Some parts of a previous collection are retained for specific time periods (e.g., Golden Months) or specific products (e.g., low-resolution/volume Climate Modeling Grid products) to provide a record of the previous collection. All software packages that produced the previous collections are also retained, so that if and when needed, and with the proper resources, the previous collections could be reproduced.

Product documentation: A set of product-related information documents and/or links are provided with every publicly released product. They include the User Guide, the Algorithm Theoretical Basis Document (ATBD), the file specifications, QA- and validation-related links, and the Digital Object Identifier (DOI) link.

Data discovery and access: All LAADS DAAC's archived data collections are discoverable and accessible via the Find-Data and View-Data apps that are part of an in-house-developed search-and-order interface within the LAADS DAAC's webpage. It also offers a set of post-processing functions that users may invoke as part of their ordering process. Users also have direct HTTPS-based access to desired data products that they can download from the LAADS archive (see https://ladsweb.modaps.eosdis.nasa.gov/archive/). Users also have a selection of Web services through which they may acquire specifically subset and/or transformed data products. LAADS Web orders support product selection, and a number of on-demand processing options. The Open-source Project for a Network Data Access Protocol (OPeNDAP) data architecture protocol is also available to end-users.

Additional information is available via the following URL: https://ladsweb.modaps.eosdis.nasa.gov/tools-and-services/

All LAADS data collections are also discoverable and orderable via ESDIS' enterprise portal called EarthData (https://earthdata.nasa.gov/). Many products in the LAADS data collections are also available through the NASA's Earth Science browse-based Global Imagery Browse Services (GIBS) and its Worldview interface (https://worldview.earthdata.nasa.gov/).

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accepted.

R8 Deposit & Appraisal (R08)

R08. The repository accepts data and metadata based on defined criteria to ensure relevance and understandability for users.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

Selection of data for archiving: Based on a NASA-assigned allocation, the LAADS DAAC is responsible for the stewardship of a portfolio of MODIS and VIIRS Level-1 and atmospheric science products. These products are funded by NASA as part of the EOS, SNPP, and JPSS missions; each mission supports specific science and instrument teams that are responsible for building and launching the instrument, characterizing the calibration, maintaining each instrument's geometry, developing the algorithms and data products, and validating them. The LAADS DAAC works closely with MODAPS, Land SIPS, and NASA's MODIS and VIIRS science teams to ensure the integrity of the final products, and to support the domain-specific atmospheric science user community.

Quality Assurance: Data and metadata quality assurance comprise a vital part of the production workflow for all products generated by both MODAPS and VIIRS Land SIPS. The Land Data Operational Product Evaluation (LDOPE) group provides a crucial component in evaluating and investigating data quality that are reflected in the final quality flags both at the file- and pixel-levels. Please consult the following Web sites for additional information:
MODIS: https://landweb.modaps.eosdis.nasa.gov/cgi-bin/QA_WWW/newPage.cgi
VIIRS: https://landweb.modaps.eosdis.nasa.gov/NPP_QA/

Metadata required to interpret and use the data: Data producers submitting data to the EOSDIS DAACs are required to conform to community standards for data formats, metadata, interfaces, etc. See https://earthdata.nasa.gov/user-resources/standards-and-references for details.

Metadata standards have been evolving over the years that the DAACs have been in operation, and the DAAC works to maintain the archived product's metadata conformance with the evolving standards. The metadata accompanying the datasets submitted to the DAACs are verified to ensure that they meet the standards that are sufficient to aid in their interpretation and use. The LAADS DAAC complies with the ESDIS Metadata Requirements - Base Reference for NASA Earth Science Data Products (423-RQMT-003) and submits all metadata to and complies with all requirements of the NASA Common Metadata Repository (CMR). See
https://earthdata.nasa.gov/about/science-system-description/eosdis-components/common-metadata-repository for additional details. With its sister production organizations' (MODAPS and Land SIPS) responsibilities, it works closely with the Land Processes DAAC and the National Snow and Ice Data Center DAAC to ensure all metadata requirements are met over its data lifecycle.

Ensuring sufficiency of metadata for long-term preservation: Ensuring the compliance of metadata to internationally accepted standards support long-term preservation as well. Complementing this, the documentation and other artifacts required to support long-term preservation are identified in NASA's Earth Science Data Preservation Content Specification (https://earthdata.nasa.gov/user-resources/standards-and-references/preservation-content-spec). Applying such a specification to NASA's Earth science mission-derived data ensures that content artifacts (e.g., Preflight/Pre-Operations, Science Data, Product Documentation, Mission Calibration, Product Software, Algorithm Input, Validation, Software Tools, etc.) are maintained to serve the long-term preservation needs.

List of preferred formats: A list of acceptable data and metadata formats is available to ensure that data providers comply with them (https://earthdata.nasa.gov/user-resources/standards-and-references). The LAADS DAAC routinely checks the data flows as it receives VIIRS atmosphere products from the Atmosphere SIPS (Space Science and Engineering Center, University of Wisconsin, Madison).

The LAADS DAAC also has a process in place to evaluate potential new products before deciding to add them to its portfolio. These products may originate both from other NASA-funded as well as non-NASA-funded projects. The decision-making process to whether onboard them or not is made in coordination with our LAADS UWG as well as the ESDIS project. We solicit detailed information, via an onboarding questionnaire, as part of this process to ensure that all the data and metadata standards and quality requirements are met.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

R9 Preservation plan (R09)

R09. The repository assumes responsibility for long-term preservation and manages this function in a planned and documented way.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The LAADS DAAC follows the NASA-provided preservation specification document (https://earthdata.nasa.gov/user-resources/standards-and-references/preservation-content-spec). This document articulates the critical need to preserve data derived from all NASA missions to benefit future generations. In the short-term, given the importance of these data for active scientific research, it is essential to provide easy access to these data and services, commensurate with current information technology. In the long-term, when the research community's focus shifts toward new missions and observations, it is imperative to preserve data and information from all previous missions to facilitate future users' ability to understand how the datasets were used to derive information, knowledge, and policy recommendations. The ability to repeat a previous experiment, ascertain the validity and possible limitations of conclusions reached in the past, and provide confidence to long-term trends based on data from multiple missions are further reasons in favor of such preservation.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

R10 Quality Assurance (R10)

R10. The repository addresses technical quality and standards compliance, and ensures that sufficient information is available for end users to make quality-related evaluations.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

As articulated under Appraisal (Section R8) above, the LAADS DAAC has in place a rigorous set of practices and mechanisms that address data quality, primarily carried out by the LDOPE group, which is an integral part of MODAPS and VIIRS Land SIPS. Quality assurance, both at the file- and pixel-levels are addressed to give users, across the proficiency spectrum, mechanisms to interact with, understand and analyze data quality as deemed appropriate for their application needs. The LAADS staff was also instrumental in developing a set of QA-specific tutorials that are hosted by the Land Processes DAAC, given their stewardship role of the MODIS and VIIRS higher-level terrestrial products, which is the primary focus of these tutorials. Data quality-related information and explanations are provided both via LAADS Web and individual product user-guides that are electronically available to end-users. The LAADS User Services routinely field calls from users, via e-mail and phone, to address data-quality-specific queries.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

R11 Workflows (R11)

R11. Digital object management takes place according to defined workflows from deposit to access.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

All data management functions and activities at the LAADS DAAC are defined by a number of workflows from data ingestion, curation, export, and archiving in a set of documents called the Science Data Processing Software System Description. These documents provide detailed descriptions of the system architecture, production rules, various levels of product generation executables (PGE), system performance, system operations, resource utilization, etc. Given the fact that the LAADS DAAC's sister organizations, MODAPS and VIIRS Land SIPS produce Level-1 MODIS and VIIRS data, and all higher-level land and atmosphere products (except for VIIRS atmosphere), there are hundreds of individual PGEs, and when different collection versions are factored, the total number of distinct PGEs is in the thousands. A configuration management group exists to manage the constantly evolving needs of all software-driven processes within a large operational environment.

MODAPS' responsibilities and requirements specific to MODIS data products, and the Land SIPS' responsibilities and requirements specific to VIIRS data products are defined in ESDIS-managed requirements documents. The LDOPE group ensures that the data quality of all LAADS-produced data meet the expected specifications and standards.

Well-tested workflows are in place between LAADS DAAC and the other domain-specific DAACs to whom it exports higher-level land and cryosphere products. These workflows sustain routine, daily interactions and transmittal of data that are accomplished electronically with minimal human intervention. As explained elsewhere, protocols exist to verify the fidelity of the exported data.

The User Services group follows a well-defined and tested workflow model that addresses user questions by providing feedback that is acquired and compiled through consultations with cascading levels of subject-matter experts (SME), as warranted by the complexity of questions. SMEs range from in-house science, geolocation, calibration, and data systems staff to the science PIs who are responsible for any given product. A majority of questions

are answered by User Services within a day.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

R12 Discovery and Identification (R12)

R12. The repository enables users to discover the digital objects and refer to them in a persistent way through proper citation.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The LAADS DAAC offers several means to discover and access its data collections. Its archived data collections are accessible via LAADS Web, which is an in-house, custom-developed interface that provides both an extensive search-and-order capability as well as direct access to desired data products via HTTPS. The HTTPS portal provides an anonymous connection to the ladsweb.nascom.nasa.gov server. An EOSDIS enterprise-wide process, called User Registration System (URS), provides a mechanism for user registration and profile management across all EOSDIS system components (i.e., DAAC interfaces, tools, and services). LAADS Web is configured to allow users to log in to LAADS Web using their URS credentials. The URS serves to both authorize and authenticate registered EOSDIS users.

Users also have a selection of Web services through which they may acquire specifically subset and/or transformed data products. LAADS Web orders support product selection, and a number of on-demand processing options. An instantiation of the Open-source Project for a Network Data Access Protocol (OPeNDAP) data architecture protocol is also available to end-users.

Check the following URL for additional information regarding LAADS' tools and services: https://ladsweb.modaps.eosdis.nasa.gov/tools-and-services/

All LAADS data collections are also discoverable and orderable via ESDIS' enterprise portal called Earthdata (https://earthdata.nasa.gov). LAADS data collections are also exposed via NASA's Earth Science browse-based Global Imagery Browse Services (GIBS) and its Worldview interface (https://worldview.earthdata.nasa.gov/).

As described earlier in Appraisal (Section-R8), the CMR (Common Metadata Repository) is an ESDIS-managed metadata management system that stores metadata from a variety of science disciplines and domains, and enables broader use of NASA's EOS data by providing an enterprise-wide view of NASA's substantial and diverse data holdings. CMR facilitates varied and distributed science communities to search, discover, and use data and services while also increasing the potential for interoperability with new tools and services more efficiently. Hence, CMR provides a high-performance capability to facilitate search and discovery across a plethora of domain-specific Earth science products, tools, and services. Programmatic interfaces based on standard protocols and Application Programming Interfaces (API) are available as well. Check: https://earthdata.nasa.gov/about/science-system-description/eosdis-components/common-metadata-repository

All LAADS DAAC's data collections are archived in conformance with NASA's specifications. One such requirement is Digital Object Identifiers (DOI), at the collection-level, that became standard practice since around 2014. Every publicly released LAADS data product has a reference DOI that provides a link to its landing page. LAADS also offers suggestions for citation as well as credit attribution; Check the following URL for details: https://modaps.modaps.eosdis.nasa.gov/services/faq/LAADS_Data-Use_Citation_Policies.pdf

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

R13 Reuse (R13)

R13. The repository enables reuse of the digital objects over time, ensuring that appropriate information is available to support understanding and use.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

All LAADS DAAC's data collections that span all product-levels consistently provide both collection-level and file- (or granule-) level metadata that facilitate data search and discovery, access, and various applications. The applications may include how data products are handled by open-source and proprietary software and image processing systems, how they are handled by APIs, Web services, OPeNDAP, etc., and how they facilitate interoperability (for instance to enable ingest at a receiving archive). All LAADS-produced metadata conform to ESDIS-specified metadata standards (https://earthdata.nasa.gov/user-resources/standards-and-references).

The ESDIS Standards Coordination Office (ESCO) (formerly ESDIS Standards Office) assists the ESDIS Project in formulating a standards policy for NASA Earth Science Data Systems (ESDS), and coordinates standards activities within ESDIS (See https://earthdata.nasa.gov/about/esdis-project/esdis-standards-office-eso). This provides a mechanism for evolving standards with a systematic review process, which involve members of the designated community that includes data producers and end-users.

The primary data formats for Levels-1 through -4 include Hierarchical Data Format 4 and 5 (HDF4 and HDF5), and Network Common Data Form (netCDF) along with supporting EOS conventions. Level-0 instrument packet data exist in Consultative Committee for Space Data Systems (CCSDS) format. Providing products in the netCDF4–HDF5 formats mark an evolution in leveraging common advantages of both formats as well as benefitting from their separate strengths. The netCDF libraries support a binary data format, which is widely used in the climate science and modelling communities, globally.

To help promote understandability of the LAADS DAAC's product portfolio, every public product is provided with documentation that describes each product, its science parameters and variables, quality information, validation status, and an algorithm summary. It further provides online links to more detailed documents that include the User Guide, the Algorithm Theoretical Basis Document (ATBD), File specifications, Known quality issues, and validation plan. An updated version of a peer-reviewed publications reference list specific to the LAADS DAAC's data collections exists as well.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Information Technology & Security

R14 Storage & Integrity (R14)

R14. The repository applies documented processes to ensure data and metadata storage and integrity.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The LAADS DAAC, as part of the NASA ESDIS Network, is governed by the Requirements for Archiving, Distribution and User Services in EOSDIS (ADURD, see https://earthdata.nasa.gov/about/esdis-project/esdis-policy/adurd). Given its roles as a major data producer, archive, and distributer, a number of Interface Control Documents, Requirements Documents, and Operations Agreements exist that govern the data flow dynamics between LAADS and a number of other entities.

The ADURD document specifies requirements for information security that include the following:

1 The DAAC shall comply with all of NASA's information technology and information security requirements as in NASA Procedural Requirement (NPR) 2810.1A (Security of Information Technology (Revalidated with Change 1, dated May 19, 2011)) and NASA Policy Directive (NPD) 2810.1E (NASA Information Security Policy, 7/14/2020). The DAAC shall provide copies of security documentation to appropriate NASA officials and the ESDIS office.

2 The DAAC shall maintain confidentiality of user product requests and accounts per the ESDIS Privacy policy guidelines. The [LAADS DAAC] shall comply with all applicable guidelines for website and outreach communications as established by NASA.

The LAADS DAAC complies with these requirements, and its security plan is provided to and maintained by the NASA ESDIS office.

The EOS Data and Operations System provides both MODIS and VIIRS Level-0 (Raw Instrument Packets) data to MODAPS SIPS and VIIRS Land SIPS. Two backup sources exist for the Level-0 data: the White Sands Complex in White Sands, NM, and the Ocean Biology DAAC at GSFC. The MODAPS and VIIRS Land SIPS provide a robust Processing On-Demand (POD) process that meets all requirements to reproduce any desired MODIS or VIIRS higher-level products that need to be recovered by the LAADS DAAC. The European Space Agency (ESA) serves as the backup for all MERIS and Sentinel products supported and served by the LAADS DAAC.

The LAADS DAAC also has an established protocol in place to address how and when specific data product version-collections are decommissioned and later physically deleted. This process is carried out in close coordination with all the relevant stakeholders. Data decommissioning involves all the activities that enable removing a data product collection from public access, discovery, and availability. A decommissioning decision is generally made at least six months before the decommissioning date. Deletion relates to the physical removal of the data product collection from the LAADS archives. The actual deletion date is decided at any time following the decommissioning date at the discretion of the LAADS DAAC's management. Details of these activities are communicated to the global user community well in advance of the planned events.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

R15 Technical Infrastructure (R15)

R15. The repository is managed on well-supported operating systems and other core infrastructural software and hardware appropriate to the services it provides to its Designated Community.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The LAADS DAAC's technical infrastructure is based on open-source software including an Ubuntu operating system, Apache- and NGINX-based web servers, Perl, Python and GCC (GNU Compiler Collection)-based software development, etc. All procedures for maintaining and installing our infrastructure are documented and stored in open-source Wiki pages with backups for use during emergency recovery or for routine maintenance. LAADS operates on a high bandwidth of 40 Gbps to disseminate all its output to our external stakeholders. LAADS' hardware systems are entirely based on commodity servers that routinely undergo technical refreshes. LAADS uses an open-source-based Ceph object storage system to store about 30 PB of data.

Our facility runs on two live systems located on different floors of the building. In case of any power outages, our primary backup can be used immediately for continuity of limited operations. Additionally, backups of our system software are stored in different facilities that can facilitate restoring the system. Our main and backup facilities have enough bandwidth to support all our user's near-real-time data needs. We support most community standards for data distribution such as OGC, W3C and others. New standards are adopted as they are developed, and deemed useful to our community.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

R16 Security (R16)

R16. The repository protects the facility and its data, metadata, products, services, and users.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The LAADS DAAC follows the NASA security policy guidelines. These guidelines include both physical and software procedures to protect our products and services. Physical protection includes 24/7 security of the campus for all employees in addition to badge- and PIN-based (Personal Identification Number) access to the facility for only the necessary staff. Software-based procedures include VPN-only-based (Virtual Private Network) access in addition to two-factor authentication and multiple layers of firewalls. Few services rely on password-based authentication alone. In those cases, password policies based on NASA and NIST (National Institute of Standards and Technology) guidelines are followed including password lengths, character groups, and password expiration.

All data collections are protected against accidental and superficially malicious loss via extensive check-summing. All distributed files are checksum-verified prior to being distributed to the end-user. Critical systems, such as databases are backed up nightly to secure servers, and backups are retained for 6 months. All the production software (i.e., PGEs) are version-controlled and backed up daily.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Accept.

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Applicant feedback

R17 Applicant Feedback

We welcome feedback on the CoreTrustSeal Requirements and the Certification procedure.

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Response:

The title of the very first section (Re3data Identifier) should read "Please fill your Re3data identifier"
Unclear how the "Level of compliance" measure is useful in the context of this Feedback section. Perhaps that was an oversight.
The color background in the drop-down levels for compliance is not always easy to read, especially white text against the green background.

Links:

Reviews

Reviewer 1:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments:

Reviewer 2:

Compliance level:

Implemented: the requirement has been fully implemented by the repository - 1

Comments: