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User Guide for Development and Maintenance of NWCG Data Standards

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The *User Guide for Development and Maintenance of NWCG Data Standards* details the standardized processes and guidance for National Wildfire Coordinating Group (NWCG) committees assigned to develop or revise a data standards, and the technical requirements for complete data standards and geospatial data layer standards. The NWCG website will be utilized by committees for requesting new or revised data standards; searching and viewing requested proposed, and approved data; and searching and viewing data standards that are assigned to a committee for development and maintenance.

This guide is intended to help users and committees assigned to develop data standards approved by NWCG. Within this guide, users can find instruction on the definition, support, development, and management of wildland fire data element standards and geospatial data layer standards, collectively referred to as data standards. This guide will be continually updated as the process matures.

The National Wildfire Coordinating Group (NWCG) provides national leadership to enable interoperable wildland fire operations among federal, state, tribal, territorial, and local partners. NWCG operations standards are interagency by design; they are developed with the intent of universal adoption by the member agencies. However, the decision to adopt and utilize them is made independently by the individual member agencies and communicated through their respective directives systems.

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Introduction

Workflow Diagram Key

This User Guide includes diagrams to help you understand the workflow and steps involved in creating or revising data standards. Table 1 provides a definition for the graphics used to represent persons, groups and object used in these diagrams.







Workflow Object	Definition
 <p>Requestor</p>	<p>A person (within NWCG or the Public) that proposes the need for a new or revised data standard or glossary entry.</p>
 <p>Data Standards and Terminology Subcommittee (DSTS)</p>	<p>A subgroup within NWCG that assures all data standard proposals follow a standardized development process, are properly vetted, approved, and submitted for publication.</p>
 <p>Data Standard Stewardship Group (NWCG Committee/Subcommittee)</p>	<p>An NWCG committee or subgroup assigned to develop a data standard and ensure consistency across agencies.</p>
 <p>Reviewers (Stakeholders)</p>	<p>Persons within and outside of the NWCG organization who review data standard proposals and then provide feedback on issues and concerns.</p>
 <p>NWCG Web Site Manager</p>	<p>Person responsible for maintaining the NWCG Web site.</p>
 <p>NWCG Data Architecture and Standards Catalog</p>	<p>Documents or systems that support the storage and maintenance of the NWCG architecture and the PMS 910 Standards Catalog.</p>

Table 1. Workflow Diagram Key

Distinction between Data Element Standards, Geospatial Data Layer Standards, and Glossary Entries

When referencing data standards in the context of NWCG, it is important to understand that the term “Data Standard” can include reference to data element standards or geospatial data layer standards, and on occasion glossary entries. Each is defined in detail below:

- **Data Element Standards:** provide a specification that enables data exchange or synthesis across wildland fire information systems. These standards are usually defined at the data element level and can include a list of standardized values often provided as a drop-down list or look-up table in an application.
- **Geospatial Data Layer Standards:** cover spatial layer or table-level (field/attribute) data definitions. NWCG geospatial data layer standards are data transfer requirements for exchanging geospatial data among systems.
- **Glossary Entries:** provide the wildland fire and incident management communities consistent terminology usage throughout those organizations with a mission of wildland fire or fire use management.

Understanding the Data Standards Process

Why Does NWCG Need to Develop Data Standards?

To facilitate consistent fire management programs across agencies, NWCG provides a long-term view of the full scope of wildland fire data and processes. Exchanging and harmonizing data between interagency systems requires an extensive collection of data standards and geospatial data layer standards that are regularly maintained to ensure they are current. Consistent use of data standards promotes the efficient sharing of information, facilitates analysis of data from disparate sources, improves data integrity, and maximizes the use of shared resources.

NWCG data standards are intended to be applied when data is exchanged between systems and also when data is synthesized from disparate systems.

It is not the intent that NWCG data standards dictate how data is collected or stored in individual applications. However, if possible, it is more efficient to store the data compliant with the data standard so that it does not have to be translated when it is shared or combined for analysis.

How are Data Standards Developed and Maintained within NWCG?

The NWCG develops and maintains a robust library of wildland fire data-specific standards that enable the common usage of data across wildland fire information systems. Figure 1 depicts the entities involved in developing and maintaining NWCG data standards. As shown within the blue circle, the DSTS and the Data Standard Stewardship Group(s) are the main parties responsible for ensuring NWCG has the standards needed to support the wildland fire business community. The DSTS as a subgroup of the Data Management Committee assures all data standard proposals follow a standardized development process and are properly vetted, approved, and submitted for publication. A NWCG Committee is assigned as a stewardship group to develop a data standard. The committees are the subject matter experts and can ensure accuracy and consistency of definitions across agencies. Reviews are conducted both within NWCG and externally (published on <https://www.nwcg.gov> for a minimum of 60 days) before a standard is finalized and approved for publication to the NWCG Web site.

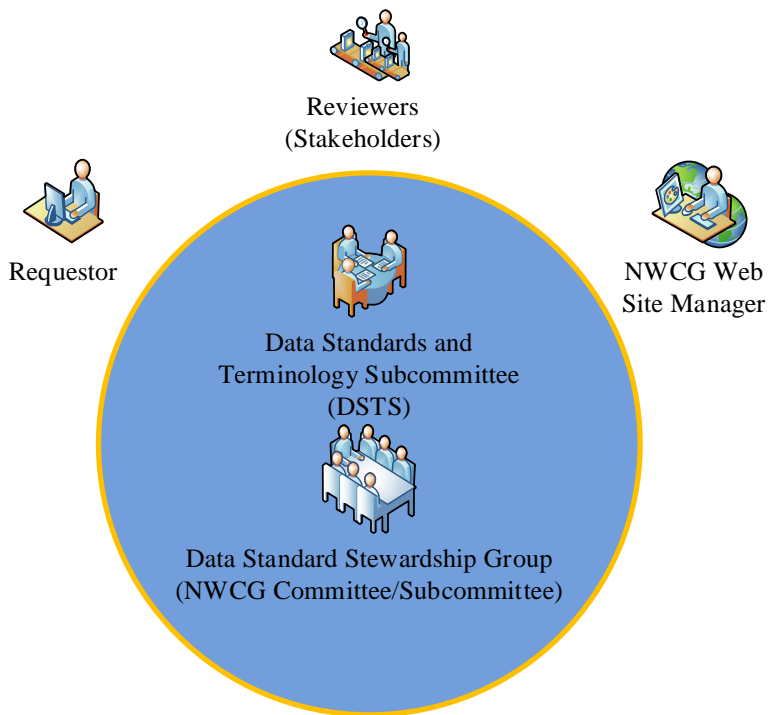


Figure 1. Entities involved in development and maintenance of NWCG data standards

A high-level view of the workflow used within NWCG to create and maintain wildland fire data standards is depicted below in Figure 2.

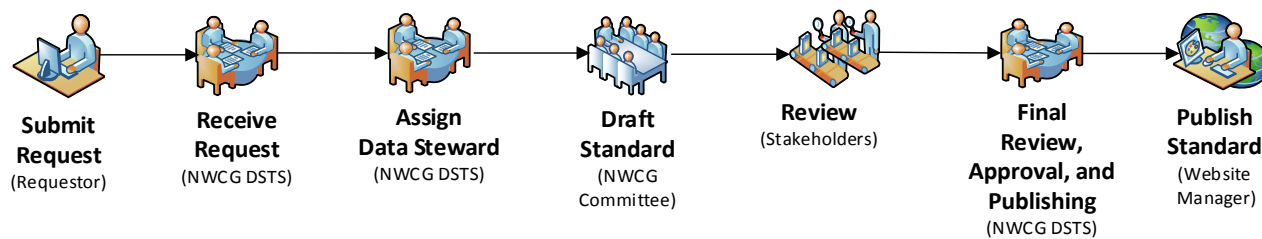


Figure 2. Data standard development workflow

A requestor can propose a need for a new or revised data standard. The data standard process is shepherded by the Data Standards and Terminology Subcommittee (DSTS), which assures that all data standard proposals follow a standardized development process, are properly vetted, approved, and submitted for publication. When a request is submitted, the DSTS reviews the request and assigns an NWCG committee or subgroup as the Data Standard Stewardship Group. The Data Standard Stewardship Group is selected based on the subject matter expertise required to develop and maintain the data standard. The assigned NWCG committee(s) or subgroup(s), which are comprised of members of the wildland fire business community, develop a draft data standard. The draft data standard is reviewed by members of the NWCG community and the public to get feedback on issues and concerns. After all comments have been addressed, the draft data standard is finalized and approved. Data standards, however, are not static documents; changes in data, processes, and technology may necessitate changes to the data standard. The process for revising an approved data standard is similar to the creation process, which includes careful consideration by the Data Standard Stewardship Group, as well as by members of the NWCG

community and the public. See [Data Standards Development Process Workflow](#) (Figure 7) for more details on the workflow within NWCG for developing and maintaining data standards.

How Long Does the Process Take?

The process for creating or revising data standards can vary based on the complexity of the request and the Data Standard Stewardship Group schedules. In general, from the time the request is submitted to when the data standard is published could take 100-145 days.

How does NWCG.gov Support Data Standards Management

The NWCG Web site <https://www.nwcg.gov/data-standards> facilitates the creation and maintenance of data standards by providing the following capabilities:

- All users, which include the public, can:
 - View and download approved data standards.
 - View a list of requested and assigned data standards.
 - View proposed standards and submit comments.
 - Submit a request for a new or revised data element standard or geospatial data layers standard.

Data Standard Status

As a data standard is developed or revised, it is tracked by the DSTS and assigned a status. The status indicates the stage the standard is in within the workflow from the time the request for a new or revised data standard is submitted until the standard becomes approved. Data standards are listed on the NWCG Web site based on their status.

Status	Description
Requested	A proposal for a new or revised data standard that has been submitted to the NWCG Data Standards and Terminology Subcommittee (DSTS).
<i>Received</i>	<i>Not displayed on NWCG Web site - a proposal for a new or revised data standard has been received by the NWCG DSTS for validation and assignment of steward.</i>
Assigned	A new or revised data standard that has been assigned to a Data Standard Stewardship group and an individual steward as the POC within that group for drafting.
Proposed	A new or revised data standard that is available for review and comment.
<i>Final Review</i>	<i>Not displayed on NWCG Web site - the data standard is going through a final review by the Data Standard Stewardship Group and the DSTS before being approved for publishing.</i>
Approved	The data standard has been approved, and is available for use from the NWCG Web site Data Standards page.
<i>Archived</i>	<i>Not displayed on NWCG Web site - the data standard has been made a historical record and is no longer in use.</i>

Table 2. Description of each data standard status

How to View Data Standards on NWCG.gov

Each data standard contains information that defines the standard. Depending on the status of the data standard, the information may be draft or incomplete. Only approved data standards have complete information that defines the standard.

Follow the steps below to view approved, proposed, assigned, and requested NWCG data element standards and geospatial data layer standards.

1. Go to <https://www.nwcg.gov/>
2. Click the **Tool Box** link on the top menu bar.
3. Click the **Data Standards** link.

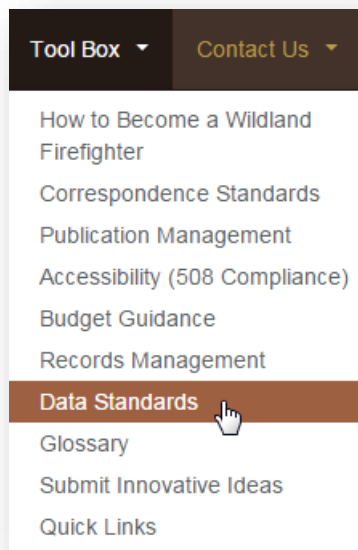


Figure 3. Screen shot of the Tool Box Contents

4. Use the links at the top of the page to quickly go to a particular status table (Proposed, Approved, Assigned, or Requested). Find a data standard by browsing through the tables displayed by status sorted in alphabetical order. You may sort the list by approved date or data standard type.
5. To view the details for Approved and Proposed data standards, click on the **Name** link of the standard that you want to view.



Data Standard	Description
Aviation Hazards (Point-Line-Polygon)	These 5 geosp aviation operat
Country Code	This standard country codes.
Country Subdivision Code	This standard subdivision co standard. [walk
County Code	This standard of counties and
Data	This data stan

Figure 4. Screen shot of Data Standard Hyperlink

Print a Standard

1. Search or browse to get a list of data standards.
2. Click on the data standard name link of the standard you want to view.
3. Click on the attachment (PDF).
4. From the browser page that contains the information you want to print, choose **File > Print** or **right-click** and choose **Print**.

How to Submit a Request for a New or Revised Data Standard

Persons within the NWCG community or the public can submit a request for a new or revised data standard through the NWCG Web site. All requests for new or revised data standards are reviewed by the NWCG DSTS to determine if it is within NWCG's area of responsibility and is valid for NWCG to address. The DSTS may ask the requestor for more information or ask them to revise the request; the requestor will also be notified if their proposal was declined. If the proposal is valid, it is assigned to a NWCG committee for drafting. The requestor can monitor the status of the data standard as it is developed on the NWCG data standards page <https://www.nwcg.gov/data-standards>. The workflow process for submitting a request for a new or revised data standard is shown in Figure 4 on the next page. The [Data Standards Development Process Workflow](#) provides more details on the workflow within NWCG for developing and maintaining data standards.

Requestor's Pre-Work

The requestor needs to consider several issues before proposing a new or revised data standard. The requestor needs to determine what type of data standard they need (data element or geospatial data layer) and if that standard already exists and can meet their needs. The requestor should answer the following questions prior to submitting a request for a new or revised data standard.

Pre-work Checklist	How do I find out?	What does that tell me?
✓ Does the data standard already exist within the NWCG Wildland Fire Standards?	Search the NWCG Web site for Approved data standards to determine whether the standard is already published. Also look through the list of Requested, Assigned and Proposed data standards.	If it does exist and is Approved you can use the data standard. If the data standard exists but is not yet approved, you can monitor the progress of the standard and provide feedback during the review cycles to make sure the standard will meet your needs.
✓ If the data standard exists within NWCG and is approved, does it need revision to meet my needs?	View the data standard and determine if it has the details and attributes that are needed for your particular application.	If the approved data standard does not meet your needs, then submit your request as a revision to the approved standard.
✓ If the data standard does not exist within NWCG, then does the standard exist within another agency?	Contact other professional organizations or government agencies that you think may also use the data standard or search the internet.	If you do find a similar data standard outside of NWCG, submit your request specific to wildland fire, but include documentation referencing the existing standard.

Table 3. Pre-work checklist to use when proposing a new or revised data standard

Submit a Data Standard Request (Data Element or Geospatial Data Layer)

1. Go to <https://www.nwcg.gov/>.
2. Click the **Tool Box** link on the top menu bar.
3. Click the **Data Standards** link.
4. Under the **Request for a new or revised Data Standard** heading, click the **Request worksheet** link. The *NWCG Data Standard Request* will open. Follow the instructions on page 2 of the worksheet for completing the request.
5. Save the file to your local drive, so that it can be saved and then edited again later if necessary. Submit your proposal, plus any optional or supporting documentation to BLM_FA_NWCG_DATA@blm.gov.

How to Develop a Data Standard

Assigning a Data Standard Stewardship Group

Once the proposal has been received by the DSTS and they have determined it is valid, the DSTS will determine the committee best suited to act as Data Standard Stewardship Group for the data standard based on subject matter expertise.

The DSTS will create or update a data standard worksheet. The data standard worksheet will be forwarded via email to the Data Standard Stewardship Group so the group can begin the work of drafting the data standard.

Developing a Data Standard

The NWCG committee or subgroup selected as the steward is called the Data Standard Stewardship Group. They are responsible for developing the draft data standard. The Data Standard Stewardship Group should assign a Data Standard Steward Point of Contact (POC) who is responsible for managing the process for developing the draft within the committee/subgroup. Duties include distribution of information, task assignments, and scheduling. The DSTS is available to provide support and guidance to the group in developing the draft.

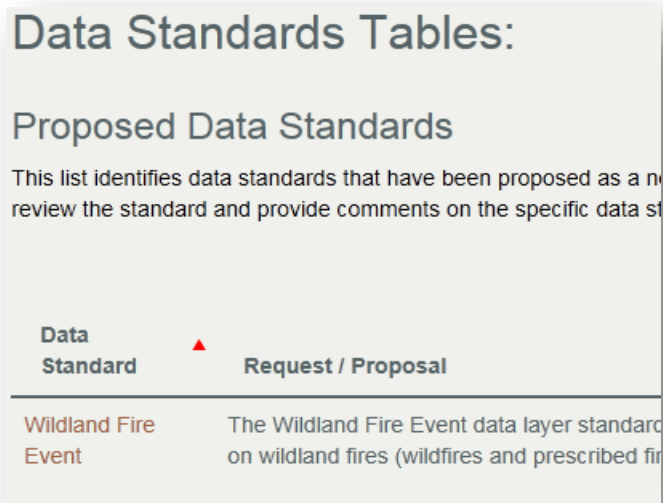
The DSTS provides a data standard worksheet to the Data Standard Stewardship Group(s) and initiates the process for a committee to begin developing or revising a draft data standard. The worksheet is used throughout the process of developing the draft standard. Supporting documents may need to be included in drafting the standard such as standard data values, change management process, or discussion papers. The DSTS may provide the initial research for new data standards as a starting point for the committee.

Once the standard is drafted, the Data Standard Stewardship Group(s) needs to make a final determination that the standard is ready for review. Once that determination has been made, the Data Standard Steward POC emails the updated data standard worksheet (plus any supporting documents) to the DSTS indicating the data standard is ready for review.

Conducting Review

After receiving the draft data standard from the Data Standard Steward POC the data standard is posted to <https://www.nwcg.gov/> as “Proposed”—meaning it is ready for review.

Click on the name of the Proposed data standard, download a copy, and follow instructions to record the comments. The following figures are an example of a data standard posted on the NWCG site for public review, and the associated documentation supporting the standard.



The screenshot shows a web page titled "Data Standards Tables: Proposed Data Standards". Below the title is a brief description: "This list identifies data standards that have been proposed as a new standard for review. Review the standard and provide comments on the specific data standard." Below this is a table with two columns: "Data Standard" and "Request / Proposal". The first row in the table lists "Wildland Fire Event" under the "Data Standard" column and "The Wildland Fire Event data layer standard on wildland fires (wildfires and prescribed fire)" under the "Request / Proposal" column.

Data Standard	Request / Proposal
Wildland Fire Event	The Wildland Fire Event data layer standard on wildland fires (wildfires and prescribed fire)

Figure 5. Screen shot of proposed new data standard - Wildland Fire Event

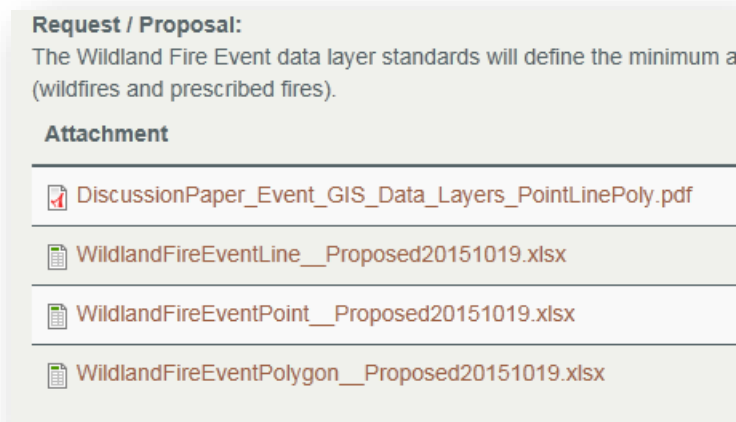


Figure 6. Screen shot of documents Wildland Fire Event proposal, including a discussion paper and comment submission documents for Wildland Fire Event: line, point, and polygon

Reviewers submit the comment document via email to BLM_FA_NWCG_Data@blm.gov. The DSTS will collect and synthesize the review comments and email them to the Data Standard Stewardship Group. The Data Standard Stewardship Group is responsible for evaluating the comments, formulating responses to the comments and making updates to the draft data standard based on comments as necessary. The data standard worksheet continues to be updated by the DSTS throughout this process.

Final Review, Approval and Publishing

The DSTS conducts a final review of the draft standard before it is approved for publishing. This final review is focused mainly on technical editing of the draft and not on content. Once the final review is completed, the data standard is posted to <https://www.nwcg.gov/> as “Approved”—meaning it is ready for use.

Data Standards Development Process Workflow



Requestor

Submit Request

- ✓ Requester goes to **NWCG.gov**, selects the **Tool Box** link on the top menu, and selects the **Data Standards** link.
- ✓ Under the heading, **Request for a new or revised Data Standard**, Requestor selects **Request worksheet** to download and complete the *Data Standard Request*.
- ✓ Requester submits the completed request to BLM_FA_NWCG_Data@blm.gov.



DSTS

Assign Data Steward

- ✓ DSTS determines the NWCG committee or subgroup best suited to act as Data Standard Stewardship Group.
- ✓ DSTS creates or updates the *Data Element Standard* worksheet or the *Geospatial Data Layer Standard* worksheet.
- ✓ DSTS forwards the *Data Element Standard* worksheet or the *Geospatial Data Layer Standard* worksheet to the Data Standard Stewardship Group.
- ✓ NWCG Web site Manager posts the **Assigned** data standard to **NWCG.gov**.



NWCG
Committee/
Subgroup

Develop Draft Standard

- ✓ Data Standard Stewardship Group assigns a Data Standard Steward POC.
- ✓ Data Standard Steward POC manages the development of the draft standard:
 - ✓ Distributes *Data Element Standard* worksheet or *Geospatial Data Layer Standard* worksheet to committee members for review.
 - ✓ Makes assignments for drafting or information gathering.
 - ✓ Sets the schedule for progress reporting and/or working meetings.
 - ✓ Uses worksheet to develop draft standard. Supporting documents may need to be included such as standard data values, change management process, or discussion papers.
- ✓ DSTS provides support and guidance to the group in developing the draft and may provide the initial research for new data standards.
- ✓ Data Standard Stewardship Group determines the standard is ready for review.
- ✓ Data Standard Steward POC forwards *Data Element Standard* worksheet or *Geospatial Data Layer Standard* worksheet (plus any supporting docs) to DSTS indicating the standard is ready for review



Reviewers

Conduct Review

- ✓ NWCG Web site manager posts the Proposed data standard to **NWCG.gov**.
- ✓ Reviewers submit the comment document to BLM_FA_NWCG_Data@blm.gov.
- ✓ DSTS collects and synthesizes review comments and forwards them to the Data Standard Stewardship Group.
- ✓ Data Standard Stewardship Group:
 - ✓ Evaluates comments.
 - ✓ Formulates responses to the comments.
 - ✓ Makes updates to the draft data standard based on comments as necessary.
- ✓ Data Standard Stewardship Group forwards *Data Element Standard* worksheet or *Geospatial Data Layer Standard* worksheet (plus any supporting documentation) to DSTS for final review.



DSTS

Conduct Final Review, Approval, and Publishing

- ✓ DSTS conducts final review.
 - ✓ DSTS may contact Data Standard Steward POC for clarification.
 - ✓ DSTS updates *Data Element Standard* worksheet or *Geospatial Data Layer Standard* worksheet as necessary (non-content changes only).
- ✓ DSTS forwards *Data Element Standard* worksheet or *Geospatial Data Layer Standard* worksheet (plus any supporting docs) to NWCG Web site manager indicating the standard is approved and ready for publishing.
- ✓ NWCG Web site Manager posts the Approved data standard to **NWCG.gov**.

Figure 7. Data Standards Development Process Workflow

The *User Guide for Development and Maintenance of NWCG Data Standards* is developed and maintained by the Data Standards and Terminology Subcommittee (DSTS) , under the direction of the Data Management Committee, an entity of the National Wildfire Coordinating Group (NWCG).

Previous editions: First.

While they may still contain current or useful information, previous editions are obsolete. The user of this information is responsible for confirming that they have the most up-to-date version. NWCG is the sole source for the publication.

This publication is available electronically at <https://www.nwcg.gov/publications/938>.

Comments or questions may be sent to BLM_FA_NWCG_DATA@blm.gov, or directly to agency representatives on DSTS, <https://www.nwcg.gov/committees/data-standards-and-terminology-subcommittee>.

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