

## Wildland Fire Decision Support System Information

### WFDSS Subsections

**NOTE:** significant updates to the WFDSS format and interface will occur in the spring of 2015. Refer to the WFDSS homepage (<http://wfdss.usgs.gov>) for current information.

The Wildland Fire Decision Support System is divided into 7 subsections represented by tabs within the program. These sections are: Information, Situation, Objectives, Courses of Action, Decisions, Periodic Assessment, and Reports.

#### Information

Basic information for an incident is found in this section, which includes: Incident Name, Point of Origin, Unique Fire Identifier, Fire Code, Fire Perimeter / Incident Size, Discovery Date, Containment Date, Controlled Date, Out Date, Landscape Data Source, Geographic Area, Responsible Unit at Point of Origin, Incident Cause, and Jurisdictional Agency at Point of Origin. Updating this information is essential for ongoing incidents (especially acreages and dates) as this information is automatically populated into the WFDSS Decision content. WFDSS is connected with the Integrated Reporting of Wildland fire Information (IRWIN) and transfers information to and from other fire applications through IRWIN. See the IRWIN website (<http://www.doi.gov/pmb/owf/irwin.cfm>) for current information regarding shared information and order of precedence of the system for editing data. It is also important that the incident Owner(s) are available when the incident is updated or transferred. Incident ownership may be associated with an individual or group, depending on fire complexity, jurisdictions involved, and other considerations.

#### Situation

The Situation section provides a map interface displaying a variety of incident and reference information. It reduces the need for paper maps by giving users a dynamic and intuitive interface in which information needed for decision support is timely and easily accessible from anywhere with an internet connection. This section allows users to create new shape files, view values and boundaries, and conduct Basic and Short-Term fire analysis.

Map (sub tab) – has several spatial layers available:

- Base Layers- USGS Topo Imagery, USGS Imagery, USGS Topos, WFDSS Topos, Google Maps, Google Physical, U.S. States;
- Incident- Planning Areas, Fire Perimeters, Management Action Points, Points of Interest, Objective Shapes, Point of Origin;
- Analysis- Ignitions, Barriers, Landscape Masks, Basic Fire Behavior, Short Term Fire Behavior, Near Term Fire Behavior, FSPro (Values at Risk);

Release Date: January 2015

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- 1 • Fire Environment and Safety- Active MODIS 6, Active MODIS 12, Active  
2 MODIS 24, MODIS YTD, Est Ground Evac Time, Retardant Avoidance,  
3 Aquatic Res Avoidance, Incidents, Active Planning Area;
- 4 • Disturbance History- WFDSS Fires Since January 1 of Current Year,  
5 Historical Wildfires, Fuel Treatments;
- 6 • Fire Weather and Danger- Significant Fire Potential, Fire Wx Zones,  
7 RAWS Stations
- 8 • Boundaries- Jurisdictional Agencies, Responsible Agencies, Federal Admin  
9 Areas, TNC Lands, Counties, Landscape Source;
- 10 • Designated Areas- Wilderness, Potential Wilderness, Special, Other, BLM;
- 11 • Infrastructure- Facilities, Communication, Energy, Roads and Trails;
- 12 • Natural and Cultural Resources- Air Quality, Critical Habitat (T&E), Sage  
13 Grouse Habitat;
- 14 • Unit Fire Planning- Unit Outlines, FMUs, and Other Unit Shapes for each  
15 agency unit shown on the map. Data managers can upload shape files that  
16 contain information about local values.

17  
18 Map Capture (sub tab) – using the camera button at the top of the map users can  
19 create (save) a screen capture of the map that can be later incorporated into a  
20 Decision.

21  
22 Info (sub tab) – the user can access: Feature Information, Fire Danger (ERC  
23 charts), Smoke Dispersion, Strategic Objectives, Fire Weather Forecasts,  
24 Predictive Services Significant Fire Potential, and Hourly Weather Forecast.  
25 Additionally users can access basic information about the underlying landscape  
26 file: Source, Elevation, Aspect, Slope, Fuel Model, Canopy Cover, Bulk  
27 Density, Stand Height, Base Height.

#### 28 29 **Objectives**

30 Strategic Objectives and Management Requirements as entered from approved  
31 plans (Land & Resource Management Plans, Fire Management Plans) can be  
32 viewed and Incident Requirements and Objectives can be developed. Based on  
33 the Planning Area, Strategic Objectives and Management Requirements are  
34 automatically loaded to the Decision content. Spatial Fire Planning (SFP) is an  
35 optional planning process available in WFDSS that can spatially describe an  
36 administrative unit's Strategic Objectives and Management Requirements. For  
37 more information about WFDSS Spatial Fire Planning, refer to the WFDSS  
38 homepage: <http://wfdss.usgs.gov>.

39  
40 Incident Requirements and Incident Objectives are created for each individual  
41 incident. They should state in clear text the objectives and requirements specific  
42 to each incident. Objectives should address the values which might be  
43 threatened. Requirements should state the limitations which the Agency  
44 Administrator imposes on fire managers associated with achieving the incident  
45 objectives. They must be in alignment with the overarching Strategic Objectives

1 and Management Requirements. Users can control the activation or deactivation  
2 status of Incident Objectives and Incident Requirement based on fire location  
3 and activity.

4

#### 5 **Courses of Action**

6 Documentation for action items and associated cost is completed in this section.  
7 The Course of Action(s) should describe the general strategy the Agency  
8 Administrator wants used for achieving the incident objectives while adhering to  
9 the incident requirements. Where possible list the values/resources of concern  
10 or benefits to ensure its clear why specific strategies are desired. Users can edit,  
11 include, or exclude action items each time a decision is made. Several methods  
12 for determining cost can be found here; follow your agency direction and  
13 include a summary of how the cost was constructed.

14

15 Cost can be developed using the Stratified Cost Index (SCI) located in the left  
16 hand menu. The SCI is available for USFS and DOI. The correct model is  
17 automatically chosen by the Unit ID in the Unique Fire Identifier. The model  
18 requires input for the estimated final acreage of the incident. Users can input up  
19 to four different estimated acreages.

20

21 Management Action Points (MAPs) (left menu) may be developed to define a  
22 condition which when met, prompts implementation of a pre-determined action.  
23 The Condition, Action, and optional Cost can be defined and linked to  
24 geospatial MAPs drawn in the Situation tab.

25

#### 26 **Decisions**

27 In this section, users create, view, edit, and download published decisions. It is  
28 important that Owners, Editors, and Reviewers become familiar with their role  
29 and understand how to manipulate the incident content into the Decision  
30 Content. Additionally, knowing and understanding how and where to save  
31 information as agreed upon by the incident Owner(s) are essential. From this  
32 tab, an Owner(s) starts the review and approval process. Incident decisions can  
33 be edited by incident Owners or by those users who have been granted access  
34 through incident privileges. Users will access the decision editor by checking  
35 the radio button next to the pending decision, then clicking EDIT. Once editing  
36 is completed, users click the Check-In button to allow access by others.

37

38 The WFDSS Decision content is outlined into several sections: Assessment  
39 (Information, Weather, Values, Situation), Objectives (includes all FMUs,  
40 Strategic Objectives and Management Requirements included in the Planning  
41 Area as well as all included Incident Objectives and Incident Requirements),  
42 Course of Action (includes MAPs), and Rationale. Multiple editors can be  
43 working on different sections of the WFDSS Decision content with a little  
44 coordination and using the edit / check-in process. Additional information that  
45 supports the Decision should be added to each of these sections.

46

1 The users who are editing the Decision content should include maps captures or  
2 uploaded images that support the Decision or help tell the story of the incident  
3 and the Decision. These images can be added to any section of the content as  
4 needed. Additionally, the Editors should also include all support information:  
5 cost development summary, Relative Risk, social/political concerns, fire  
6 behavior models, Values at Risk, long term assessment information.

7  
8 Information from past planning documents that supports the Decision, now  
9 must be included in the Decision content in WFDSS. It is typically added in the  
10 Assessment portion of the Decision content. This information should also be  
11 summarized and referenced in the Rationale portion of the Decision.

12  
13 Prior to submitting a Decision for the Review and Approval process, the  
14 Rationale portion of the Decision must be completed. The Rationale content  
15 should describe why the Decision was made to implement the Course(s) of  
16 Action. Consider explaining what caused you to make this Decision, what  
17 caused you to choose the Course(s) of Action, what are the causes and  
18 influences on the incident, what are the social and political concerns/pressures,  
19 what does the Relative Risk Assessment tell you, are their smoke concerns, and  
20 what fire behavior models informed the Decision.

21  
22 Once a Decision has all the sections completed, it can be submitted for the  
23 Review and Approval process. If a Decision has not been published, it can be  
24 edited or deleted. However, once a Decision has been published, it is part of  
25 that incident record and cannot be changed or removed.

26  
27 The Incident Objectives, Incident Requirements, Course of Action and Planning  
28 Area cannot be viewed by users who do not have incident ownership or  
29 privileges until a Decision is published. A new Decision must be made if  
30 updated information or findings are to be documented.

### 31 32 **Periodic Assessment**

33 This is the section where the Approver(s) will complete the Periodic Assessment  
34 and view the previous actions and comments. The Periodic Assessment must be  
35 completed based on the timeframe specified by the Approver. Depending upon  
36 the complexity and activity on the incident, the timeframe can be set to 1-14  
37 days while publishing the Decision or during the Periodic Assessment process.

38  
39 It is beneficial to document clear, concise information about the incident when  
40 completing the Periodic Assessment. The Periodic Assessment information will  
41 be part of the project record and a way for someone to gather situational  
42 awareness of the incident. It should be useful information, not only during the  
43 incident, but also for years to come when reviewing incidents. The comment  
44 section is especially pertinent because Approvers can outline the thought process  
45 and reasons for either continuing a current decision or requiring a new one.

46

## 1 **Reports**

2 This section allows users to create custom reports consisting of portions of  
3 Decision content, (e.g. the MAP content or Fire Behavior content). A report can  
4 be viewed, edited, published, and downloaded. The Report section does not  
5 provide a report on a Published Decision. Reports on Published Decisions can  
6 be found in the Decisions tab by using the PDF or HTML button, depending on  
7 desired format. When creating a report the user can decide on a custom,  
8 Delegation of Authority, or a Management Action Point report. These reports  
9 give the user the ability to select pertinent information from the incident for the  
10 report they are constructing.

11

## 12 **WFDSS Tools and Functions**

13

### 14 **WFDSS User Roles and Incident Privileges**

15 User Roles within WFDSS correspond to permissions which allow users to  
16 perform certain tasks within the application, such as creating an incident or  
17 conducting fire behavior analysis. Typical User Roles are Viewer, Dispatcher,  
18 Author, Data Manager, and Fire Behavior Specialist.

19

20 Incident privileges are assigned at the time of (and are specific to) an incident.  
21 These privileges allow you to Own, Edit, Review, or Approve decision content.

22

### 23 **Fire Modeling**

24 Fire modeling has been incorporated into WFDSS, in the form of the Fire  
25 Spread Probability model (FSPro), Basic Fire Behavior (Basic), Short Term Fire  
26 Behavior (STFB) and Near Term Fire Behavior (NTFB). Comparison of  
27 WFDSS Short Term and Basic models to stand alone FlamMap and other fire  
28 behavior information can be found on the WFDSS homepage under the Related  
29 Resources link, fire behavior section. Information for requesting assistance in  
30 running these models for your incident can be found at the WFDSS homepage  
31 through the Wildland Fire Management Research and Development And  
32 Application group, or by visiting  
33 [http://www.wfmrda.nwcg.gov/decision\\_support.php](http://www.wfmrda.nwcg.gov/decision_support.php)

34

### 35 **Relative Risk Assessment (left menu)**

36 The Relative Risk Assessment is required before publishing a Decision for an  
37 incident. Its purpose is to assist in planning for, assessing, and managing the  
38 incident. It provides the Agency Administrator with a quick but comprehensive  
39 assessment of the risk of the fire. An incident Owner or Editor can perform the  
40 assessment.

41

42 This is a qualitative process that can be completed in less time than a  
43 quantitative long-term risk assessment. The Relative Risk Assessment chart  
44 uses three risk components:

- 45 • values
- 46 • hazard

**Release Date: January 2015**

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- 1 • probability

2

3 Each of these components is assessed independently. The three outputs are then  
4 evaluated in a final step that provides the Relative Risk rating for the fire. As  
5 the graphs are completed, there is a text box to document the thoughts/reasons  
6 for the inputs. The information from the text box automatically populates in the  
7 WFDSS Decision content but the graphs themselves do not. Relative Risk can  
8 be visited pre-season to define some local inputs. From the Relative Risk rating,  
9 guidance is provided within the system to assist the Owner/Author in  
10 determining the level of analysis needed, considerations for the incident and  
11 documentation of the Decision.

12

### 13 **Organizational Assessment (left menu)**

14 The Organizational Assessment (OA) guides Agency Administrators in their  
15 management organization selection, both in escalating and moderating situations  
16 (.i.e. this process can be used to expand or contract organizations). The OA is  
17 based on Relative Risk, implementation difficulty, and decision concerns. The  
18 final part of the OA combines these variables to determine the level of incident  
19 management needed.

20

### 21 **Incident KMZ (left menu)**

22 Incident KMZ files can be downloaded that include all the incident spatial data  
23 and completed analysis from the Published Decision(s). The spatial data is  
24 composed of the incident shapes found under the Incident and Analysis layers  
25 folder on the Situation Tab. If a decision is pending, only spatial information  
26 available to all users will be provided in the KMZ.

27

### 28 **WFDSS Suggested Refresher Items**

29 It is suggested that the following items are covered in an annual WFDSS  
30 refresher. Utilize the WFDSS 101 training for details in any of the topical areas  
31 below. Suggested minimum duration for review: 2 hrs

32

33 *Strategic Objectives and Requirements* – briefly review what is currently pre-  
34 loaded in WFDSS, discuss if there is conflicting information within the same  
35 FMU, and evaluate what fire management options can be utilized within each  
36 FMU. Determine if edits are needed to update the information currently in  
37 WFDSS.

38 *Boundary Fires* – discuss, with interagency partners, how fires will be managed  
39 along boundaries. Utilize a fire scenario for this discussion if possible and work  
40 through the WFDSS process.

41 *Fire Scenario* – discuss / input the fire scenario in WFDSS Training

- 42 • Utilize a fire scenario that is somewhat complex and includes interagency  
43 partners.
- 44 • Planning Area – draw a planning area with dialogue around how to draw it  
45 and what to include within it.

- 1 ● Values Inventory – review the values inventory as provided in WFDSS
- 2 from the planning area.
- 3 ● Situation Tab – review information available in the situation tab.
- 4 ● Relative Risk & Organizational Needs – complete this process making
- 5 notes of what various elements were rated the way they were.
- 6 ● Incident Objectives / Incident Requirements – write them for the scenario.
- 7 Review to ensure they provide leader’s intent and the “why” type
- 8 information.
- 9 ● Course of Action – develop a course of action that further explains leader’s
- 10 intent, the priorities for the incident, and as needed, what not to do.
- 11 ● Scenarios – as the above information is developed, discuss the potential
- 12 scenarios and document those actions not taken in the assessment,
- 13 validation, or rationale.
- 14 ● Rationale – draft the rationale to include “My decision is…” information
- 15 that answers the ten risk questions, and what was considered in the process
- 16 of the decision. This is the executive summary of the document.
- 17 ● If interagency partners are not involved in the scenario, discuss who, when
- 18 and how they would have been involved during an incident.
- 19 *Fire Behavior Models –*
- 20 ● Discuss the various models (FSPro, NTFB, STFB) and when any of them
- 21 might be utilized.
- 22 ● Review the values at risk information provided by the models and how it
- 23 varies from the values inventory.
- 24 ● Discuss how the models might be utilized to answer what types of
- 25 questions.
- 26 ● Review products previously utilized by the forest to evaluate risk on a fire
- 27 or assist with decision making.
- 28