FIP Wizard 2.0 User Guide: Making a FIP

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This document is https://osf.io/4bfcy/

Background

A FAIR Implementation Profile (FIP) is a list of declared technology choices intended to implement each of the FAIR Guiding Principles, made as a collective decision by the members of a particular community of practice. These guidelines (referenceable at https://osf.io/4bfcy/) provide a practical, "how to" overview for researchers and data stewards for creating a FIP using the FIP Wizard II. For general background on the FIP, see Reusable FAIR Implementation Profiles as Accelerators of FAIR Convergence, in Grossmann G., Ram S. (eds) Advances in Conceptual Modeling. ER 2020. Lecture Notes in Computer Science, vol 12584. Springer, Cham. DOI.

The FIP Wizard 2.0 tool is based on the same technology as the familiar Data Stewardship Wizard. Essentially, we have replaced the Knowledge Model that guides the creation of a data stewardship plan, with a Knowledge Model based on the FIP Questionnaire that guides the user in the creation of a FIP. We have also added the capability for the FIP Wizard 2.0 to use (consume and produce) nanopublications, allowing the various elements of the FIP to be captured in this highly modular, referenceable, machine-readable format. Making use of nanopublications and the FIP Ontology, the FIP Wizard 2.0 captures FIPs that are themselves, to a very high degree, FAIR.

Hence, this user guide is designed to complement the FIP-specific features of the Wizard environment. Details on more generic features of the Wizard (e.g., how to create, save, version projects) can be found in the DSW User Guide.

The development of the FIP Wizard 2.0, and these user guidelines have been produced as part of ENVRI-FAIR's "FIP Wizard Improvement" project in preparation for the ENVRI Community's 3rd iteration of FAIR assessments (FIP for Purpose, beginning January 25 2022). The FIP Wizard team is composed of Barbara Magagna, Marek Suchanek, Tobias Kuhn, and Erik

Schultes. We wish you success in composing your FIP. If you have any comments, questions or suggestions on how to improve the FIP Wizard experience, please contact us.

Getting started with the FIP Wizard II

- Go to https://fip-wizard.ds-wizard.org
  - log in or sign up
- Click **Projects** (a folder icon in the menu bar on the left).
  - You will see a long list of projects.
  - Each project is a FIP (FIPs are named by community)

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- You can create FIPs either from scratch or by cloning an existing FIP, and revising it. In most cases, you'll see a previous FIP for your community in the list (from the 2020 assessments) and you should clone and work with it.
  - Clone and revise your FIP
    - Locate your FIP in the list.
    - Click on the 3 dots (right side) and select **Clone.**
    - This will bring you to the FIP questionnaire. You can now start to work with the FIP Wizard questionnaire, and modify the previous FIP declarations (see below).
  - Make a new FIP
    - Click **Create** (blue button on the top menu bar)
    - You'll see "Create Project" - this dialog box will launch your new FIP
    - Select the tab: **From Template**
      - Enter a name for your FIP
        - We recommend [Community acronym]_FIP_[YEAR]
        - Example: eLTER_FIP_2020
    - Select a template from the drop-down list
      - You'll see here 4 templates - select "FAIR Implementation Profile"
      - Later, when minting nanopublications, you'll use the other templates:

- ○ A FAIR Implementation Community (FIC)
- ○ A FAIR Enabling Resource (FER)
- ○ A Metadata Longevity Plan
    - ■ Click **Save**. This will bring you to the FIP questionnaire. You can now start to work with the FIP Wizard questionnaire, and make FIP declarations (see below).
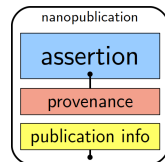
Completing the FIP questionnaire

- ● The FIP questionnaire has 24 questions (referred to in the FIP ontology as "declarations"), divided among 7 chapters.
    - ○ I. About
    - ○ II. Declare your FAIR Implementation Community
    - ○ III. Declarations for Findability
    - ○ IV. Declarations for Accessibility
    - ○ V. Declarations for Interoperability
    - ○ VI. Declarations for Reusability
    - ○ VII. Register a new resource as a nanopublication
- ● On the left, the FIP Wizard will display the chapters and the number of questions that still need to be answered for each chapter.
- ● In the questionnaire, questions that have been answered will be highlighted in green, those that still need to be answered will be highlighted in red.
- ● Chapter I. About, gives some background information, but has no associated questions.
- ● Chapter II. Declare your FAIR Implementation Community
    - ○ This chapter contains 2 questions
        - ■ Identify your FIC by using the drop-down / autocomplete functions in the text box. If you do not see your community, you'll have to first mint a nanopublication representing your community (see below).
        - ■ Identify the person who will be responsible for completing the FIP questionnaire (the community data steward) using ORCID.
- ● The F, A, I and R chapters have a series of questions that follow the same format. The explanatory help text throughout these chapters has been modified from Jacobsen et at (2020) "FAIR Principles: Interpretations and Implementation Considerations" and reflects also the GO FAIR Foundation's interpretations as formulated in the Qualification Criteria of the GO FAIR Foundation. This should help you to understand precisely what type or FAIR Enabling Resource (FER) is being asked for in each case, and for what purpose. Note, in most cases, identical questions are repeated specifically addressing that issue for both data and metadata.

- The questions begin by asking you to make an explicit declaration, whether your community has yet to make decisions regarding that Principle: answer Yes or No.
  - If "No", there is no follow up, and you may proceed to the next question.
  - If "Yes", then you are asked to add (declare) the resource (or a list of resources) by clicking the **+Add** button.
    - The questionnaire asks you to select (from the drop-down list) a FER for that particular FAIR Principle.
      - Note: those items in the list that are marked with the GFF qualification logo are preferred
    - Your selection has a follow up question regarding the implementation status of that FER in your community. Is the FER:
      - a. Currently in use by the community
      - b. Currently in use, but is planned to be replaced in the future
      - c. Is planned to be used in the future
    - Answering "b" will open another text box, allowing you to select the replacement FER.
    - Lastly, there is a free-text box where you may record the considerations behind your declared choices. These are typically the requirements and constraints your community has identified that factor into the implementation.
    - Add additional FERs if necessary by clicking the **Add +** button and repeating the cycle.
- Chapter VII. Register a new resource as a nanopublication
  - There are 3 cases where you will need to mint a new nanopublication, before you can complete the FIP questionnaire:
    - creating a new FAIR Implementation Community (FIC)
    - creating a new FAIR Enabling Resource (FER)
    - creating a Metadata Longevity Plan (MLP)
  - By clicking on the "template" link in each case, you will be taken to the dialog box for creating a new project - in this case, a new Wizard for authoring nanopublications (i.e., the nanoWizard).
  - Once you have successfully created a new nanopublication, it will become immediately visible (and selectable) to you and others in the appropriate drop down lists of the FIP Wizard II.

Minting nanopublications

- What is a nanopublication?
  - A nanopublication is a unitary assertion about the world with associated metadata, rendered in machine-readable form, and all of this having a globally unique, persistent and resolvable identifer (see here and here).
  -
    nanopublication

    assertion

    provenance

    publication info
  - Nanopublications are authored using cryptographic keys that make them hard to forge and corrupt. So once published, they are persistent and immutable.
  - Multiple nanopublications can be "contained" or bundled using a special kind of nanopublication called "index nanopublications".
- Why nanopublication?
  - These computational properties of nanopublications can be powerfully leveraged to make machine-readable FIPs.
  - This happens in two ways:
    - Individual components of the FIP (such as the FIC and FERs) are all represented as nanopublications.
    - The output of the FIP Wizard II (see below, Publishing your FIP) is an index nanopublication that provides a list of declared FERs for every FIC.
- How to mint nanopublications in the FIP Wizard:
  - Go to VII. Register a new resource as a nanopublication
    - Click on one of the three "template" links
    - This takes you to a new project dialog box. In this case, the new project is the nanopublication Wizard.
      - Select the tab: **From Template**
        - Enter a name for your new nanopub
          - There is no specific format required here for the name.
      - Select a template from the drop-down list
        - Choose from the three templates:
          - A FAIR Implementation Community (FIC)
          - A FAIR Enabling Resource (FER)
          - A Metadata Longevity Plan
      - Click **Save**. This will bring you to the nanoWizard questionnaire.
        - There are only two chapters in the nanoWizard:

- - - ■ I. Author - provide your ORCID
    - ■ II. Definition - various details required to build your nanopublication.
  - After completing the nanoWizard, go to **Documents** and make a "new document"
  - Choose **RDF Trig**
  - Push **Create**
  - If no error appears you can submit the nanopub clicking on the three dots
    - Choose Nanopub Server
    - Click on view submission
    - You will see the created FER as a nanopub
  - This FER will now appear in the drop downs where the FER type is expected (e.g. identifier for F1)
  - The FER will not have a GFF qualification, as this needs to be reviewed. The qualification process will take a few days. If it is not accepted you will get a notification about the reason.
  - You can, however, already use the FER before it gets a qualification.

Publishing your FIP

- Your completed the FIP questionnaire will have:
  - Your community nanopub
  - The ORCID for the community data steward
  - All questions completed
- Click **Documents** (top menu bar)
- Click New Document (blue button, right side of upper menu bar)
- Be sure to set RDF TriG
- Click **Create**
- If no error appears you can submit the FIP clicking on the three dots
  - Choose Nanopub Server
  - Click on view submission
  - You will see the created FIP index nanopub
  - Note, all questions must have explicit answers: Some questions may have "null" answers, i.e., declarations that no choice was made versus an incomplete form. Hence, error messages will flag possible issues such as:
    - ■ For some question(s), you did not select a resource

- For some question(s), you did not select the replacement resource (when option b is selected)
- For some question(s), the considerations field was left empty
- All the nanopublications representing your FIP - i.e., the FIC, the many FERs and the index nanopub (indeed, all the semantic triples) - will be stored in a dedicated triple store and will be made available via a SPARQL endpoint in the subsequent workshops January 28 & February 22.