

TRiDaBASE

The Tree-Ring Standard Database

Manual



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Introduction

Recently, data model TRiDaS was developed as a tool for the digital recording and exchange of dendrochronological (meta)data (Jansma et al., 2010).

Using TRiDaS we have developed TRiDaBASE, a relational MS Access database that allows users to register digital metadata according to TRiDaS, to generate TRiDaS XML for uploading to TRiDaS-based analytical systems and repositories, and to ingest TRiDaS XML created elsewhere for local querying and analyses (Jansma et al. 2012a).

The development of TRiDaBASE was funded by The Netherlands Organization for Scientific Research (NWO, section Humanities) and the Cultural Heritage Agency of The Netherlands as part of the medium investment project Digital Collaboratory for Cultural Dendrochronology (DCCD; Jansma 2012b). TRiDaBASE was developed by the Epison Group (Ithaca, New York), which also supported the project financially.

Please cite the following publication when referring to TRiDaBASE (Jansma et al. 2012a):

Jansma, E., R.J. van Lanen, K. Sturgeon, S. Mohlke & P.W. Brewer, 2012: TRiDaBASE, a stand-alone database for storage, analysis and exchange of dendrochronological metadata. *Dendrochronologia* 30(3), 209-211.

[doi:10.1016/j.dendro.2011.09.002](https://doi.org/10.1016/j.dendro.2011.09.002).

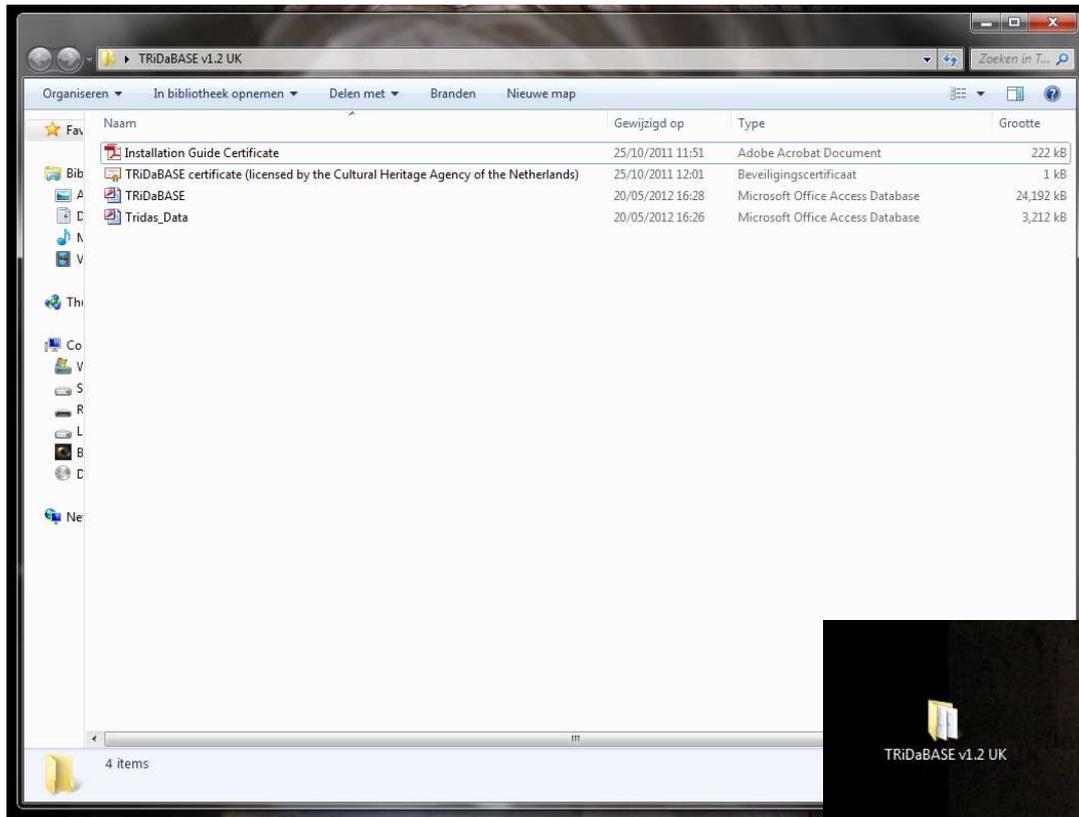
Note by the authors:

This manual has been written with great care. Nonetheless the content may contain errors or omissions. Questions about and suggestions for improvement of this manual are welcome and can be send to the TRiDaBASE section of the TRiDaS discussion forum (<http://tridas.org/forum/>).

TRiDaBASE download and structure

Downloading TRiDaBASE

TRiDaBASE is downloaded in a compressed folder (.zip). When extracting the file to a selected location on your computer, a subfolder (e.g. TRiDaBASE v1.2. UK) is created that contains four files:



Note on figure: TRiDaBASE v1.2. folder containing four files: Installation Guide Certificate, TRiDaBASE certificate, TRiDaBASE database and TRiDaS data file.

First-time users of TRiDaBASE should start with selecting the file “**TRiDaBASE certificate (licensed by the Cultural Heritage Agency of the Netherlands)**”. This file is a digital certificate ensuring that all code and macros behind TRiDaBASE are officially licensed by the Cultural Heritage Agency of the Netherlands (RCE; www.cultureelerfgoed.nl) and the Digital Collaboratory for Cultural Dendrochronology (DCCD) project. Installing this file will fix any security problems with the computer and will ensure an optimal performance of TRiDaBASE. For more information on how to install the digital certificate see the file “*Installation Guide Certificate.pdf*”.

TRiDaBASE database structure

The TRiDaBASE application itself consists of two separate files: **TRiDaBASE** and **Tridas_Data**. Both files are Microsoft Access Databases.

The TRiDaBASE file

The TRiDaBASE file is the actual start-up database and contains the majority of the code and macros of the TRiDaBASE system. Future versions of TRiDaS will be implemented in this file. Upgrading the database to later

versions will require the user to replace this part of the database with a later version. Click on this file to start running the TRiDaBASE system.

The TRiDaS_Data file

The Tridas_Data file contains the actual data. Future implementations of new TRiDaS versions in TRiDaBASE will automatically alter the structure of the Tridas_Data file, but will *never* change the actual data in the file. Inexperienced (Microsoft Access) users are advised not to open and/or alter this part of the TRiDaBASE system.

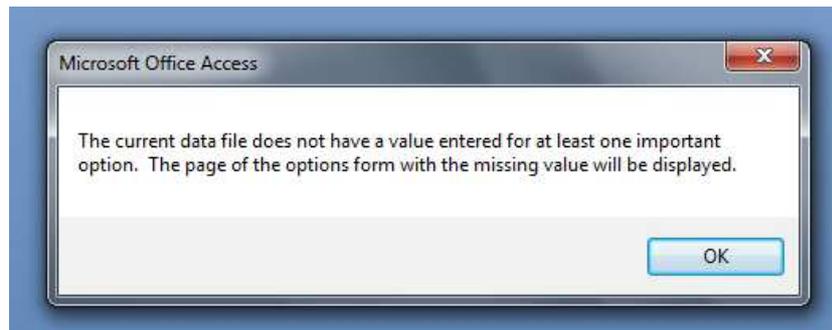
Note: This Tridas_data file is stored locally and users are strongly advised to frequently backup this file.

Getting started

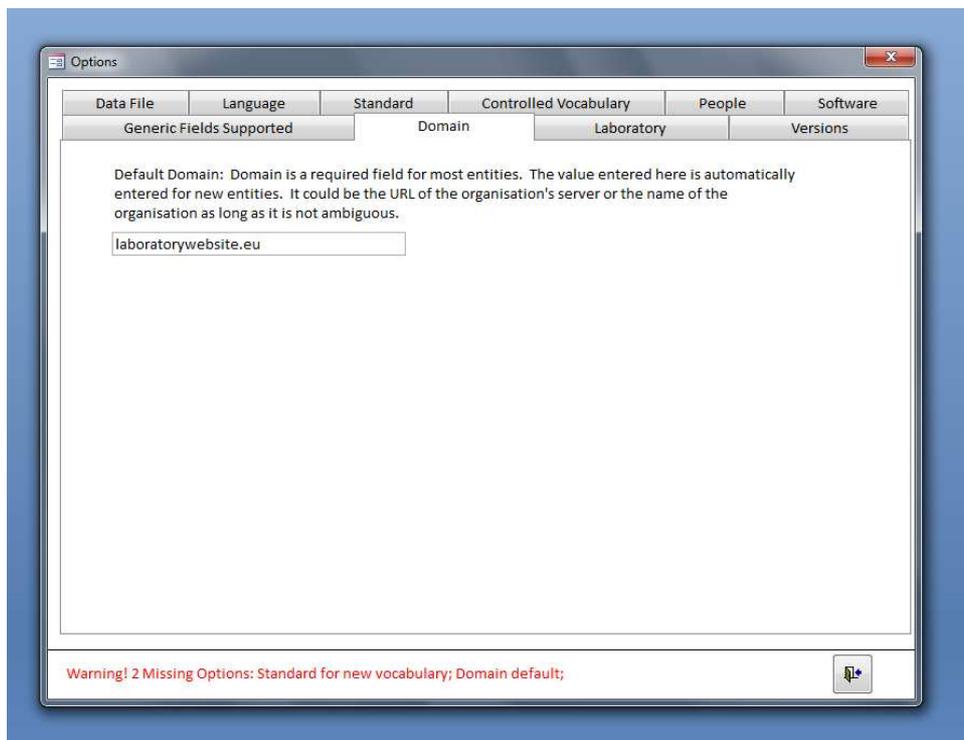
Initializing TRiDaBASE (first-time users)

First steps

To start TRiDaBASE, select the TRiDaBASE file and double-click on the icon, or right-click on the file and select 'open'. The database will start with opening an introduction screen (also depicted on the cover of this manual) . During the first start-up of TRiDaBASE the following message appears:



This screen tells you TRiDaBASE is missing content of one or more mandatory fields. Before you are able to work with the program, these values should be entered. To continue, click **ok**.



Users are alerted to missing mandatory information by yellow or red warning messages. During the first start-up TRiDaBASE is missing the following information: (1) a default domain, and (2) a standard for new vocabulary. The process of entering the default domain and default standard for new controlled vocabulary is only required when first initializing of TRiDaBASE.

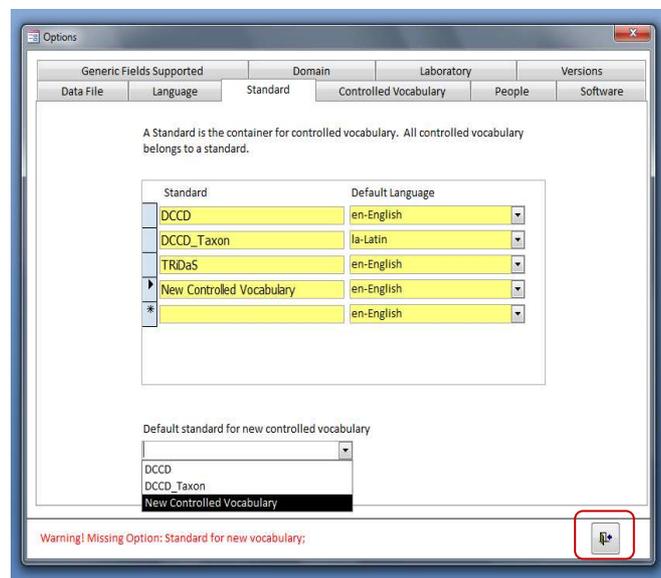
Default domain

The default domain is used in TRiDaBASE in combination with project identifiers to produce unique research identifiers that are not issued by any other laboratory. The field in which the default domain has to be filled in, is opened automatically. In general the domain often is equal to the URL of the laboratory/institute using TRiDaBASE. In the example depicted above the user filled in “laboratorywebsite.eu” as the default domain.

Vocabulary standard

Next click on the “**Standard**” tab within the options forms. A form is opened with three standards already filled in: “DCCD”, “DCCD_Taxon”, and “TRiDaS”. Note: these standards should *not* be altered since they are the backbone of TRiDaBASE.

Now as a **fourth “standard”** add a new title of a controlled vocabulary. This fourth standard will be connected to a separate controlled vocabulary list where users can store their own (additional) controlled vocabulary. In the example below the user defined the standard “New Controlled Vocabulary” and specified that this new standard uses the English language. The language should always be specified. After having created the fourth standard, at the bottom of the screen **select** this standard for storing newly added terms. After having selected the fourth standard for storing new terms, the red warning message at the bottom of the screen disappears. The options menu can now be closed by **clicking on the *exit button*** at the bottom right.

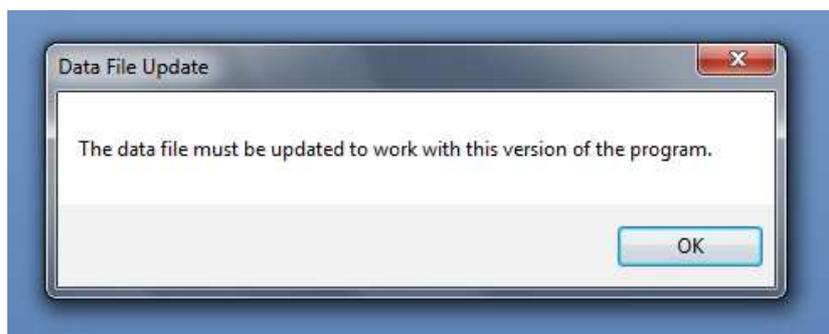


Note: The DCCD controlled vocabulary list contains the vocabulary of the DCCD repository (Jansma et al. 2012b). Altering the DCCD standard (e.g. by manually adding terms to this list) may result in compatibility problems when interacting with the DCCD.

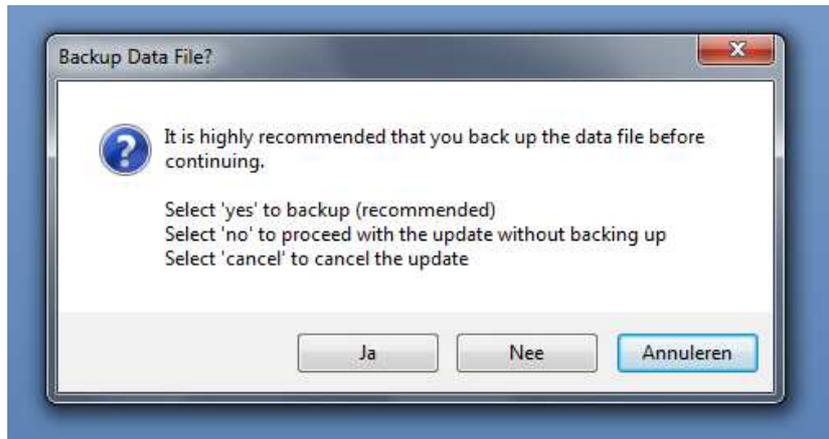
Updating TRiDaBASE (experienced users)

Updating the structure of the TRiDaS_Data file

If you have been using an older TRiDaBASE version and are implementing a more recent version, you may be required by the system to update your Tridas_Data file. Automated updates by TRiDaBASE only affect the structure of your data file and will *not* change your actual data. When an update of the TRiDaS_data file is necessary TRiDaBASE will tell you that an update is required. To continue click **ok**.



TRiDaBASE will ask you next whether you would like to backup your data file. Note: creating a backup of your data file is strongly recommended.



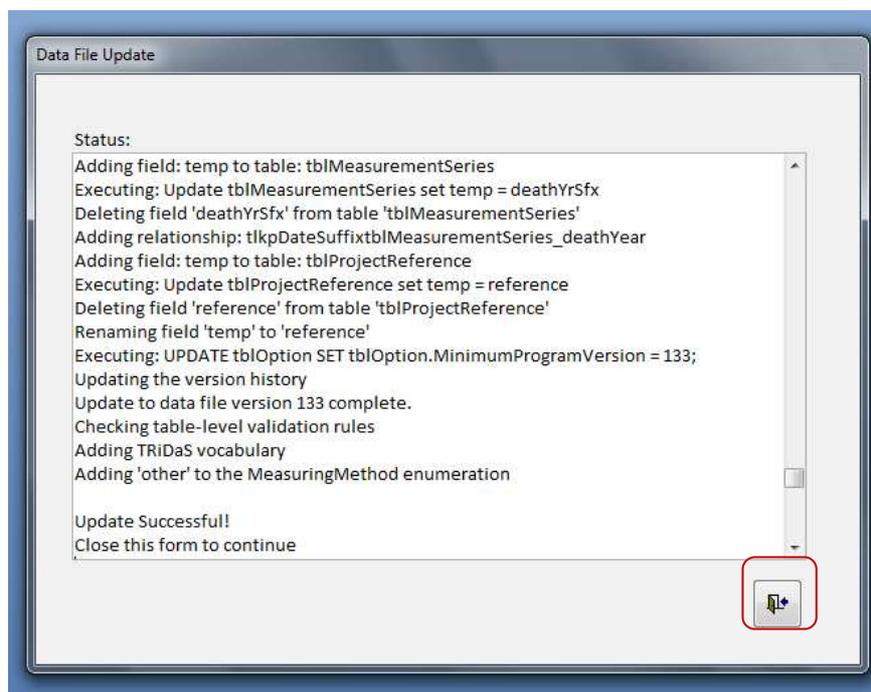
When selecting “Yes” (‘ja’ in the above example) the user needs to select a location for the backup file, after which a copy of the existing TRiDaS_data file will be created. The default file name will consist of the original name plus the local computer date/time.

The backup process

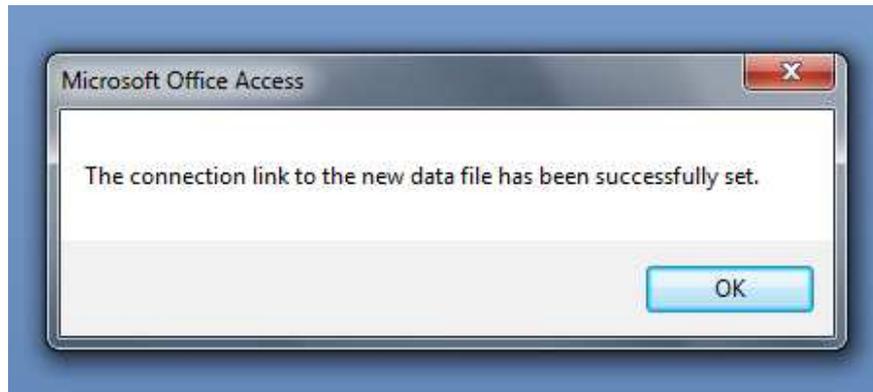
The backup process takes place in three steps. First, TRiDaBASE asks you to close all open forms.



Confirm by clicking the **Backup** button. Next, a window appears informing you of activities performed during the actual update process.

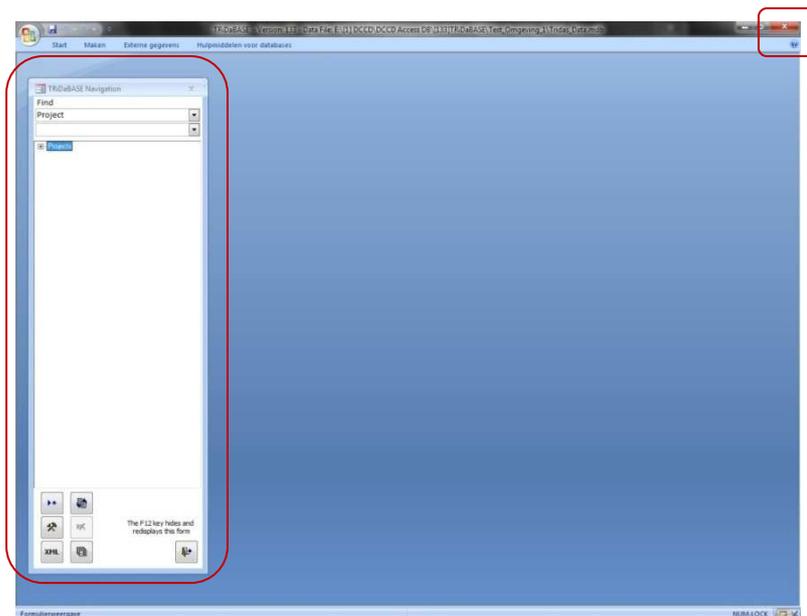


Third, when the updating process is finished close the form by clicking on the **exit button** on the bottom right of the screen. TRiDaBASE will now tell you that the connection with the new (updated) data file has successfully been set. Click **ok** to continue.



Welcome to the TRiDaBASE navigation form

After initializing or updating TRiDaBASE the navigation form appears to the left of the screen. All later start-ups of TRiDaBASE will lead you to this screen directly. The navigation form is used to control all aspects of TRiDaBASE. In the *General forms* section of this manual the navigation form is explained in more detail.



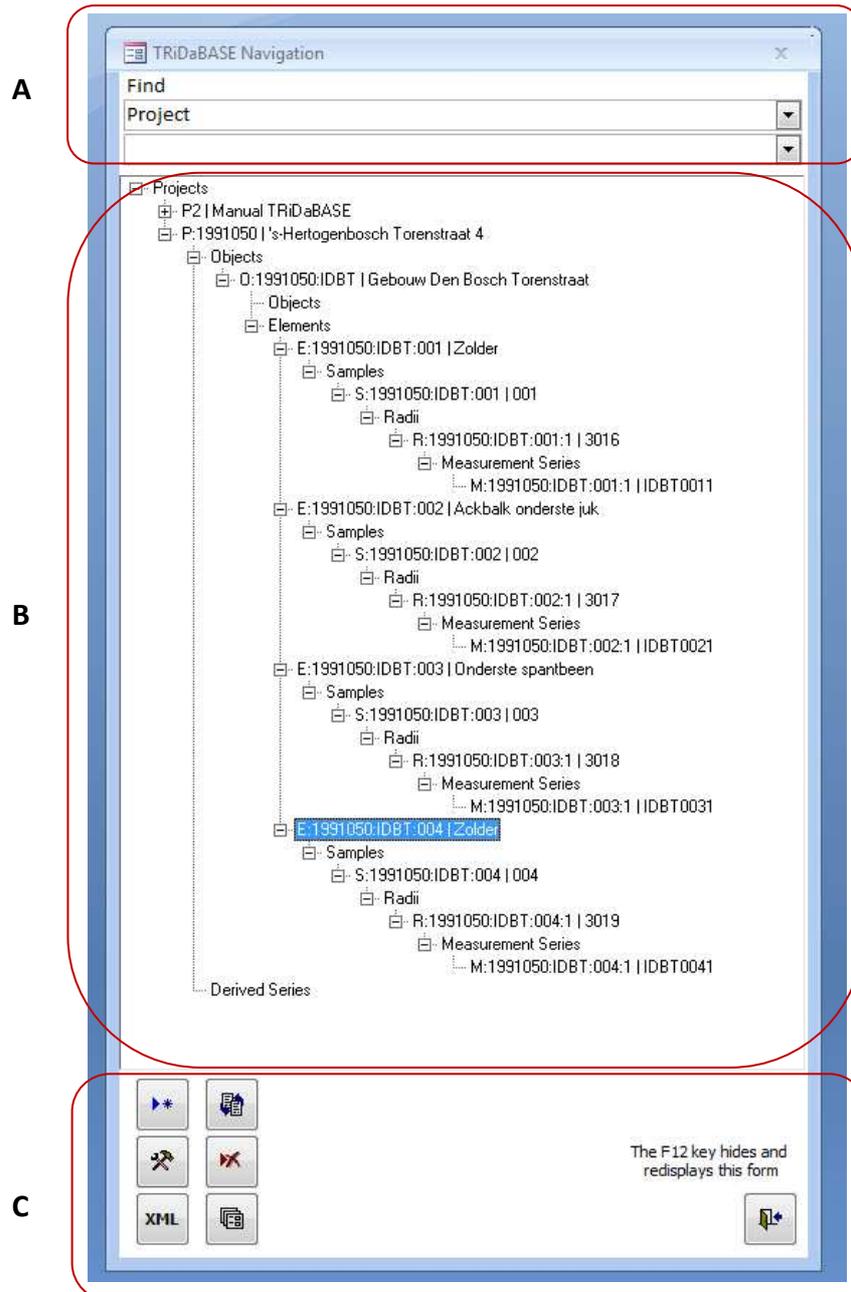
Closing TRiDaBASE

To close the database click on the **red "X" button** at the top right of the screen.

General forms

Navigation form

The navigation form, much like its name suggests, is the central form of TRiDaBASE and is used for navigating through the database. It is used to control all aspects of TRiDaBASE, such as creating new projects, filling in content, alter settings and importing/exporting projects (translation to and from TRiDaS XML). The navigation form hides and reappears using the **F12 button**. The navigation form consists of three different sections: A, B, and C:



Section A

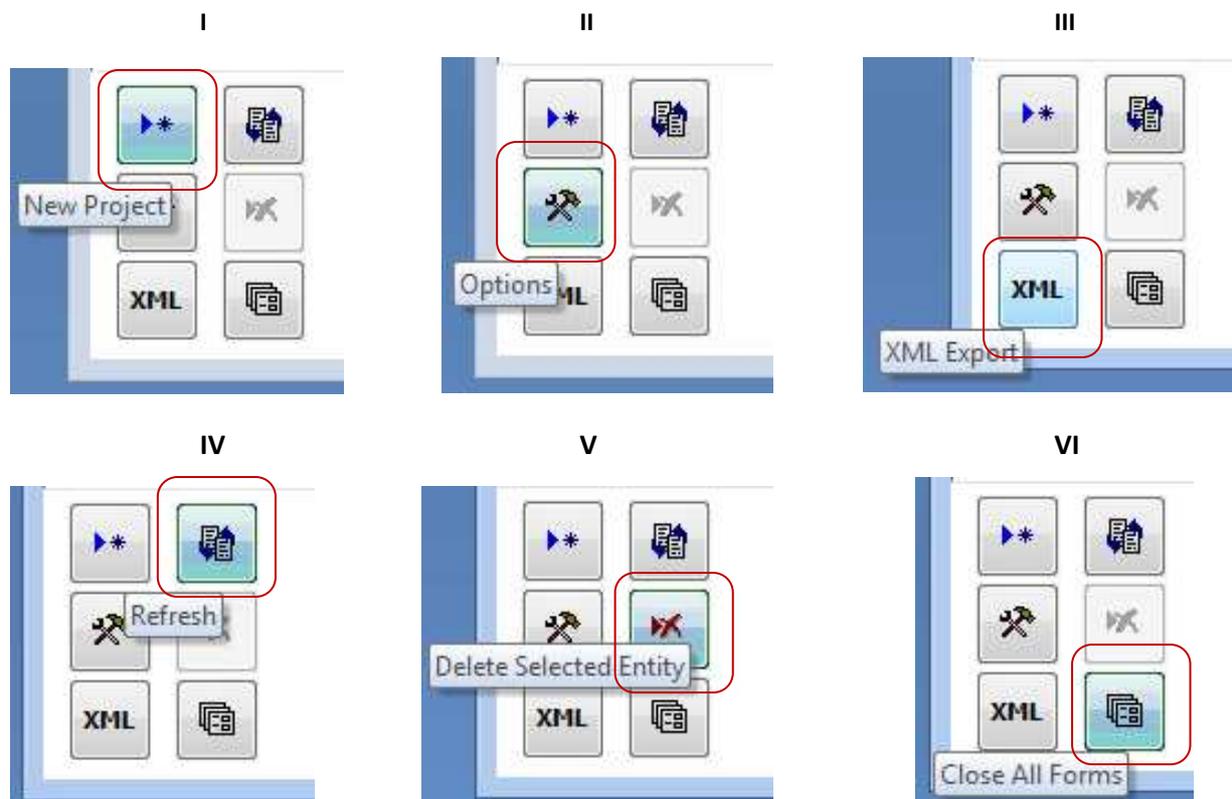
This section provides the option to find a project stored in TRiDaBASE by entering the projects identifier.

Section B

This section contains the navigational tree of TRiDaBASE. The TRiDaS data model has a hierarchical structure, meaning that one project can contain one or multiple objects, that one object can contain one or multiple elements, *et cetera* (Jansma et al. 2010). The navigational tree is structured accordingly. By clicking on the “+” button the tree will expand to the next TRiDaS level, by clicking on the “-” button this is reversed. Select a specific level by double clicking on its title; this will open the selected data level.

Section C

This section contains the functionality buttons of TRiDaBASE. Here users can create a new project (I), navigate to the options screen to adapt the settings (II), import/export data (III), refresh the navigational tree (IV), delete selected information (certain TRiDaS levels of a project or even a complete project; V), and close active forms (VI). The button at the bottom right of the navigation form closes the navigation form (similar to F12).



The first button in section C is the “**New Project**” button (I). Clicking this button will open an empty project form which users can then fill in. For more information about entering data see the “filling in data” section of this manual).

The second button is the “**Options**” button (II), which opens the Options form. All functionality within this form is discussed below under ‘Options form’.

The third button is the “**XML import/export**” button (III). This button opens the import/export form and allows you to import/export TRiDaS-XML into the database. The functionality of this form will be discussed in the section “Import/export form”.

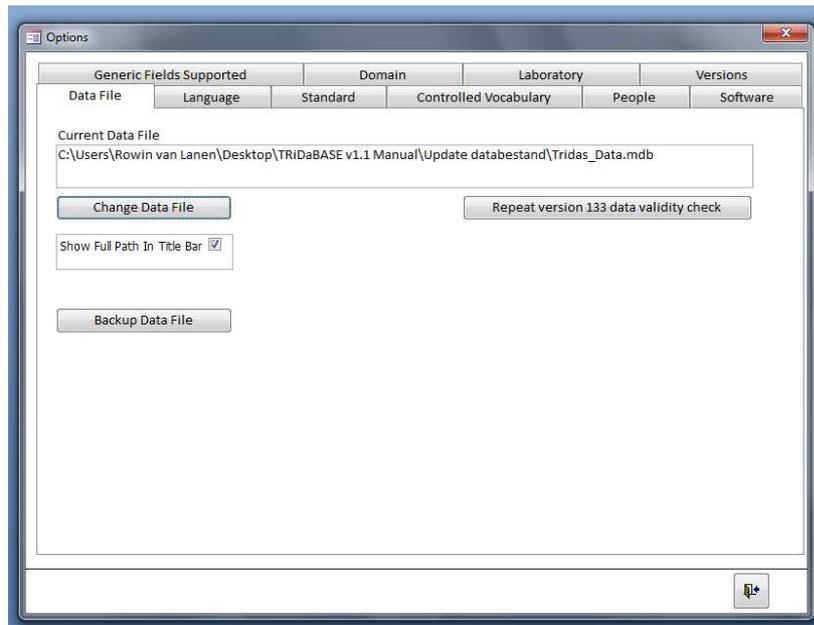
The “**Refresh**” button (IV) refreshes the navigational tree (section B). When adding or deleting a project(level) in the navigational tree, you need to use this button to update the list. If you only have deleted a project level (not an entire project) you can also update the list by collapsing and reopening the project.

The **“Delete Selected Entity”** button (V) lets you select a project(level) in the navigational tree (e.g. a project, object *et cetera*) and to delete all data connected to it. Note: users should be careful using the delete button, since deleting a project(level) cannot be undone.

The **“Close All Forms”** button (VI) is used to save and close all active forms.

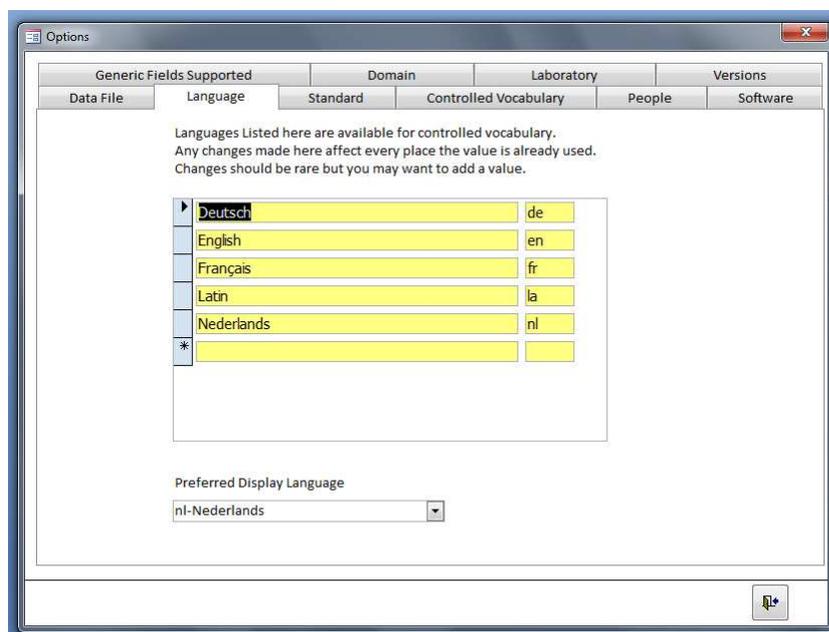
Options form

The options form can be opened using the navigation form. The options form is the central form for defining and altering the settings of TRiDaBASE. When **opening** the options form the following screen appears:



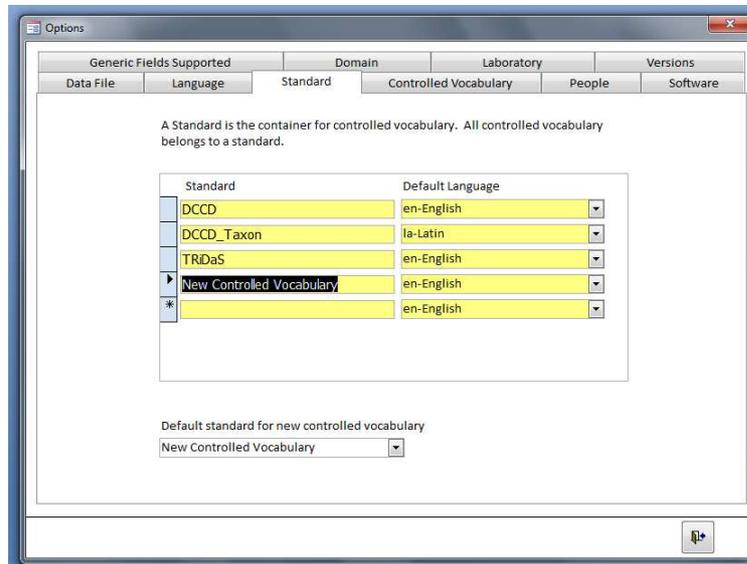
“Data file” tab

The default screen opened is “Data file”. The “Data file” form allows the user to backup the data file (TRiDaS_Data), to change the data file connected to TRiDaBASE (for example when one TRiDaBASE executable file is used for working two different datasets), and to perform a validity check of the data file. This form also shows the path (location) of the data file currently connected to the database. Note: When working with two or more data files on one TRiDaBASE make sure the correct data file is selected by TRiDaBASE before altering data.



“Language” tab

The “Language” form (see previous page, bottom figure) shows the languages supported by TRiDaBASE (currently: German, English, French, and Dutch). Note: Latin is added because TRiDaBASE requires scientific names for taxonomic information. At the bottom of the form the user can select the preferred display language. The selected language is the language that is used by TRiDaBASE in all DCCD controlled-vocabulary pick lists.

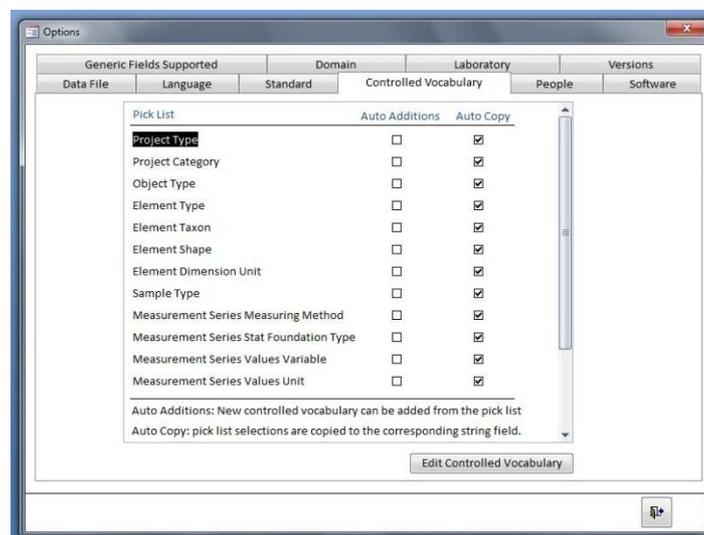


“Standard” tab

The “Standard” form shows the containers of controlled vocabulary in TRiDaBASE (also see under “Vocabulary standard”, page 6). TRiDaBASE supports the DCCD controlled vocabulary for object, element and taxonomic terms as well as the TRiDaS enumeration list. This ensures full compatibility with DCCD and TRiDaS supporting software. This form allows the user to set a default controlled vocabulary for the storage of newly added terms. Note: changing the DCCD, DCCD Taxon and TRiDaS controlled vocabularies may result in compatibility issues with other TRiDaS-based software. Users are strongly recommended to store new terms in newly created controlled vocabulary lists (in this example: “New Controlled Vocabulary”).

“Controlled Vocabulary” tab

The “Controlled Vocabulary” form shows a list of all fields in TRiDaBASE using controlled vocabulary. Within default TRiDaBASE settings “**auto additions**” is turned off. By clicking on the selected fields this option can be switched on. If this option is activated, all new terms will be automatically entered into the controlled vocabulary standard. Note: If this option is switched on and the default controlled vocabulary is set on the DCCD controlled vocabulary, new terms will be automatically added to the DCCD controlled vocabulary. This will lead to deviations from the original DCCD-issued vocabulary. A result may be that future updates of the DCCD controlled vocabulary cannot be integrated into your TRiDaBASE system.



Within this screen the **“auto copy” function** is designed for communication with the DCCD. Switching this option off will result in TRiDaS-XML that after uploading to the DCCD has to be edited (in the DCCD “draft status”) before it can be archived in the DCCD repository.

“People” tab

The “People” form allows users to add, delete and edit information about the researchers referred to in TRiDaBASE. In several TRiDaS levels of TRiDaBASE this information is requested (e.g., principal investigator, dendrochronologist, analyst). The “People” form provides the list from which selections can be made when filling in these TRiDaBASE levels.

Generic Fields Supported		Domain	Laboratory	Versions	
Data File	Language	Standard	Controlled Vocabulary	People	Software

People listed here are available on pick lists for analyst, author, dendrochronologist and investigator.
Any name can be entered in those fields without it appearing here. This is for convenience.
Changes to this list will not affect fields where the values are already used.

Fill in here name first employee

Fill in here name second employee

▶

“Software” tab

The “Software” form allows the user to add, delete and edit dendro-software information. The TRiDaS series level of TRiDaBASE requires information about used software. The “Software” form provides the list from which selections can be made. A number of default software packages is already present in the default version of TRiDaBASE.

Generic Fields Supported		Domain	Laboratory	Versions	
Data File	Language	Standard	Controlled Vocabulary	People	Software

Software listed here is available on software pick lists.
Any value can be entered in software fields without appearing here. This is for convenience.
Changes to this list will not affect fields where the values are already used.

Catras

CROSS84

PAST4

Unknown

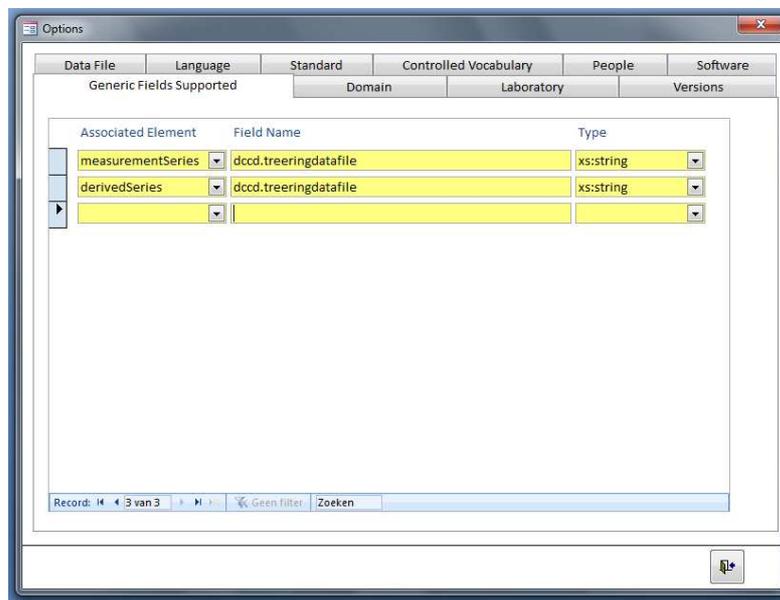
▶

“Generic Fields Supported” tab

The “Generic Fields Supported” form manages all generic fields in TRiDaBASE. TRiDaS has been developed to facilitate as many users as possible. However, users still might find fields missing in the current structure that they want to see added. To facilitate these users the option of adding generic fields has been developed. Generic fields can contain any value (integer, real, string) defined by the user and they are a structural part of the datasets stored in TRiDaBASE. To add a generic field users have to select the TRiDaS level to which the generic field belongs, as well as the title and the type of field.

Generic field “dccd.treeringdatafile” for interaction with DCCD

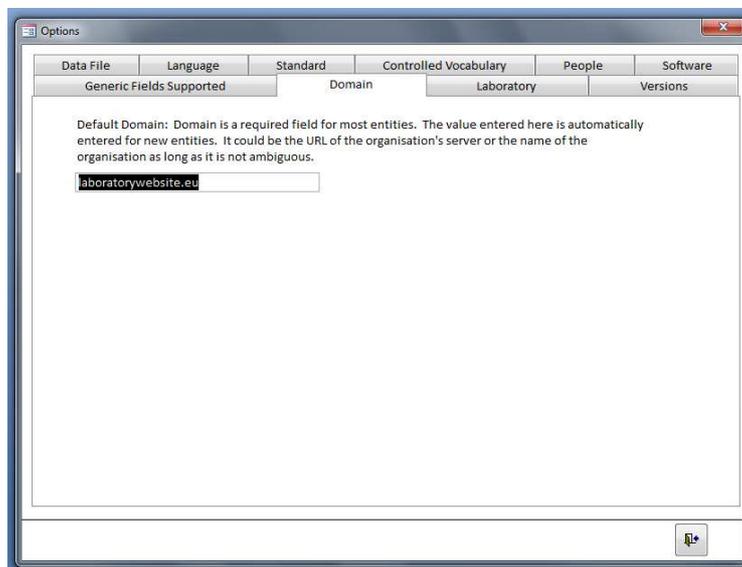
The default version of TRiDaBASE contains two generic fields named “**dccd.treeringdatafile**”, placed within TRiDaS levels “**measurementSeries**” and “**drivedSeries**”. These generic fields are used to create a link to tree-ring value files (e.g. Heidelberg: “ABC00011.fh”). When uploading data to the DCCD, a reference to a file in these generic fields will result in the question to upload the specified file to the DCCD. This allows the DCCD to combine your metadata and data into a single project file. Note: use complete filenames for referencing tree-ring value files (name.extension).



Associated Element	Field Name	Type
measurementSeries	dccd.treeringdatafile	xs:string
drivedSeries	dccd.treeringdatafile	xs:string

“Domain” tab

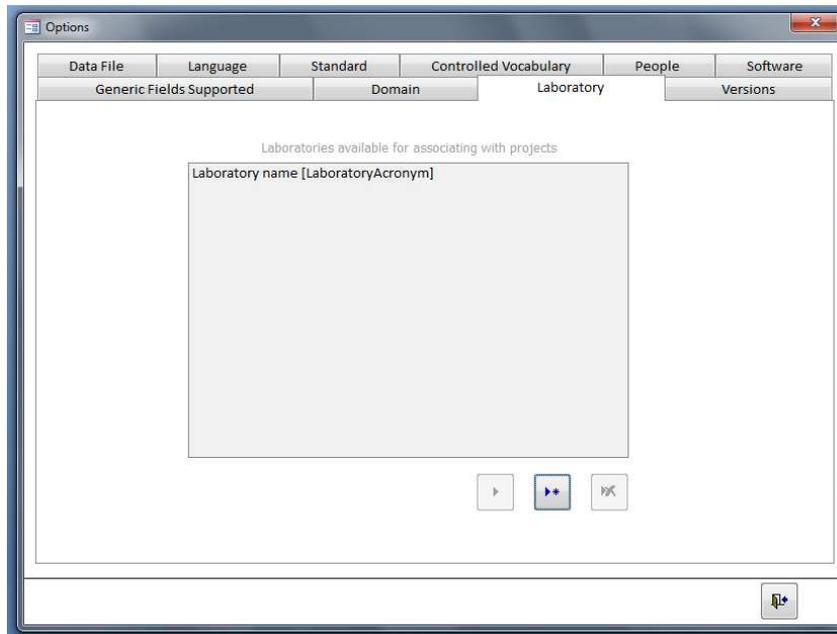
The “Domain” form contains information about the domain (organization) which issued the identifiers in your local TRiDaBASE system. In general this would be the URL of your laboratory or institute. The combination of your domain and project identifier should be unique within your system. Defining the domain is one of the first steps when initializing TRiDaBASE for the first time (see “Starting-up TRiDaBASE” section for more details).



Default Domain: Domain is a required field for most entities. The value entered here is automatically entered for new entities. It could be the URL of the organisation's server or the name of the organisation as long as it is not ambiguous.

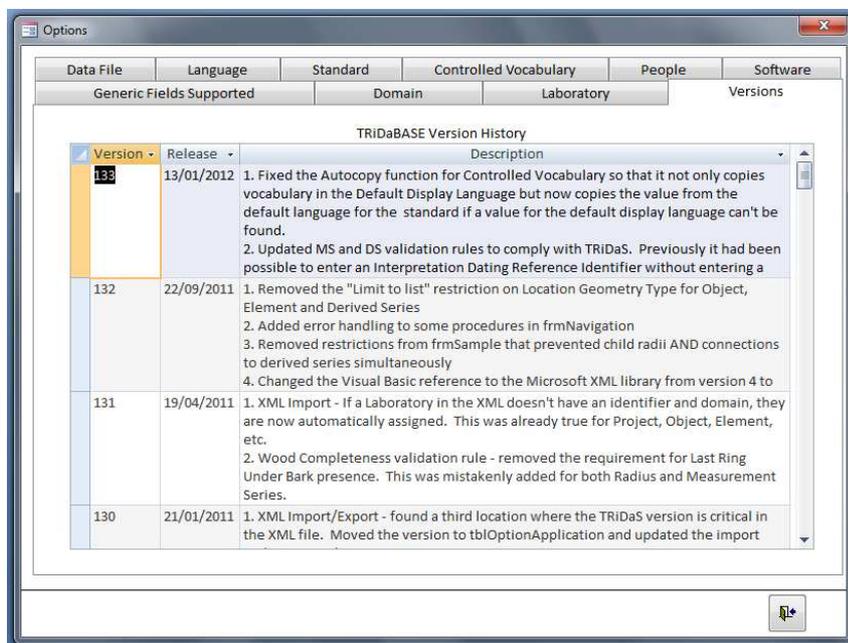
“Laboratory” tab

The “Laboratory” form contains contact information about the laboratories providing data to your TRiDaBASE system (e.g. addresses, acronyms). The list can be expanded according to your needs.



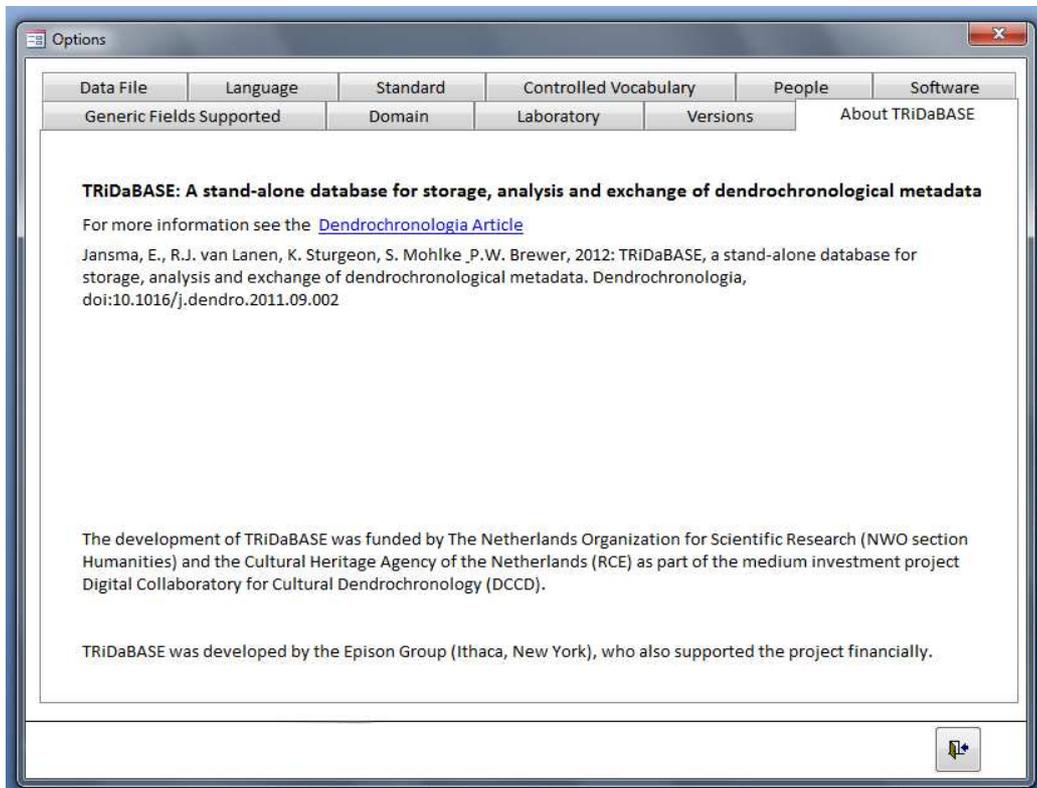
“Versions” tab

The “Versions” form contains an overview of the major updates and changes made since the previous version of TRiDaBASE. This tab should be seen as a log of the development history of TRiDaBASE.



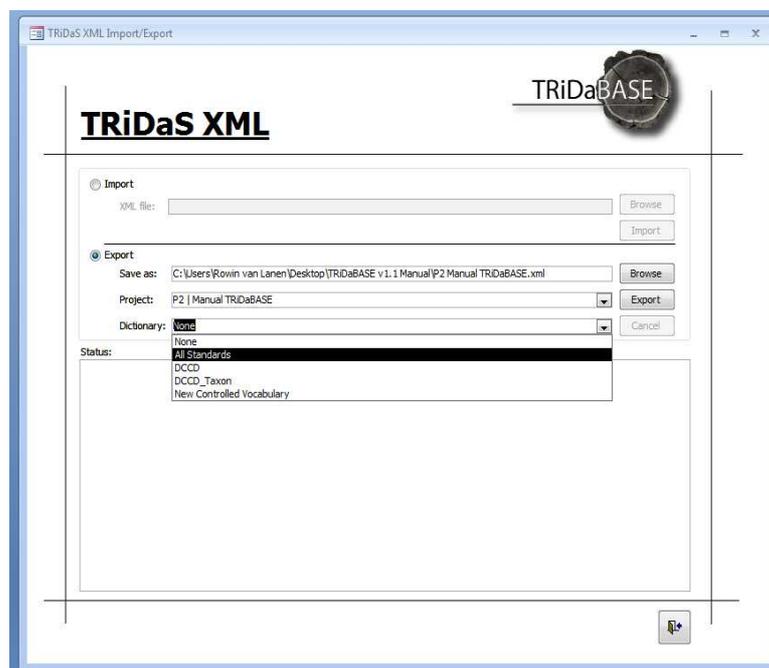
“About TRiDaBASE” tab

The “About TRiDaBASE” form contains background information about TRiDaBASE (context of the work and funding), and links to a technical paper about this system in *Dendrochronologia*.



Import/Export form

The “Import/Export” form can be opened through the navigation form (when hidden press F12). This form is used for importing and exporting TRiDaS-XML into and from the TRiDaBASE system.



Exporting data

In the navigation screen select the “**XML import/export**” button (see previous chapter, section C). This button opens the import/export form. To export content of TRiDaBASE as TRiDaS-XML select the **Export option**. Next, select a project from the “Project” list. Currently it is only possible to select and export one single project at a time. Note: the content of the pick list shown in the “XML import/export” form is generated from the dataset in TRiDaBASE. All content of the Tridas_Data file will be shown here.



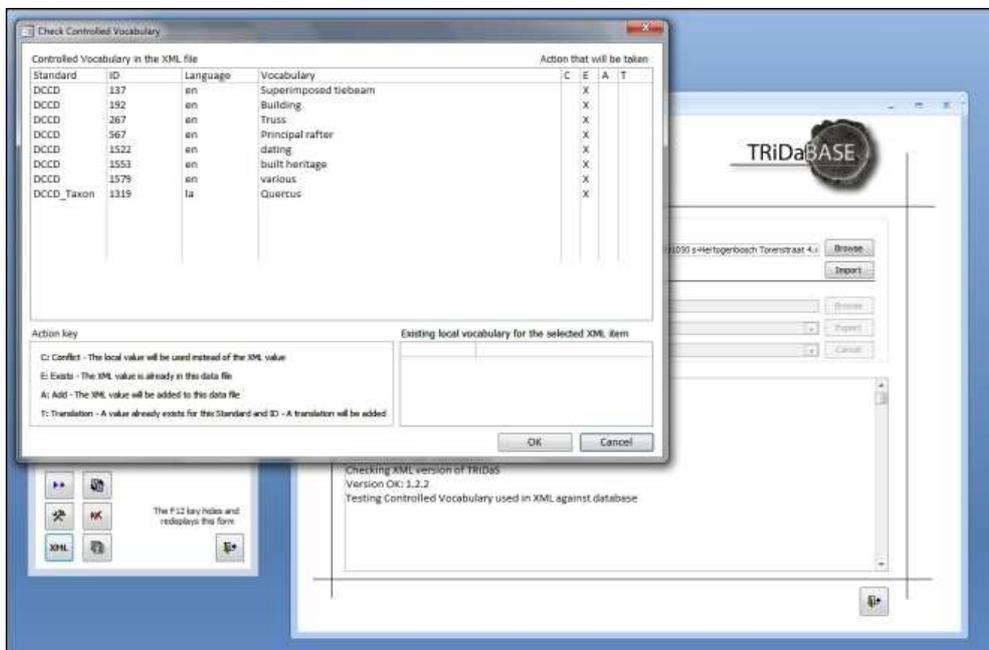
The “**Dictionary**” field in the “XML import/export” form allows the user to include controlled vocabularies in the resulting TRiDaS-XML. The default setting in TRiDaBASE is “none”. Selecting “All standards” will include all controlled vocabulary registered in your TRiDaBASE system in the exported XML. This option is very useful when laboratories want to exchange controlled vocabularies. To export choose the location where the file should be saved by clicking the **browse** button. Create a file name and click **ok**. Start exporting by clicking the **export** button. A window will appear showing the export process. Note: newly added terms which are not (yet) in the DCCD controlled vocabularies should be included in the XML when exchanging your files with other TRiDaBASE users. Otherwise the TRiDaBASE system of the receiving party will not recognize these terms. Also note: new versions of the DCCD controlled vocabularies will be released in an XML file through the DCCDs communication channels (e.g., <http://www.uu.nl/vkc/dendrochronology>). Simply import such a file into your TRiDaBASE system. This will generate an automatic update of the controlled vocabularies in your system.

Importing data

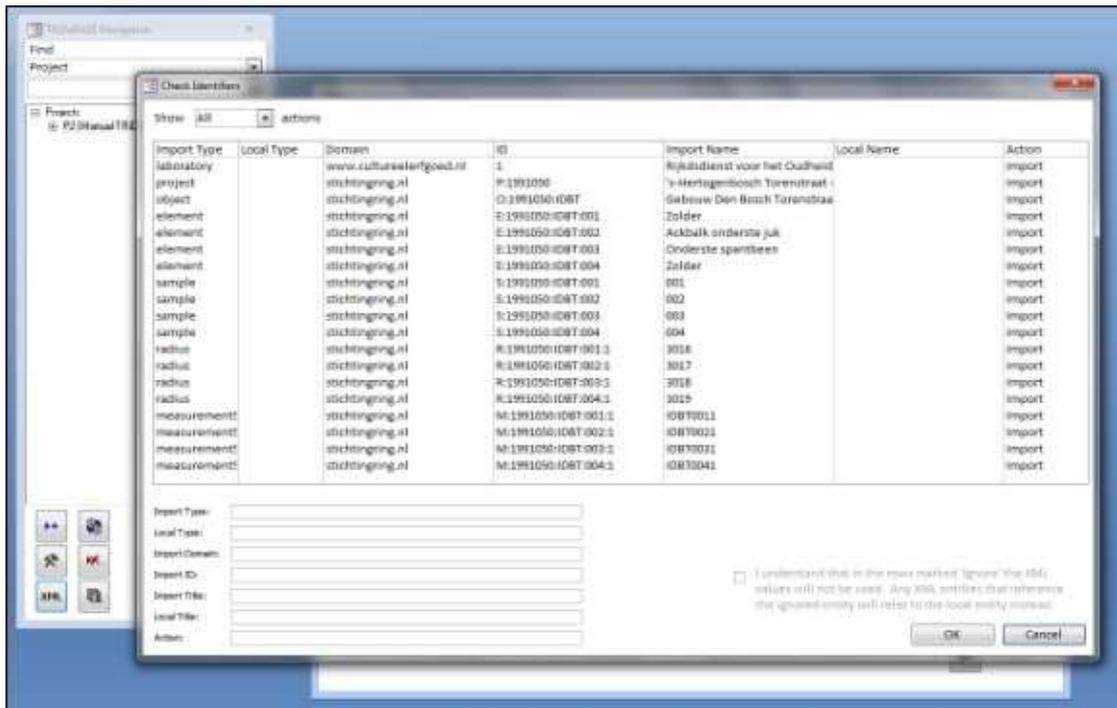
To import data select the **import** header and **browse** to a selected TRiDaS-XML file. Open the selected file and click on the **import button**.



The actual import starts with a automated comparison of the controlled vocabularies in the external XML file against the existing (DCCD) controlled vocabulary. TRiDaBASE will analyse all entities within the external file for duplicates. Any conflicts or errors found during this process should be fixed manually before the import procedure can continue. If the external file shows no problems, press **ok** to continue.



TRiDaBASE next checks the identifiers of all TRiDaS levels in the owners TRiDaBASE system to ensure that no duplicates occur and no original content of TRiDaBASE is overwritten. Any conflicts or errors found during this process should be fixed manually before the import procedure can continue. If the imported file shows no problems, press **ok** to continue.



After these initial checks the actual import procedure starts. A window appears showing the step-by-step import of the XML file, similar to the export procedure.

Filling in metadata

General

This section contains a description of how to add content to TRiDaBASE manually. TRiDaBASE is structured according to TRiDaS, therefore the entering of content is described according to the levels of TRiDaS. The “**Database fields (technical description)**” section of this manual contains a list of all database fields and their description.

Mandatory fields

To allow TRiDaBASE to communicate with other TRiDaS software and with the DCCD, certain database fields are mandatory. These mandatory fields are marked with yellow. Yellow fields need to be filled in before continuing to the next TRiDaS level and before closing the database. In special circumstances TRiDaBASE issues a red warning to draw the users attention to a mandatory action.

Recurring fields and options

“Generic Fields” tab

The “Generic Fields” form is a recurring form and available at every level of TRiDaBASE. This form allows the users to record values for generic fields in TRiDaBASE. Generic fields are user-defined fields allowing the storage of information that is not part of TRiDaS. New generic fields can be added through the “Options” form (see “Options form”, “Generic Fields supported” tab).

The screenshot shows the 'Project' form in TRiDaBASE. The form is divided into several sections. On the left, there is a 'TRiDaS Entity' section with fields for Identifier Domain, Created/Modified, Identifier, Title, and Comments. Below this is a 'Description' field, a 'Category' dropdown, an 'Investigator' dropdown, a 'Period' dropdown, a 'Request Date' field, a 'Certainty' dropdown, and a 'Commissioner' field. On the right, there is a 'Generic Fields' tab with a table for recording generic fields. The table has columns for 'Name', 'Type', and 'Value'. An 'Add Generic Field' button is located at the bottom of the table. A legend at the bottom left indicates that yellow fields are mandatory.

“Files” tab

TRiDaBASE does *not* support storing external files in the database. Use the “Files” form to refer to external (non tree-ring data) files such as pdf, doc and jpeg. Next, record the exact file name(s) in the bottom line of the “Files” tab (e.g. Fake report_1.pdf) and click **save** or press **enter**. Previously entered files (whose names are already in the owners TRiDaBASE system) can be selected from a list. The “Files” tab is available at every TRiDaS level of TRiDaBASE. When uploading a project to the DCCD all files recorded in the “Files” forms will be requested for inclusion in the DCCD as ‘associated files’. Note: Some users may experience problems while recording files, with TRiDaBASE reporting the following error message: “You Cannot Add Or Change A Record

Because A Related Record Is Required In Table tblProject". In order to bypass this error click "ok" and switch to another tab and repeat the process. Now adding the record is permitted.

Project

TRiDaBASE

TRiDaS Entity

Identifier Domain: laboratorywebsite.eu
 Created/Modified: 2012-05-20 14:13:09 utc | 2012-05-20 14:13:09 utc
 Identifier:* P2
 Title:* Manual TRiDaBASE
 Comments: Test project for manual TRiDaBASE

Description: Test project for manual TRiDaBASE

Category:* other (DCCD) | other
 Investigator:* Fill in here name first employee
 Period:* 2012
 Request Date: 01/01/2012
 Certainty: exact
 Commissioner: DCCD project

* = Mandatory Fields

"Location" tab

The "Location" form occurs on the Object, Element and Derived Series levels of TRiDaBASE and allows the user to add location information about the studied objects/elements. Location coordinates should be entered including a specification on the geometry type and location type. Users can also record information about the accuracy of the entered coordinates (using a pick list) and any address information that is available. Note: although coordinates are not mandatory in TRiDaS, they are mandatory in the DCCD. To ensure compatibility with the DCCD it is necessary to add location coordinates in WGS84 (urn:ogc:def:crs:EPSG::4326) using the "location" tab.

Object

TRiDaBASE

Parent Project: P:2009055 | Scheepswerf VOC (beschoel)
 Parent Object:

TRiDaS Entity

Identifier Domain: stichtingring.nl
 Created/Modified:
 Identifier:* O:2009055:RTS
 Title:* Scheepswerf VOC (beschoeiing, plank, trekstang), ka
 Comments:

Type:* Scheepshelling (DCCD) | Scheepshelling
 Description:

Preferred Derived Series
 Internal Link:
 Identifier/Domain:
 External URL:

Creator:
 Owner:
 Coverage Temporal: 17e eeuw/18e eeuw
 Foundation: Unknown

Location

X coordinate (longitude): 4.4511
 Y coordinate (latitude): 51.906
 Geometry Type: urn:ogc:def:crs:EPSG::4326 | Use Default
 Location Type: find location (TRiDaS)
 Precision: 0-100
 Location Comment:

Address
 Line 1:
 Line 2:
 City or Town: Rotterdam
 State/Province/Region:
 Postal Code:
 Country:

* = Mandatory Fields

Creating a new derived series

Derived series can be created in the project, sample and measurement series level of TRiDaBASE. Regardless of the selected level the default **'derived series' form** is opened. Links between series are created manually by using the **"This Series Uses" tab** on the derived series level. Links with the project level are created automatically.

"Add new node" tab

The "Add new node" tab is placed to the bottom right side of many screens and is used to add a new object, element, sample et cetera within a project.



Project level

Definition

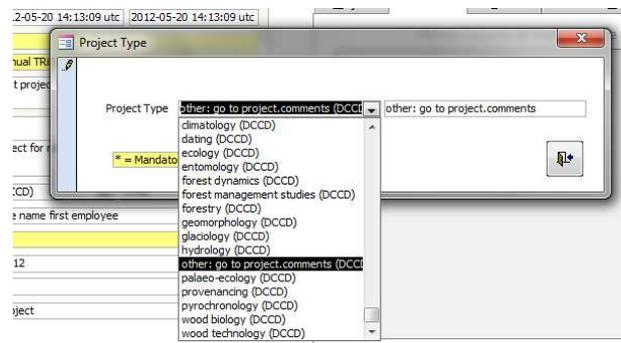
TRiDaS defines the project level as follows: *"A project is defined by a laboratory and encompasses dendrochronological research of a particular object or group of objects. Examples include: the dating of a building; the research of forest dynamics in a stand of living trees; the dating of all Rembrandt paintings in a museum. What is considered a 'project' is up to the laboratory performing the research. It could be the dating of a group of objects, but the laboratory can also decide to define a separate project for each object. Therefore, a project can have one or more objects associated with it."* (source: www.tridas.org).

Research Objects	Types*	Labs*	Owned	Derived Series	References
Identifier	Title				

Summary

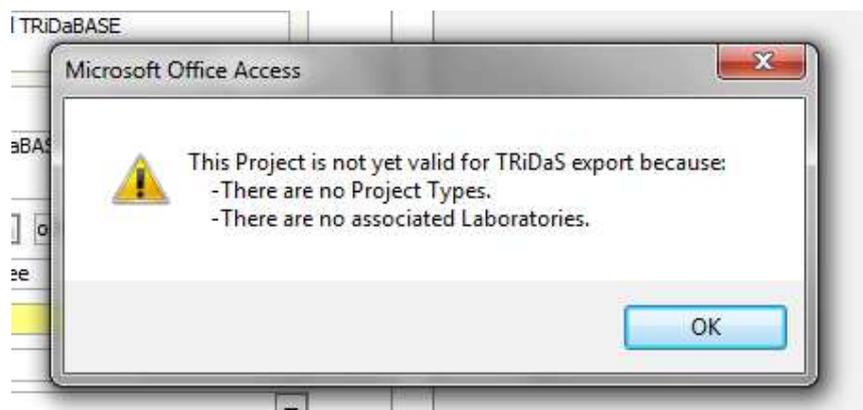
On the project level all information regarding the project should be given. The **project category** and **type** fields are part of the DCCD controlled vocabulary and should be selected by using the pick list. The project form has a number of mandatory (yellow) fields. The **identifier domain**, **created/modified timestamps** and the **project identifier** are generated automatically. The latter can be manually altered into a human-readable identifier.

Note: Some users might experience problems with the **auto copy function** of the “types” fields. If this field is not automatically copied users wishing to upload the project to the DCCD should copy the term manually (without the “(DCCD)” part) in the **xs:string field** to the right, otherwise editing the file in the DCCD is necessary before it can be archived in the DCCD repository.



Project type and Laboratory

On the project level two tabs above the right side of the screen are marked with an astrich (“*”) after their title: “**Types***” and “**Labs***”. These fields are mandatory and should be filled in before continuing to the next level. Clicking on a tab results in the following message:



To continue press **ok** and select the Project type and laboratory from the available pick lists in order to create a valid TRiDaS project.

“Objects” tab

The project form has a number of important tabs available for data entry. The “**Objects**” tab allows the user to created a new object within the current project and to get an overview of objects already available in this project. To add a new object, press the “**New Object**” **button** at the bottom right of the screen.

Project

TRiDaBASE

TRiDaS Entity

Identifier Domain: laboratorywebste.eu
 Created/Modified: 2012-05-20 14:13:09 utc | 2012-05-20 14:13:09 utc
 Identifier:* P2
 Title:* Manual TRiDaBASE
 Comments: Test project for manual TRiDaBASE

Description: Test project for manual TRiDaBASE

Category:* other (DCCD) | other
 Investigator:* Fill in here name first employee
 Period:* 2012
 Request Date: 01/01/2012
 Certainty: exact
 Commissioner: DCCD project

* = Mandatory Fields

Identifier	Title

New Object

“Owned Derived Series” tab

The “Owned Derived Series” form shows the derived series connected to the project. It also allows users to create new derived series by pressing the “**New Derived Series**” button on the bottom right of the form. Derived series can be referred to in the project, sample and measurement series levels using this same tab. For additional information about this functionality see page 32.

Project

TRiDaBASE

TRiDaS Entity

Identifier Domain: laboratorywebste.eu
 Created/Modified: 2012-05-20 14:13:09 utc | 2012-05-20 14:13:09 utc
 Identifier:* P2
 Title:* Manual TRiDaBASE
 Comments: Test project for manual TRiDaBASE

Description: Test project for manual TRiDaBASE

Category:* other (DCCD) | other
 Investigator:* Fill in here name first employee
 Period:* 2012
 Request Date: 01/01/2012
 Certainty: exact
 Commissioner: DCCD project

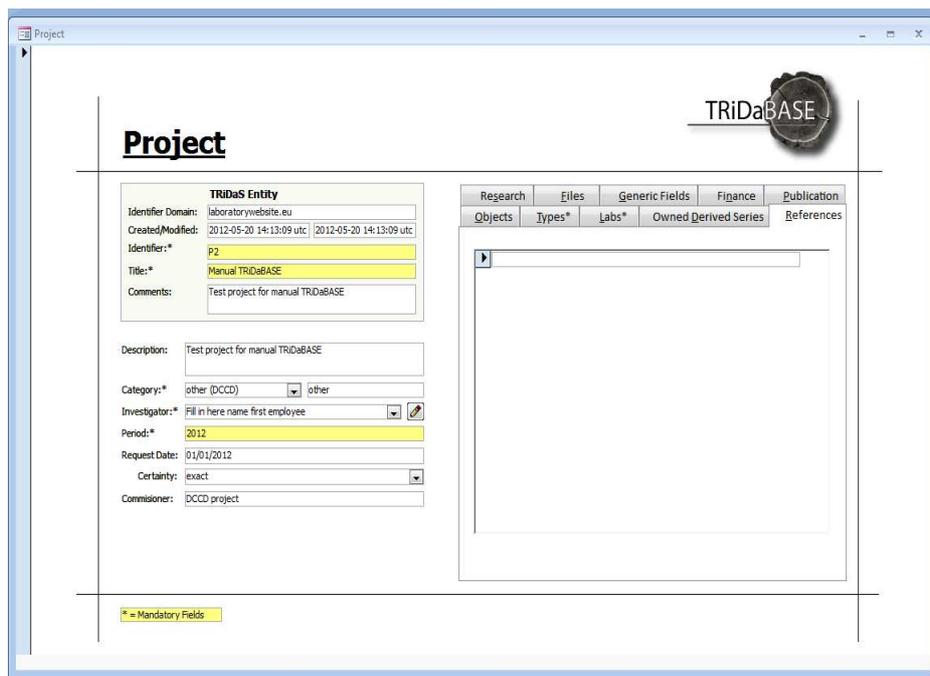
* = Mandatory Fields

Identifier	Title

References

“References” tab

References to the project can be made using the “References” form. This field contains written references to existing publications. Simply add more than one reference by entering a new line.

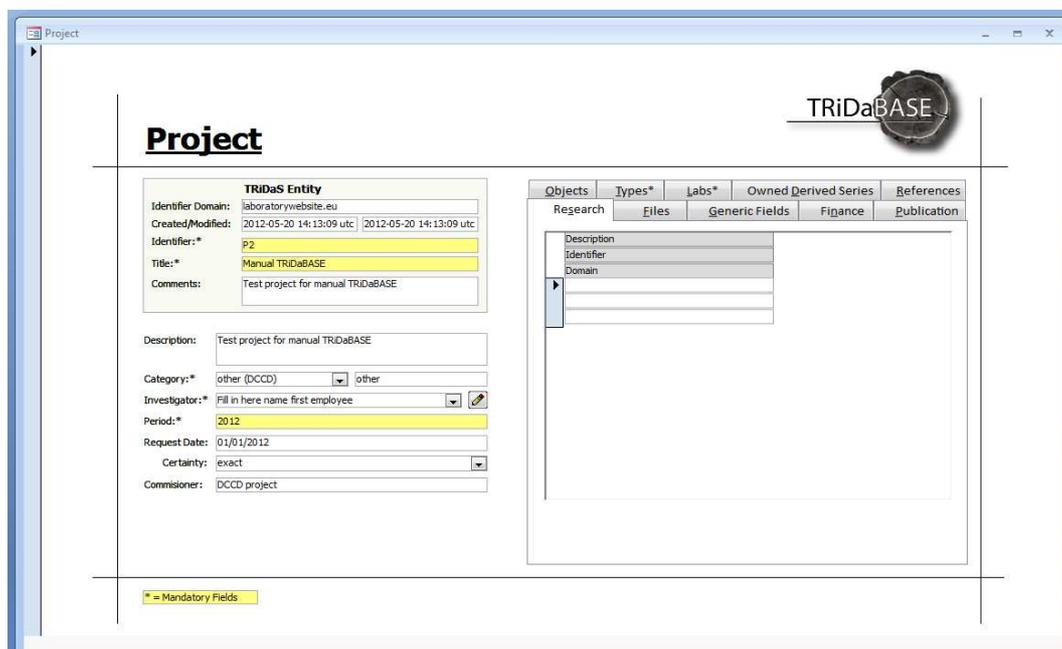


“Files” tab

See this chapter, section “Recurring fields and options”.

“Research” tab

The “Research” form allows users to record identifiers from external datasets. This option is used for objects are registered in a national or institutional registration system (e.g. a national architecture databank or archaeological register). In this field the external identifier (e.g. monument number) is registered together with the domain (name of the databank or registration system). If needed an additional description can be added.



“Generic fields” tab

See this chapter, section “Recurring fields and options”.

Other project tabs

The “Finance” and “Publication” forms of TRiDaBASE are not part of TRiDaS, nor of the DCCD. The “Finance” form allows users to record a basic administration of financial information regarding a project. The “Publication” form allows users to add publication information about the project not stored in the “References” field. In practice the “Publication” form is used to store general publications about sites/objects, whereas the “References” form is mostly used to refer to dendrochronological publications.

Object level

Definition

TRiDaS defines the object level as follows: “An object is the item to be investigated. Examples include: violin; excavation site; painting on a wooden panel; water well; church; carving; ship; forest. An object could also be more specific, for example: mast of a ship; roof of a church. Depending on the object type various descriptions are made possible. An object can have one or more elements and can also refer to another (sub) object. For instance a single file may contain three objects: an archaeological site object, within which there is a building object, within which there is a beam object. The list of possible object types is extensible and is thus flexible enough to incorporate the diversity of data required by the dendro community. Only information that is essential for dendrochronological research is recorded here. Other related data may be provided in the form of a link to an external database such as a museum catalogue.” (source: www.tridas.org)

Summary

One project can have one or more objects linked to it. The object form contains all information about a single studied object (e.g., type of object, creator, owner, expected chronological age). The layout of this form is similar to that of the project form and shows a number of mandatory fields (yellow). The **identifier**, **domain** and **created/modified timestamps** are automatically generated. An **object type** should be selected from the DCCD controlled vocabulary list. Any additional information on the object is recorded using the comments and description fields.

“Elements” tab

The “Elements” tab allows users to either created a new element within this object or to get an overview of elements already available in the object. To add a new element, press the “New Element” button at the bottom right.

The screenshot shows the 'Object' form in the TRiDaBASE application. The form is divided into several sections. At the top, there are dropdown menus for 'Parent Project' (P2 | Manual TRiDaBASE) and 'Parent Object'. Below this is the 'TRiDaS Entity' section, which contains fields for 'Identifier Domain', 'Created/Modified', 'Identifier*' (O1), 'Title*' (Object for manual TRiDaBASE), and 'Comments' (Object for manual TRiDaBASE). The 'Type*' dropdown is set to 'Miscellaneous finds [DCCD]'. The 'Description' field contains 'Object for manual TRiDaBASE'. There is also a 'Preferred Derived Series' section with fields for 'Internal Link', 'Identifier/Domain', and 'External URL'. At the bottom, there are fields for 'Creator' (Creator of the object), 'Owner' (Owner of the object), 'Coverage Temporal' (If the date is already more or less known), and 'Foundation' (basis of the previous date (e.g. archives sources)). A 'New Element' button is located in the bottom right corner. The interface includes a 'TRiDaBASE' logo and a navigation menu with tabs for 'Elements', 'Objects', 'Location', 'Files', and 'Generic Fields'. A legend at the bottom left indicates that yellow fields are mandatory.

“Objects” tab

The tab “Objects” allows the user to add a sub-object within this object level. This could mean a more specific object that is part of a larger object (e.g., object: tower; sub-object: spiral staircase). By clicking on the “New Object” button a new sub-object is created.

“Location” tab

See this chapter, section “Recurring fields and options”.

“Files” tab

See this chapter, section “Recurring fields and options”.

“Generic Fields” tab

See this chapter, section “Recurring fields and options”.

Element level

Definition

TRiDaS defines the element level as: “An element is a piece of wood originating from a single tree. Examples include: one plank of a water well; a single wooden panel in a painting; the left-hand back plate of a violin; one beam in a roof; a tree trunk preserved in the soil; a living tree. The element is a specific part of exactly one object or sub object. An object will often consist of more than one element, e.g., when dealing with the staves (elements) of a barrel (object). One or more samples can be taken from an element and an element may be dated using one or more derivedSeries.” (source: www.tridas.org)

Summary

One object can have one or more elements linked to it. The element form contains all information about a single studied element (e.g., type, dimensions, taxon, authenticity, processing, tool/carpenter marks, location coordinates). The layout of this form is similar to that of the object form and shows a number of mandatory fields (yellow). The **identifier**, **domain** and **created/modified timestamps** are automatically generated. An **element type** and **taxon** should be selected from the DCCD controlled vocabulary list. Any additional information on the element can be recorded through the comments and description fields.

The screenshot shows the TRiDaS Element form interface. The window title is "Element". The TRiDaS logo is in the top right corner. The main heading is "Element". Below the heading, there is a dropdown menu for "Object" with the value "O1 | Object for manual TRiDaS". To the right of the object dropdown are "Samples", "Dimensions", "Location", "Standing Tree", "Files", and "Generic Fields" tabs. The "Generic Fields" tab is active. The form contains several sections: "TRiDaS Entity" with fields for Identifier Domain, Created/Modified, Identifier (with value "E1"), Title, and Comments; "Type" and "Description" fields; "Preferred Derived Series" with fields for Internal Link, Identifier/Domain, and External URL; and "Taxon", "Shape", "Authenticity", "Processing", and "Marks" fields. A legend at the bottom left indicates that yellow fields are mandatory. The right side of the form features a table with columns "Identifier" and "Title" and a "New" button.

“Element type” and interaction with the DCCD

Although the element type is not mandatory in TRiDaS and TRiDaBASE, the DCCD requires this field to be filled in. Note: to facilitate in an easy communication between the DCCD and TRiDaBASE it is strongly recommended that users fill in this field.

“Samples” tab

The “Samples” form allows users to create a new sample within the current object and to get an overview of samples already available from the element. To add a new sample, press the **“New Sample” button** at the bottom right.

“Dimensions” tab

The “Dimensions” form allows the administration of the dimensions of an element. Users should specify which metrical unit is used for recording these dimensions. They can select either diameter *or* width and depth. A combination is not yet possible at this point.

“Location” tab

See this chapter, section “Recurring fields and options”.

“Standing tree” tab

An element is defined by TRiDaS as a pieces of wood originating from a single tree. This definition enables users to record standing (living or dead) trees in the element level of TRiDaBASE. Users can record all information on the growth situation of a standing tree (e.g. altitude, slope angle) using the “Standing Tree” form.

“Files” tab

See this chapter, section “Recurring fields and options”.

“Generic Fields” tab

See this chapter, section “Recurring fields and options”.

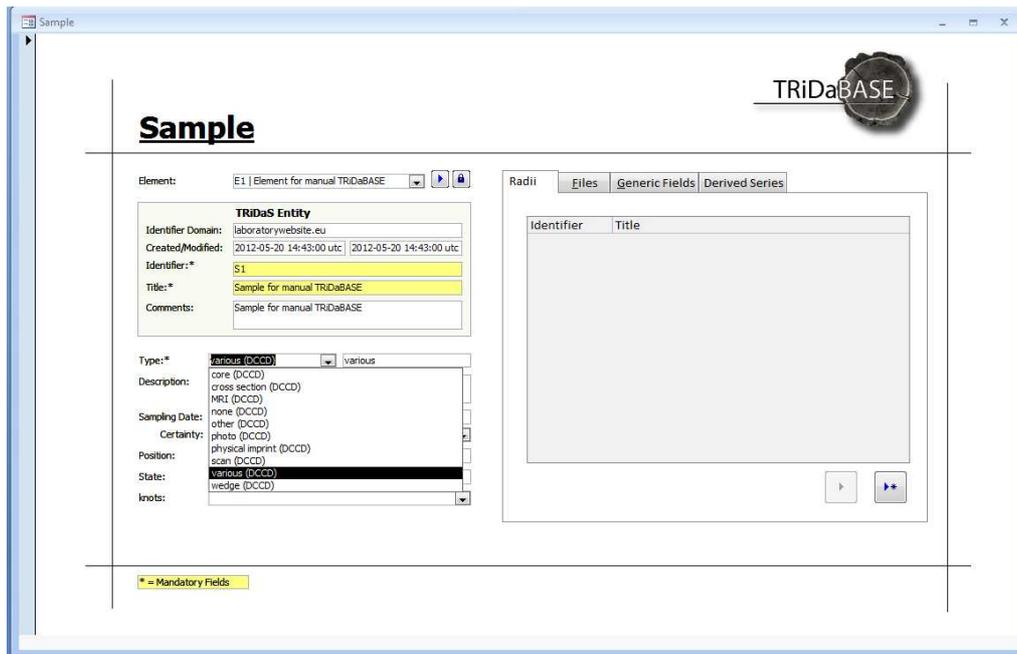
Sample

Definition

TRiDaS defines the sample level as follows: *“A sample is a physical specimen or non-physical representation of an element. Examples include: core from a living tree; core from a rafter in a church roof; piece of charcoal from an archaeological trench; slice from a pile used in a pile foundation; wax imprint of the outer end of a plank; photo of a back plate of a string instrument. Note that a sample always exists and that it can either be physical (e.g. a core) or representative (e.g. a picture). A sample is taken from exactly one element and can be represented by one or more radii.”* (source: www.tridas.org)

General

One element can have one or more samples linked to it. A sample can be a physical specimen or a non-physical representation of an element. The sample form contains all information about a single studied sample (e.g. sampling date, position of the sample, state of the sample). The layout of this form is similar to that of the element form and shows a number of mandatory fields (yellow). The **identifier**, **domain** and **created/modified timestamps** are generated automatically. A **sample type** should be selected from the DCCD controlled vocabulary list. Any additional information about the sample can be recorded using the comments and description fields.



“Radius” tab

The “Radius” tab allows users to create a new radius that is part of this sample and to get an overview of radii already available for this sample. To add a new radius, press the **“New Radius” button** at the bottom right.

“Location” tab

See this chapter, section “Recurring fields and options”.

“Files” tab

See this chapter, section “Recurring fields and options”.

“Generic Fields” tab

See this chapter, section “Recurring fields and options”.

Radius

Definition

TRiDaS defines the radius level as follows: *“A radius is a line from pith to bark along which the measurements are taken. A radius is derived from exactly one sample. It can be measured more than once resulting in multiple measurementSeries.”* (source: www.tridas.org)

General

One sample can have one or more radii linked to it. The radius form contains all information about a measured radius. The layout of this form is similar to that of the sample form and shows a number of mandatory field (yellow). The **identifier**, **domain** and **created/modified timestamps** are generated automatically. Any additional information about the radius can be recorded using the comments field.

“Measurement Series” tab

The “Measurement Series” form allows users to create a new measurement series that is taken from this radius and to get an overview of measurement series already available for this radius. To add a new measurement series, press the “**New Measurement Series**” button at the bottom right.

“Wood completeness” tab

Wood completeness information is mandatory within all TRiDaS supporting applications. The “Wood Completeness” form allows users to record information about the presence of pith and sapwood as well as other observations. A number of fields are mandatory (yellow) and can be selected from predefined TRiDaS enumeration lists. These are: pith presence, heartwood presence, sapwood presence and bark presence. All other fields (e.g. ring count, number of sapwood rings) are optional and further increase the metadata quality. Note: Wood completeness can either be filled in on the radius or measurement series level of TRiDaS. If recorded on both locations measurement series takes precedence.

“Generic Fields” tab

See this chapter, section “Recurring fields and options”.

Measurement Series

Definition

TRiDaS defines the measurement series level as follows: “A *measurementSeries* is a series of direct, raw measurements along a radius. A single *measurementSeries* can be standardised or a collection of *measurementSeries* can be combined into a *derivedSeries*. The measurements themselves are stored separately as values.” (source: www.tridas.org)

Summary

One radius can have one or more measurement series linked to it. On the measurement-series form all information on the measured series can be recorded (e.g. measuring date, analyst(s), dendrochronologist(s), measuring method). The layout of the measurement series form is similar to that of the previous forms and shows a number of mandatory fields (yellow). The **identifier**, **domain** and **created/modified timestamps** are generated automatically. Additional information about the series can be recorded using the comments field.

“Measurement Series” tab

The “Measurement Series” form allows users to create a new measurement series that is taken from this radius and to get an overview of measurement series already available for this radius. To add a new measurement series, press the “**New Measurement Series**” button at the bottom right of the screen.

TRiDaBASE

Measurement Series

Radius: **R:2009055:RTS:0012:1 | RTS00121**

TRiDaS Entity

Identifier Domain: stichtingring.nl
Created/Modified:
Identifier: * **M:2009055:RTS:0012:1**
Title: * **RTS00121**
Comments:

Measuring Date: 01/01/2009
Certainty:
Analyst: Julia Bohorquez Rodriguez de Medina
Dendrochronologist: Marta Dominguez-Delmas
Measuring Method: * **measuring platform (TR)**

Generic Fields | Wood Completeness | Values

This Series Is Used By (0) | Interpretation

Derived Series (0) | MS Dating (0) | DS Dating (0)

Derived Series that use this Derived Series

Identifier	Title
------------	-------

* = Mandatory Fields

“Wood completeness” tab

Wood completeness information is mandatory within all TRiDaS supporting applications. The “Wood Completeness” form allows users to record information about the presence of pith and sapwood as well as other observations. A number of fields are mandatory (yellow) and can be selected from predefined TRiDaS enumeration lists. These are: pith presence, heartwood presence, sapwood presence and bark presence. All other fields (e.g. ring count, number of sapwood rings) are optional and further increase the metadata quality. Note: Wood completeness can either be filled in on the radius or measurement series level of TRiDaS. If recorded on both locations measurement series takes precedence.

The screenshot shows the 'Measurement Series' form in the TRiDaBASE application. The 'Generic Fields' tab is active. The form includes a 'Radius' dropdown set to 'R1 | Radius for manual TRiDaBASE'. Below this is a 'TRiDaS Entity' section with fields for Identifier Domain, Created/Modified dates, Identifier (M1), Title, and Comments. Further down are fields for Measuring Date, Certainty, Analyst, Dendrochronologist, and Measuring Method. On the right, a table titled 'This Series Is Used By (0)' has tabs for 'Generic Fields', 'Wood Completeness', and 'Values'. Below the table is a list of variables with input fields, including Ring Count, Average Ring Width, and various wood presence indicators. A note states: 'This information is required if it has not been entered at the Radius Level. If entered in both places, Measurement Series data takes precedence.' A legend at the bottom indicates that an asterisk (*) denotes mandatory fields.

“Generic Fields” tab

The default version of TRiDaBASE contains two generic fields named “**dccd.treeringdatafile**”, placed within TRiDaS levels “**measurementSeries**” and “**drivedSeries**”. These generic fields are used to create a link to tree-ring value files (e.g. Heidelberg: “ABC00011.fh”). When uploading data to the DCCD, a reference to a file in these generic fields will result in the question to upload the specified file to the DCCD. This allows the DCCD to combine your metadata and data into a single project file. Note: use complete filenames for referencing tree-ring value files (name.extension).

“Values” tab

The “Values” form allows the user to specify what variable the measurement series contains (e.g., earlywood, latewood, ring width), and which metrical unit of distance is used for recording the values in the series.

This screenshot shows the same 'Measurement Series' form, but with the 'Values' tab selected. A pop-up window titled 'Measurement Series Values' is open, showing a 'variable:' dropdown menu, an 'unless' checkbox which is checked, and a 'unit:' dropdown menu. The background form is partially visible, showing the same 'Generic Fields' and 'Wood Completeness' sections as in the previous image. The legend at the bottom still indicates that an asterisk (*) denotes mandatory fields.

“Interpretation” tab: general

The “Interpretation” form allows the user to record information about the dendrochronological date of the measurement series. Users can record a dating type by selecting a term from the TRiDaS enumeration list (e.g., “exact”, “approximately”, “relative”). They also can record calendar years of the oldest and youngest measured ring, (estimated) pith and death year, and an estimated provenance of the wood. The bottom section of the interpretation form is designed to record the statistical values on which the dating is based and the software package used to calculate these statistics. Users can select variable types and software from DCCD-conform pick lists (e.g., Student’s t-value; Catras) and can record specific values for these variables.

“Interpretation” tab: dating reference

Reference chronologies used for dating can be recorded in the “Dating Reference” section. The program allows the administration of internal as well as external dating references. **Internal references** are measurement series and derived series already existing in the users TRiDaBASE system. When referring to an internal reference, follow the programs instructions to link to a series already known to your system. **External references** exist outside your TRiDaBASE system. When referring to an external reference, enter an identifier and the domain which issued this identifier (for example the domain of your institute and the filename/code of the dating reference), or enter the name of the external URL hosting the dating reference.

The screenshot displays the 'Measurement Series' form in the TRiDaBASE application. The form is divided into several sections:

- Radius:** A dropdown menu showing 'R1 | Radius for manual TRiDaBASE'.
- TRiDaS Entity:** A box containing metadata: Identifier Domain (laboratorywebsite.eu), Created/Modified (2012-05-20 14:53:56 utc), Identifier (M1), Title (MeasurementSeries for manual TRiDaBASE), and Comments (MeasurementSeries for manual TRiDaBASE).
- Measuring Date:** A date field set to '13/05/2012'.
- Certainty:** A dropdown menu set to 'exact'.
- Analyst:** A text field with a placeholder 'Fill in here name second employee'.
- Dendrochronologist:** A text field with a placeholder 'Fill in here name second employee'.
- Measuring Method:** A dropdown menu set to 'other (TRiDaS)'.
- Dating Reference:** Fields for Dating Type, First Year / Suffix / Certainty, Last Year / Suffix / Certainty, Internal Link MS, Internal Link DS, Identifier/Domain, and External Link.
- Provenance:** A table with columns: Value, Type(List), Type(String), Signif, and Used Software. The table is currently empty.
- Legend:** A yellow box at the bottom left stating '* = Mandatory Fields'.

“This Series is Used By” tab

The “This Series Is Used By” form allows the user to record links of a measurement series to other series within TRiDaBASE. Such a link is used to administrate that a particular measurement series has been used in a specific derived series or to administrate a cross-dating relationship. When creating a link TRiDaBASE presents the user with a list of all series known to the system.

Creating a new derived series

The “This Series Is Used By” form is also used to create a new derived series users. After having clicked on this option, select the “**Derived Series**” tab and click on the “**New Derived Series**” button. Derived series can be created in the project, sample and measurement series level of TRiDaBASE. Regardless of the selected level the default ‘derived series’ form is opened. Links between series are created manually by using the “**This Series Uses**” tab on the derived series level. Links with the project level are created automatically.

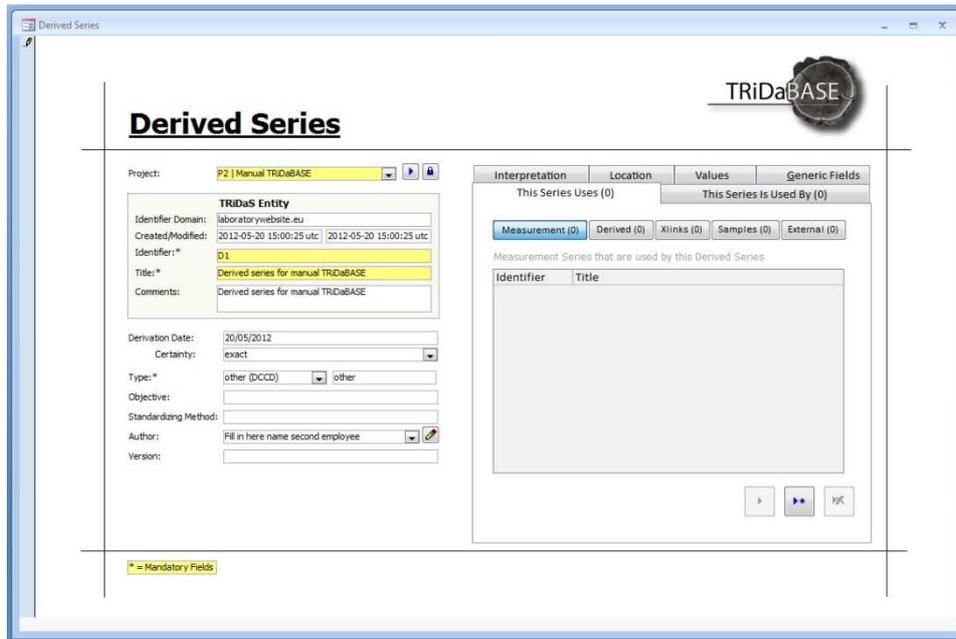
Derived Series

Definition

TRiDaS defines the derived series level as follows: “A *derivedSeries* is a calculated series of values and is a minor modification of the ‘v-series’ concept proposed by Brewer et al (2009). Examples include: index; average of a collection of measurementSeries such as a chronology. A *derivedSeries* is derived from one or more measurementSeries and has multiple values associated with it.” (source: www.tridas.org)

Summary

One derived series can have one or more measurement series linked to it. But one measurement series can also have one or more derived series linked to it. In TRiDaS as well as TRiDaBASE the relation between measurement and derived series can be ‘many-to-many’ (n-n). The derived series form is used to record information about a derived series (e.g., derivation date, author, type, standardizing method). The layout of this form is similar to that of the measurement series form and shows a number of mandatory fields (yellow). The **identifier**, **domain** and **created/modified timestamps** are generated automatically. Additional information about the derived series can be recorded using the comments field.



“Interpretation” tab

See this chapter under “Measurement series”.

“Values” tab

See this chapter under “Measurement series”.

“This series Uses” tab

The “This Series Uses” tab is unique for the derived series level. It allows the user to manually create links between a derived series and other (measurement or derived) series in the TRiDaBASE system. TRiDaBASE will present the user with a pick list of the series known to the system. This tab also allows the administration of external Xlinks (in general URLs) and to refer to external series through the definition of external identifiers and an accompanying domain.

“This Series is Used By” tab

See this chapter under “Measurement series”.

“Generic Fields” tab

See this chapter under “Measurement series”.

“Location” tab

See this chapter, section “Recurring fields and options”.

Database fields (technical description)

Source: www.tridas.org

Project level

A project is defined by a laboratory and encompasses dendrochronological research of a particular object or group of objects. Examples include: the dating of a building; the research of forest dynamics in a stand of living trees; the dating of all Rembrandt paintings in a museum. What is considered a 'project' is up to the laboratory performing the research. It could be the dating of a group of objects, but the laboratory can also decide to define a separate project for each object. Therefore, a project can have one or more objects associated with it.

Name	Description	Additional Associated Attributes
title	Title or name of this entity. This should be a 'human readable' name by which the entity is referred.	
identifier	Identifier for this entity which in combination with the domain should be unique. This is typically a computer generated code such as a database primary key.	<i>domain</i> - The domain which this identifier is applicable to. Could be the URL of the organisation's server or the name of the organisation as long as it is not ambiguous.
createdTimestamp	Field containing date and time when this record was created.	
lastModifiedTimestamp	Field containing date and time when this records was last updated.	
comments	More information about this entity.	
type	The type of entity this is. Preferably derived from a controlled vocabulary.	
description	General description of this entity.	
file	Filename of a file associated with this entity.	
laboratory	The dendrochronological research laboratory where this work was done.	<i>identifier</i> - Identifier for this entity which in combination with the domain should be unique. This is typically a computer generated code such as a database primary key. <i>name</i> - Name of the laboratory. <i>address</i> - Address information about this location <i>acronym</i> - Acronym of the laboratory.
category	Category of research this project falls into. Preferably from a controlled vocabulary.	
investigator	Principal investigator of this project.	
period	When the dendrochronological project took place. Could consist of a start- and end-date. If unknown it should be estimated.	
requestDate	Date of the request for	

	dendrochronology. If unknown it should be estimated.	
commissioner	The person/organisation who commissioned the project.	
reference	Citations of publications relating to this project.	
research	National/International system in which the research project is registered.	<i>identifier</i> - Identifier for this entity which in combination with the domain should be unique. This is typically a computer generated code such as a database primary key. <i>description</i> - General description of this entity.
genericField	Generic field for storing key/value pairs for data not currently supported in the TRiDaS standard	<i>name</i> - Name of the field. <i>type</i> - The data type that this field contains.

Object level

An object is the item to be investigated. Examples include: violin; excavation site; painting on a wooden panel; water well; church; carving; ship; forest. An object could also be more specific, for example: mast of a ship; roof of a church. Depending on the object type various descriptions are made possible. An object can have one or more elements and can also refer to another (sub) object. For instance a single file may contain three objects: an archaeological site object, within which there is a building object, within which there is a beam object. The list of possible object types is extensible and is thus flexible enough to incorporate the diversity of data required by the dendro community. Only information that is essential for dendrochronological research is recorded here. Other related data may be provided in the form of a link to an external database such as a museum catalogue.

Name	Description	Additional Associated Attributes
title	Title or name of this entity. This should be a 'human readable' name by which the entity is referred.	
identifier	Identifier for this entity which in combination with the domain should be unique. This is typically a computer generated code such as a database primary key.	<i>domain</i> - The domain which this identifier is applicable to. Could be the URL of the organisation's server or the name of the organisation as long as it is not ambiguous.
createdTimestamp	Field containing date and time when this record was created.	
lastModifiedTimestamp	Field containing date and time when this records was last updated.	
comments	More information about this entity.	
type	The type of entity this is. Preferably derived from a controlled vocabulary.	
description	General description of this entity.	
linkSeries		
file	Filename of a file associated with this entity.	

Name	Description	Additional Associated Attributes
Creator	Name of creator, place of the workshop/wharf etc.	
Owner	Name of the owner of the physical object.	
Coverage	Details on the time period this object covers.	<i>coverageTemporal</i> - If the date is already known in more or less detail: historical period (broad). Equivalent to Dublin Core term 'temporal'. <i>coverageTemporalFoundation</i> - Method of dating support (e.g. archive sources, inscriptions, stratigraphic context, associated finds, typology, stylistic aspects, carpenter marks, radiocarbon, OSL, other methods).
Location	Details about the geographical location of this entity.	<i>locationGeometry</i> - GML representation of a location. Can be either a point to represent a particular location or a polygon to represent an area or a geographical extent / bounding box. <i>locationType</i> - The type of location that the geometry field represents taken from the TRiDaS controlled vocabulary. <i>locationPrecision</i> - Stores potential difference; number of meters difference, so 0 is exact. <i>locationComment</i> - Additional information about the location, for example, point taken from center or corner of area, which corner <i>address</i> - Address information about this location
genericField	Generic field for storing key/value pairs for data not currently supported in the TRiDaS standard	<i>name</i> - Name of the field. <i>type</i> - The data type that this field contains.

Element level

An element is a piece of wood originating from a single tree. Examples include: one plank of a water well; a single wooden panel in a painting; the left-hand back plate of a violin; one beam in a roof; a tree trunk preserved in the soil; a living tree. The element is a specific part of exactly one object or sub object. An object will often consist of more than one element, e.g., when dealing with the staves (elements) of a barrel (object). One or more samples can be taken from an element and an element may be dated using one or more derivedSeries.

Name	Description	Additional Associated Attributes
Title	Title or name of this entity. This should be a 'human readable' name by which the entity is referred.	
Identifier	Identifier for this entity which in combination with the domain should	<i>domain</i> - The domain which this identifier is applicable to. Could be the URL of the

Name	Description	Additional Associated Attributes
	be unique. This is typically a computer generated code such as a database primary key.	organisation's server or the name of the organisation as long as it is not ambiguous.
createdTimestamp	Field containing date and time when this record was created.	
lastModifiedTimestamp	Field containing date and time when this records was last updated.	
comments	More information about this entity.	
type	The type of entity this is. Preferably derived from a controlled vocabulary.	
description	General description of this entity.	
linkSeries		
file	Filename of a file associated with this entity.	
taxon	The most detailed taxonomic name known for this element (species, genus, family etc). Preferably from the Catalogue of Life (www.catalogueoflife.org) controlled vocabulary.	
shape	The shape of this element, as a free text description, an entry from a specified controlled vocabulary, or preferably from the TRiDaS controlled vocabulary.	
dimensions	Physical dimensions of this element, either height and diameter, or height, width and depth. The units of these measurements must also be specified.	<p><i>unit</i> - Measurement units used for these value, preferably taken from the TRiDaS controlled vocabulary</p> <p><i>height</i> - Height of this element. Should be used in combination with either diameter, or width and depth.</p> <p><i>diameter</i> - Diameter of this element. Used in combination with height when the element is a tree.</p> <p><i>width</i> - Width of the element.</p> <p><i>depth</i> - Depth of the element.</p>
authenticity	Whether this element is original, a repair or later addition etc.	
location	Details about the geographical location of this entity.	<p><i>locationGeometry</i> - GML representation of a location. Can be either a point to represent a particular location or a polygon to represent an area or a geographical extent / bounding box.</p> <p><i>locationType</i> - The type of location that the geometry field represents taken from the TRiDaS controlled vocabulary.</p> <p><i>locationPrecision</i> - Stores potential difference; number of meters difference, so 0 is exact.</p> <p><i>locationComment</i> - Additional information</p>

Name	Description	Additional Associated Attributes
		about the location, for example, point taken from center or corner of area, which corner <i>address</i> - Address information about this location
processing	Processing (carved, sawn etc.) rafting marks etc.	
marks	Carpenter marks, inscriptions etc	
altitude	Altitude in metres if this element is a standing tree in situ.	
slope	Only relevant if this element is a standing tree. Contains details about the slope this tree was growing on.	<i>angle</i> - Angle of slope from horizontal in degrees <i>azimuth</i> - Angle in degrees from north along which the slope lies
soil	Only relevant if this element is a standing tree. Contains details of the soil the tree was growing in.	<i>description</i> - General description of the soil type <i>depth</i> - Depth of soil in centimetres
bedrock	Only relevant if this element is a standing tree. Contains details of the bedrock below where the tree was growing.	<i>description</i> - General description of the underlying bedrock
genericField	Generic field for storing key/value pairs for data not currently supported in the TRiDaS standard	<i>name</i> - Name of the field. <i>type</i> - The data type that this field contains.

Sample level

A sample is a physical specimen or non-physical representation of an element. Examples include: core from a living tree; core from a rafter in a church roof; piece of charcoal from an archaeological trench; slice from a pile used in a pile foundation; wax imprint of the outer end of a plank; photo of a back plate of a string instrument. Note that a sample always exists and that it can either be physical (e.g. a core) or representative (e.g. a picture). A sample is taken from exactly one element and can be represented by one or more radii.

Name	Description	Additional Associated Attributes
title	Title or name of this entity. This should be a 'human readable' name by which the entity is referred.	
identifier	Identifier for this entity which in combination with the domain should be unique. This is typically a computer generated code such as a database primary key.	<i>domain</i> - The domain which this identifier is applicable to. Could be the URL of the organisation's server or the name of the organisation as long as it is not ambiguous.
createdTimestamp	Field containing date and time when this record was created.	
lastModifiedTimestamp	Field containing date and time when this records was last updated.	

Name	Description	Additional Associated Attributes
comments	More information about this entity.	
type	The type of entity this is. Preferably derived from a controlled vocabulary.	
description	General description of this entity.	
file	Filename of a file associated with this entity.	
samplingDate	Date the sample was taken	
position	Description of the position in the element where this sample was taken from	
state	State of the material (dry/wet/conserved/burned, woodworm, rot, cracks) things that indicate the quality of the measurements.	
knots	Are knots present in the sample?	
genericField	Generic field for storing key/value pairs for data not currently supported in the TRiDaS standard	<i>name</i> - Name of the field. <i>type</i> - The data type that this field contains.

Radius level

A radius is a line from pith to bark along which the measurements are taken. A radius is derived from exactly one sample. It can be measured more than once resulting in multiple measurementSeries.

Name	Description	Additional Associated Attributes
title	Title or name of this entity. This should be a 'human readable' name by which the entity is referred.	
identifier	Identifier for this entity which in combination with the domain should be unique. This is typically a computer generated code such as a database primary key.	<i>domain</i> - The domain which this identifier is applicable to. Could be the URL of the organisation's server or the name of the organisation as long as it is not ambiguous.
createdTimestamp	Field containing date and time when this record was created.	
lastModifiedTimestamp	Field containing date and time when this records was last updated.	
comments	More information about this entity.	
woodCompleteness	Details of the pith, heartwood, sapwood and last ring under the bark. This is included under the radius or measurementSeries entities. If present in both, the measurementSeries details supercede those of the radius.	<i>ringCount</i> - Convenience field for recording the total number of rings measured. If there is a disparity between this field and the actual number of 'values' tags, then the number of 'values' tags should be taken as definitive. <i>averageRingWidth</i> - Convenience field for

Name	Description	Additional Associated Attributes
		<p>recording the average ring width of rings measured. If there is a disparity between this field and the actual 'values' tags, then the average of the 'values' tags should be taken as definitive.</p> <p><i>nrOfUnmeasuredInnerRings</i> - Field for recording whether there are any rings at the inner (i.e. towards pith) edge of the sample that have not been measured. Typically used to note when rings are too damaged to measure.</p> <p><i>nrOfUnmeasuredOuterRings</i> - Field for recording whether there are any rings at the outer (i.e. towards bark) edge of the sample that have not been measured. Typically used to note when rings are too damaged to measure.</p> <p><i>pith</i> - Whether the pith is present or absent</p> <p><i>heartwood</i> - This field records whether the outer (youngest) heartwood is present and if so whether it is complete. If the sample includes the last heartwood ring before the sapwood then it is 'complete' otherwise it is 'incomplete' or 'absent'.</p> <p><i>sapwood</i> - Details about the sapwood</p> <p><i>bark</i> - Bark is present or absent</p>
Azimuth	Angle in degrees from north along which the slope lies	
genericField	Generic field for storing key/value pairs for data not currently supported in the TRiDaS standard	<p><i>name</i> - Name of the field.</p> <p><i>type</i> - The data type that this field contains.</p>

Wood Completeness specification

Details of the pith, heartwood, sapwood and last ring under the bark. This is included under the radius or measurementSeries entities. If present in both, the measurementSeries details supercede those of the radius.

Name	Description	Additional Associated Attributes
ringCount	Convenience field for recording the total number of rings measured. If there is a disparity between this field and the actual number of 'values' tags, then the number of 'values' tags should be taken as definitive.	
averageRingWidth	Convenience field for recording the average ring width of rings measured. If there is a disparity between this field and the actual	

Name	Description	Additional Associated Attributes
	'values' tags, then the average of the 'values' tags should be taken as definitive.	
nrOfUnmeasuredInnerRings	Field for recording whether there are any rings at the inner (i.e. towards pith) edge of the sample that have not been measured. Typically used to note when rings are too damaged to measure.	
nrOfUnmeasuredOuterRings	Field for recording whether there are any rings at the outer (i.e. towards bark) edge of the sample that have not been measured. Typically used to note when rings are too damaged to measure.	
pith	Whether the pith is present or absent	
heartwood	This field records whether the outer (youngest) heartwood is present and if so whether it is complete. If the sample includes the last heartwood ring before the sapwood then it is 'complete' otherwise it is 'incomplete' or 'absent'.	<i>missingHeartwoodRingsToPith</i> - Estimated number of missing heartwood rings to the pith <i>missingHeartwoodRingsToPithFoundation</i> - Description of the way the estimation of how many heartwood rings are missing was made and what the certainty is.
sapwood	Details about the sapwood	<i>nrOfSapwoodRings</i> - Number of sapwood rings measured <i>lastRingUnderBark</i> - Information about the last rings under the bark. If the last ring is under the bark is present, include information about the completeness of this ring and/or season of felling. <i>missingSapwoodRingsToBark</i> - Estimated number of missing sapwood rings to the bark <i>missingSapwoodRingsToBarkFoundation</i> - Description of the way the estimation of how many sapwood rings are missing was made and what the certainty is. <i>presence</i> - Whether the sapwood is present or not
bark	Bark is present or absent	

Measurement Series level

A measurementSeries is a series of direct, raw measurements along a radius. A single measurementSeries can be standardised or a collection of measurementSeries can be combined into a derivedSeries. The measurements themselves are stored separately as values.

Name	Description	Additional Associated Attributes
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Name	Description	Additional Associated Attributes
title	Title or name of this entity. This should be a 'human readable' name by which the entity is referred.	
identifier	Identifier for this entity which in combination with the domain should be unique. This is typically a computer generated code such as a database primary key.	<i>domain</i> - The domain which this identifier is applicable to. Could be the URL of the organisation's server or the name of the organisation as long as it is not ambiguous.
createdTimestamp	Field containing date and time when this record was created.	
lastModifiedTimestamp	Field containing date and time when this records was last updated.	
comments	More information about this entity.	
measuringDate	Date that the measurements were made.	
woodCompleteness	Details of the pith, heartwood, sapwood and last ring under the bark. This is included under the radius or measurementSeries entities. If present in both, the measurementSeries details supercede those of the radius.	<p><i>ringCount</i> - Convenience field for recording the total number of rings measured. If there is a disparity between this field and the actual number of 'values' tags, then the number of 'values' tags should be taken as definitive.</p> <p><i>averageRingWidth</i> - Convenience field for recording the average ring width of rings measured. If there is a disparity between this field and the actual 'values' tags, then the average of the 'values' tags should be taken as definitive.</p> <p><i>nrOfUnmeasuredInnerRings</i> - Field for recording whether there are any rings at the inner (i.e. towards pith) edge of the sample that have not been measured. Typically used to note when rings are too damaged to measure.</p> <p><i>nrOfUnmeasuredOuterRings</i> - Field for recording whether there are any rings at the outer (i.e. towards bark) edge of the sample that have not been measured. Typically used to note when rings are too damaged to measure.</p> <p><i>pith</i> - Whether the pith is present or absent</p> <p><i>heartwood</i> - This field records whether the outer (youngest) heartwood is present and if so whether it is complete. If the sample includes the last heartwood ring before the sapwood then it is 'complete' otherwise it</p>

Name	Description	Additional Associated Attributes
		<p>is 'incomplete' or 'absent'.</p> <p><i>sapwood</i> - Details about the sapwood</p> <p><i>bark</i> - Bark is present or absent</p>
analyst	Name of the analyst that made the series	
dendrochronologist	Name of the dendrochronologist that oversaw the analyst	
measuringMethod	Method that was used to measure this measurementSeries, preferably from the TRiDaS controlled vocabulary.	<i>normalTridas</i> - TRiDaS controlled vocabulary for the method of measuring.
genericField	Generic field for storing key/value pairs for data not currently supported in the TRiDaS standard	<p><i>name</i> - Name of the field.</p> <p><i>type</i> - The data type that this field contains.</p>
values	This is a container for a group of actual measurement values. When appropriate this container includes details on the variable being represented as well as the units used. If the values are unitless, then the special field is used.	<p><i>variable</i> - Measured variable (ring width, earlywood, latewood etc) preferably taken from the TRiDaS controlled vocabulary</p> <p><i>unitless</i> - Presence of this field denotes that the associated values have no units. Not to be used to denote *unknown* units.</p> <p><i>unit</i> - Measurement units used for these value, preferably taken from the TRiDaS controlled vocabulary</p> <p><i>value</i> - A value is the result of a single ring measurement. The type of measurement this is along with the units used are recorded in the 'values' container in the associated measurement- or derivedSeries.</p>
interpretation	Information interpreted from the series	<p><i>dating</i> - Information about dating</p> <p><i>firstYear</i> - Year of the first measured ring. This is derived from the chronology that was used to date this series. It is not to be confused with sproutYear.</p> <p><i>lastYear</i> - Year of the last measured ring. It is not to be confused with deathYear which</p>

Name	Description	Additional Associated Attributes
		<p>might also include unmeasured or hypothetical rings</p> <p><i>datingReference</i> - Chronology used to interpret the series</p> <p><i>statFoundation</i> - Container for fields that describe the statistical method used for crossdating</p> <p><i>pithYear</i> - Estimated year that the tree sprouted</p> <p><i>deathYear</i> - Estimated year of death of the tree</p> <p><i>provenance</i> - Estimated provenance derived from the matching chronology</p>
interpretationUnsolved		

Derived Series level

A derivedSeries is a calculated series of values and is a minor modification of the 'v-series' concept proposed by Brewer et al (2009). Examples include: index; average of a collection of measurementSeries such as a chronology. A derivedSeries is derived from one or more measurementSeries and has multiple values associated with it.

Name	Description	Additional Associated Attributes
Title	Title or name of this entity. This should be a 'human readable' name by which the entity is referred.	
Identifier	Identifier for this entity which in combination with the domain should be unique. This is typically a computer generated code such as a database primary key.	<i>domain</i> - The domain which this identifier is applicable to. Could be the URL of the organisation's server or the name of the organisation as long as it is not ambiguous.
createdTimestamp	Field containing date and time when this record was created.	
lastModifiedTimestamp	Field containing date and time when this records was last updated.	
Comments	More information about this entity.	
derivationDate	The date that this derivedSeries was created.	
Type	The type of entity this is. Preferably derived from a controlled vocabulary.	
linkSeries		

Name	Description	Additional Associated Attributes
objective	The reason/rationale why this series was made	
standardizingMethod	Numerical method used to standardise the series	
author	Name of the person that created this derivedSeries	
version	Version number of this derivedSeries	
location	Details about the geographical location of this entity.	<p><i>locationGeometry</i> - GML representation of a location. Can be either a point to represent a particular location or a polygon to represent an area or a geographical extent / bounding box.</p> <p><i>locationType</i> - The type of location that the geometry field represents taken from the TRiDaS controlled vocabulary.</p> <p><i>locationPrecision</i> - Stores potential difference; number of meters difference, so 0 is exact.</p> <p><i>locationComment</i> - Additional information about the location, for example, point taken from center or corner of area, which corner</p> <p><i>address</i> - Address information about this location</p>
genericField	Generic field for storing key/value pairs for data not currently supported in the TRiDaS standard	<p><i>name</i> - Name of the field.</p> <p><i>type</i> - The data type that this field contains.</p>
values	This is a container for a group of actual measurement values. When appropriate this container includes details on the variable being represented as well as the units used. If the values are unitless, then the special field is used.	<p><i>variable</i> - Measured variable (ring width, earlywood, latewood etc) preferably taken from the TRiDaS controlled vocabulary</p> <p><i>unitless</i> - Presence of this field denotes that the associated values have no units. Not to be used to denote *unknown* units.</p> <p><i>unit</i> - Measurement units used for these value, preferably taken from the TRiDaS controlled vocabulary</p> <p><i>value</i> - A value is the result of a single ring measurement. The type of measurement this is along with the units used are recorded in the 'values' container in the associated measurement- or derivedSeries.</p>
interpretation	Information interpreted from the series	<p><i>dating</i> - Information about dating</p> <p><i>firstYear</i> - Year of the first measured ring. This is derived from the chronology that was used to date this series. It is not to be confused with sproutYear.</p>

Name	Description	Additional Associated Attributes
		<p><i>lastYear</i> - Year of the last measured ring. It is not to be confused with <i>deathYear</i> which might also include unmeasured or hypothetical rings</p> <p><i>datingReference</i> - Chronology used to interpret the series</p> <p><i>statFoundation</i> - Container for fields that describe the statistical method used for crossdating</p> <p><i>pithYear</i> - Estimated year that the tree sprouted</p> <p><i>deathYear</i> - Estimated year of death of the tree</p> <p><i>provenance</i> - Estimated provenance derived from the matching chronology</p>
interpretationUnsolved		

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Jansma, E., R.J. van Lanen, K. Sturgeon, S. Mohlke & P.W. Brewer, 2012a: TRiDaBASE, a stand-alone database for storage, analysis and exchange of dendrochronological metadata. *Dendrochronologia* 30(3), 209-211. <doi:10.1016/j.dendro.2011.09.002>.

Jansma, E., R.J. van Lanen, P.W. Brewer & R. Kramer, 2012b: The DCCD: a digital data infrastructure for tree-ring research. *Dendrochronologia* (in press), <http://dx.doi.org/10.1016/j.dendro.2011.12.002>.

Websites

<http://www.tridas.org>

TRiDaS: technical descriptions, software

<http://tridas.org/forum/>

Discussion forum (TRiDaS, TRiDaS-based software)

<http://dendro.dans.knaw.nl>

DCCD repository for tree-ring data

<http://www.uu.nl/vkc/dendrochronology>

DCCD user information