



Adobe FrameMaker (2017 release) Application Pack for S1000D



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S1000D Application Pack for Adobe FrameMaker

Adobe FrameMaker (2017 release) and S1000D

Introduction

Adobe FrameMaker (2017 release) includes support for a significant range of S1000D™ issue 4.0 document types. You can create, manage, and publish data modules and publication modules using an intuitive project-based interface.

The S1000D support is built with FrameMaker's new ExtendScript scripting environment.

S1000D in FrameMaker is for:

- Technical authors who manage, create, or edit S1000D content
- System developers who extend the S1000D features to meet more advanced S1000D project requirements

S1000D resources

The official resource for S1000D information is www.s1000d.org. You can download all versions of the specification starting from issue 2.0 as Adobe PDF files. You can also download the DTDs, schemas, and example files for versions 1.7 and later.

Glossary

Term	Meaning
ASD	The Aerospace and Defense Industries Association of Europe. ASD represents the aeronautics, space, defense, and security industries in Europe.
ASD 2000M or S2000M	ASD Specification 2000M (S2000M) is a standard that specifies the information exchange requirements for materiel management functions that support international projects. S2000M is based on a business model agreed upon between military customers and industry suppliers.
IETP or IETM	Interactive Electronic Technical Publication (or Technical Manual). Sometimes qualified by a type such as IETP-X for XML-based IETP.
MIF	Maker interchange Format. FrameMaker's text-based file format that allows exchange between different versions of FrameMaker.
NAMSA	NATO Maintenance and Supply Agency

The S1000D specification

An introduction to S1000D

ASD S1000D is an international standard for technical publications. S1000D has been in use for over 25 years. S1000D was first developed by the European military aerospace industry, but now countries and industries around the world with S1000D.

The S1000D specification is unusual because it specifies the requirements for a project's complete publication lifecycle. All stages of the publication lifecycle are accounted for, including:

- Initial project planning
- Business rules
- Management methods
- Configuration
- Writing rules
- Illustration rules
- Production methods
- Quality assurance
- Data storage
- Publishing
- Commenting
- Revision cycles

At the heart of any S1000D project, there is Common Source Database (CSDB). At its most basic, the CSDB is a repository for all of the components of a publication. More often, the CSDB is used to manage the entire project, including:

- Project set-up
- Production workflow
- Quality assurance processes
- Lifecycle management and revision control
- Content storage for data modules and graphics
- Publication management for IETP or IETM and paper documents.

Modular publications

One of the S1000D specification's key features is the Data Module (DM). A data module is an easy-to-manage document designed for reuse. A typical data module provides a small amount of content about a specific topic in a clearly defined context.

Data module types

S1000D is a standard for data interchange and ensures that all data follows a common set of rules and reduces the lifecycle costs for a project. S1000D issue 4.0 defines a fixed set of data module types, which are:

Data Module Type	Purpose
Applicability cross-reference table	This module is the hub of the applicability handling in an S1000D system. For more information, see Applicability.
Business Rules Exchange (BREX)	The BREX data module propagates the allowed customizations throughout a project. BREX is a configuration file not intended to be viewed by the end user. See BREXmapping for more detail.
Checklist	This module allows the creation of maintenance checklist data modules. New at issue 4.0.
Condition cross-reference table	This module defines common applicability conditions in an S1000D system.
Crew	This module provides structure for operational checklist procedures and related descriptive information. Typical use: aircrew flight reference cards and flight manuals.
Container	This module is a wrapper for two or more data modules that provide alternative ways to achieve the same result. This module could be for alternative equipment fit. The Container module allows one refDm to point to a single fixed target, while that target sometimes includes additional variations during the lifetime of the product.
Description	Description is a general-purpose data module for descriptive text. The Description DM is useful for legacy data due to its flexible structure.
Fault	This module provides a dedicated structure for Fault Isolation procedures that can be represented as graphical fault isolation charts by some display systems.
Illustrated Parts Data	This module is a basic building block for an Illustrated Parts Catalogue where each data module includes a labeled parts illustration with a corresponding parts list. These data modules are often generated by an ASD 2000M-compliant initial provisioning database system.
Learning	The learning data module is used for technical training information development. It uses common structures with other data module types to allow the reuse of maintenance information in a training environment.
Procedural	Procedural module includes step-based procedural data. Includes Preliminary requirements, Maintenance function, and Close-up procedures.

Data Module Type	Purpose
Process	The Process data module is used by integrated systems to dynamically deliver maintenance information dependent on the status of the equipment. Most of the content of a Process data module is a type of scripting language for data module delivery.
Product cross-reference table	This module defines the product and condition attributes for individual instances of the 'product' in an S1000D system.
Technical Repository	This module represents a common source of data relating to supplies. Using this module, you can manage supply data in a single location. Otherwise, you will have to update each instance of a given supply if it that instance changes.
Schedule	This module is used for maintenance planning information.
Wiring Data	This module is used to store wiring data information including wire, harness, equipment, and standard parts data. This data could then be used to generate wiring and schematic diagrams.
Wiring Data Description	Each relevant element in a wiring data module requires a project-specific wiring element field description. This data module type, therefore, provides an interface between a company's wiring data production system and the wiring data module.

Manage data modules

A typical S1000D project includes thousands of data modules and graphics, or "CSDB objects." Many of these CSDB objects are specific to the project but some are reused across projects. Managing this potentially fragmented, modular information requires unique, meaningful Data Module Codes (DMCs).

The following table explains the DMC components or what makes up the name of a data module:

DMC Attribute	Description
modelIdentCode - Model Identification Code	A globally unique code for each project. NAMSA allocates these codes. See the following for an updated list of allocated codes: www.namsa.nato.int/s2000m/s2000m_moi_e.htm and www.namsa.nato.int/s2000m/s2000m_moi14_e.htm .
systemDiffCode - System Difference Code	Identifies alternative systems that share identical SNS codes. There can be identical codes, for example, when subsystems supplied by different manufacturers perform an identical role.
systemCode - SNS System Code	First block of the Standard Numbering System. Provides system-level breakdown of a product's structure.

DMC Attribute	Description
subSystemCode and subSubSystem- Code - SNS Sub-system Code	Second block of the Standard Numbering System. Provides subsystem level breakdown of a product's structure. The available codes are normally predefined for a given SNS structure.
assyCode - SNS Assembly code	Third block of the Standard Numbering System. Provides sub-assembly level breakdown of a product's structure.
disassyCode - Disassembly Code	For most types of data module, this element extends the possible system breakdown level. For the IPD data module, it holds the Figure number for the current SNS breakdown.
disassyCodeVariant - Disassembly Code Variant	Introduces a variant of the Disassembly code or IPD figure.
infoCode - Information Code	Identifies the purpose of the data module using a three-digit code. Some examples are: <ul style="list-style-type: none"> 041—Description of how it is made 520—<i>Remove procedures</i> 941—<i>Illustrated Parts Data</i>
infoCodeVariant - Information Code Variant	Typically a way to define an alternative procedure that achieves the same results for a given infoCode.
itemLocationCode - Item Location Code	Where the procedure is done (for example, "on the main equipment," or "on the workbench").

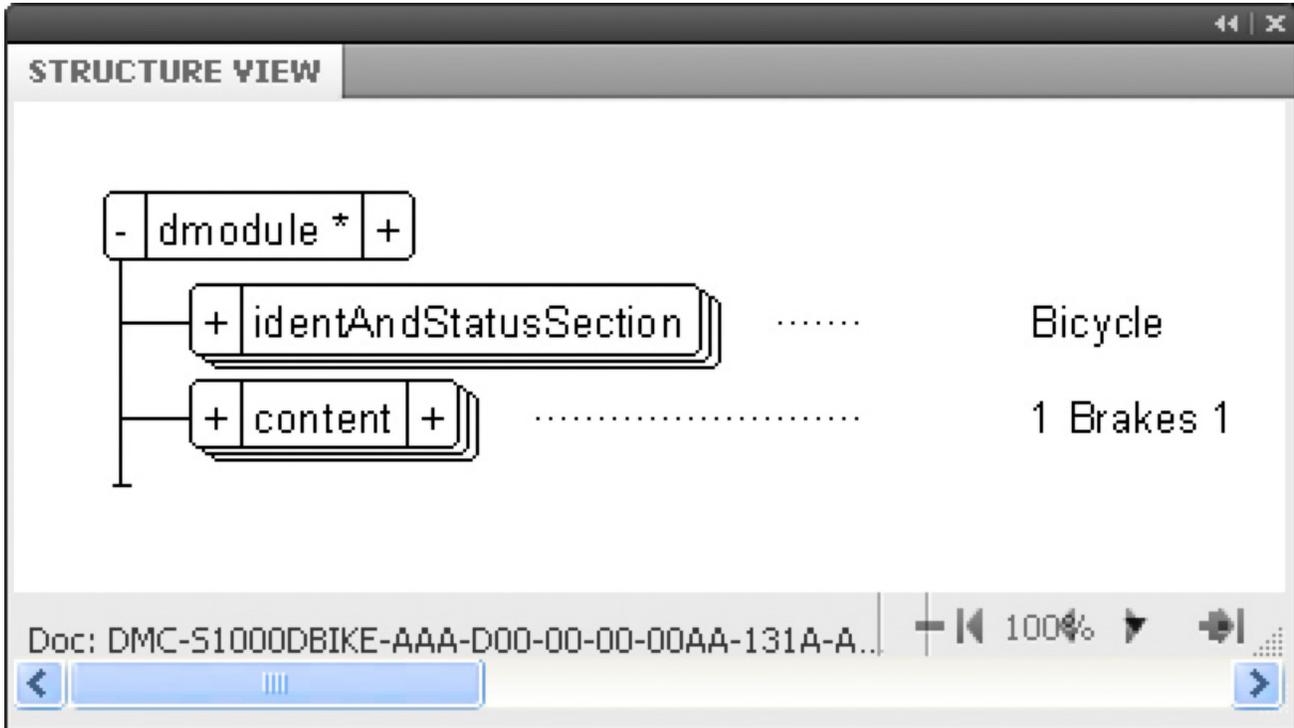
The DMC is used as the data module's identifier for linking between data modules using the "dmRef" element. The DMC is also used as the basis for the data module's filename (for example, DMC-AE-A-04-10-0301-00A-022A-A_001-02_EN-US.XML).

The Information Control Number (ICN) is used as the entity name in a data module and the filename (for example, ICN-AE-A-321005-0-U8025-00503-A-02-1.CGM). See the S1000D specification, chapter 4.4, for more information about the ICN.

The structure of a data module

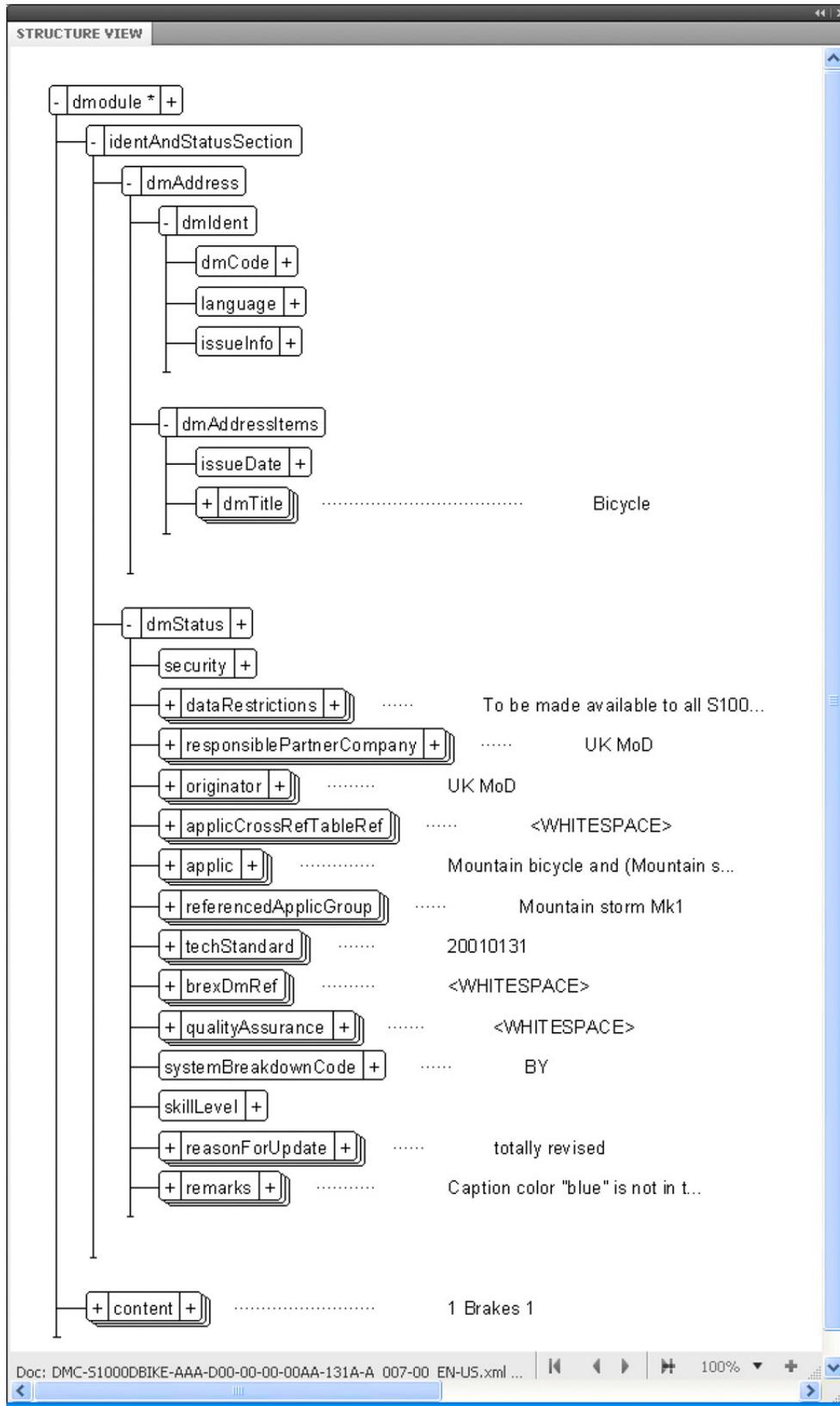
All data modules contain two main sections, the identAndStatusSection and the content.

Structure of a data module



The identAndStatusSection, contains a comprehensive set of metadata elements used by the CSDB to manage the data module. The idstatus is not normally displayed to the user of the publication and is often not editable by the author. The structure view below shows the idstatus elements. See the S1000D specification, chapter 3.9.5.1., for a complete explanation of the idstatus section.

Structure of the idstatus section



While the available element structure of the `identAndStatusSection` is identical for all data modules, the content section varies for each type of data module. The content section is the part of the data module that appears in the IETP or print.

An S1000D project

Creating and managing a modular publication is unlike working on a traditional document, but the specification has guidance in modular documentation as well.

Before a single data module is written or a legacy page converted, complete the following important steps:

- 1) Define the project, and obtain a Model Identification Code.
- 2) Select the relevant Standard Numbering System for the equipment type (for example, General surface vehicle, Navigation system, or even your project's own unique SNS).
- 3) Create the Data Module Requirements List (DMRL). A DMRL is a list of all data modules needed for the project. Creating a DMRL involves significant amount of work but is a vital part of the project setup. Once complete, the DMRL aids resource planning and project costing. A DMRL helps you identify potential reuse cases. It also makes it possible to define `dmRef` element links to data modules that do not yet exist.
- 4) If the project involves legacy conversion, create the Illustration Control Numbers while compiling the DMRL.
- 5) Select or create the Applicability modules: ACT, PCT, and CCT. Ensure that you have the right applicability conditions to render the content for different users, products, and conditions. For more information on how Applicability works, see [Applicability](#).
- 6) Create the project business rules and the BREX data module.

The publication module

S1000D gives instructions for page based and electronic publication. The publication module is a structured list of the references to various data modules in a publication.

SCORM content package

SCORM is similar to the publication module and allows training course writers to build training and maintenance modules into a learning system.

Further information

This introduction can only give an overview of the S1000D specification. For more information, see the S1000D website at www.s1000d.org, where the complete specification is available for download in Adobe PDF. The S1000D website mentions most issues of the DTDs and XML schemas. For information on extending the FrameMaker's S1000D support to additional data module types or previous issues, see the S1000D website.

S1000D data modules in FrameMaker

Working with S1000D modules in FrameMaker is similar to working with any other Structured FrameMaker document.

Create an S1000D module

To create an S1000D module not listed in a project's DML:

Select S1000D > New > <Module type>.

A new data module of the chosen type is created. The new data module has the identAndStatusSection already created and ready to populate with the DMC and other required properties.

NOTE: Alternatively, you can select the same command from File > New > XML > S1000D > <Module type>. You can also create a module from a project's Data Module list in the S1000D Common Source Data dialog. For the steps for creating a data module from the DML, see [Open a data module](#). If you choose to open a Data Module that does not exist, FrameMaker creates the data module.

Open an S1000D module

This menu command provides an easier way to open any supported S1000D module not listed in the current DML. It ensures that the correct XML application is always used without the need to prompt the user.

- 1) Select S1000D > Open S1000D.
The select a data module dialog appears.
- 2) Select a module and click OK.

You can also open a module from a project's Data Module list in the S1000D Common Source Data dialog. For the steps for opening a data module from the DML, see [Open a data module](#).

Save a module as S1000D

The Save as S1000D command:

- Checks that the filename for the module or DML is S1000D compliant
- Matches the values defined in the identAndStatusSection
- Saves XML according to the XML settings in S1000D Options/General

- 1) Select S1000D > Save as S1000D.
The Choose Folder dialog appears.
- 2) Select the appropriate folder and click OK.
The data module is saved with an S1000D-compliant name.

NOTE: You can also use the Save as S1000D command to save a book's contents into a Publishing Module.

Display/Hide the Identification and Status section

If allowed by the data module type, you can hide or display the Identification and Status section of a module.

- 1) Select S1000D > Show Identification and Status section.

If the identification and Status section is already displayed, a check mark appears next to the option Show Identification and Status section. The setting also affects the visibility of the figureTitle element, which is normally hidden.

You can change the default hide or show state by editing the S1000D-structapps.fm file (S1000D > Edit Application Definitions). Change the style sheet parameter start.mode to hide or show, as you prefer.

Update the tables of content in a module

You can add or update the Table of contents, List of figures and List of Tables for a module. ToCs are always created when a data module is opened for Crew, Description and Procedural data modules.

Select S1000D > Update ToCs.

Hypertext <dmRef>

Hypertext <dmRef> quickly adds hypertext markers to all dmRef elements in the current module. If the dmRef contains the issueInfo and language elements, it operates as a hypertext link to the target module when activated.

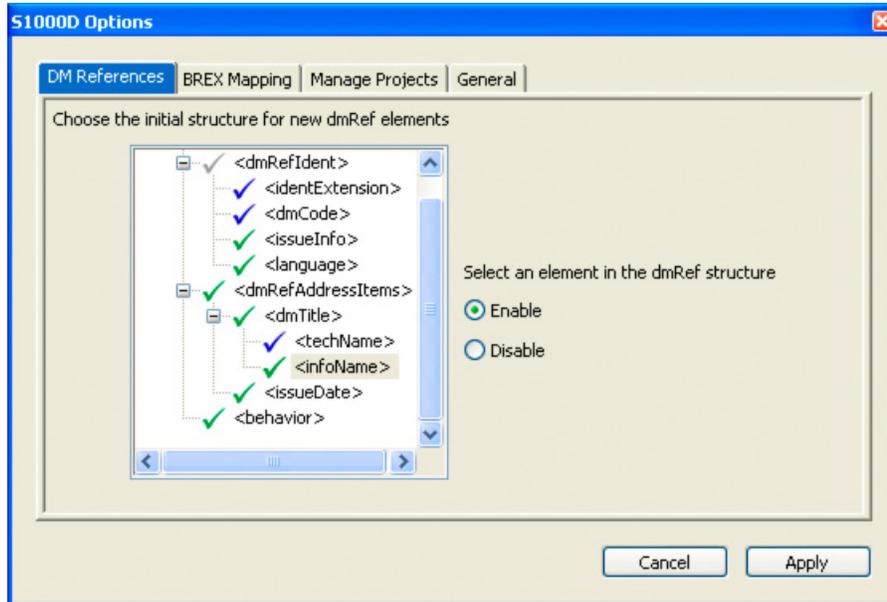
S1000D options

Use the S1000D options dialog to set preferences for new data module references, BREX mapping, project set-up, and general options.

DM References

In S1000D, the <dmRef> element links data modules. The structure of a dmRef provides various optional elements, which sometimes are not required. So you can set the initial structure for all new dmRef elements in data modules and publication modules. dmRef elements use information stored in the project's DML to ensure valid content.

S1000D Options - the DM references tab

**Set the initial dmRef structure**

In the dmRef tree, you can select an element and use the Enable or Disable options to enable or disable it. A check mark appearing next to an element signifies the following:

Check mark	Signifies
Gray check mark	Element is mandatory within refDm - always enabled.
Blue check mark	Element is essential for correct dmRef function - cannot be disabled.
Green check mark	Element is optional and enabled, it is possible to change the state of the element to 'disable'.
Red cross mark	Element is optional and disabled, it is possible to change the state of the element to 'enable'.
Gray cross mark	Element is optional and disabled by an ancestor, it is not possible to change the state of the element directly.

After setting the available elements, click Apply to save your changes. The next time a dmRef is added, it includes only the chosen elements.

BREX mapping

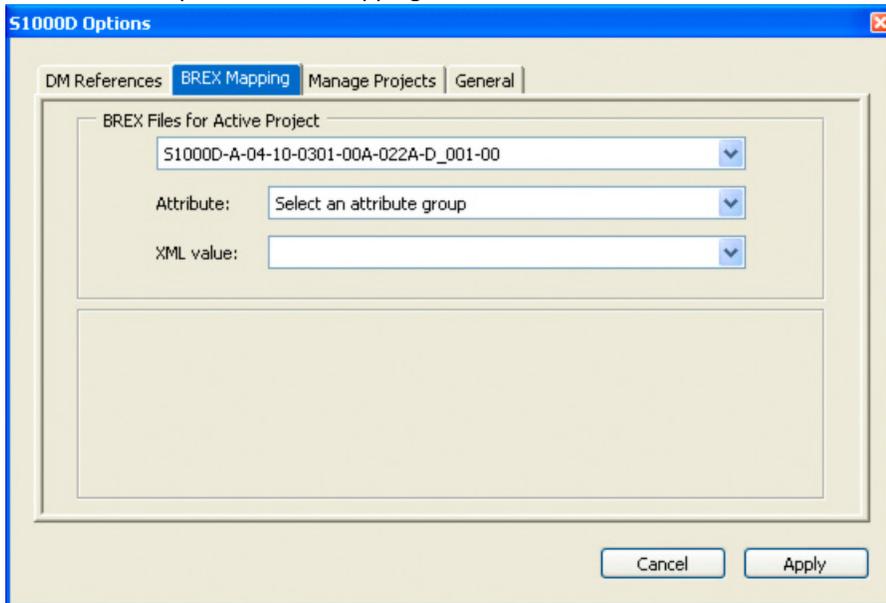
One of the features of S1000D Business Rules Exchange is the ability to define a specific meaning for the values of special attributes. The specification calls this “attribute tailoring.” Some tailored attributes are used to define formatting features such as text emphasis and list item prefixes. The BREX file does not provide any way to define and store any property values for these formatting features.

Use the BREX mapping feature to define and store format settings for:

- Caption colors
- Text emphasis formatting
- List item prefix characters
- Verbatim text formatting

When Resolve tailored attributes option is enabled on the Manage Projects tab, the formatting changes are applied when each data module is opened.

S1000D options - BREX mapping tab

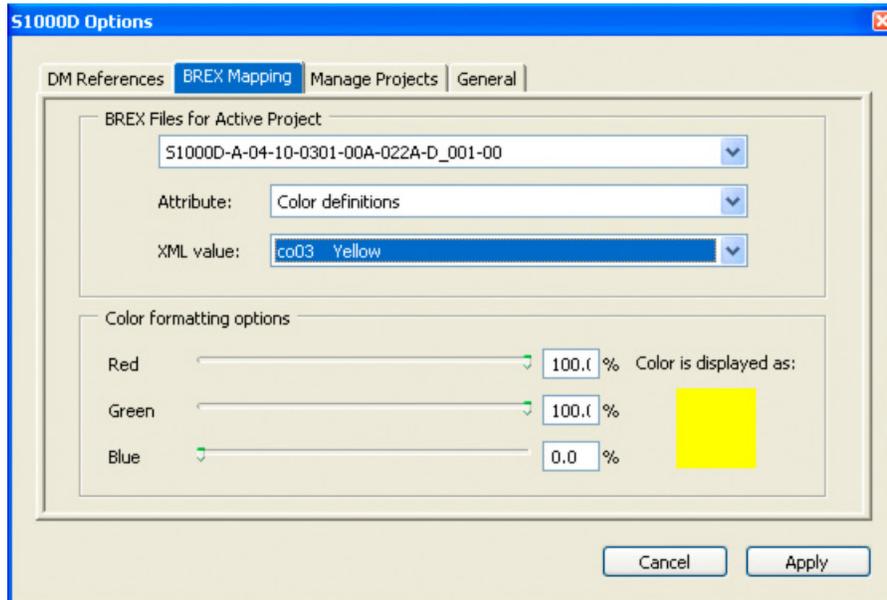


Edit BREX mapping

- 1) From the Attribute pop-up menu, select one of the five attribute group choices.
The XML value pop-up menu lists the choices as defined in the selected BREX file.

Change color formatting options

Color formatting options

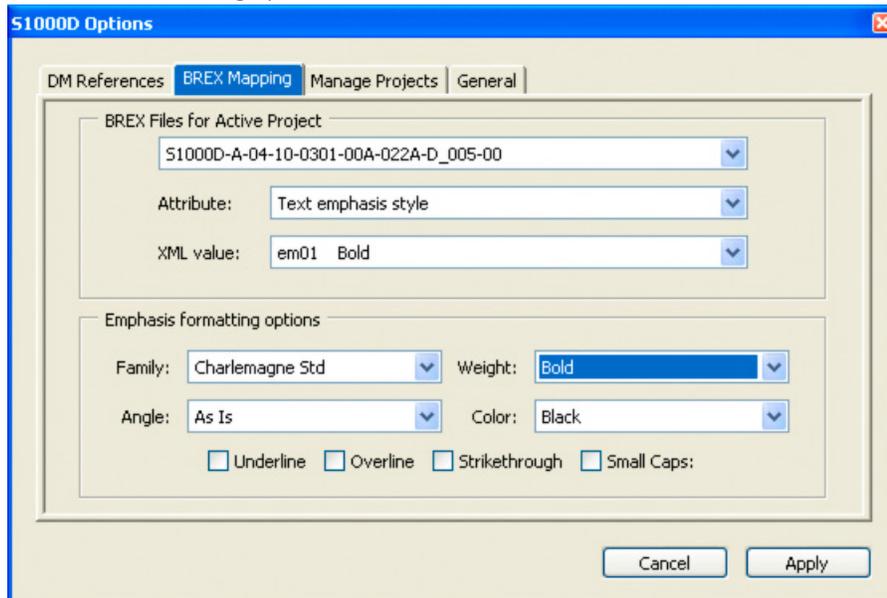


- 1) Use the three color sliders to get the desired color.
- 2) Click Apply.

Change text formatting options

Text emphasis style and Verbatim style formatting use the same formatting panel.

Text formatting options



- 1) Select a BREX file for active project.
- 2) Select the attribute to change.
- 3) Select an XML value.

- 4) Make the required changes and click Apply.

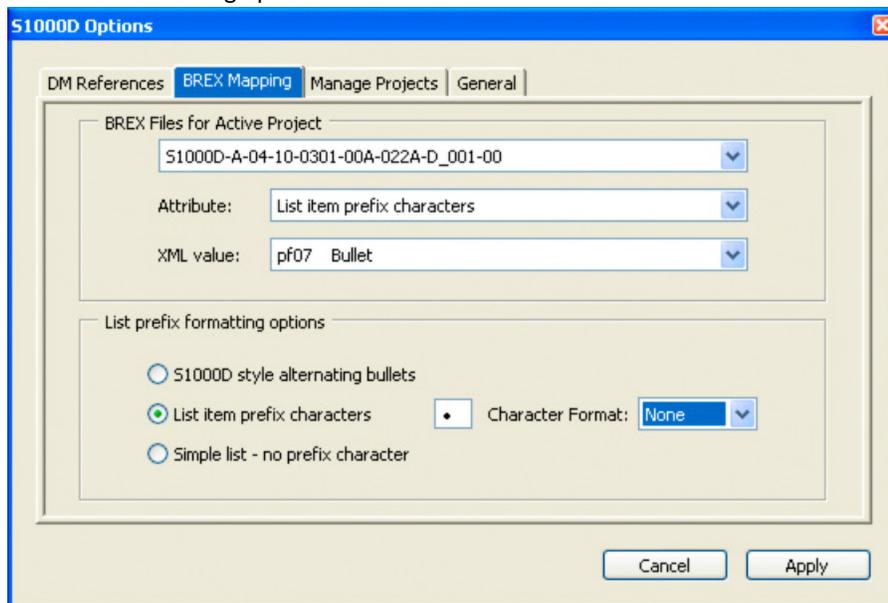
NOTE: When Family is set to “As Is,” the Angle and Weight lists show all known font angles or weights. When a specific Family is selected, only the angles and weight available for that family appear.

List prefix formatting options

A randomList can have a prefix character, typically a bullet or dash. S1000D specifies that an “unordered” format list must have prefix characters that alternate between dashes and bullets for each level of nested list. Almost any character can be used as a prefix, if necessary. A simple list indents each list item but does not use a prefix character.

Select the required list prefix option. If List item prefix character is selected type the required character into the text box. If necessary, the character format can be changed to Wingdings, which provides a larger selection of suitable prefix characters.

List formatting options



Manage Projects

Although not identified in the specification, an S1000D project provides a convenient way to manage separate groups of S1000D modules.

Create a project

- 1) Select S1000D > S1000D Options.
The S1000D Options dialog appears.
- 2) Click the Manage Projects tab.
- 3) Click New.
The S1000D: New project dialog appears.
- 4) Enter a name for the project, and click OK.

- 5) Set the following as required:
 - a) A project folder: Specify a location for all data modules that are listed in the project's data module list.
 - b) A BREX folder: Specify a location for all BREX files referenced by data modules in the project folder.
 - c) The active DML: Specify the Data Module List that records all data modules that are required for the project. The DML can include existing data modules and modules that have not yet been written.
 - d) An applicability folder: Specify the location for all applicability files referenced by data modules in the project folder.
 - e) Resolve tailored attributes: Select this option to map the available values of some attributes to the values defined in the referenced BREX file.
- 6) Click Apply.

Resolve tailored attributes

FrameMaker supports attribute tailoring as defined in S1000D chapter 7.3.1.5 and 3.9.6.1. When Resolve tailored attributes is enabled, the available attribute values are limited to the values defined in the relevant BREX file.

The BREX file restricts these values to just five choices which are given a clear meaning. If any of the configurable attributes are not included in the BREX file, the normal presentation is used.

General

Using the General tab of the S1000D Options dialog, you can switch between the basic and normal modes and adjust other settings of the S1000D Application Pack.

Change the mode (Normal/Basic) of the S1000 Application Pack

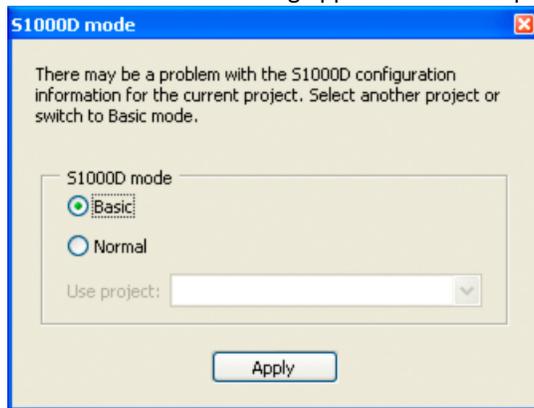
If your CMS does not have CSDB features or you are not using a CSDB, the normal mode of the S1000 Application Pack enables the full range of S1000D features in FrameMaker. Switching to Basic mode limits S1000D features to prevent interference with equivalent CSDB features. Basic mode is also used as a fallback if any required project files or folders are unavailable when FrameMaker starts. The S1000D mode dialog provides a way to select another project in Normal mode or switch to Basic mode.

- 1) Select S1000D > S1000D Options.
The S1000D Options dialog appears. If the S1000D Application Pack is running in the Basic mode, there is only the General tab available in the dialog.
- 2) Select the General tab.
- 3) Change the mode of the S1000D Application Pack in the Active mode pop-up menu and click Apply.
- 4) Restart FrameMaker.

Basic mode as a fallback

Basic mode is used as a fallback if any required project files or folders are unavailable when FrameMaker starts. The S1000D mode dialog provides a way to select another project in Normal mode or switch to Basic mode.

S1000D mode dialog appears when a required project files or folders are unavailable



Presentation

S1000D defines two presentation styles for data module titles. This setting is not project specific and affects all data modules as they are opened.

XML settings

These FrameMaker options provide control over valid XML output for all S1000D documents. The import and export of S1000D XML uses XSLT to transform the structure. FrameMaker also allows schema validation of the output XML after XSL transformation.

If the FrameMaker document is not valid when saved to XML, the required XSL transformation is not applied. The resulting XML file is the intermediate file before XSL transformation.

The “Do not export invalid XML” option prevents the creation of the intermediate XML file if there are validation problems during save.

S1000D Common Source Data

Use the S1000D Common Source dialog to open data modules, insert DM references, view BREX rules, and manage applicability.

Data Module List

Using the Data Module List tab of the S1000D Common Source Data dialog you can:

- Open data modules
- Create data modules
- Insert DM references

- Edit Data Modules List

Create a data module

- 1) In the Data module list, select a data module that does not exist.
- 2) Click Open Data Module.

A new data module is created using the information from the DML to populate some of the IdentAndStatusSection elements and attributes. The new module is saved in the project folder using the required S1000D naming convention.

Open a data module

- 1) In the Data module list, select a data module.
- 2) Click Open Data Module.

If the data module exists, the data module opens using the correct XML application. If the data module does not exist, a new data module is created. The new data module utilizes the information from the DML to populate some of the IdentAndStatusSection elements and attributes. The new module is saved in the project folder using the required S1000D naming convention.

Insert a DM Reference

S1000D links data modules using the dmRef element. A dmRef is not a true xref type element, although it can use xlink for the IETP environment. The full structure of a dmRef can be complex, but inserting a dmRef into a data module or publication module uses the DML.

- 1) Select S1000D > Common Source Data.
The S1000D Common Source Data dialog appears.
- 2) In a valid document, click at a place where a DM reference is allowed.
The Insert DM Reference button becomes active.
- 3) Select the target data module from the DML.
- 4) Click Insert DM Reference.

The required dmRef structure is added to the active document.

NOTE: The S1000D dialog defines the inserted structure.

Alternatively, if a dmRef is inserted from the element catalog, the S1000D data panel is opened, ready to select the requested data module.

Edit a Data Module List (DML)

- 1) In the S1000D Common Source Data dialog, click Edit this DML ().
- 2) Save the edited DML by selecting S1000D > Save S1000D.
- 3) To see the changes in the S1000D data panel, press Shift and select S1000D > Refresh Common Source Data.

Applicability

Applicability lets you show only the right content in the right conditions to the right user. Either at the Data Module (DM) level or at an element level, you can specify the applicable conditions, products, or product models for displaying the content. Applicability can be global (module level) or inline (element level).

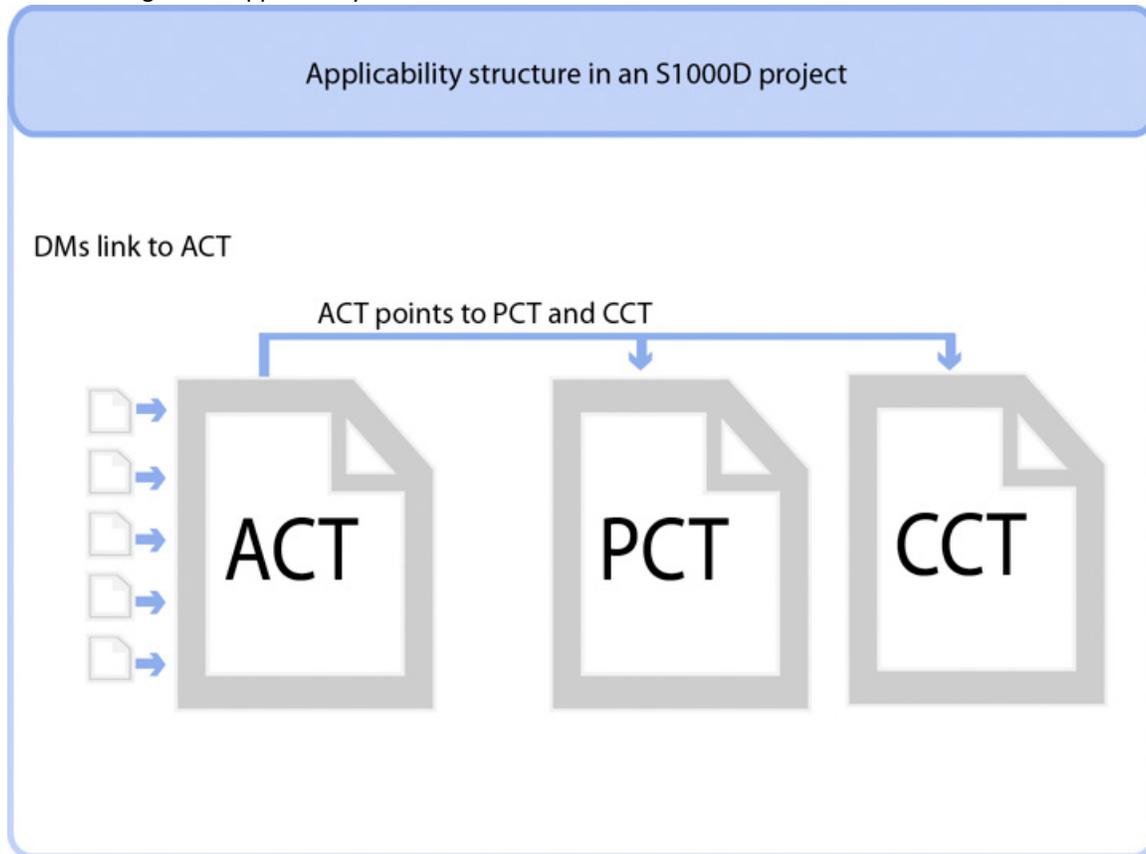
Three types of applicability modules in S1000D help you achieve the applicability filtering:

- 1) Applicability Cross Reference Table (ACT)
- 2) Condition Cross Reference Table (CCT)
- 3) Product Cross Reference Table (PCT)

When applicability is a requirement, all data modules in an S1000D project link to a relevant ACT module. The ACT module links to the relevant CCT and PCT modules.

ACT	CCT	PCT
Declares attributes of products, such as model, version, and serial number	Declares the applicable technical, operational, and environmental conditions, such as location of operation, temperature, and wind speed	Lists the actual physical product instances For each product instance, the PCT specifies the values of product attributes and conditions pertaining to the product instance.
The ACT and the CCT are used as lookup tables to look up the relevant product attribute or condition as well as their allowed possible values.		PCT is where the applicability is decided.

Linking of the Applicability modules of S1000D

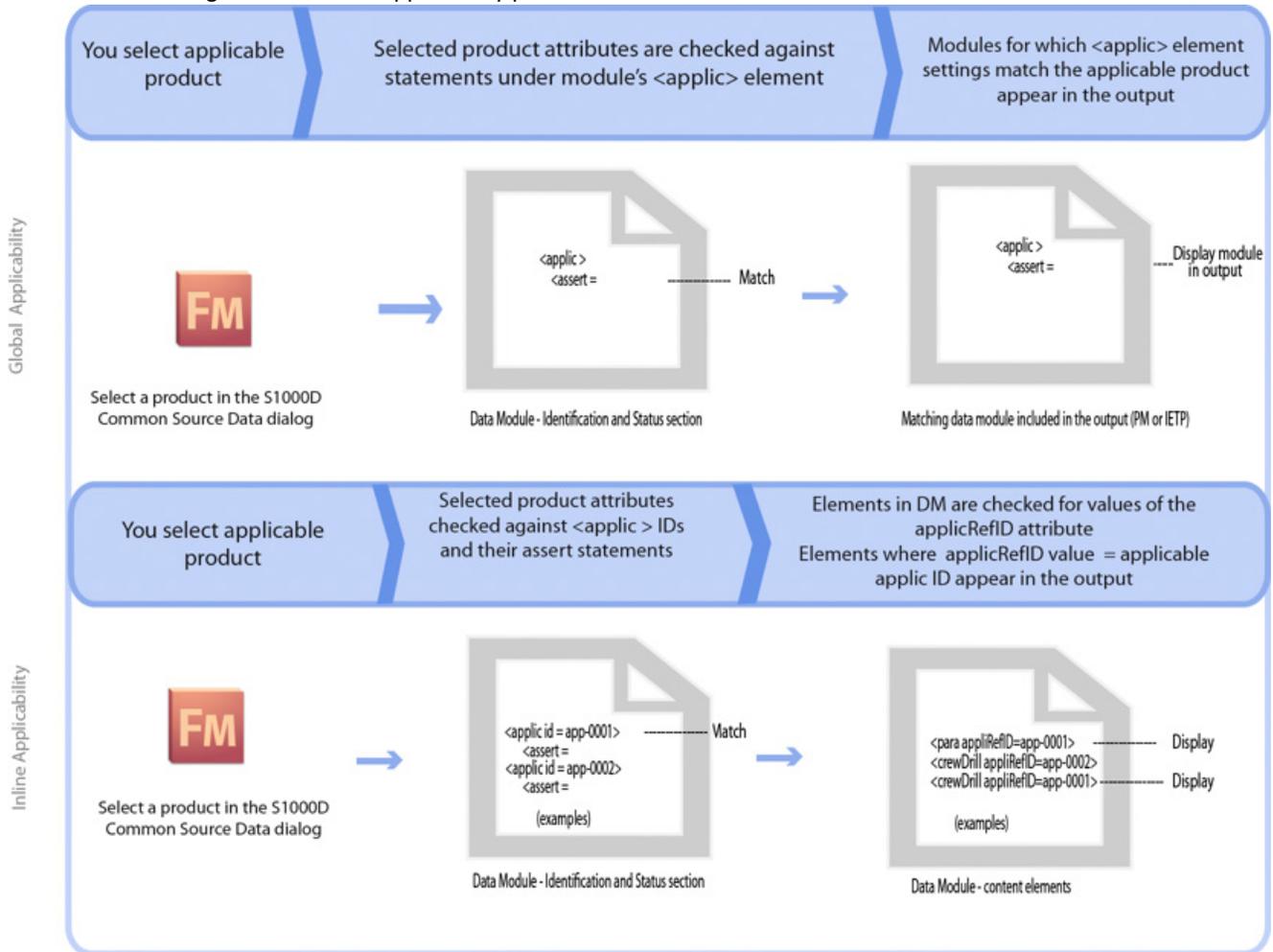


DM	Linking elements and attributes
All DMs link to ACT	<pre><applicCrossRefTable> <dmRef xlink:href = URN:S1000D:DMC-S1000DBIKE-AAA-D00-00-00-00AA-00WA-D></pre>
ACT links to the PCT	<pre><productCrossRefTable> <dmRef xlink:href = URN:S1000D:DMC-S1000DBIKE-AAA-D00-00-00-00AA-00PA-D></pre>
ACT links to CCT	<pre><conditionCrossRefTable> <dmRef xlink:href = URN:S1000D:DMC-S1000DBIKE-AAA-D00-00-00-00AA-00QA-D></pre>

Global and Inline applicability

Global applicability is applicability of a DM within a publication module or IETP. Inline applicability is applicability of an element within a data module. Global applicability is applied under the applic element in the Identification and Status section of a DM. Inline applicability involves an additional step of setting the applicRefId attribute of the various elements in the content of DMs to evaluate the elements' applicability.

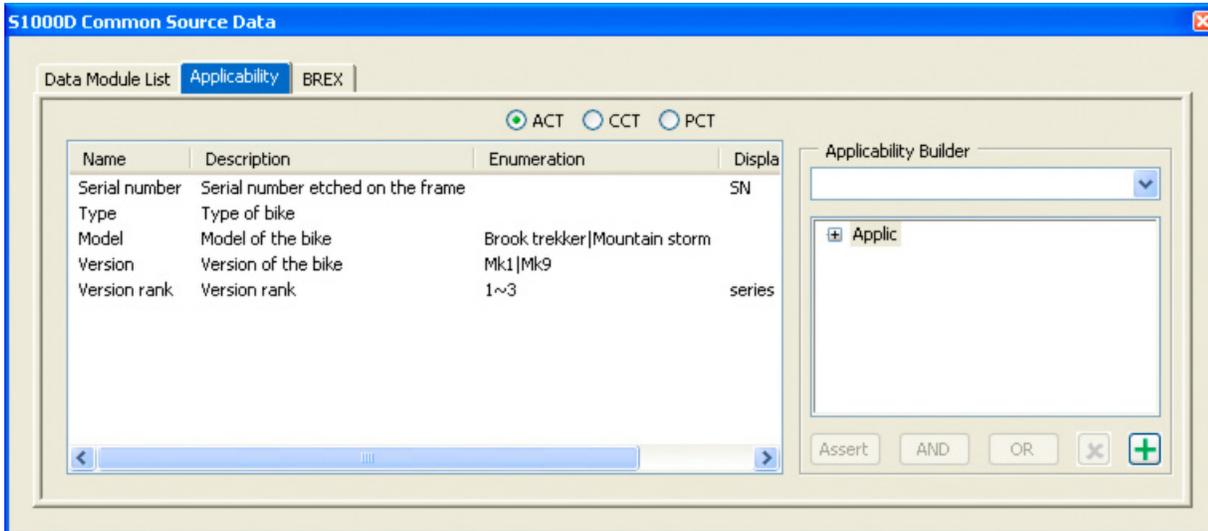
Overview of global and inline applicability processes

**Applicability and S1000D Common Source Data**

Using the Applicability tab of the S1000D Common Source Data dialog, you can create and manage applicability conditions for the module (global) or at a more granular level, such as elements (inline). For more information, see [GlobalandInlineapplicability](#).

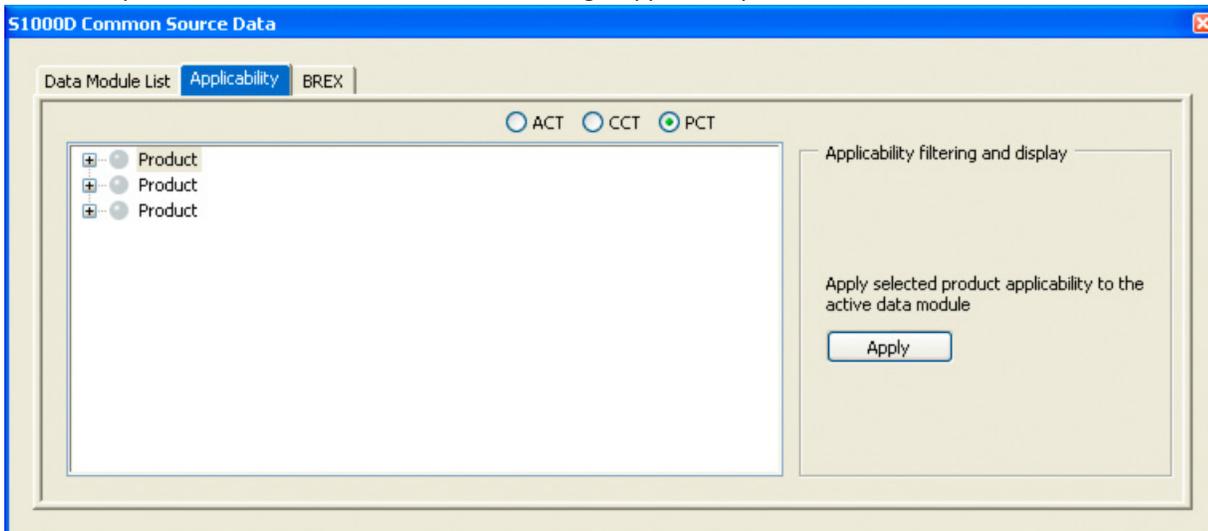
The ACT and CCT parts of the Applicability tab of the S1000D Common Source Data dialog have Applicability Builder. Using Applicability Builder, you can view the available applicability attributes and create applicability logic.

ACT part of S1000D Common Source Data dialog's Applicability tab



PCT part of S1000D Common Source Data dialog's Applicability tab displays the products relevant to the content. By selecting a product in PCT, you apply a product's applicability, global or inline, to the open module.

PCT part of S1000D Common Source Data dialog's Applicability tab



Use case 1: Global applicability

NOTE: This procedure uses the sample files from the Bike project, which is pre-packaged with the S1000D application pack for FrameMaker.

- 1) Select S1000D > Common Source Data.
The S1000D Common Source Data dialog appears.
- 2) In the Data Module List tab, open the Normal operation procedures (crew) data module (filename: DMC-S1000DBIKE-AAA-D00-00-00-00AA-131A-A_007-00_EN-US.xml).
- 3) If the module does not display the Identification and Status section, select S1000D > Show Identification and Status section.

- 4) In the Common Source Data dialog, select the Applicability tab and then PCT.
- 5) In the list of products, select the first product and click Apply.

The selected product is highlighted. You have set the applicability to the following product values:

Attribute	Value
Serial number	1B070643
Model	Brook trekker
Version	Mk9
versrank	2
SB-S001	Pre

Global applicability for the DM is in place now. The attribute values of the selected product are compared against the applicability expression of the module. The applicability expression is specified in the applic element in the module's Identification and Status section. The applicability expression specifies the product attribute type as Mountain bicycle and model and version combination as one of the following:

- 1) model = Mountain storm & version = Mk1
- 2) model = Brook trekker & version = Mk9

Since the selected product's attributes comply with the applicability expression (model = Brook trekker & version = Mk9), the module is displayed in the output.

Use case 2: Hide or Show content according to inline applicability

NOTE: This procedure uses the sample files from the Bike project, which is pre-packaged with the S1000D application pack for FrameMaker.

- 1) Select S1000D > Common Source Data.
The S1000D Common Source Data dialog appears.
- 2) In the Data Module List tab, open the Normal operation procedures (crew) data module (filename: DMC-S1000DBIKE-AAA-D00-00-00-00AA-131A-A_007-00_EN-US.xml).
- 3) If the module does not display the Identification and Status section, select S1000D > Show Identification and Status section.
- 4) In the Common Source Data dialog, select the Applicability tab and then PCT.
- 5) In the list of products, select the first (top) product and click Apply.

The selected product is highlighted. You have set the applicability to the following product values:

Attribute	Value
Serial number	1B070643
Model	Brook trekker

Attribute	Value
Version	Mk9
versrank	2
SB-S001	Pre

According to the applicability settings you selected, one of the two caption group tables at the bottom of the file disappears.

The following background processing occurs:

- 1) The selected product's attribute values are checked against the two applic statements in the document:

ID attribute value of <applic> element (under <referencedAppliGroup>	Conditions in assert statements
app-0001	model = Mountain storm & version = Mk1
app-0002	model = Brook trekker & version = Mk9

- 2) The selected product's values match the assert statements of applic element with ID = app-0002 (Prodattr model = Brook trekker & Prodattr version = Mk9).
- 3) The content (table in this case) tagged with applicRefId = app-0002 is applicable and, hence, visible. The content (table in this case) tagged with applicRefId not equals app-0002 is not applicable and, hence, is hidden.

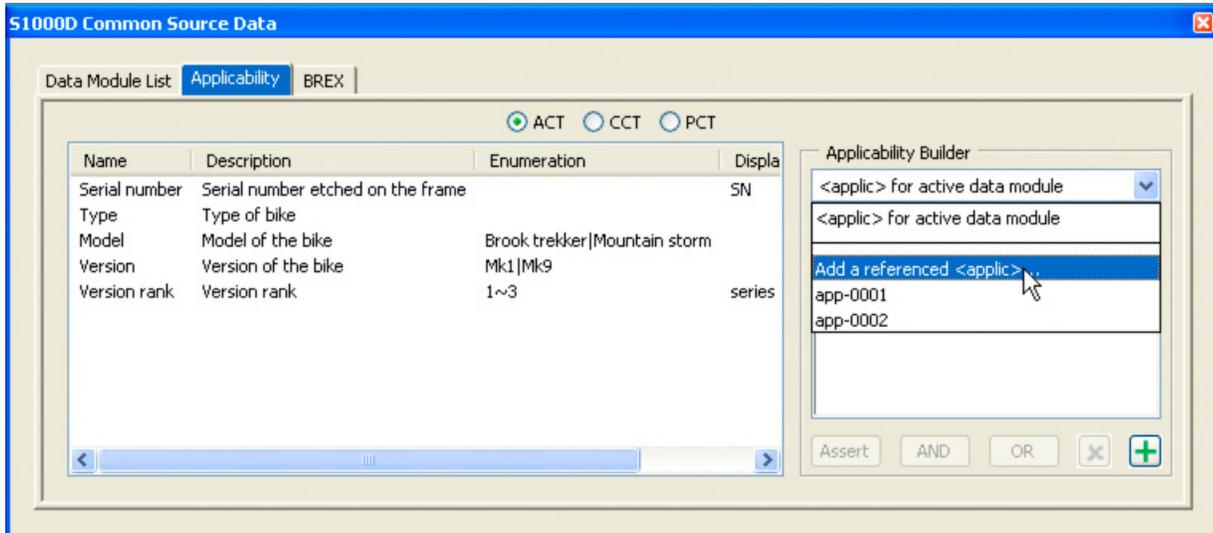
Use case 3: Create inline applicability references using applicability builder

FrameMaker's Applicability Builder allows you to create inline applicability instances, such as app-0001 and app-0002 used in Hiding or Showing content according to inline applicability.

NOTE: This procedure uses the sample files from the Bike project, which is pre-packaged with the S1000D application pack for FrameMaker.

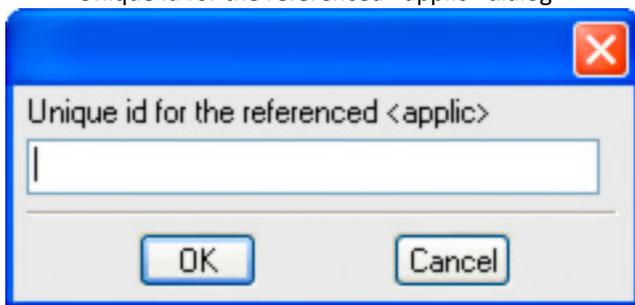
- 1) Select S1000D > Common Source Data.
The S1000D Common Source Data dialog appears.
- 2) In the Data Module List tab, open the Normal operation procedures (crew) data module (filename: DMC-S1000DBIKE-AAA-D00-00-00-00AA-131A-A_007-00_EN-US.xml).
- 3) If the module does not display the Identification and Status section, select S1000D > Show Identification and Status section.
- 4) In the Common Source Data dialog, select the Applicability tab and then ACT.
- 5) In the Applicability Builder pop-up menu, select Add a Referenced <applic>.

Add a referenced <applic> option in the Applicability builder pop-up menu



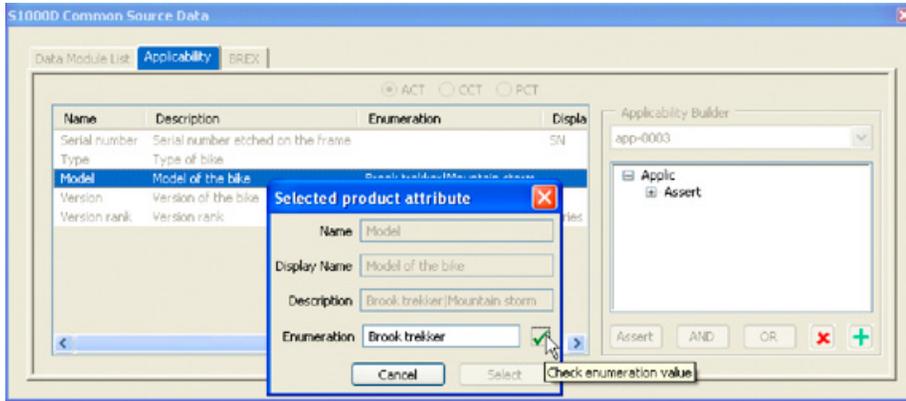
Unique id for the referenced <applic> dialog appears.

Unique id for the referenced <applic> dialog



- 6) Enter the Id as `app-0003` and click OK.
- 7) In the field under the Applicability Builder pop-up menu, select `Applic` and click the following options to build an applicability expression:
 - Assert: Checks if the value of an applic element's attribute is equal to something. Works like the programming equals (=) operator and checks for an attribute value.
 - And: Works similar to the programming AND (&) operator between the two assert statements.
 - Or: Works similar to the programming OR (|) operator between two assert statements.
- 8) Add an assert node.
 - a) With the assert node selected, double-click a product attribute.
The Select Product Attribute dialog appears.

Select Product Attribute dialog



- b) If the selected product attribute requires an enumerated value, type a value that is listed in the enumeration column of the product attribute list.

An enumerated value is one of the optional values (denoted with |) or a range of numbers (denoted with ~). When enumeration is 1~3, a valid value is 1, 2, or 3. When enumeration is Brook trekker|Mountain storm, a valid value is Brook trekker or Mountain storm.

- c) Click the green check mark to validate the entry.

Select Product Attribute dialog



If you type an invalid value, the text color of the value changes to red and Select is disabled. If the selected product attribute has no enumeration values, any value that you enter is valid and the checkmark is disabled.

- d) If the enumeration value you entered is valid, the Assert node in the applicability tree is populated with the selected value.

To remove a node from the applicability builder, use the red X button.

- 9) When the applicability tree is complete, click the green + button to add it to the current data module.

To edit an applic, select it from the pop-up menu and make the change.

- 10) Similarly, you can select CCT and add assert nodes for condition applicability from the condition attribute list. The CCT, however, has two lists. The top list gives the type of condition and the lower list is where the assert information is found.

BREX

Use the BREX tab of the S1000D Common Source Data dialog as a lookup for rules in the project's BREX files. All BREX files in the project's BREX folder appear in the drop-down list. When a data module is the active document, you can select its referenced BREX for inspection.

Publish S1000D

To publish S1000D modules, you need a publication module that includes the references to the data modules. From a Publication Module (PM), you can create a FrameMaker book.

After you have created a FrameMaker book, you can publish it as a simple IETP (Interactive Electronic Technical Publication).

Create a publication module

- 1) Select S1000D > New > Publication Module.
FrameMaker displays an empty PM document.
- 2) Build the required publication structure using dmRef elements. Set the fm.xmlApp attribute of each of the dmRefs to the correct XML application name.
To set fm.xmlApp attribute of multiple dmRef elements, select the elements and set the attribute value.
- 3) Select S1000D > Save as S1000D.

Create a FrameMaker book from a PM

- 1) Open a PM.
- 2) Select S1000D > Switch to Publication Module book.
FrameMaker creates a FrameMaker book with structure similar to the PM.
- 3) To implement applicability (Global) at a book level,
 - a) When the book file is in focus, select S1000D > Common Source Data.
The S1000D Common Source Data dialog appears.
 - b) In the Common Source Data dialog, select the Applicability tab and then PCT.
 - c) In the list of products, select the applicable product and click Apply.

FrameMaker processes the book file for the applicability conditions for a while. The modules that are excluded from the output are highlighted in red ().

Now you can do the following:

- Publish the book to PDF or to IETP.
- Switch back to the Publication Module document (S1000D > Switch to Publication Module Document). If you have added any new files to the FrameMaker book, update the book before switching back to the Publication Module document.

- Save book as an S1000D XML file (S1000D > Save as S1000D). Update the book before saving it as S1000D.

Publish to IETP

Once you have created a FrameMaker book from a PM, you can publish the book to IETP. To publish to IETP, you need Adobe Technical Communication Suite 3 installed on your machine.

- 1) Select S1000D > Publish IETP.

The Choose Folder dialog appears.

- 2) Create and select a new folder and click OK.

The S1000D IETP dialog appears.

NOTE: Instead of creating a folder, you can select an existing empty folder. But the folder must be empty; otherwise RoboHelp does not create the project.

- 3) Specify a title for the project.
- 4) To retain the temporary FrameMaker files, deselect Remove book and data modules after publishing IETP.
- 5) Click Build.

Each data module in the PM is saved as a FrameMaker document. The system launches RoboHelp. After processing all of the FrameMaker files, RoboHelp give you an option to generate a preview of the AIR output. You can preview the output and then save the .air file by opening the RoboHelp project generated in output folder.

Frequently asked questions

This section lists some of the most common questions related to S1000D project and structure.

Q. What is the recommended way of creating a S1000D project?

The S1000D workflow and naming conventions are important for any S1000D project. The S1000D application works best when you follow these steps:

- 1) Define your Data Module Codes rules.
- 2) Define your Information Control Number coding rules.
- 3) Build an initial Data Module Requirements List using the S1000D DML schema.
- 4) Set up a project in FrameMaker S1000D application with the following details:
 - Project DML file
 - Project files (DMs, PM, ICNs)
 - BREX module(s)
 - Applicability modules

Once you follow the above-mentioned steps, your S1000D project will work smoothly. For example, in the Common Security and Defense Policy (CSDP), the DML shows all your data modules even if they don't exist. Simply select a DM from the list and click on Open Data Module. FrameMaker creates a new data module with the correct filename for your use. When you edit a data module or

a publication module, select from CSDP and click Insert DM Reference. The new `dmRef` element will be valid and point to a correct data module file

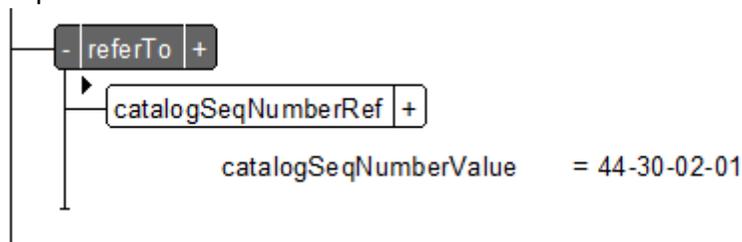
Q. How to add a table header and insert cross-reference to a graphic in a S1000D document?

The S1000D Illustrated Parts Data application is very complex in its structure. The table for all parts data is a separate table for each `catalogSeqNumber` element. This is because S1000D allow sub-rows for each normal table row. Because of this complex structure, it is not possible to take advantage of the FrameMaker’s table header feature.

A workaround is to add the heading to the master page. You will find that if you use the **Format > Page Layout > Apply Master Page** command, the table header is displayed. To change the headings, edit the content on the master pages. However, it would not be practical to reorder the columns to match the ATA style formatting without a huge amount of XSLT and EDD.

To insert cross-reference to figures, use the `<referTo>` element with a child `catalogSeqNumberRef` element. However, this would need some formatting work in the EDD to give the required results.

The following sample structure shows the cross-reference added with a child element:

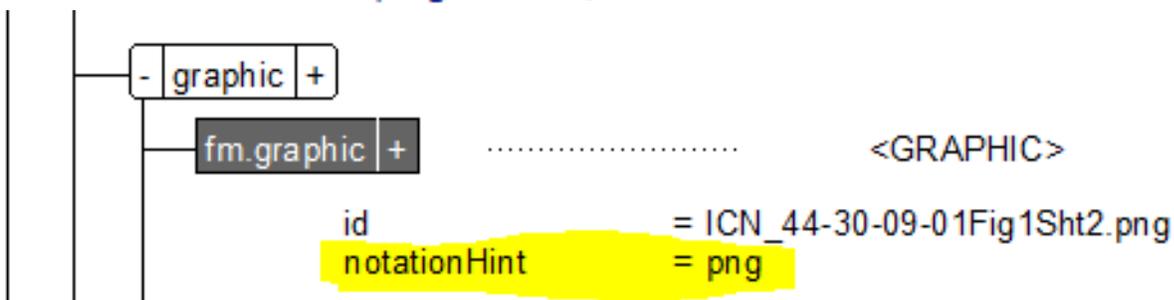


Q. How to use <notationHint> attribute in a S1000D document?

Notation is a declaration that defines the type of the external content (entity). When you save the FrameMaker document using **S1000D menu > Save As S1000D**, it generates an XML file. Once you open that XML file, you will find that the `<notationHint>` attribute picks the correct value as shown below:

```

<fm.graphic id="ICN_44-30-09-01Fig1Sht1.png"
  infoFileId="fm.graphic1.png" notationHint="png"
  reproductionWidth="6.692in" reproductionHeight="8.673in"
  size="6.526in 8.507in" align="acenter" position="below"
  hoff="0.083in" voff="0.083in" nsoff="0.000in" crop="1"
  float="0" impang="0.000"/>
  
```



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