Visual Information Technologies GmbH

# Data Declaration System

## What's new in Version 5.1.0?

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# Contents

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# 1 Purpose and scope

This document describes the improvements and changes of DDS V5.1.0 compared to V5.0.0.

# 2 What's new in Version V5.1.0?

## 2.1 Highlights

### 2.1.1 New DDS filter: "Template based DDS instruction processor"

There is a new DDS filter which:
- parses arbitrary ASCII files
- searches for special DDS-Instructions
- replaces these DDS-Instructions with DDS contents
- creates output files where the DDS-Instructions are resolved with the corresponding DDS contents.

Use case: This filter can be used e.g. to 'inject' DDS declaration into *.h and *.c files.

### 2.1.2 New DDS filter: "Export to Ascet"

There is a new DDS export filter which:
- exports DDS data declarations into the ETAS Ascet database

**Note: This special component is not included in the standard DDS installation but is available as Add'on.**

### 2.1.3 New DDS filter: "Export to TargetLink"

There is a new DDS export filter which:
- exports DDS data declarations into the dSpace data dictionary ("*.dd"-file)

**Note: This special component is not included in the standard DDS installation but is available as Add'on.**

## 2.2 New Features, Major Improvements

### 2.2.1 Quick ASAP2 export

Similar to the already existing "Quick Source Export" and "Quick Girl Export" functionality, there is a new command to easily export the current DDS definition to ASAP2:
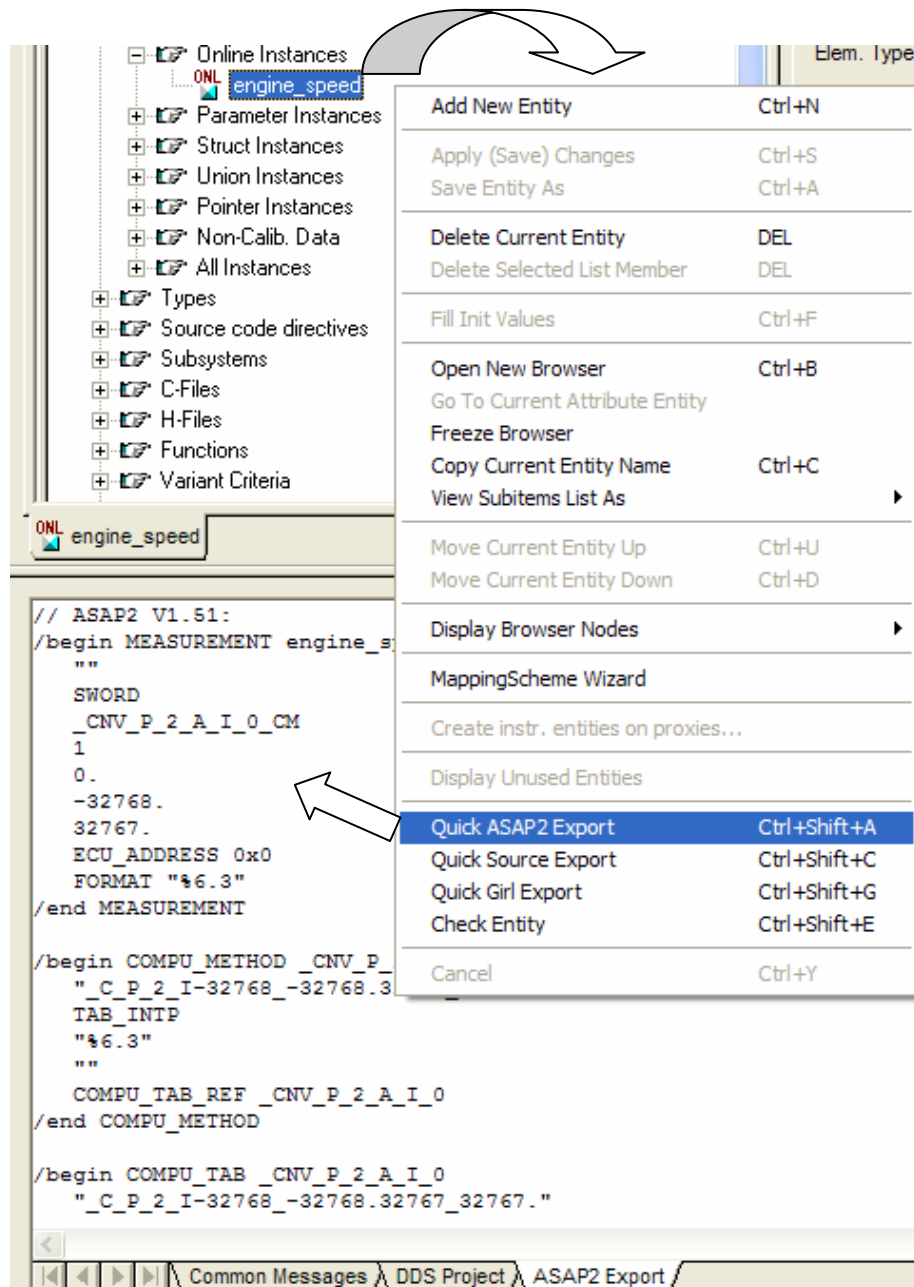


### 2.2.2 Configuration Unit Checksum

DDS is now able to track changes of configurationUnit's (GRL-files) which are done 'outside' of DDS
**-> manual GRL file changes!**
The intention of the checksum mechanism is, to be able to track changes made to a DDS project with other means than provided by DDS tools itself.

The checksum mechanism can be activated during installation of DDS. There is a dialog where the user can activate/deactivate the checksum mechanism.
(see DDS online help for further information)

### 2.2.3 Removal of '@' character in GRL file names

Some CM systems don't accept file names containing the '@' character. Current workaround is to use a ZIP file per project with all GRL files containing @ inside.
The requirement is therefore to remove the '@' character from these file names.

Solution:
The character '@' is replaced with the string '_DDS_' everywhere in DDS (source code, hard coded default units, Empty database, Examples & Templates, online help, documentation)
Although the replacement is most important for the files @Schema and @Prodat, it makes sense to replace this character in all file names.
For backward compatibility and migration reasons, there is a mechanism for the DDS schema and prodat files where in a second step the old files @Schema and @Prodat will be searched, when the new files DDS.Schema.grl and DDS.Prodat.grl are not available. All other files with the '@' in the file name have to be replaced manually; these files are referenced by Prodat and may get changed to any name.

**Note:** The new functionality 'Rename of GIRL container' allows renaming those files inside the DDS editor

Migration:
The customer might "migrate" old databases manually (remove '@' character from files names).

Note:
- All newly delivered databases (e.g. Empty, Examples & Templates, etc.) will use the new files names
- The new files names – for the schema and the prodat - have a higher priority than the old ones. If neither the '@'- nor the 'DDS.'- named files are found, then the file names with the 'DDS.' prefix will appear in error messages.
- It is possible – but not recommended - to mix the new and the old file names for the schema and the prodat, e.g. it is possible to use DDS.Schema.grl and @Prodat.grl.

### 2.2.4 Check init values based on dataType, conversion and lower/upper limits

Check init values based on conversion values and upper/lower limits:
- When an init value is outside the data type limits an error message will be displayed and it's not possible to save this value (e.g. within the UI) or to import it into DDS (e.g. during Import CVX). During Export Source an error message will displayed and the most inner lower bound will be exported.
- When an init value is outside the most inner bounds (calculated by the lower/upper limits and the conversion) but within the data type limits a warning message will be displayed in case of Import CVX (but the init value will be imported). Within the UI it's not possible to save an init value when it is outside the most inner bounds (an error message will be displayed). During source export a warning message will be displayed but the value will be exported.
- During Export Source always the most inner lower bound (calculated by data type, conversion and lower limit) will be written when no limit is set in the database. The default value in this case is '0'. When the most inner value is not equal to the default init value a warning message will be displayed.
- A monotony check of init values for linear and string conversion is done (also during CVX import)

### 2.2.5   Improved init values check during CVX import

This improvement is linked to <u>Check init values based on dataType, conversion and lower/upper limits</u>.
A similar handling is applied during the CVX import.

### 2.2.6   Using MATRIX_DIM for arrays in ASAP2

The ASAP2 Export Filter Option "ASAP2Version" will be extended with the new mode/value "1.5.1". This new mode will also be the default mode. In this mode, the MATRIX_DIM keyword is used instead of the keywords NUMBER and ARRAY_SIZE.
The ASAP2 Import Filter will be also supporting the keyword MAXTRIX_DIM.

### 2.2.7   Visualization of bitfield-carrier in ASAP2

Until V5.0.0, only bitfield members are exported to ASAP2. This new version of DDS allows also exporting the bitfield 'carrier'-definition.
<u>Notes:</u>
- Bitfields are only supported for 'onlines' and 'parameters'
- More than one carrier is generated when the dataType of the carrier isn't able to cover all bits.

There is the new ASAP2 export filter option "SuppressBitfieldCarrier" to control whether those carriers should be created or not.

### 2.2.8   Rename of GIRL container

Currently within DDS, it is a rule, to have the girl container and the associated .GRL file being named the same. When supporting the renaming of girl containers, this also means that the file in which the container will be stored will be renamed, too. The renaming can only be done, when the original file is not read-only. The renaming of the file will be done when the database is saved; at this point, the previous file will be deleted and the file with the new name will be written. The header of the .GRL file will not be touched; i.e. any references to the old file name will still be there.

### 2.2.9   ImpADD: Automatic calFunction generation

There is a new Import ADD filter option "GenerateFunctionBasedOnDDContainer".
When this filter option is set to 'true', a corresponding calFunction will be automatically generated for each imported ADD container.

Mapping:

| ADD Container | DDS Function |
|---|---|
| Container Name | Name |
| INPUT-Member | (ref-)Function |
| OUTPUT-Member | (def-)Function |
| LOCAL-Member | (loc-)Function |
| „Container ID – Container Name" | Version |
| „Container ID – Container Name" + „ " + Short Name | Description |

## 2.2.10 Sorting of entities on configurationUnit (GRL file) level

Since V5.0.0 it is possible to easily "drag & drop" a set of entities from e.g. a c-file to another one.
This feature is once again enhanced by allowing the user to select/sort entities classified by configurationUnit (GRL-file):
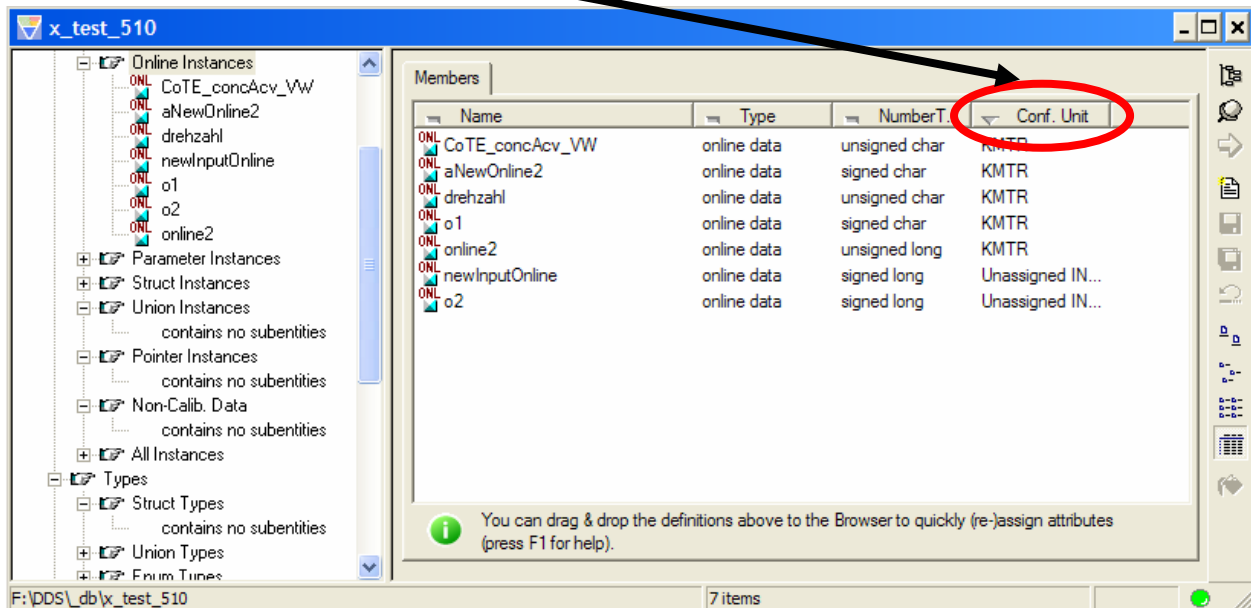


## 2.2.11 ImpADD: generate a configurationUnit for each ADD container

When importing a container from ADD, it is now possible to automatically generate a corresponding configurationUnit (GRL-file) in DDS which has the same name than the ADD container. All data objects of the ADD container will be written into that configuration unit.
This is done by changing the default value of the already existing Import ADD filter options:
- „DDProxyDefinitionsToUnit",
- „DDProxyAttributesToUnit" und
- „InstrEntitiesBasedOnProxiesToUnit"

to the new value „ADD Container Name".

Note: The default value of the filter option „InputDefinitionsAndAttributesToUnit" keeps unchanged („Unassigned Inputs (Stub).grl").

## 2.3 Minor Improvements

### 2.3.1 ASAP2 Export: Check of ASAP2 reserved keywords

The ASAP2 export now checks all exported identifier whether they collide with a reserved keyword in ASAP2.

### 2.3.2 Support of new DiabData compiler V5.4.0

DDS now supports ELF files generated from the DiabData compiler V5.4.0.

### 2.3.3 ELF Import: global vs. static

Current situation: Let's imagine that source code contains two (or more) definitions with the same name. This is possible when using a global variable and one or more static variables with the same name, e.g.

*int otto;*
*function do_something()*
*{*
*static int otto;*
*...*
*}*

When importing the addresses into DDS, the ImpELF filter only takes the first occurrence. All others are ignored (with error message).

Improvement:
DDS checks during ImpELF if the address comes from a global label or from a static one. DDS gives the global label a higher priority. However this only works fine in the "AddressImportMode": "ResetAndImport" (which is the standard one). In the mode "ImportOnly", the behaviour is like in V5.0.0.

Constraints:
Supported for ELF (DWARF1 and DWARF2) but not for I3E.

### 2.3.4 Consideration of 'objectArraySize'

Use case:
1.) Let's imagine that an array array_A is declared inside DDS with a size of #define NXX_DYN_THD=255
2.) In ECU software declaration, this array_A is declared with the size of #define NXX_DYN_THD but the value of this #define is 10.
3.) With the option SizeMismatchMode = AllowArrayDimMismatch, it's possible to support the import of addresses for each member of this array array_A and DDS displays the evaluated addresses for each member greater than 10 until 255 => 255 members with addresses.

Required is to keep only 10 members and not 255 with addresses for array_A (inside ASAP2 file in fact).

Solution:
The idea is not to change the database after elf import. But just to display the valid addresses of an array and hide the others without removal.
With the attribute 'objectArraySize' in girl file, it's possible for DDS to know which addresses have to be displayed.

ExpA2: The ASAP2 export will emit an error message and skip all those array elements

GenEdit: The DDS editor will not display an address for these array elements

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### 2.3.5 Extended drag&drop functionality with sourceSections

You can drag&drop definitions into sourceSections (which are within c/h-files). However you can't remove the sourceSection assignment via drag&drop but only remove the assignment manually for each definition.

Solution:
When dropping those definitions directly at the c/h-file and not at the sourceSection, the sourceSection assignment could be removed.

Note:
The drag&drop functionality is improved like the following:
1) Remove the assignment of sourceSection
   See picture below: remove the sourceSection assignment of param1.
2) The ideal behaviour is also to provide a possibility to move directly in the browser window in order to assign or not assign a sourceSection to a data on c/h file level
   See picture below: remove the sourceSection assignment of param1.
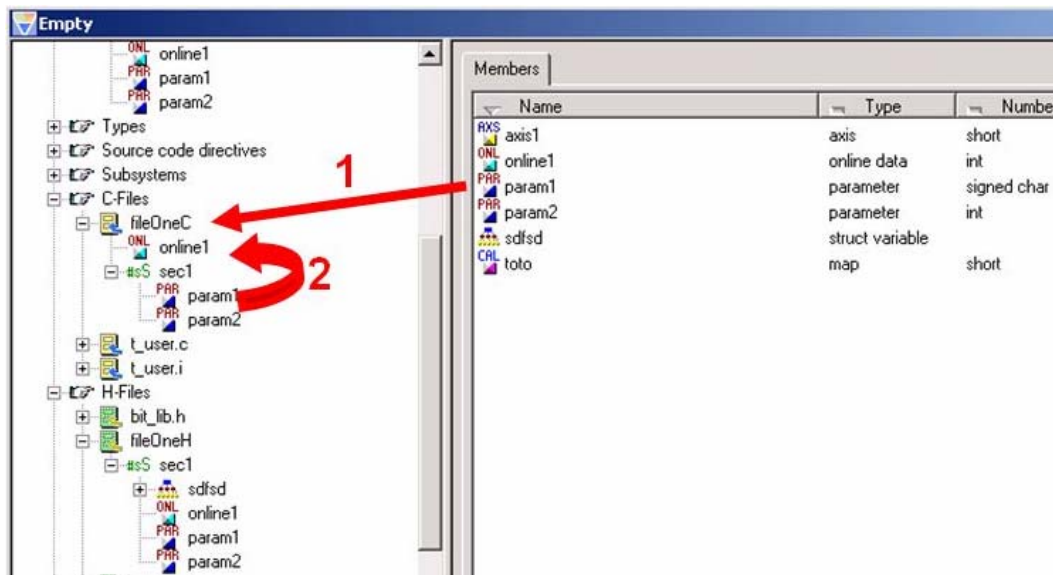


### 2.3.6 Unique Raster ID

When assigning a raster to the XCP protocol in SysConf, its Raster Id is stored at the DAQ-List entity.
When reselecting this DAQ-List, a raster with the same Raster Id than the assigned one might be displayed.
To avoid this problem, a check must be done in SysConf when editing/modifying a raster-definition to ensure unique raster ID's.

### 2.3.7 "Data Pool Check" in SysConf

In addition to Unique Raster ID, there is a "Data Pool Check" Icon in SysConf (like in GenEdit). When clicking on that Icon, SysConf first collects all definitions which are editable/changeable in SysConf and then calls the Data Pool Check for each of these definitions. The (error-)messages will be printed into the command console window.

### 2.3.8 Default language for ASAP2 export

Since V5.0.0 it is possible to have more than one 'language' for the 'description' field in DDS (when performing the ADD-Import).
In V5.1.0, there is the ASAP2 export filter option "DefaultLanguage" (default = "en").
This option only affects the ANNOTATION block in the ASAP2 file. The ASAP2 export filter will check whether there exists a "description" in the requested language for a DDS entity. If yes, this description will be exported. If no, the export behaves like in V5.0.0.

### 2.3.9 Copy/paste inside the "ref-List" of calFunctions

DDS now allows to do a copy paste (or cut paste) inside the ref list of calfunctions.

### 2.3.10 SysConf: 'smart save'-feature when closing SysConf

DDS V4.2.0 introduced a new feature inside SysConf: when the tool is closed, SysConf automatically asks if the user want to save the database. This feature is now enhanced, so that SysConf is asking the user only if the database has been changed.

### 2.3.11 COM API: The method 'Save()' returns a value

The method will return "true" if it succeeds and 'false' otherwise.

### 2.3.12 COM API: New 'Copy()' method

There is a new (database-) method: "Copy()".
This method makes a copy of the current database.

### 2.3.13 SysConf: generic IF_DATA editor

The generic IF_DATA editor is improved in order to better support optional blocks and new smart variables.

### 2.3.14 ImpADD: ADD (local-)connection

Now, ImpADD also works without the ADDLOC entry.

### 2.3.15 Source Export: data sorting

There is a new sorting mode "ME-Style(dataType_sorting)" in the Source Export filter. When this mode is active, the exported definitions will be sorted according to their dataType.
The (same) sorting will be also applied for definitions within source sections.

### 2.3.16 Modification of smartVariable "cDefine_ResolveConvertToHexAscii"

… the smart variable 'cDefine_ResolveConvertToHexAscii" will generate the final value always without spaces. There is no need to also support the old/current behaviour

### 2.3.17 CmpMrg: Allow merge of memRegion and codeSymbol

When the new filter option "AllowAdditionalSystemEntitiesInMerge" is set, the CmpMrg allows to merge the additional system entity types 'memRegion' and 'codeSymbol'.

### 2.3.18 ImpADD: Extensions

New features in ADDCore.dll & ImpADD.dll:
1) Correctly import the lower/upper limits of data objects defined in ADD
2) New Filter Option "SetDefaultLimits" (for all data objects which have no limits defined in ADD)
3) New names for RATIONAL (POLYNOMIAL) conversions

### 2.3.19 Seml/ExpA2: new smartVariable 'asapAddressExpression'

Same functionality as the smartVariable 'asapAddress' plus the possibility to add some value (offset) to the exported address.

```
smartVariable asapAddressExpression {
  comments = { kind = internal; value = { "Physical (C-Code) address of this definition + some
offset (based on 'expression')"; } }
  kind = ifData;
}
```

### 2.3.20 SysConf improvement

It is now possible to specify a negative address offset value at a 'memRegion'-definition.

### 2.3.21 ImpADD: bitmask for booleans

There is the new Import ADD filter option "BitmaskForBooleans". If this option is active, DDS will automatically generate the bitmask "0x1" for all definitions with the (ADD) datatype 'boolean'.

## 2.4   Correction of Bugs

### 2.4.1   Import ADD + Source Export

Use case:
1) Import a container with map and axis (the classification is not important). The axis could be both shared axis and local axis.
2) The associated proxies are imported and the real entities too.
3) Export source. Expected is to find in *.h file the link between the map and the axis.
For example: #define X_ip_mapName axisName

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=> If there is an array of map (map[0] for example) this define is present inside the *.h exported file. But in other cases, no export of this define!
-> This bug is fixed in V5.1.0

# 3   No longer supported filters/components

# 4   Questions?

If you have any questions about this release, please contact the Visu-IT! DDS Hotline:

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