This document describes details about tool data exchanges using GTC Version 1 packages.

A GTC package can include the following data:

- A header file with details of the GTC package
- Definition of a GTC class structure (GTC class hierarchy)
- Assortment of products (attribute values for a list of products)
- Additional documents (3D models for the products)

GTC packages are typically transferred as a compressed container file (zip-file format).

Example of a GTC-Package:

GTC_Kit_data_delivery_0815.zip

class_hierarchy	17.07.2014 17:23	Dateiordner	
step_3d_models	18.07.2014 12:34	Dateiordner	
step_p21_products	17.07.2014 20:56	Dateiordner	
assortment.txt	17.07.2014 21:26	Textdokument	2 KB
assortment_delivery.xls	17.07.2014 21:29	Microsoft Excel 97-2003 ...	36 KB
catalog_info.txt	25.09.2013 13:55	Textdokument	1 KB
class_hierarchy.plmxml	15.09.2013 13:43	DirectModel Document ...	1.310 KB
step_p21_mapping.txt	31.10.2013 15:09	Textdokument	26 KB

Previously, the definition of a GTC package always included all of the following files:

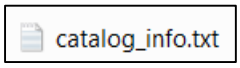
- ❖ the catalog information file
- ❖ class hierarchy definition
- ❖ product assortment with P21 files
- ❖ 3D models

Now this is more flexible and it is possible to provide a GTC package that only includes the ❖ class hierarchy (without any product definition). On the other hand, a GTC package may only include product related data (❖ assortment with P21 files and ❖ 3D models).
The ❖ information file is always required for a GTC package.

One more enhancement is to support incremental product packages. Initially we assumed that all products are included in one GTC shipment. Now, it is also possible to only provide a small subset of products in one GTC delivery. In this case, it is typical that over time multiple incremental GTC packages are sent to the customer to provide a subset of products or to deliver new released tools.

The following provides additional details on the individual directories and files of the GTC package.

A header file with details of the GTC package



The "catalog_info.txt" header file is mandatory for each GTC package.
It includes a description and details of the GTC delivery.

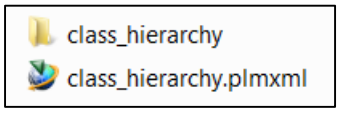
```
vendorName=<tool vendor company name>
vendorAcronym=<tool vendor 2 or 3 character acronym>
vendorCatalogVersion=<version number for vendor catalog reference>
vendorCatalogLanguage=<language for this catalog>
vendorCatalogDescription=<long description of the GTC package>
vendorCatalogShortDescription=<short description of the GTC package>
vendorCatalogID=<identifier for vendor catalog>
vendorCatalogRootClassID=<GTC-root-class-ID specific for the tool vendor>
                         (typically the combination of vendorAcronym and _GTC)
GTCPackageCreationDate=<creation date of the GTC package (format: yyyymmdd_hhmmss)>
GTCHierarchyVersion=<GTC version number (format:v<versionR<revision>) e.g., V1R7>
GTCPackageID=<unique identifier for this GTCpackage (could also use the creation date)>
```

The entries `GTCPackageCreationDate`, `GTCHierarchyVersion` and `GTCPackageID` are optional but required to support incremental GTC packages (see description on first page).

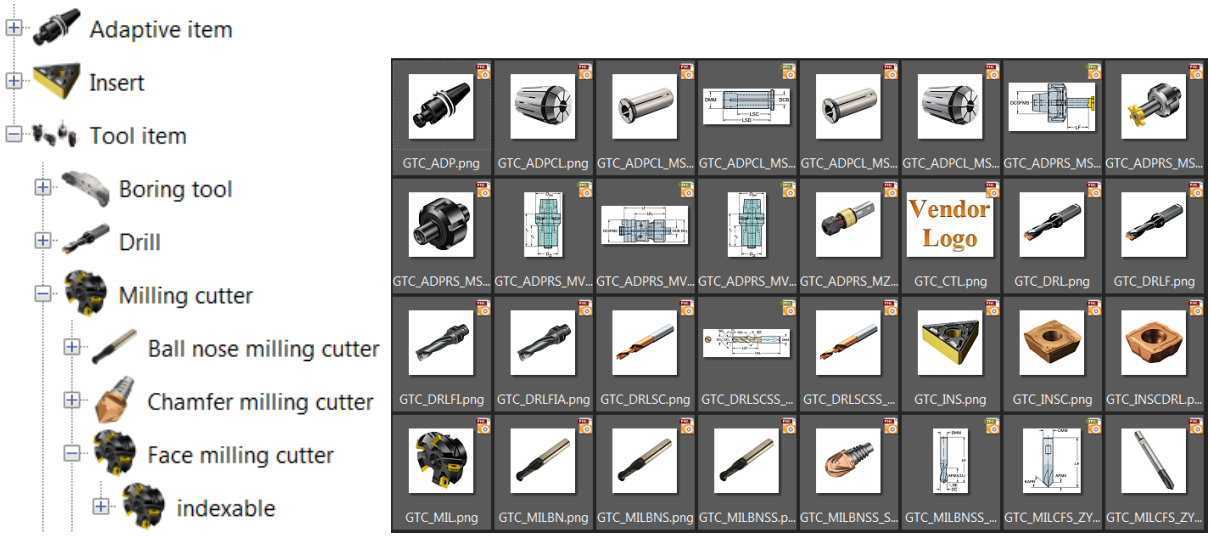
The following is a sample catalog_info.txt file for the tool vendor "Tool Experts Unlimited":

```
vendorName=Tool Experts Unlimited
vendorAcronym=TEU
vendorCatalogVersion=V9
vendorCatalogLanguage=English
vendorCatalogDescription=Tool sample catalog with a 10 example products
vendorCatalogShortDescription=V9 TEU 10 samples
vendorCatalogID=TEU_V9
vendorCatalogRootClassID=TEU_CTL
GTCPackageCreationDate=20140631_175902   (yyyymmdd_hhmmss)
GTCHierarchyVersion=V1R7
GTCPackageID=465465ftgj&%65798
```

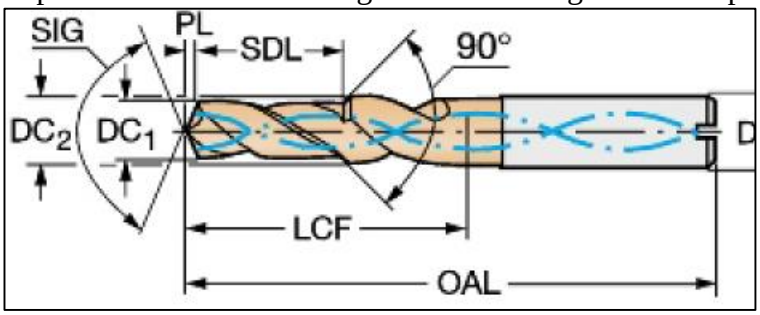
Definition of a GTC class structure (GTC class hierarchy)



The definition of the GTC class hierarchy is optional. Initially, the customer needs to receive one GTC package that includes the class hierarchy being able to import (incremental) GTC product records.
The GTC hierarchy definition includes the class structure as an XML file "class_hierarchy.plmxml" combined with the "class_hierarchy" subdirectory that includes class icons and schematic class drawings.
The following is an example of a GTC class structure and the "class_hierarchy" directory:

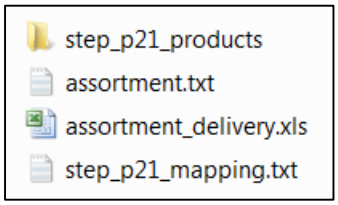


Note1: The class icons and drawings can be tool vendor specific (for the example the vendor logo should be replaced). The vendor can also provide its own icons and even more important, the class specific schematic drawings. The following is an example of a class drawing:



Note2: The XML file "class_hierarchy.plmxml" defines the tool vendor specific GTC class hierarchy.
This file is currently created with the support of Siemens PL. In a later phase this file will be replaced with a standard file format (GTC generic XML file format to define the GTC class hierarchy).

Assortment of products (attribute values for a list of products)



The assortment file "assortment.txt" lists all products that are included in the GTC kit.
The text file is used to import the products; the Excel file is not mandatory and can optionally be provided as a reference. The following is a sample file listing 10 product records:

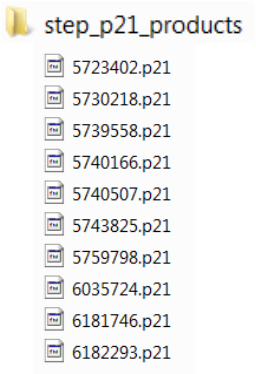
	A	B	C	D	E	F	G
1	Product_id	P21_file_name	Order_code	Unit_system	GTC_class_path	GTC_class_id	GTC_version
2	5739558	5739558.p21	RA411.5-2654D0.4062 K20	Metric	CTL\TL\DRL\DRLF\DRLFS\DRLFSS\DRLFSS_ZYL11	DRLFSS_MZYL11	V1R7
3	5730218	5730218.p21	C8-391.01-V80 065	Metric	CTL\ADP\ADPRS\ADPRS_MCCS01\ADPRS_MCCS01_WVLS01	ADPRS_MCCS01_WVLS01	V1R7
4	5759798	5759798.p21	391.60A-OZ J461	Metric	CTL\ADP\ADPCL\ADPCL_MSZD11\ADPCL_MSZD11_WZYL21	ADPCL_MSZD11_WZYL21	V1R7
5	5740166	5740166.p21	RA215-051C5-102L	Metric	CTL\TL\MIL\MILSQ\MILSQI\MILSQI_ISO$L\MILSQI_ISO$L_CCS01	MILSQI_WISO$L_MCCS01	V1R7
6	5723402	5723402.p21	A880-D2125P38-04	Metric	CTL\TL\DRL\DRLF\DRLFI\DRLFIA\DRLFIA_WSV$$DA	DRLFIA_WSV$$DE_MZYL11	V1R7
7	6182293	6182293.p21	E862M6	Metric	CTL\TL\TAP\TAPCCYL\TAPCCYLF\TAPCCYLF_ZYL21	TAPCCYLF_MZYL21	V1R7
8	6181746	6181746.p21	E891M12X1.5	Metric	CTL\TL\TAP\TAPFCYL\TAPFCYL_ZYL21	TAPFCYL_MZYL21	V1R7
9	6035724	6035724.p21	870-1760-17-PM 4234	Metric	CTL\INS\INSC\INSCDRL\INSCDRL_WSV$$DK	INSCDRL_WSV$$DK	V1R7
10	5740507	5740507.p21	RCKT 20 06 M0-KH 1020	Metric	CTL\INS\INSI\INSI_ISO$R	INSI_WISO$R	V1R7
11	5743825	5743825.p21	R217.33C060240AC13N 1630	Metric	CTL\TL\MIL\MILTH\MILTHG\MILTHGS\MILTHGS_ZYL10	MILTHGS_MZYL10	V1R7

Following a description of the main fields in assortment file

Asortment header fields		Description
1.	**Product_id**	unique identifier
2.	**P21_file_name**	name of p21 file
3.	**Order_code**	order code or product name
4.	**Unit_system**	"imperial" or "metric", defines in which unit the vendor presents the data to the user.
5.	**GTC_class_path**	Class hierarchy (path including class ID)
6.	**GTC_class_id**	Specific class ID where the product will be stored in the GTC hierarchy
7.	**GTC_version**	GTC version number (e.g. V1R7)

The Product_id, P21_file_name, Unit_system and GTC_class_id fields are important for the import.
All fields of the assortment file are explained in the "assortment_delivery.xls" file in the "Assortment_Information" spreadsheet.

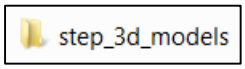
For each product a P21 file is required that includes the classification attribute values for the product. The P21 files are stored in the "step_p21_products" subdirectory. For example:



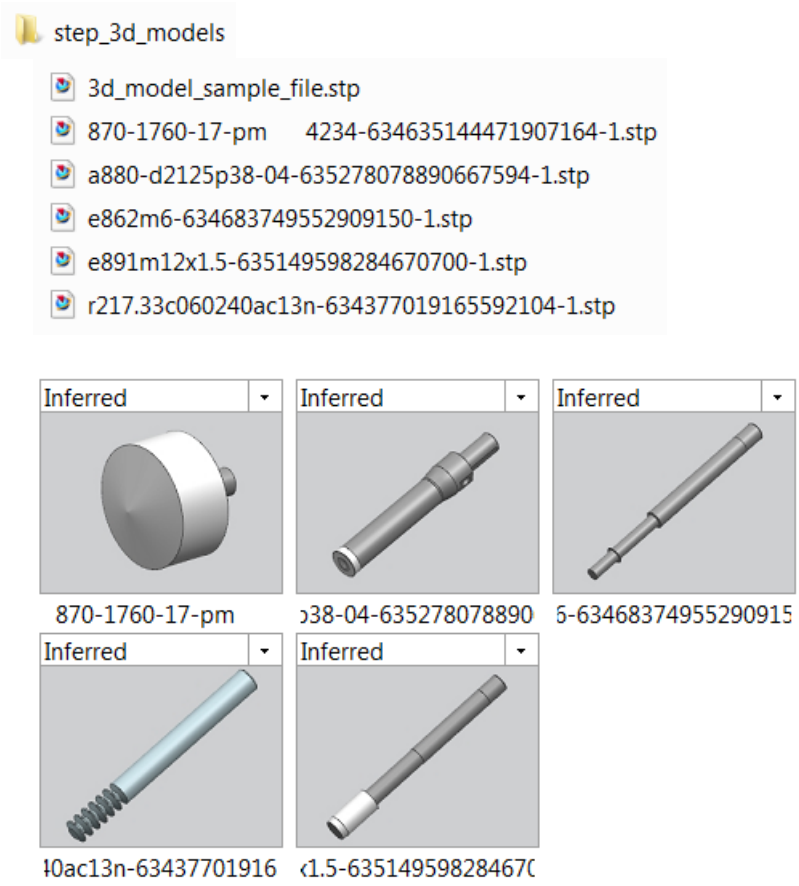
Note: The "step_p21_mapping.txt" file is also required for the data import and currently provided by Siemens PL. The line "SUPPLIER" needs to be adjusted by the tool vendor.
For example:

```
SUPPLIER,TEU,"Tool Experts Unlimited"
```

Additional documents (3D models for the products)



It is possible to provide a 3D model for each product along with the assortment.
The 3D model files are shipped as STEP files and located in the "step_3d_models" subdirectory:



The step models should follow the standards DIN4003 or ISO13399-80, ISO13399-200 to ISO13399-499. This includes the definition of CUT and NOCUT geometry and the correct coordinate systems (e.g., MCS for machine mount and CSW* for workpiece related connections).

Here the example "3d_model_sample_file.stp" following this standard: