Introduction

Document system is a system which manages all documents connected with products which are used or sell in the company. It contains technical information about the products and production process and technically oriented sales and aftersales documentation.

Example to clarify:

We produce power stack.

Power stack has:

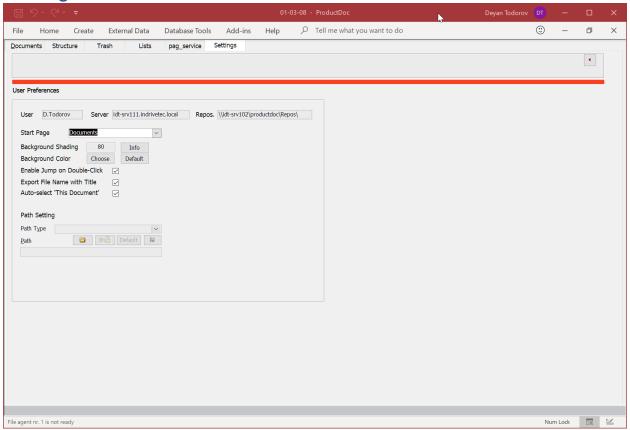
- IGBTs. When power stack is designed calculation and simulation for IGBTs are made and all these documents should be kept in the system. In the way that they get a number.
- Gate drivers this is an electronic assembly. There should be: Some design documents for it in printable form Mathcad files, excel files, schematic files in pdf, Gerber files, assembly documentation like pick and place file and pdf file, bill of materials, As a product Gate driver should have datasheet, leaflet, test procedure, test report and etc.
- Capacitors documents how capacitors are selected
- Busbars (copper parts for interconnection of IGB and capacitor and power stack and surrounding parts) pdf drawings of the busbar
- Isolating materials pdf drawings of the isolation part
- Cooling plate pdf drawings of the cooling plate, datasheet of cooling plate
- Mechanical parts and mechanical fixation parts (screws, washers and etc) pdf drawings for produced materials

Power stack can be used in production for cabinets and for direct sell to all customers or it can be for specific customer only.

Document system should keep an entry for:

- Power stack design documents. Some calculation if made, some tests if made
- Power stack datasheet, user's manual
- Power stack assembly manual, test procedure, test report

Settings.



- 1. Rights for the users. It is not seen because the level of the user is not allowing to see the rights. If the user is admin then Next to User Preferences, there is a tab Users. Users cannot see entries to which they have no access.
 - 1.1. Each user can have rights to see some repositories (places where the files of the document are stored). I have no idea if we will have repositories.
 - 1.2. Each user can have rights to see document classes or some classes can be forbidden to the user. For each user if there is nothing defined has access to all classes.
 - 1.3. There should be also possibility to give rights only for documents with specified audience "I" internal, "C" customer, "P" producer, "S" supplier, "E" external" and "O" open access this file can be given to everybody. If nothing defined for the user, he has access to all audience type documents.
 - 1.4. Limiting access of the user to documents with exact "Customer". If not defined, then user gets access to all.
 - 1.5. Limiting access of user to documents with exact "Project". If not defined, then user gets access to all.
 - 1.6. Some example to clarify:

About Power stack.

People from engineering department have right to see all documents. Supply management gets access to "C", "P", "S" and "E", without restriction from customer or for all customers.

Customer can get user's manual and datasheet with audience "C". It can see just power stacks which are linked to him as a customer.

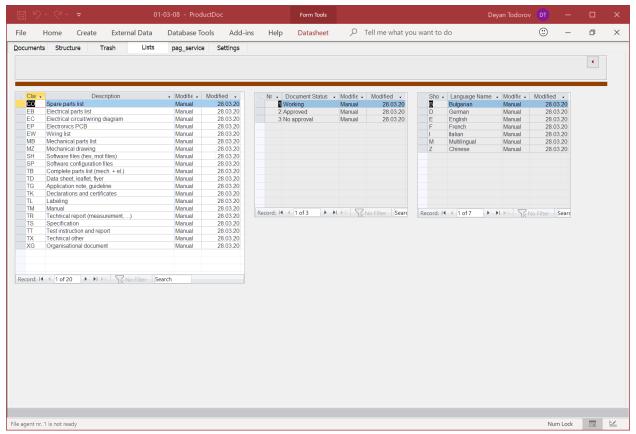
Subcontractor can get documents with audience "P" and only when he is connected to it with rights on customer and project. Subcontractors need drawings, schema, test procedure, test report, Gerber data.

Supplier can get documents with audience "C" and only when he is connected to it with rights on customer and project. Supplier needs specifications mainly. Documents with audience "O" are for use from the web page in the future. This information is without any restriction to be shown.

2. User preferences:

- 2.1. User username of the connected user
- 2.2. Server name of the server to connect to. Our system will be web based so this is not existing there.
- 2.3. Repos this is the folder on the file server where the repositories are connected. Repositories are subfolders in the given folder. If we keep the files in database, then this is also not needed
- 2.4. Start Page select with which page to start when system is opened.
- 2.5. Some colors settings and settings and interface settings this can be decided later
- 2.6. Path settings:
 - "File export" In which directory the system exports files. This export is mainly connected with export of data from tables.
 - "Transfer" From which directory systems takes files and puts files with buttons "From Transfer" and "To Transfer"
 - if other paths are needed.

Lists



There are 3 main lists with data used for properties of the documents:

1. Document types:

Short Name

Description of the type

Who modified it last

When it was modified

2. Status of the document:

Who modified it last

When it was modified

3. Language of the document

Short name

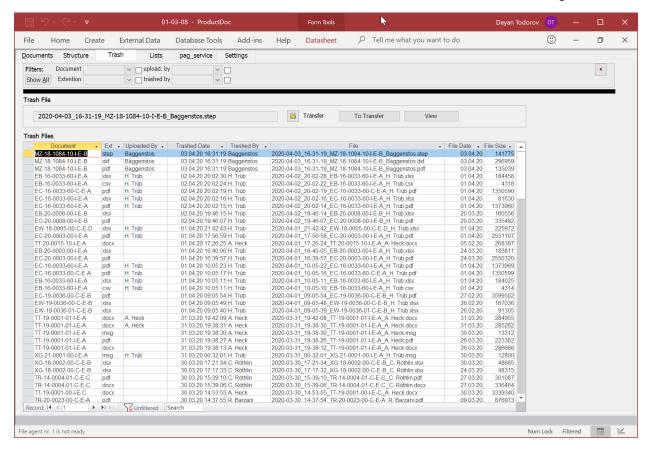
Name

Who modified it last

When it was modified

Trash

Documents can be deleted only after they are deleted from this form and only from admin. When delete is pressed in normal work the document go to this trash directory and trash table. When the document is moved also the name of the user who deleted the document gets stored.

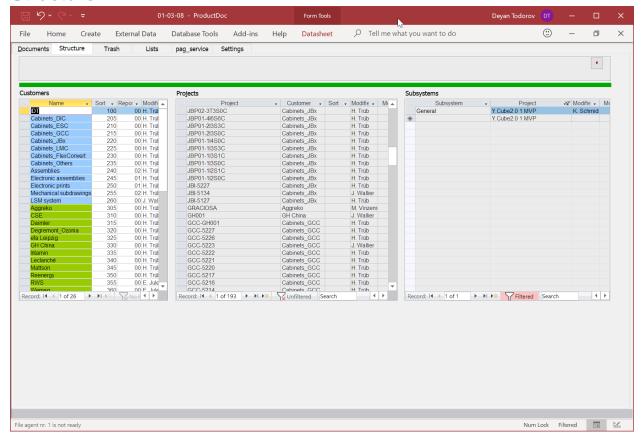


There should be possibility to search and filter by document number, file extension, who trashed it and who uploaded originally the document.

Because in one document entry there could be more than one file, then when only one file is deleted in the trash should comes an entry with document number and with file extension which is deleted. It is important to store date and time of deletion because it could happen to delete more than one time given attachment for one day.

There should be possibility to show the trashed document and to copy to transfer folder

Structure



3 main options used to sort and filter documents

- Customers. There are real customers and fictive customers for engineering documentation. This is first level for ordering and filtering
- Projects. Customer can have different projects, or it could be used for second level ordering and filtering
- 3. Subsystems. In a complicated project there could be more than one system or this could be used as third level ordering and filtering

Customers:

- 1. Name
- 2. Sort order as a number in the way to sort not alphabetically
- 3. Repository if there are repositories where the information and data will be stored
- 4. Who modified
- 5. Date of modification

Projects

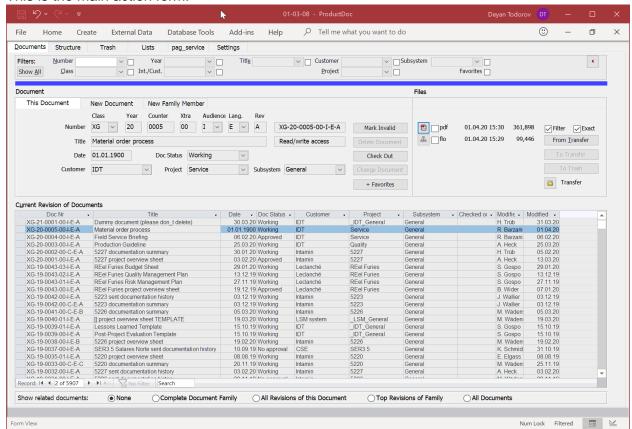
- 1. Name of project
- 2. Customer to which it is connected
- Sort order
- 4. Who modified
- 5. Date of modification

Subsystems

- 1. Name
- 2. Project to which it is connected
- 3. Sort order
- 4. Who modified
- 5. Date of modification

Documents

This is the main action form.



The system keeps counters from different classes documents.

Each entry looks like this

CC-YY-NNNN-XX-A-L-R

CC – Class, this comes from Document type list. This is short name and is chars.

YY – year of document entry creation. 2021 will correspond to 21.

NNNN – number for combination CC-YY. This means every year this number starts from 0000.

XX – Extra this are 2 characters which are defined by creation of the document by hand, default value is 00 and if can be also letter. Strange here is the if it is letter it should be ordered before the numbers. If we have ZZ, it should be sorted in the list before 00. This is used to give different meaning of the same entry. For example, AA could be Gerber files to produce bare PCB board and 00 are files to which already have some mounting on the components on the bare pcb. 01 are files which define different mounting than 00. When just bare pcb needs to be produced documents with AA are taken but when the pcb with components needs to be produced the documents with 00 are added and so on.

A – audience. To what audience can this document be given.

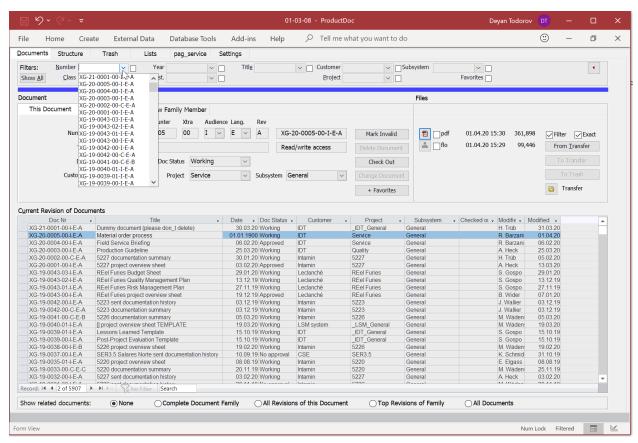
L – defines language of the documents. E – English, B – Bulgarian, D – German, M – multilingual documents. Probably a list with languages needs to be added in the Lists form. R – revision of the entry if some of the documents changes, then the revision of the entry needs to increase, but this is not automatic.

When a file from the system is extracted its name is CC-YY-NNNN-XX-A-L-R Title (if the option is selected in settings) and it's original extension.

Filter part of the Documents form

Top part of the form gives possibility to do some filtering all conditions are AND conditions. All filter fields accept also partial info defined with "*" or "?".

The filter box gives a list with all possibilities. I know it makes no sense with the number because this list shows all numbers in the system, but the field should be there because it should be possible to filter the document which you need if you have the number.



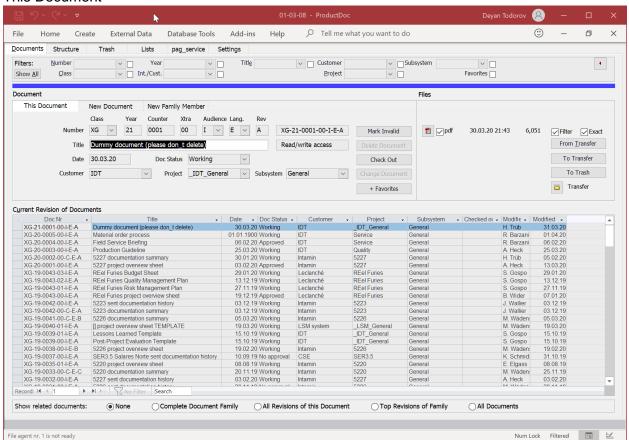
Boxes for Customer, Project and Subsystem are restricted to the links they have so once you select project, you can select only customers who has this project.

When the form is opened after authenticating the user. User should see only entries with scope of rights he/she has. If he/she has access only to some customer then the customer field should be probably even disabled.

Document part of the Documents form

This is the middle part of the form and it has: This Document, New Document New Family Member. If user has no write access, then je sees only "This Document". With disabled buttons except for taking the attached files.

1. This Document

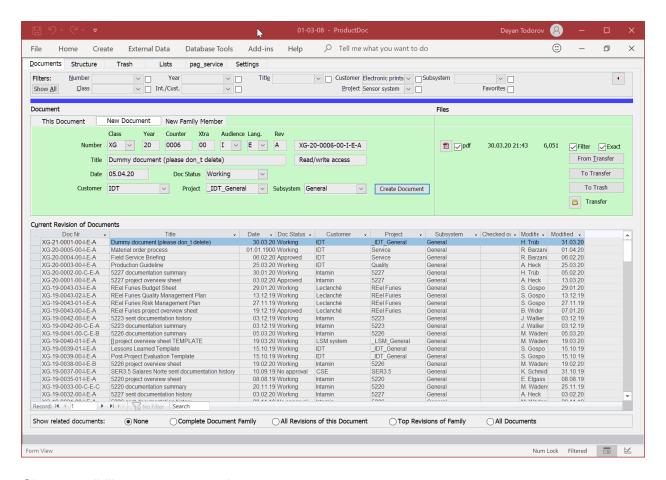


This incorporates the function which can be done with one entry:

- 1.1. Document part, Change document it is used when a document needs some change for spelling error in the name or wrong extra information or language or audience
- 1.2. Document part, Marking document as invalid. When this is pressed then entry becomes invalid. Only users with write access can see it.
- 1.3. Document part, Deleting document. Moves document to trash only for users with write access. For each file in the document an entry in trash is made.
- 1.4. Document part, Adding to / removing from favorites. Adding the document to favorites gives possibility to filter only by favorite documents. For all users.
- 1.5. Document part, Check out only for users with write access and it adds the name of the user in a list of people who work on the document. When next user wants to check this document out he sees the list of people who are working on it.

- 1.6. Files part, Adding files to a document entry from local PC of the user if he has write access. Only one entry per type is allowed, only one zip file, dos file and etc.
- 1.7. Files part, Downloading as file from the document.
- 1.8. Files part, Trashing a file from a document. Only with write access and the deleted file goes to trash

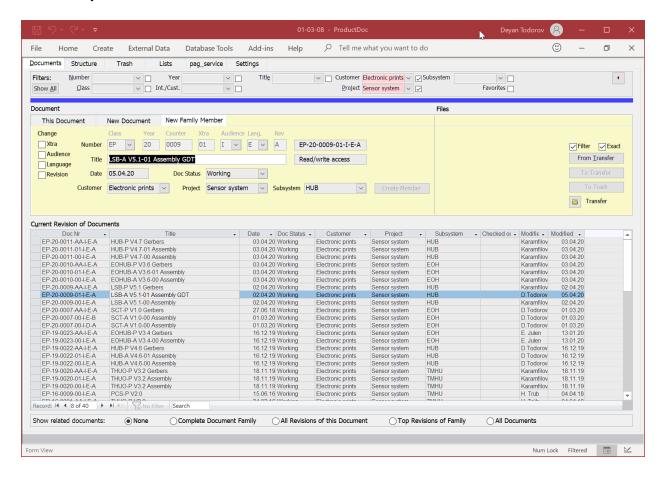
2. New Document



Gives possibility to create new document.

When Class is changed then it takes the current year for year and gives the next number for Class|Year combination. Extra is "00" by default, Audience is "I", language is "E" and revision is "A". Buttons for adding files are not enabled. User has to be with write permission and he can change everything by hand – when changing a field with list, it should be possible value for the field.

3. New Family Member



Gives possibility to create new document entry as part of the family.

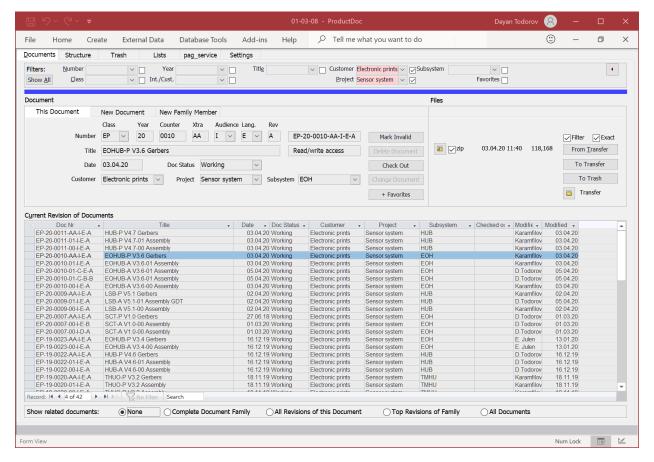
Extra, Audience, Language and Revision can be changed.

It creates new entry with same Class, Year and counter like the document selected before going to New Family Member. The selected for change value filed is empty and is written by hand only if revision is selected it offers next revision.

Files can be added after creating the document.

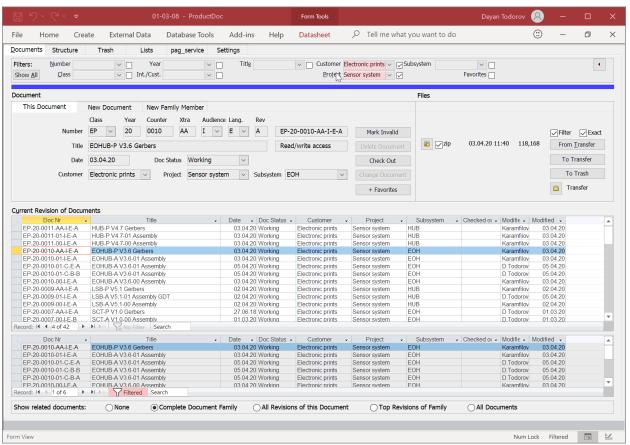
List part of the Documents form

All filters work on the list part. Only the latest revision of the document is shown in the list part. In the list part editing is not allowed it is just to select a document.

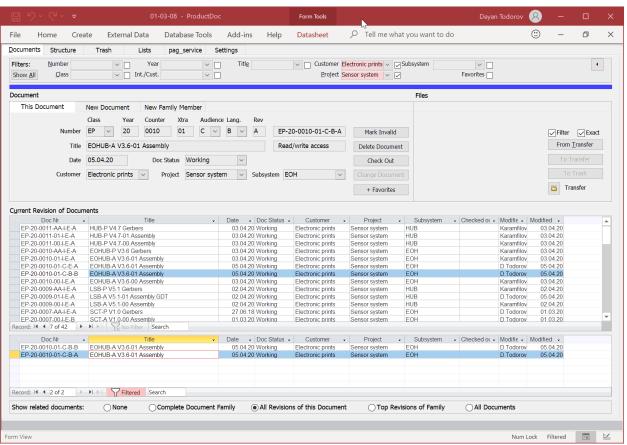


Once a document is found and selected then List can be split on 2 lists and second can be filtered additionally. The second list is read only either and it is used only for selecting Options are:

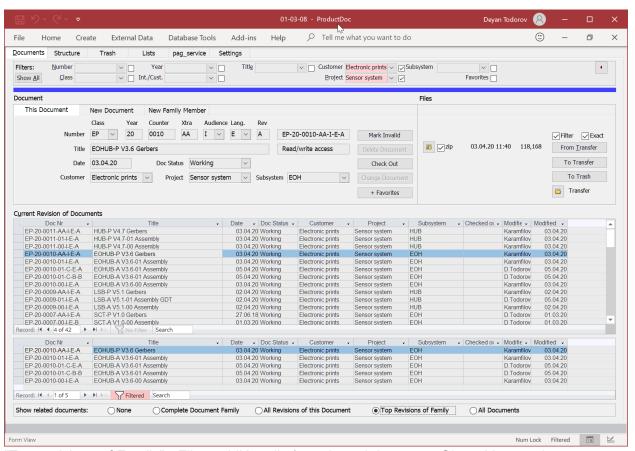
1. "None" – no filter additional filter and no second list.



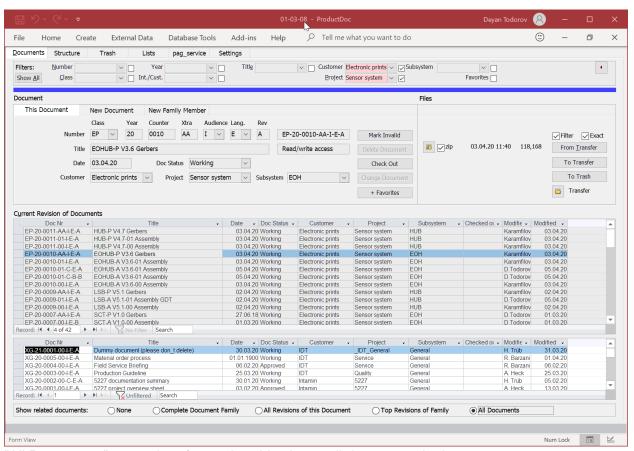
2. "Complete Document Family" – Filter additionally for selected document Class, Year and Number



 "All revisions of this document" – Filter additionally for selected document Class, Year, Number, Extra, Audience, Language
This is how old revisions can be selected and consulted.



 "Top revisions of Family" - Filter additionally for selected document Class, Year and Number and gives only last revision



5. "All Documents" – not clear for me but this shows all documents in the system without filters in the second list.

Additional things.

- 1. File types which can be used in the system should be predefined and an icon should be taken for them or default icon for the file in the system
- 2. Can it happen with some application to point to number and to go automatically to the document in the system?
- 3. It should become possible to put more files from the same type. Difference in the names of the files should be defined when files are imported. Now in Documents form thee is only file extension seen for the file. In future there should be filed with some string which will be added to the file name after the Title when extracted.
- 4. Somehow connected with point 3 for different document classes to be possible to predefine some structure with additional strings for needed documents with same extension and when the document class is selected then this to become automatically available.
- 5. For each group of documents, there is responsible. When a new document is created and ready and approval is requested, he gets a mail in the way to approve. Not approved documents can not be seen from producers, suppliers, customers.
- 6. For each document which is checked out, when a new check out happens the first who checked it out should get a mail.

Revision history

Revision	Date	Initials	Summary of changes
Α	05.04.2020	DT	First Official Version