



White Paper: Direct Publishing

Automatic creation of technical documentations

An important aspect of each customer plant construction project; is the creation of complete and specific documentation of the production facility. According to the size of the plant, the documents consist of a few to hundreds of files. Along with the description of the plant, the documentation is also important for running, maintaining and the general repair of the facility.

The initial situation

Each single part of the complete documentation process may be derived from **different sources**. Other parts come from editing systems, where they are updated and maintained. The drawings are presented by the company-owned construction department. In addition there are standard documents, drawings and maintenance records of supplier spare parts from different subcontractors.

Due to the various sources the required documents exist in **different file formats** and the storage data organization may differ.

For efficient processing the ideal format for document creation is the **connection of all relevant documents**. This includes with single positions of the bill of materials in the PLM system, and the storage places in the integrated DMS. However, in practice it may happen that the documentation department must resort to paper copies or files on an external file server.

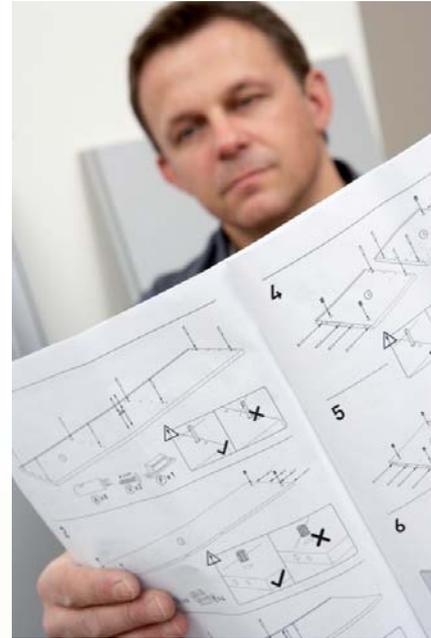
During the compilation of comprehensive plant documentation the process can be **time consuming**, and **error prone work**. In spite of the mundane characteristics of this type of work; this must be completed by highly qualified staff. Errors often result by the usage of incorrect document versions and often this cannot be avoided, because the final version is not ready in time.

Furthermore the document creation is often done with time **constraints**, because this is the last step of the production process. Nevertheless all changes should be captured until the last minute of the official delivery.

Deliveries of plants and machines often have special terms of payment, and agreements defined by customers. The faster the delivery of documentation the earlier the cash flow will result.

Occasionally, preliminary part documentation may be required when preparing work for customers. For example with ground works or other construction stages or planning procedures special circumstances may be required for authorities. Already generated intermediate documented parts cannot be used at a later date or reproduced in future building phases.

Plant contractors also offer services for **maintenance, repair and extensions** of existing projects. Complete exact plant documentation is a prerequisite for providing high quality services. This process will result in a **competitive advantage** against other repair suppliers



The solution

The complete provision process of technical documentation can be realized as a fully **automated** direct publishing solution in the DPF technology from SEAL Systems with essential quality improvement.

Product variant delivery: Paper and Electronic

A completed plant documentation often has to be printed and delivered as **folders** or sometimes also in a structured **PDF file**. For electronic **long time archiving** a suitable PDF/A format is required. Here often times a compromise between the media paper and file must be recognized. The output to PDF should contain features, which are similar to paper output, because the recipients usually want to print additional copies.

If the documentation is large or contains several copies that need to be delivered, the production can be performed by **repro service providers**. In this case some more information and different criteria may be important for document compilation. For example page size or color output may be integral.

Digital Process Factory®

Digital Process Factory is a development and runtime environment for design and process control for information, data, file and document processing. For design of customer specific processes and methods the DPF is a highly efficient tool, because programming is replaced by configuration of standardized processes.



The principle elementary, standardized process modules, referred to as Working Units, are combined to variable process chains. There are interactive tools for compilation and process control.

All these parameters are carefully considered by the Direct Publishing process.

The former solution enables the automatic creation of **DVD's**, and offers the feed of customer portal information.

For a later search the complete documentation can be automatically stored by the Direct Publishing module in a **central place** or on a **file server**.

Preparation

Folder directory or folder contents

The volume of plant documentation can have between one page and hundreds of folders. At some point when a certain number of folders are created; a separate folder content is necessary to get an overview of the whole documentation. The content is automatically generated by the Direct Publishing process. Each folder contains a content directory, which shows only the information inside the folder itself. This folder consists of a number of documented parts. Each of them is separately checked, converted and stamped.

Page layout and page numbers

All pages of the newly created documentation contain sequential page numbers. These pages have new headers and footers. For complex print output the pages have to be filled with open pages, if necessary.

Interactive contents/Bookmark structure

For digital output as PDF there are further navigation elements needed. The PDF files have interactive content directories with links to the beginning of each chapter and the listed sub titles. Bookmarks show the documentation structure and allow jumping to the listed sub chapters. If there are already book marks existing in the original part documents; then these are inserted as sub folders to the newly created bookmarks.

Complete integration of supplier documentation

The content of the documentation comes from different sources. Other parts, especially supplier parts, are described through the original documentation of the external delivery. With Direct Publishing evaluation and adaption processes the seamless integration to the complete documentation is guaranteed.

Automatic error pages/place holders

Sometimes documentation chapters are still not ready for the whole compilation. In place of these missing data point errors or substitute pages are inserted. Therefore, the creation of part documentation is at this stage possible.



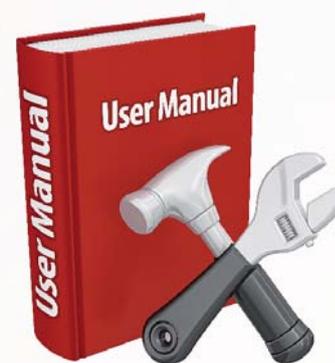
Addition of original documents

For the future plant operators the original documents in the source format of their application may be important. If necessary these documents can be digitally exported and stored.

Monitoring

Especially with tight time schedules for documentation creation it is important that the **progress of the generation process** is supervised and those possible problems are quickly and reliably recognized.

For the operators of the documentation creation process, there are many possibilities for the **control** and **supervision** of the document generation in the Direct Publishing work flow environment. In addition to the powerful administration tools of the Digital Process Factory, the Direct Publishing work flow automatically informs by email about exceptions or unwanted process conditions.



Customizing

The Direct Publishing work flow can be **flexible and adapt** to the special environment and requirements of each customer.

For example **chapter separation sheets** between single sections can be printed on special paper. The output of these separation sheets is then done on a different output channel.

Data and tables, which are not available as documents, can be prepared with a **report generator** and converted to PDF and then inserted in the complete documentation. This way all data points are actualized at all times.

Summary

What are the benefits of Direct Publishing?

- Plant documentation at a press of a button
- Standardized documentation structure
- High process reliability
- Contents and structure of the documentations can be efficiently adapted and extended during the creation process or project runtime
- Paper and digital documentations
- Progress control during the creation process/adaptation's and extensions of the documentations
- Traceable documentation deliveries in the ERP system
- Availability of final documentation at the end of the engineering process without manual post-processing works
- Automatic documentation creation, which contains only the changed documents
- The documentation processes are flexible and adapt at any time
- Parallel processing guarantees a very high throughput
- Re-use of existing process modules in other workflows is possible
- High solution transparency
- Graphic process representation
- Complete process tracking
- Logo files with all important system information
- Fast implementation
- Process security through automatic exception handling

Where is the highest cost saving potential?

- Part documents can be re-used for later documentations
- Highly qualified engineers can use most of their actual tasks
- Automated generation of electronic documentations
- Further cost reduction by using external print shops
- Electronic archiving is much cheaper than analog archiving
- Customer requirements for large documentations can be considered without much additional effort
- The creation time for documentation is essentially reduced



Do you have further questions?

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