PROJECT SUMMARY:
INDIVIDUALIZED SKELGRID INTEGRATOR MANUALS
FOR CUSTOMER-SPECIFIC SYSTEMS

OVERVIEW
We set out to demonstrate the value of topic-based content management to create customer-specific Integrator Manuals.

A framework has been created and populated for every currently market-ready component variant.

Integrator Manuals have been produced for two hypothetical customer configurations, to demonstrate the flexibility and efficiency of this way of working.

These two proof-of-concept manuals follow the SkelGrid Configurator Code system and have the following specifications:

- SG2-***TB01***-PC01-MC01-EN01-CF01-***SW01***-MD01-BK01-CK01-SK01-SP00-CD00-PK01-RG01
- SG2-***TB02***-PC01-MC01-EN01-CF01-***SW03***-MD01-BK01-CK01-SK01-SP00-CD00-PK01-RG01

The new documentation system enables rapid production of an individual Integrator Manual for any purchased combination of SkelGrid 2.0 system elements.

The manual comprises:

1. Overview of all elements of the SkelGrid system

2. Detailed description of customer-specific system purchase including configuration, components, their specifications and behaviors, operation and maintenance tasks, disposal and recycling, regional compliance and service parts

3. Appendices
- Master Controller UDS and CAN messages and reference information
- Single Line Diagrams for whole system according to purchased configuration

CUSTOMER-SPECIFIC DOCUMENTATION
From a given, customer-specific, purchased SkelGrid system, it is now possible to generate an Integrator Manual focused only upon the precise components and specifications of that customer's system.

If small or large purchases require the production of a document reflecting their purchased combination this can be produced and distributed on the same day, either in HTML or PDF formats.

CONSISTENT BRANDING
The manuals reflect the corporate branding of the company website, with all page layouts, templates, target files and cascading stylesheets configured to represent Skeleton corporate look and feel.

As a semi-automated, fully centralized repository, it is now simple and quick to update and develop any elements as required.

INTERNATIONALIZED AND TRANSLATION-READY
The documentation follows ASD-STE100, derived from S1000D, the international specification for procurement and production of technical publications.

This means that the SkelGrid Integrator Manual now follows linguistic rules used in aerospace, defence and government documentation across the English-speaking world.

Readability scores have been cross-checked against the Flesch-Kincaid system to ensure the document is easy to read for non-native English speakers and can be translated without the risk of ambiguity.

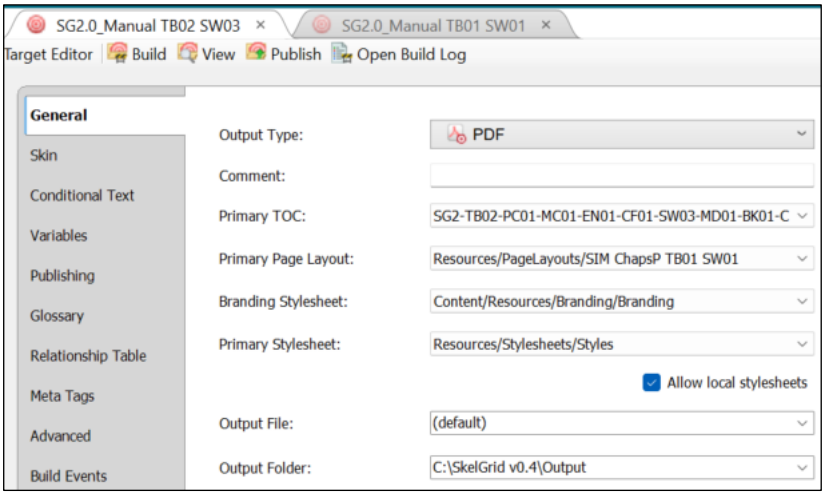
OUTCOME
A topic-based content library has been built, enabling production of individual SkelGrid Integrator Manuals. The library can be expanded to include all product and service documentation as required, with the benefit of reducing time spent on production, eliminating duplication and version control issues. It has templates, stylesheets, page layouts and other automated features to permit rapid publication of a SkelGrid 2.0 System Integrator Manual for any customer-specific combination of the SkelGrid system.

In brief, this contains: Safety, Diagnostics, Troubleshooting, Installation, Operation, Management and Reference Data for any combination of system configurations and components.

NEXT STEPS
1. Cell and Module Data Sheets
2. SuperBattery Installation Guides

ILLUSTRATIVE EXAMPLES

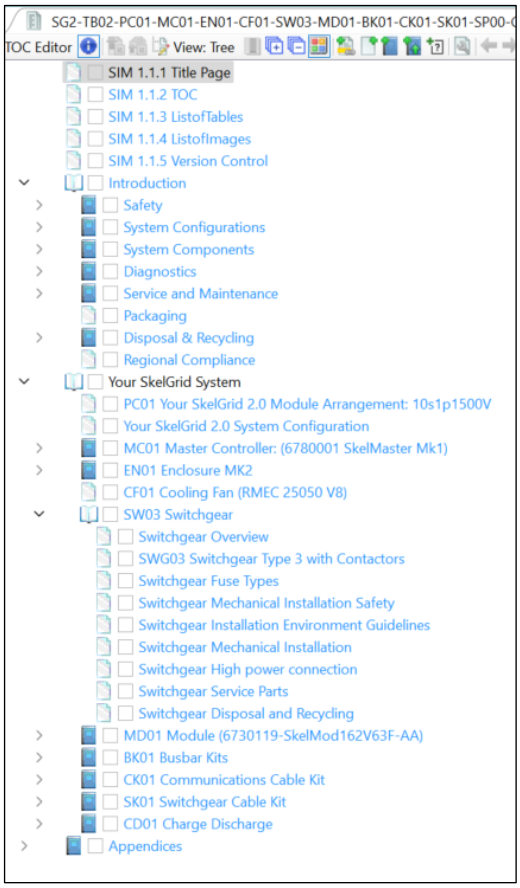
One of two target configurations for PDF build of Integrator Manual



← Primary TOC relates to Table of Contents for a specific output, in this case with variants TB02 and SW03.

Example Target designating format, CSS, TOC and other parameters

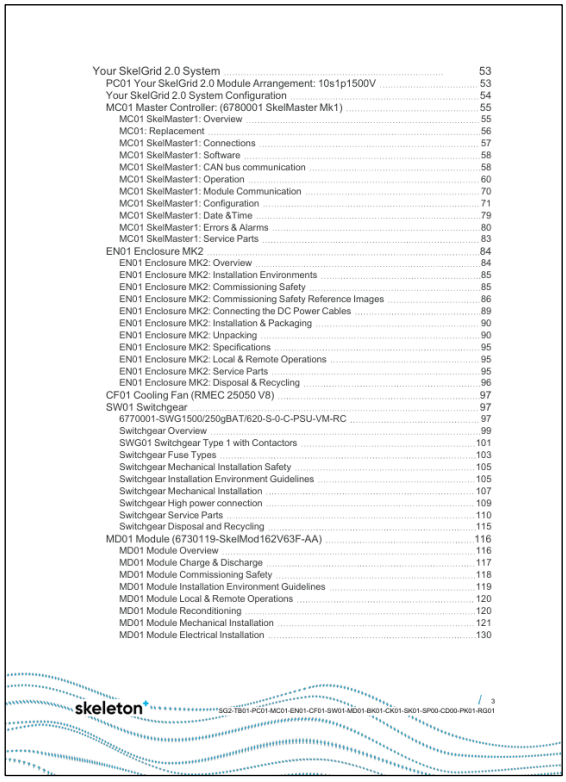
Partially expanded TOC for TB02/SW03 showing order and hierarchy of topic files comprising book output:



Example TOC in production

TOC is configured to use H1 topic title rather than file name as index entry. This permits identical titling where required between different variant topics (which have unique file identifiers).

Excerpt from TOC as shown in published output:

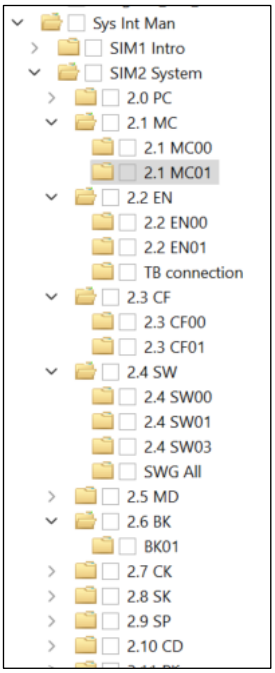


Example published TOC

When topic content is updated, the TOC simply draws the latest version of that content, and the target file rebuilds the required output (HTML, PDF etc).

Multiple system variants are served in a simple, robust system of content classification by ensuring all information is single sourced.

Numbered file folders denote place in book sequence (section numbers are not produced in published book but can be if required).



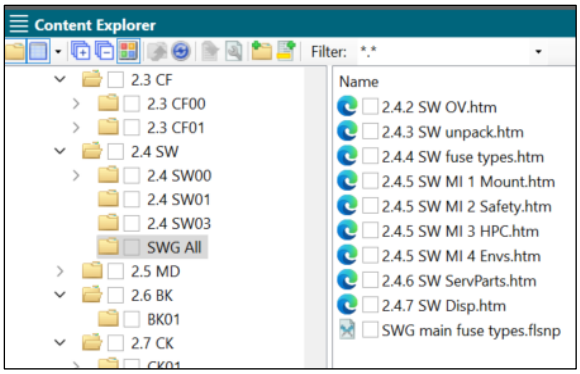
Topics categorized and sequenced by component & order

An option was created in each section to cover the eventuality of component not included in purchase (e.g. MC00).

In this way, the manual has a fixed structure that can accommodate any combination of configurations, component types (e.g. 18 switchgear variants).

For variants such as SW03, content is categorized as unique or common to all, ensuring a single verified source is maintained and updated.

Example: ‘SWG All’ contains topics relevant to all variants



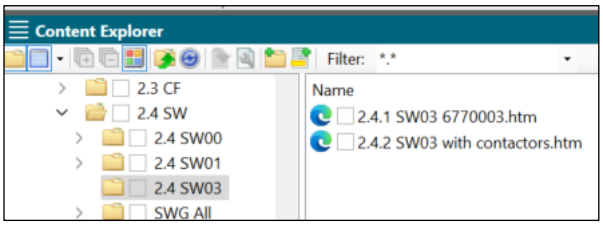
Content relevant to all component variants

Note the last item listed in ‘SWG All’ is a ‘snippet’ file.

As this is used multiple times in the document, instead of replicating the content, it is reused, from a single verified source.

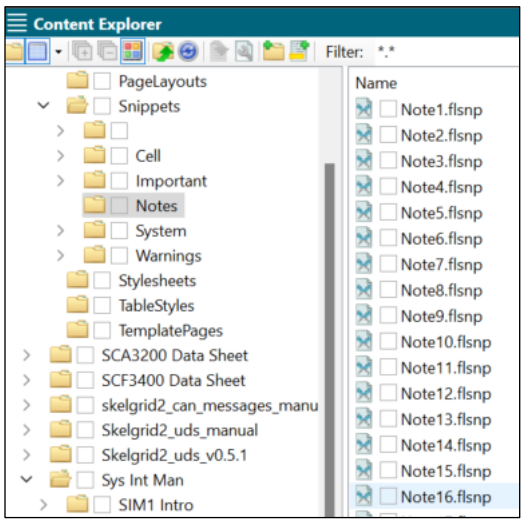
‘SW03’ contains only data relevant to

6770003-SWG900/250gBAT/620-P-0-C-PSU-VM-RC



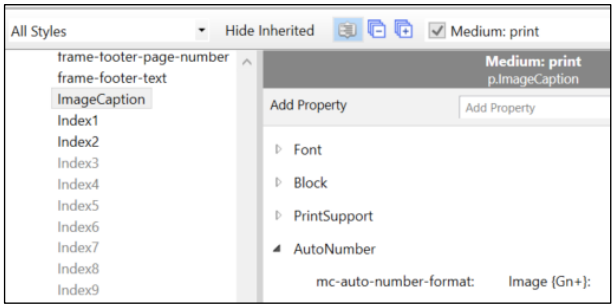
Content unique to a component variant

Items like Notes, Cautions and Warnings are recurrent and therefore also managed as reusable snippets.



Notes, Warnings etc. as reusable snippets

Images are auto numbered for indexing by creation of a stylesheet class, ‘ImageCaption’.



Editing style class in principal CSS

This is generated in XML as:

```
        <p class="ImageCaption" MadCap:autonum="Image 1: ">SkelGrid Master Controller MC01</p>
        <p>
            <img MadCap:mediastyle="@media print { width: 14cm; }" style="border-left-style: solid
border-left-color: #000000;border-right-style: solid;border-right-width: 1pt;border-right-color: #
```

As shown in development environment:

Image with caption in development UI

Images are sequenced on output build and an image index is generated

Generated Index of Images entry

As shown in output document:

Image with caption in published output

Tables are captioned as a table property:

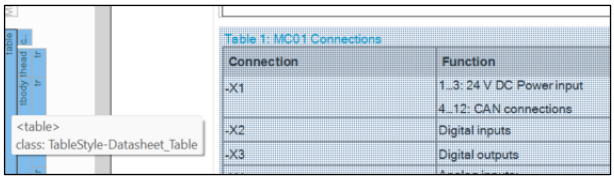


Table with auto-numbered caption in development UI

Table appearance is regulated via table-specific stylesheets to ensure uniformity:

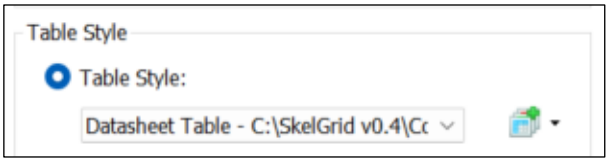


Table properties: allocating a table stylesheet

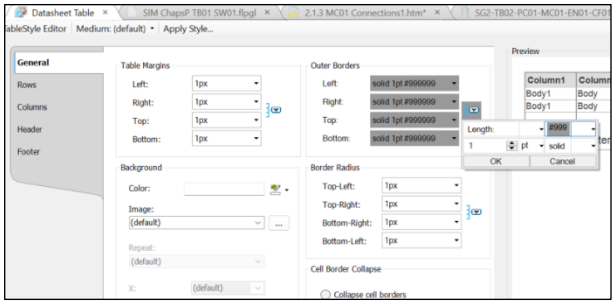


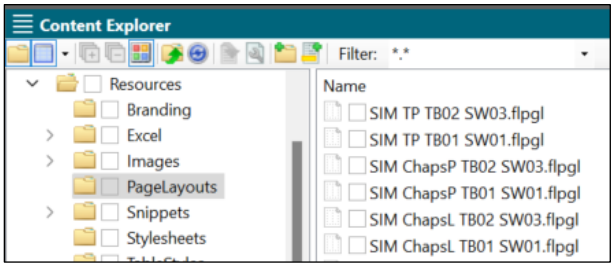
Table stylesheet: editing layout parameters

As shown in output document:

Table 10: Enclosure Maintenance

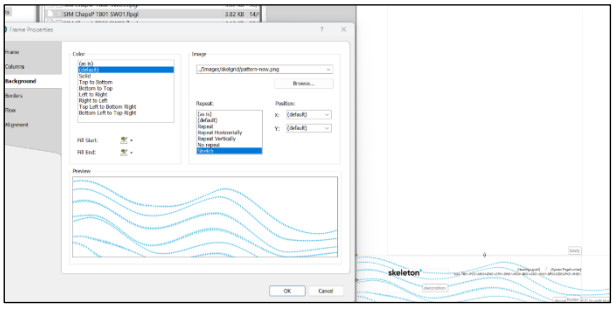
SERVICE ACTIVITY	TYPE					SERVICE LEVEL						STANDARD REPAIR / CHECK TIMES							COMMENT
X - required, * - if necessary	INSPECT	TEST	MEASUREMENTS	CLEAN	REPLACE	PRE-COMMISSION	COMMISSION	POST-COMMISSION	ROUTINE MAINTENANCE	EMERGENCY MAINTENANCE	PREDICTIVE MAINTENANCE	SYSTEM DISCHARGE	MODULE DISCHARGE	MODULE TO BE EXTRACTED	ISOLATED TOOLS	No. OF PERSONS	SPECIAL EQUIPMENT	TIME (mins)	PERSONAL PROTECTIVE EQUIPMENT TO BE USED AT ALL TIMES
Marking and labels	X			*	*			X	X		*							5	LADDER
Doors	X				*		X		X								*	2	LADDER

Page layout files are allocated to each topic. This allows quick, universal changes to be applied:



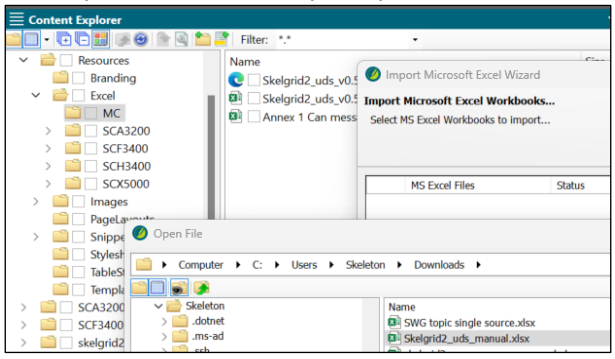
Page layouts are allocated to every document topic

Title page layout, variant 2
Title page layout, variant 1
Portrait page layout, variant 2
Portrait page layout, variant 1
Landscape page layout, variant 2
Landscape page layout , variant 1



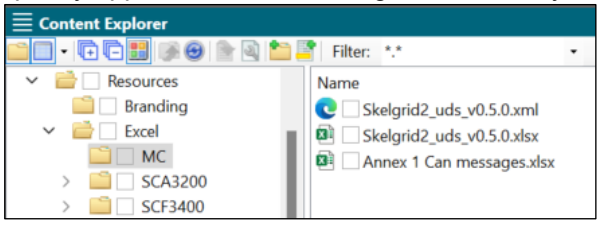
Editing a page layout frame

The new process includes importing .xlsx workbooks with separate worksheets per topic:



Importing .xlsx worksheets

This allows changes made in a shared folder to be quickly applied to content throughout the library.



Imported .xlsx converted to xml for integration to document

The Configurator Code tells us the requirements of a specific customer.

B12 =CONCAT(A8:O8)

	A	B	C
1			
2		Top / Bottom Customer Connection	Popular Configurati
3	Select Drop down option	Top1	5s2p 810V
4	Price Per unit Or Module (EUR)	150	
5	Sub- Total (configuration dependant)	150	
6	System Sub Configuration Code	01	05
7		TB	PC
8	SG2-	TB01-	PC05-
9			
10			
11			
12	Selected Configuration Code	SG2-TB01-PC05-MC01-EN01-CF01-SW09-MD01-BK01-CK01-SK01-SP00-CD00-PK01-RG01	

Example configurator spreadsheet output

This code shows the constituent parts of a customer system purchase and is used to generate the contents of an individual integrator manual

SG2-TB01-PC05-MC01-EN01-CF01-SW09-MD01-BK01-CK01-SK01-SP00-CD00-PK01-RG01

From this code, it is possible to generate a document corresponding exactly with a unique system configuration and combination of components and their variants, from a library of pre-verified source content.

The above summarized elements of this way of working allow us to ensure that the distributed manual is accurate, current, complete, consistent and only contains information relevant to the customer's purchase.

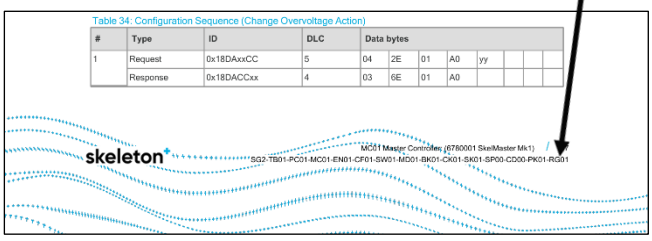


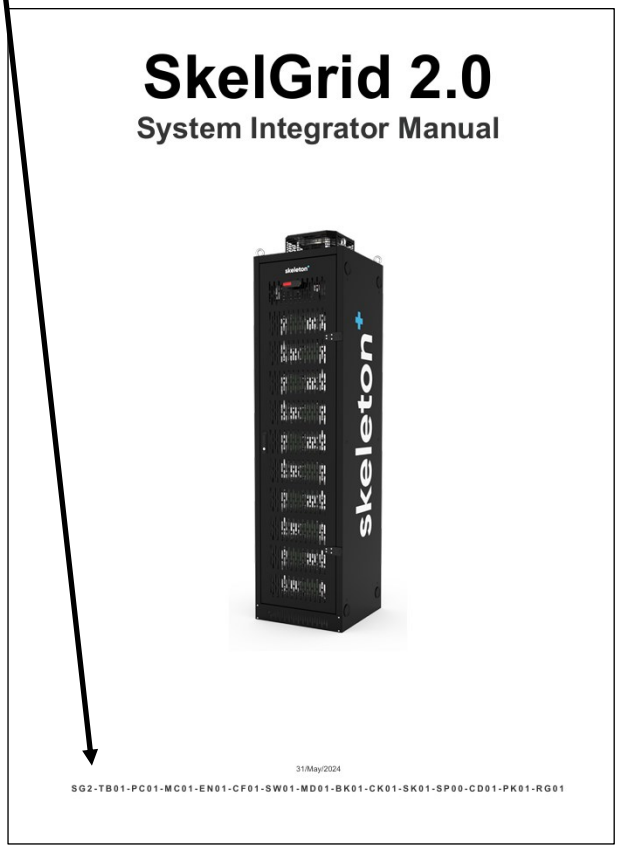
Table 34: Configuration Sequence (Change Overvoltage Action)

#	Type	ID	DLC	Data bytes							
1	Request	0x18DAxxCC	5	04	2E	01	A0	yy			
	Response	0x18DACCxx	4	03	6E	01	A0				

skeleton

MC01 Master Controller (6780001 SkelMaster Mk1)

SG2-TB01-PC01-MC01-EN01-CF01-SW01-MD01-BK01-CK01-SK01-SP00-CD00-PK01-RG01

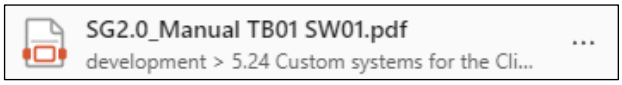

SkelGrid 2.0

System Integrator Manual

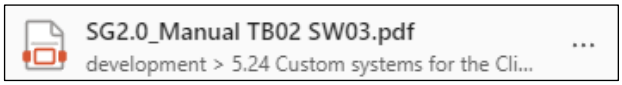
31/May/2024

SG2-TB01-PC01-MC01-EN01-CF01-SW01-MD01-BK01-CK01-SK01-SP00-CD01-PK01-RG01

To view Integrator Manuals, see SkelGrid 2.0 Integrator Manual in SharePoint.


SG2.0_Manual TB01 SW01.pdf

development > 5.24 Custom systems for the Cli...


SG2.0_Manual TB02 SW03.pdf

development > 5.24 Custom systems for the Cli...