

GRAITEC

What's New in Advance Workshop Steel 2024-V20

29TH June 2023



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WELCOME TO ADVANCE WORKSHOP 2024-V20

GRAITEC is pleased to present the latest version of our manufacturing execution system - Advance Workshop 2024-V20, part of the Graitec fabricate suite.

GRAITEC has continuously strived to provide first-rate advancements for innovative software solutions to its valued customers, and the recent launch of this new upgraded product range for 2023 is no exception, proving they are still top of their game in terms of providing top-level Construction, AEC, Building Design and Fabrication software solutions worldwide.

This version 2024-V20 of Advance Workshop is enhanced with a lot of user-centric new functionalities with high end benefits, and it's articulated around a few main subjects:

- Steel Detailing
 - The new detailing UI has been developed to meet the needs of service centres that do not have a design office and need to create their own steel elements quickly without external modelling software.
- External Nesting Software
 - Advance Workshop now offers the possibility to export and import to external nesting solutions to be able to accommodate steel fabricators with their current nesting software.
- > CAD Editor Steel Part Editing Module
 - The Cad Editor or Part Editor module is a new 3D CAD tool that allows you to view a part in 3D and add, modify, or delete features.
- > Steel Range Items
 - This allows greater flexibility for the user by giving a designation of items that makes sense for the company and will also allow more detailed statistics on the type of items produced.
- Steel Item Simplification:
 - In our latest release, this new feature allows users to create multiple Steel items with ease.

Version 2024-V20 of Advance Workshop also comes with a vasty number of improvements and adjustments following the feedback received from thousands of users worldwide.

See below a list of new and improved features with descriptions.

1 STEEL DETAILING

The detailing screen has been developed to meet the needs of service centres that do not have a design office and need to create their own steel elements quickly without external modelling software.

1.1 DEFAULT VALUES

The UI uses default settings to display pre-defined values by default:



	WORNOW		
	📲 Steel		
345	🤔 Prefix to be used for plate naming	PL	PL
346	🤔 Prefix to be used for bolt naming	M	Μ
347	🤔 Elements to be displayed when importing 3D files	-1-2-10-5-	
380	🤔 Use the I-shape profiles for the production of the T-shape profiles	No	No
394	🤔 Steel detailing default product	Profile	Profile
395	🤔 Steel detailing default coating	RAW	
396	🤔 Steel detailing default standard	1	
398	🤌 Default item code for parts	SCPG	-
399	🤔 Default item code for assemblies	SCAG	

- 394: Default value for product column. In the first versions, only the profile will be available, other catologues will be added progressively.
- 395: Default value for the coating (3.1.8. menu)
- 396: Default value for the standard (3.1.6. menu)

1.2 INTERFACE

The interface consists of 5 independent, scalable, and hide able modules.

- 1. Generic information on the quote, order
- 2. Viewer auto-fed according to the defined Shape Code (in zone 4)
- 3. Legend
- 4. input field in the form of a grid (see next title)
- 5. List of operations according to the entry in field 4

See the images below:

	Customer	order (I	P202	2 - 46 / P2	2022 - 53	3 - 53)											0
+≣ <u>I</u> ns	sert 🔋 Comments	s Price calcu	lation/l	tem Last Price	Locations	Production rate	management	Process route calculation/Item In stock	Pricing requirement analysi	is Process route requir	ement a	nalysis ∥≣Ba	ars ∰M	esh <u>S</u> ee attach	ed file	<u>D</u> etails Bre <u>a</u>	kDown
🛛 🗹 İnt	ter <u>f</u> ace Scan CAD	Pricing	ems	Import 3D Steel	Model Add	ing steel parts m	an <u>u</u> ally 1										4
		Zone Seg	Imen	ltem	Location	Location	Bmk	Description	Unit weigth (kg)	Qty (COU)	OU	SU qty	SU	IU qty	IU	Price	F >
	Launched	0	0 50	CPG	0		A	Part name : P1000	146	10 Uf	IITE	10 UN	UNITE	10 UN	UNITE	226.16 €	*
	Launched	0	0 50	CPG	0		С	Part name : 15	23	1 UN	IITE	1 UN	UNITE	1 UN	UNITE	35.48 €	
	Launched		0 50	EPG	0		B	Part name : 15	23	UN 1	11TE	1 UN	UNITE	1 UN	UNITE	35.48 €	

ument					0 4	× View	ver												O # X	Legend			D
stoner order	P2022-46																			Type	Come	erit	
stomer	ARMA+		-			-														List	P4 or	double click open is	it of items
der .			1										5							Numeric value	Value	without decimal poi	nt
erence	A0P654		-									No image da	۷							Information	3 Searc	hed value based on	input data
													-							Variable	Acces	sible or not depend	ing on the l
																				Read-only	Parts	production	
ts																					Operations		
roduct.	Shape	Assembly Ref	PartRef	Role Description	Them	Item Ref	Material	Coating	Standard	Quantity J	k (mm) B (mm	() C (mm)	0 (mm)	(mm) (P)	nm) G (mm)	H (mm)	(mm) /	Angle x Ar	ngle y		Operation	Status	Cost
and the second sec	Ö		P1000		IPE200-5275-12	IPE 200	52753R	R.pm	Default	10	6500												
TOTHE								and the second sec	Bar Bar Ma														

1.3 LIST OF INPUT COLUMNS

- Product: Type of profile, configurable default value
- Shape: Type of shape, shape catalogue according to the selected product
- Assembly Ref: Optional free field, allows to fill in an assembly



- Part ref: Mandatory free field, reference of the document to be produced
- Role Description: Optional free field, allows to fill in a role description
- Item: Reference item to produce the element, mandatory
- Item Ref: Self-powered field. ItemRef of the Item previously selected. Field displayed in the Item sheet
- Material: Value list. Self-powered field. Material of the Item previously selected
- Coating: Value list. Coating of the element, configurable default value
- **Standard**: Value list. Standard of the element, configurable default value
- Quantity: Free field, numeric. Quantity to produced
- A to I: Free flied according to the Shape type, numeric. A check is made to verify that the entry is incorrect between the different columns. In this case, a correction or automatic entry can be applied.
- **Angle x, y**: Free flied, numeric. A check is made to verify that the entry is incorrect between the different columns. In this case, a correction or automatic entry can be applied.

1.4 PROCESS

Open the UI from the quote or customer order menus:



Fill in the grid, check that no errors have appeared:

G Grait	Catter Finance - Galdes - Advance - Galdes - Advance Workshop (2022)81 - 64 bits) - 0 ×																																
Connec	tion I	Pata Dis P		Close	List	New New	Modify	Duplicate	Delete	() Visualize	Preview	Print	Q Resear	ch																			IK.
Da	Reader 1114																																
Docu																																	
Cust	omer order	P2022-4	15						1																	T)	/pe			Comme	int		
Oust	omer	ARMA+							-					◄			A			►						Lis	st			F4 or d	ouble dick open	list of item	s
Orde	er								i I					-						=						Fr	ee input			Habira	Alexandra de strand		
Refe	rence	teet							i					1		_										In	formation	-		Search	ed value based	on input da	ta
									1							_(0)								Va	ariable			Access	ble or not depe	nding on th	e lbrary
																										Re	ead-only			Part in	production		
Parts	5																												Ope	rations			# ×
P	roduct	Shap	e As	sembly Ref	Part Ref	Role Description	Item		Item Ref	Material	Coating) St	andard	Quantity	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	Angle x	Angle y				Oper	ation	Status	Co	st
P	rofie	0			42		IPE 160-5	5275-12	IPE 160	S275JR	Raw	De	fault	10	6500														~ !	5442	To produce		34.7
P	rofile	0			542		IPE140-S	5275-12	IPE140	S275JR	Raw	De	fault	10	6000															LOUT	To produce		18.1
1 2	rofile	0			5442		IPE 140-S	<u>927/551</u> -	IPE140	S275JR	Raw	De	fault	10	4000															2	To produce		16.6
P	топе										Raw	De	raut	0																-			

Please note that if an error occurs, check the message and the operations grid.

If an operation is not in a "To produce" status, it may be that the machine cannot perform the operation, check the dimensions of the bar to be produced or change the status to be subtracted.

If everything is valid, validate with the shortcut F2 Validate.

When all items have been imported into the grid, the BOM has been automatically generated for each item, a price can also be calculated according to the different prices (operations, raw material, or pricing).

-		en - en	ns 📋 🕛											
		Zone Segm	nen	ltem	Location	Location	Bmk	Description	Unit weigth (kg)	Qty (COU) COU	SU qty	SU	IU qty IU	Price P >
	Produced							Part name : 15						35.48 €
	Produced	0	0 SCP		0		В	Part name : 42	103	10 UNITE	10 UN	UNITE	10 KG Kilograr	154.10 €
	Produced	0	0 SCP		0		с	Part name : 542	77	10 UNITE	10 UN	UNITE	10 KG Kilograr	231.40 €
	Produced	0	0 SCP		0		D	Part name : 5442	52	10 UNITE	10 UN	UNITE	10 KG Kilograr	202.22 €

The UI can be reopened at any time to display the items again, these can be modified at any time **unless the item is already in production**.



_																												
De	cument					□ ₹	× Vie	ewer														0 7	× I	Legend				0 # ×
	alamar ardar	02022-45																					T	ype		Commer	t	
		P2022-45					- 1																L	ist		F4 or do	uble click open list of	fitems
C	ustomer	AKMA+					_																F	ree input				
C	rder												N	n image data									N	lumeric value		Value wi	thout decimal point	
R	eference	teet												o moge cono									D	nformation		Searche	d value based on inp	out data
																V	/ariable		Accessit	le or not depending	on the library							
																R	tead-only		Part in p	roduction								
Pa	rts																								Opera	ations		# ×
	Product	Shape	Assembly Ref	Part Ref	Role Description	Item	Item Ref	Material	Coating	Standard	Quantity	A (mm)	B (mm)	C (mm)	D (mm)	E (mm) F	(mm)	G (mm) H	H (mm)	I (mm)	Angle x	Angle y			Opera	tion	Status	Cost
	Profile	0		42		IPE160-S275-12	IPE 160	\$275JR	Raw	Default	10	650	0															
	Profile	0		542		IPE140-S275-12	IPE140	\$275JR	Raw	Default	10	600	0															
	Profile	0		5442		IPE140-S275-12	IPE 140	\$275JR	Raw	Default	10	400	0															
•	Profile	-							Raw	Default	0																	

2 EXTERNAL NESTING - OPTIONAL AND TO CONFIGURE

Advance Workshop offers the possibility to link to an external nesting software to be able to nest all parts not nestable with Advance Workshop.

Thanks to these solutions, Advance Workshop can manage the optimisation of all parts in a production order.

Advance Workshop sends the list of parts and available raw materials to the third-party nesting software and, in return, retrieves the results to update the production order and the inventory.

Each software has a different linking procedure, so it will not always be possible to link without the purchase of a third-party module that opens the doors to the software.

In general, nesting software is associated with a type of machine or a manufacturer, so it is possible to find several nesting software. In this case, a parameter setting must be made for each case.

The process shown below is compatible with **ProNest** and may therefore vary depending on the solution. In all cases, specific parameterisation or development may be required to connect with the external nesting software.

2.1 PRONEST – DATABASE ACCESS

Advance Workshop must be able to connect to the ProNest database to retrieve information related to the nesting, these connection parameters must be filled in the "*DBConnectionString*" machine parameter (see next section).

We recommend that you create a dedicated user associated with the ProNest database for Advance Workshop with read rights to retrieve the necessary information.

Note that ProNest 2023 uses a different database than ProNest 2021. The default SQL Server database has changed as follows:

	ProNest 2021	ProNest 2023
Instance:	PRONEST	PRONEST
Database name:	ProNest14	ProNest

The default database that is created by ProNest 2023 is named "ProNest". When installing ProNest 2023 or the ProNest Server 2023 standalone installer, if there is an existing ProNest 2021 database (ProNest14), that database will be copied and renamed "ProNest".





ProNest Server 2023 will automatically be pointed to the new "ProNest" database (in appsettings.json).

2.2 Advance Workshop – Machine Parameters

The mechanism uses base-stored parameters associated with each machine that requires the use of external nesting software. The parameters are configurable in the menu 1.12.12, but only an authorised person can make this type of setting.

Fabri	ican	t	FICEP	
Seria			00	
	No	m du	paramètre	Nom
•	>	BAS	SIC	
	~	Ext	ernalNesting	
			Aw2NestingToolFolder	\\arr
			DBConnectionString	data
			NestingCmdLine	note
			Tool	2

See the list below:

PARAMETER NAME	DEFAULT VALUE	DSCRIPTION
DBConnectionString		Connection string to access tool DB. For
		some tools (like ProNest), results are read
		directly from DB and not from
		NestingTool2AwFolder & OutputXxxFile
		parameters
Aw2NestingToolFolder	Graitec/AW/Nesting/Input	Folder used for file exchanges from AW to
		the nesting tool (query)
NestingTool2AwFolder	Graitec/AW/Nesting/Result	Folder used for file exchanges from the
		nesting tool to AW (results)
Tool	0	External nesting tool used by this machine =>
		used in the nesting wizard
		0=None
		1=Internal
		2=Lantek
		3=Pronest
		99=OtherExternal1DNesting
NestingCmdLine		Exe automatically launched by AW to run
		nesting tool. Leave blank if manually
		launched
ConfigFile	C:\Lantek\System\Common\E	Path to a config file needed by some nesting
	xporter.Config	tools (like Lantek)



OutputSheetsFile	SheetsFile.xml	Name of the file used to import sheets from external nesting tool (results)
OutputRemnantsFile	RemnantsFile.xml	Name of the file used to import remnants from external nesting tool (results)
OutputPartsFile	PartsFile.xml	Name of the file used to import parts from external nesting tool (results)
ToolUnitSystem	1	Length unit system used by the external nesting tool ("I" for imperial, "M" for metric)
AwUnitSystem	Μ	Length unit system used by AW. "M" is default, can be "I" for imperial units

2.3 Advance Workshop - Preparation process before using ProNest

From the production order planning screen (9.10), right-click on the production order and select External Nesting (1).

Automatic assignment Manual assignement Nesting	0
External nesting	

The first step is to select the Nesting software and the machine for which you want to nest (1).

Ne	lesting Wizard X								
	Cho	bose the external nesting	tool	WorkStation	Machine	Status			
	_	 NestingTool: Pronest 	Code	Workstadon	Piece in re	Status			
	Þ	03	003	VOORTMAN V310 PLASMA + DR	VOORTMAN V310	Done	Proceed		
							1		
							_		
							Cancel		

It is then necessary to check all the available raw materials in the stock, by default all the elements are selected with an available quantity recovered according to the available stock.

- (1) lists all section according to item group
- (2) list the different items available in stock
- (3) list of the different remnants available in stock

(4) Lists the available stock for the nesting calculation, if the stock is 0, you must modify the quantity manually or select infinite

When everything is ok, proceed to send the data to the external software by clicking on next.



	\checkmark	Item code	Warehouse	Length	Width	Thickness	Stock in ha	Customer r	Available s	Expected s	Theoretical	Status	Infinite qu	Quantity to.
-	Sectio	n: ; Material: 527	JR ; Coating:	U										
	👻 🗹 Pla	te type: Stock	2											
	5	PL8-2000x.	GR	6.000 m	2.000 m	8.00 mm	999 pcs	7 pcs	992 pcs	0 pcs	992 pcs	Purchase/s		992 p
	👻 🗹 Pla	te type: Remnan	: (3)											4
	5	PL8-2000x.	GR	6.000 m	2.000 m	7.94 mm	1 pcs	0 pcs	1 pcs	0 pcs	1 pcs	Purchase/s		1p
	5	PL8-2000x.	GR	5.351 m	2.000 m	7.94 mm	1 pcs	0 pcs	1 pcs	0 pcs	1 pcs	Purchase/s		1 p
	5	PL8-2000x.	GR	6.000 m	2.000 m	7.94 mm	1 pcs	0 pcs	1 pcs	0 pcs	1 pcs	Purchase/s		1 p
	6	PL8-2000x.	GR	6.000 m	2.000 m	7.94 mm	1 pcs	0 pcs	1 pcs	0 pcs	1 pcs	Purchase/s		1 p

Data has now been generated and transmitted to the external Nesting software, according to the method a set of files has been generated including the definition of the parts to be made and the list of available raw materials.

The "Next" action checks the availability of the Nesting result if Nesting has not been performed the action will not work.

Nesting Wizard X	
External nesting wizard	
Please, proceed to the nesting in the external tool	
Next > Cancel	//.

In the case of ProNest, NC files are generated for the definition of the parts as well as PNL and SNL files to list the parts and raw material.

Advance Workshop must at the same time open the software with the necessary information to proceed with Nesting. If this does not work, it is possible to force the launch with the following commands to be inserted in a batch:

"C:\Pr	ogram Fil	es\Hypertherm CAM\ProNest 2023	\ProNest.exe" "\\arma-pcd-dt	\Nesting\Aw2Nes	t\BTR21_238.pnl"
the pa	ths and fil	e names are to be modified accordi	ng to the user's directories		
Rése	au ≯ arma	a-pcd-dt > Nesting > Aw2Nest			
		Nom	Modifié le	Туре	Taille
		199816_880880_51552nc	18/10/2022 11:25	Fichier NC	1 Ko
	7	199816_880896_47424nc	18/10/2022 11:25	Fichier NC	1 Ko
ts	Ŕ	199816_880912_225792nc	18/10/2022 11:25	Fichier NC	1 Ko
	*	BTR21_238.pnl	18/10/2022 11:25	Fichier PNL	1 Ko
	*	BTR21_238.snl	18/10/2022 11:25	Fichier SNL	1 Ko



2.4 PRONEST PROCESS

In the case of material not found, map it to the corresponding material in ProNest.



Select the machine for which the Nesting is to be done (Data tab)



Double click on the machine and in some cases, you need to map the material and the tool accordingly.





Now proceed to Nesting, you can do this by using the run button in the home tab. Other methods allow you to do it manually, in all cases, the client must refer to its internal procedure.

OneClick Completed Start time: 11:37:32 Run time: 0:00:33	e ci i	Part List (All parts 0 • x 500 • Part List (All parts 0 • x 199816_88091. Options • 199816_88089 3 of 3 netted 199816_880881 2 of 2 netted 2 of 2 netted
Action Build collision avoidance Crop Save remnants Cut up skeletons Output Create reports (None)	Status Skipped Completed Completed Skipped Completed Skipped	
Save Messages: Job was saved: \\arma-pcd-dt\Nesting\Aw2N Note: Your default folder is invalid To edit the Default job folder setting: Default job folder setting: Default jo	Completed	

ProNest saves the Nesting result in a database and generates a set of files for the machines. For the remnants, ProNest saves files in a directory of its own, these files are to be kept and used as reference in Advance Workshop.

~				
Nom	Modifié le	Туре	Taille	
199816_880880_51552nc	18/10/2022 11:25	Fichier NC	1 Ko	
199816_880896_47424nc	18/10/2022 11:25	Fichier NC	1 Ko	
199816_880912_225792nc	18/10/2022 11:25	Fichier NC	1 Ko	
BTR21_238.bvl	18/10/2022 11:38	Fichier BVL	13 Ko	
BTR21_238	18/10/2022 11:38	ProNest 2023 Job	311 Ko	
BTR21_238.pnl	18/10/2022 11:38	Fichier PNL	2 Ko	
BTR21_238.snl	18/10/2022 11:38	Fichier SNL	1 Ko	

2.5 NESTING RESULT AND MANAGEMENT

First, return to Advance Workshop and click on next (1)

Nesting Wizard	
External nesting wizard	
Please, proceed to the nesting in the external tool	
1 Next > Cancel	

A summary of the nesting is now displayed with the following information:

(1) Information related to the production order



(2) Information related to the nesting number

(3) Information related to the raw materials taken for each machine with the associated properties, if it is a remnant (4) as well as the dimensions and weights

(5) List of the different interlocking parts with their properties.

xter	nal	nes	stino	re	sults											
Nes	sting						-	Machine	:s	Rav	w Material		Parts	Reusable materia		Scrap
• •	FO	ile:	BTR2	1;1	•O nur	nber: 238	U									
	8	TR2	1-238	-N00	001	2				1		1 pcs	7 p	ICS	919	6 0
		L	ayout	Data												
		٩	Item o	ode		Re	mnant	Width	Length	Thickness	Quantity	Scrap	Reusable	Scrap surface	Reusable surface	Nested parts
		•	× M	ach PLI	ine: V 3-2000	X60 3	310	2.000 m	6.000 m	7.9	4mm 1c	cs 0.00 kr	a 683,59 ka	0.00 mm ²	11.04 mm ²	3 pc
				Γ	Parts	Remnants										
				4	Nari			Width				Length		Q	uantity	
					P11	54 5					247.81 mm			553.86 mm		2 pcs
					P10	33					235.70 mm			567.20 mm		3 pcs
					P11	94					238.46 mm			539.10 mm		2 pcs
				-												

The remnants tab allows you to view the generated remnant with the associated ID

Note that the "Serial number" is an internal ID that will then be sent to Pronest for reuse. This number is different on the "serial tag" that will be generated when the production order is validated. This serial code can be retrieved via the reports associated with the Nesting2D (AWS_NESTING2D) or production tag (AWS_PRODUCTION_TAG).

L	ayout Dat	ta												
٩	Item code	e	Remnant	Width	Length	Thickness	Quantity	Scrap	Reusable	Scrap surface	Reusable s	surface	Nested parts	
	▼ Machine: VOORTMAN V310													
۲	🖂 PL	L8-2000x6000		2.000 m	6.000 m	7.94 mm	1 pcs	0.00 kg	683.59 kg	0.00 mm ²		11.04 mm ²		3 pcs
		Parts Remna	ints 🛡											
	ſ	۹ Serial number				Item code				Width		Length		
	▶ 1236 PL8-2000x6000 2.000 m 5.497 m													

After validating, it is possible to reopen the external nesting option with the possibility of

- Review the nesting results (1)
- Delete a Nesting (2) to re-do it
- Perform another Nesting for another software and/or another machine.

Nestin	g Wizard					x
	External nesting wizard					
Cł	oose the external nesting	g tool				
	HallCode	Code	WorkStation	Machine	Status	
	▼ NestingTool: Pronest					
+	03	003	VOORTMAN V310 PLASMA + DR	VOORTMAN V310	Done 1	Check Delete 2
						Cancel



2.6 PRINTING PRODUCTION DOCUMENTS

From the fabrication orders production, right-click on the desired FO (1) and click on print reports (2).



The UI is like any report UI, you can access the list of available reports by clicking on report (1)(2).

1										[
	Parameters	<u>N</u> otch all <u>U</u> n	check a	II Repor						
	Preview	Selection		Printing	Criterio	Criterion de	Printer	Out	Reports	Printing
			78	Surfaces tags	0		cx860atel	Full screen on page	G_TAGSURF F	Print
			73	Workstation operations sheet report	0		cx860atel	Full screen on page	WS_PROD_OPERAT	Print
			46	Serial laser tags	0		cx860atel	Full screen on page	VERS LE SPOOL LASER	Print
			40	Operation laser tags	0		cx860atel	Full screen on page	ETQ_LASER_OP_DEF F	Print
			32	Plates preparation list	1		cx860atel	Full screen on page	G_LPPL F	Print
			26	Schedule tags	1		cx860atel	Full screen on page	TAGOPPL	Print
			20	Reservation list	1		cx860atel	Full screen on page	AWS_RESERVATION F	Print
			19	Debit sheet	1		cx860atel	Full screen on page	AWS_FO_BY_WSTATION F	Print
			13	Productions detail per item	0		cx860atel	Full screen on page	G_TRACOF F	Print
			6	Production tags	1		cx860atel	Full screen on page	AWS_PRODUCTION_TAG	Print
	×	×	19	Debit sheet	1		cx860atel	Full screen on page	AWS_NESTING1D F	Reprint
	×	×	6	Production tags	1		cx860atel	Full screen on page	AWS_PRODUCTION_TAG	Print
				Debit sheet 🚺 🗖	1		cx860atel 📃	Full screen on page	AWS_FO_BY_WSTATION	Print 💌

See the list of steel reports below:

N°	HEADING	DESCRIPTION
20	AWS_RESERVATION	List of required raw materials
32	AWS_BOM_PLATE	List of plate type parts
19	AWS_BOM_PROFILE	List of profile type parts
21	AWS_BOM_ACCESS	List of accessory type parts
19	AWS_ASSEMBLY	List of assemblies with sub-parts
19	AWS_NESTING1D	Internal nesting result for bars
19	AWS_NESTING2D	Result of the nesting of the external software when the
		link is possible
19	AWS_FO_BY_WSTATION	Production order per workstation with barcode
19	AWS_BARCODE_ASSEMBLY	Production order with operation label for assemblies
19	AWS_BARCODE_ASSEMBLY_PARTS	Production order with operation label for assemblies and
		sub-parts
6	AWS_PRODUCTION_TAG	Final product tags, including remnants

3 CAD EDITOR - STEEL PART EDITING MODULE

The Cad Editor or Part Editor module is a 3D CAD tool that allows you to view a part in 3D and add, modify, or delete features. This module uses external components from the Graitec product, Bim Designer Modules for Steel.

See the list of operation that the Cad Editor can manage below:

• Holes (round, slotted, countersinking, counterbore)



- Notch
- Bevel Cut (for plate only)
- Shortening (for beam only)
- Cope

3.1 PREREQUISITES

The part editing module requires a version of BIM Designer adapted to the Advance Workshop version. It is possible that a manual installation of Advance Workshop is done, in this case, it is very important to ask the development support for help to download the right version in which case, a blocking can happen at the start of the application.

3.2 Settings

The parts editing module uses the parameters associated with the BIM DESIGNER module; these parameters are stored in the global default settings (1.1.4).

Paramaters	
ShowFeatures	Active or not the display of features
ShowSystemLines	Active or not the display of system lines
ShowGaugeLines	Active or not the display of gauge lines
ShowHoles	Active or not the display of holes
ZoomFitElements	Zoom fit all elements at the opening of the UI
HolesRenderQuality	Quality of the holes definition
PlateRenderQuality	Quality of the plate definition
ProfileRenderQuality	Quality of the profile definition

Quality options	
Low	Low quality
Medium	Medium quality
High	High quality
HighWithoutArcs	High quality without arcs
HighWithArcs	High quality with arcs

3.3 PROCESS

The CAD EDITOR module can currently be opened at the quotation or order level. To do this, the part must be a steel part created using one of the two creation methods (Steel Detailing or import from a 3D file).

1. In Quote/Order, go to the Items tab.



- 2. Right click on a steel element (could be an assembly or single element)
- 3. Click on Edit Steel Element

E Inter <u>a</u> ce Scan CAD	Pricing		прот зи	Steel Model	Adding st	eei parts man <u>u</u> aliy		
Reference Follow Up Spec	ificity	ltem:	mplemer	nt Contacts	Various			
	Zone	Segment		ltem		Location ID	Location	Bm
Launched	0	0	SCA			0		С
Launched	0	0	SCA			0		В
Produced	0	0	SCP			0		D
Produced	0	0	SCP			0		E
Produced	0	0	SCP			0		F
Produced	0	0	SCP			0		G
Produced	0	0	SCP			0		н
Produced	0	0	SCP			0		1
Produced 2	0	0	SCP	Edit steel ele	ment	3		J
			A	Cut				
			ľ	Copy 'SCP'				
				Copy the line	e			
			Ť	Copy the co	lumn			

Note: Released, in production or completed parts are not modifiable.

3.4 USER INTERFACE

- 1. Shortcuts
 - a. Validate will save all changes.
 - b. Close will close the window and if changes have been made, will ask you for confirmation.
- 2. List of parts, by default the first one is selected, to change the part, simply click on another line.
- 3. Operation list lists all the necessary operations in accordance with the element's features and the assignment tree.
- 4. 3D part editor, 3D modification display screen.





4 STEEL RANGE ITEM

Advance Workshop Steel must have a minimum of two item types to generate the steel gamma items, representing the two product types that Advance Workshop Steel manages:

- Single part articles which must be associated with the SCP ¹ range.
- Assembly type items which must be associated with the SCA² range.

Historically, SCA & SCP items were often present in the generic databases to facilitate association with the corresponding ranges, this is no longer necessary.

This allows **greater flexibility** for the user by giving a designation of items that **makes sense** for the company and will also allow more **detailed statistics** on the type of items produced.

This association is now managed by the script present in the SCA & SCP generic ranges (see corresponding chapter).

However, if no match is found, the default values are automatically retrieved.

4.1 STEEL ITEMS (DEFINITION AND SETTINGS OF STEEL ITEMS)

4.1.1 Default Values (1.1.4.)

To manage the default item used, two default parameters exist and must be associated with a gamma item with the appropriate part type:

398	🤔 Default item code for parts	SCP
399	🤌 Default item code for assemblies	SCA

4.1.2 How to Define a Generic Item for Steel

This example below shows how to have a generic item for IPE140 profiles (European standard I-profile) and for single items (not assembled).

4.1.2.1 Check the Variables in SCP Range

The default routing for single items should follow the recommendations below to retrieve the reference item mapped by the user to search for the corresponding item. If for some reason the user wants to change this logic, it is quite possible to change the script and modify it according to the request.

See the example below:

```
res is string
gpGPC:gcXMLVarCode="A01"
gpGPC:gbXMLItemsWithOperation=True
gpGPC:bGetTarifDiscount=True
gpGPC:bGetTarifOnRealCuts=True
res=WAS:g_def_value
// Determines the item code, tries to find a match, or retrieves the default value
xmlName est une chaîne="XMLItemCode"
xmlContent est une chaîne=res
itemCode est une chaîne
```



```
WL.XMLDocument(xmlName,xmlContent)
XMLRacine(xmlName)
XMLRecherche(xmlName,"Item",XMLBalise+XMLSousElément,XMLExact)
SI XMLTrouve(xmlName) ALORS
gpGPC.gTempXmlDocument=XMLOuvre(res,DepuisChaine)
itemCode={"gpGPC.gTempXmlDocument"+Remplace(XMLPosition(xmlName),"/",".")+".ItemCode",indVariable}
FIN
XMLAnnuleRecherche(xmlName)
XMLTermine(xmlName)
SI itemCode<>"" ALORS
altem est un rSOL
 qItem.cCommande ="SELECT ITREF.ITEM_CODE"
 qItem.cCommande+=" FROM "+SQL_c:ReqBase("ITEM")+" IT"
 qItem.cCommande+=" INNER JOIN "+SQL_c:ReqBase("ITEM")+" ITREF ON ITREF.ITEM_CODE=IT.ITEM_REF"
 qItem.cCommande+=" WHERE IT.ITEM_CODE="+SQL_c:ReqQuote(itemCode)
qItem.cCommande+=" AND ITREF.GAMP_CODE is NOT Null AND (ITREF.GAMT_CODE is NOT Null OR (ITREF.GAMT_CODE is
Null AND ITREF.GAM_ONLYONE=1))"
SI qItem.Exec() ALORS
 SI PAS qItem.Outside() ALORS
  WAS:g_Item_Code=qItem.ColC(1)
 FIN
 qItem.Close()
FIN
FIN
RESULT res
```

4.1.2.2 Check the items mapped by the user have a generic reference item.

In the example below, the stock item is managed as a physical bar and with the item code IPE140-S275-12. The generic item corresponds in some way to its commercial designation. So, each similar item with a different length should have the same and unique generic reference article (1).

	7						-				-		
Main	List	Financial	Others	Drawing	Tax	Currency	HMS	Technical notes	Multibranch	Complement			
Item			IPE14	0-S275-12									Purchase / Sale
GEN o	ode												Gen. item ref.
Interf	acing	item code									_		
					_						_		

4.1.2.3 Create a new article with the name of the generic item.

Create a new article with the name of the generic article (1). Leave the Generic reference item (2) field empty so as not to disturb various processes such as Nesting which also uses this kind of information to retrieve all the different bar lengths managed in the stock.

Main List Fina	ncial Othe	s Drawing	Tax	Currency	HMS	Technical notes	Multibranch	Complement			
Item	IPE	140 1								Purchase / Sale	Purchase
GEN code										Gen. item ref.	
Interfacing item	code										
Short description	IPE	140									

In the other tab, change the product type to "Steel range Item" (1) to tell the system that this item type is specific to the steel process. Define the item as a BOM item (2), associate the common GAMSCP production range for single items (without assembly) (3) and tick the checkbox (4) if you want the pricing range to be done as well.



Resist index		0.00000
Product type	Steel range item	•
Serial number Serial N° def.: root YYYYMM	NNNNN	
Root	001	
	BD	Linear weight (kg)
	•	0.0000
	·	0.0000
	•	0.0000
•		
0 0 Item with nomencla	ture Yes 2	•
0.00 Pricing sequence co	de	
0.00% Manufacturing sequ		

Now, when the user goes to associate an article with article with generic reference IPE140, an automatic association will be made with item IPE140.

11									
	Interface Scan CAD	Pricing	men Import 3D Steel M	odel Adding ste	el parts man <u>u</u> ally k	Description	Unit weigth (kg)		
		0	0 IPE140-S275-12	0		IPE140-12ml S275JR EN 10025-2	155		
	Produced	0	0 SCP	0	А	Part name : p1010	114		
	Produced	0	0 IPE140	0	В	Part name : p540	77		
	Produced	0	0 IPE140	0	С	Part name : p5460	77		
	Produced	0	0 IPE140	0	D	Part name : p55460	77		

4.2 MANUFACTURING SEQUENCES (1.13.3)

The Steel module uses standard production ranges that allow the various imports to function correctly.

Two types of routings are required.

- A production range/ sequence for assemblies "GAMSCA"
- A production range/sequence for parts "GAMSCP"

Ranges	Components	Operations	Variables	Reports	Сору							
N	Nomenclature code 🔑 Description					n 🔎		Range type	م	No barmark	Processing on customer order	Q
GAMS	CA .	0	Gamme SCA	4			CAO				Always made	
GAMSCP		C	Gammes SCP		CAO				Always made			

4.2.1 SCP ITEM (Steel Connexion Part) Commercial Description:



Comme	ercial description	Title, Title1, cName is string						
Picture								
Validity	date							
Replace	ment range							
Use con	dititons	0.000						
Histor	y							
Design	er	Administrateur 17/12/2019						
Last us	ser	Administrateur 17/01/2022						
Formula								
Title,Title1, CName is string IF gpGPC:ISQuotation() THEN Title1=gpGPC:gQuotationItemFile:ItemFile:cDESCRIPT_LONG ELSE Title1=gpGPC:gCustomerOrderItemFile:ItemFile:cDESCRIPT_LONG END Title=Title1								

title is string name is string

<pre>xmlName est une chaîne="XMLItemMark"</pre>
<pre>xmlContent est une chaîne=WAS:API_SetXMLConstruitChaine(gpGPC.gXmlDocument)</pre>
WL.XMLDocument(xmlName,xmlContent)
XMLRacine(xmlName)
XMLRecherche(xmlName,"Item",XMLBalise+XMLSousElément,XMLExact)
SI XMLTrouve(xmlName) ALORS
<pre>name={"gpGPC.gXmlDocument"+Remplace(XMLPosition(xmlName),"/",".")+".ItemMark",indVariable}</pre>
FIN
XMLAnnuleRecherche(xmlName)
XMLTermine(xmlName)
<pre>IF NoSpace(name)="" THEN name={"gpGPC.gXmlDocument.XMLDatas:Name",indVariable} title="Part: "+name</pre>
RENVOYER title

Variables script:

Rar	nges Comp	onents Operations Va	riables Reports Copy		
	armark	Description	Value	Cooperation	
	A01	XML	res is string		
	A02				

Value script:

res is string
<pre>gpGPC:gcXMLVarCode="A01"</pre>
<pre>gpGPC:gbXMLItemsWithOperation=True</pre>
<pre>gpGPC:bGetTarifDiscount=True</pre>
<pre>gpGPC:bGetTarifOnRealCuts=True</pre>
res=WAS:g_def_value
// Determines the item code, tries to find a match, or retrieves the default value
<pre>xmlName est une chaîne="XMLItemCode"</pre>
xmlContent est une chaîne=res
itemCode est une chaîne
WL.XMLDocument(xmlName,xmlContent)
XMLRacine(xmlName)
XMLRecherche(xmlName,"Item",XMLBalise+XMLSousElément,XMLExact)
SI XMLTrouve(xmlName) ALORS
<pre>gpGPC.gTempXmlDocument=XMLOuvre(res,DepuisChaine)</pre>



```
itemCode={"gpGPC.gTempXmlDocument"+Remplace(XMLPosition(xmlName),"/",".")+".ItemCode",indVariabl
e}
FTN
XMLAnnuleRecherche(xmlName)
XMLTermine(xmlName)
SI itemCode<>"" ALORS
qItem est un rSQL
qItem.cCommande ="SELECT ITREF.ITEM_CODE"
qItem.cCommande+=" FROM "+SQL_c:ReqBase("ITEM")+" IT"
qItem.cCommande+=" INNER JOIN "+SQL_c:ReqBase("ITEM")+" ITREF ON ITREF.ITEM_CODE=IT.ITEM_REF"
qItem.cCommande+=" WHERE IT.ITEM CODE="+SQL_c:ReqQuote(itemCode)
qItem.cCommande+=" AND ITREF.GAMP_CODE is NOT Null AND (ITREF.GAMT_CODE is NOT Null OR
(ITREF.GAMT_CODE is Null AND ITREF.GAM_ONLYONE=1))"
SI qItem.Exec() ALORS
 SI PAS qItem.Outside() ALORS
  WAS:g_Item_Code=qItem.ColC(1)
 FIN
 qItem.Close()
FIN
FTN
RESULT res
```

```
gpGPC:gcXMLVarCode="A01"
```

Default Variable Code: do not change

gpGPC:gbXMLItemsWithOperation=True

True = Retrieves the operations in the XML fed by the assignment tree

gpGPC:bGetTarifDiscount=True

True = Retrieves the price from the price list and applies it to the gamed item

gpGPC:bGetTarifOnRealCuts=True

True = Retrieves the weight of the item to calculate the price of the item based on the pricing

Item matching: The script uses the name of the item to search for a similar item. If it does not find one, it takes the system default value.

4.2.2 SCA ITEM (Steel Connexion Assembly) Commercial Description:

Commercial description	Title,Title1,cName is string					
Picture		_				
Validity date						
Replacement range						
Use condititons	0.000					
History						
Designer	Administrateur 17/12/2019					
Last user	Administrateur 17/01/2022					
Formula						
<pre>Title,Title1, CName is string IF gpGPC:1SQuotation() THEN Title1egpGPC:QQuotationTemFile:ItemFile:CDESCRIPT_LONG ELSE FILE1EgpGPC:gCustomerOrderItemFile:ItemFile:CDESCRIPT_LONG END Title1=Title1</pre>						
//Add to RTF						



```
Title, Title1, cName is string
IF gpGPC:IsQuotation() THEN
Title1=gpGPC:gQuotationItemFile:ItemFile:cDESCRIPT_LONG
ELSE
Title1=gpGPC:gCustomerOrderItemFile:ItemFile:cDESCRIPT_LONG
FND
Title=Title1
//Add to RTF
cNom_CHAMP_RTF est une chaîne=MDIMère()+".RTF MENU"
{cNom_CHAMP_RTF, indChamp}=Title
xmlName est une chaîne="XMLTemp"
xmlContent est une chaîne=WAS:API_SetXMLConstruitChaine(gpGPC.gXmlDocument)
WL.XMLDocument(xmlName,xmlContent)
XMLRacine(xmlName)
XMLRecherche(xmlName, "Assembly", XMLBalise+XMLSousElément, XMLExact)
SI XMLTrouve(xmlName) ALORS
cName={"gpGPC.gXmlDocument"+Remplace(XMLPosition(xmlName),"/",".")+":Name",indvariable}
FIN
XMLAnnuleRecherche(xmlName)
XMLTermine(xmlName)
IF nospace(cName)="" THEN cName={"gpGPC.gXmlDocument.XMLDatas:Name",indvariable}
Title="Assembly: "+cName
gpGPC:cITEMDESC_ORDER=""
RENVOYER Title
```

Variables script:

Rai	nges Comp	onents Operations Vari	ables Reports Copy		
	armark	Description	Value	Cooperation	
	A01	XML	res is string		
	A02				

Value script:

```
res is string
gpGPC:gcXMLVarCode="A01"
gpGPC:gbXMLItemsWithOperation=True
gpGPC:bGetTarifDiscount=True
gpGPC:bGetTarifOnRealCuts=True
res=WAS:g_def_value
// Determines the item code, tries to find a match, or retrieves the default value
xmlName est une chaîne="XMLItemCode"
xmlContent est une chaîne=res
itemCode est une chaîne
WL.XMLDocument(xmlName,xmlContent)
XMLRacine(xmlName)
XMLRecherche(xmlName,"Item",XMLBalise+XMLSousElément,XMLExact)
SI XMLTrouve(xmlName) ALORS
gpGPC.gTempXmlDocument=XMLOuvre(res,DepuisChaine)
itemCode={"gpGPC.gTempXmlDocument"+Remplace(XMLPosition(xmlName),"/",".")+".RoleDescription",ind
Variable}
FIN
XMLAnnuleRecherche(xmlName)
XMLTermine(xmlName)
```



```
SI itemCode<>"" ALORS
qItem est un rSQL
qItem.cCommande="SELECT IT.ITEM_CODE FROM "+SQL_c:ReqBase("ITEM")+" IT"
qItem.cCommande+=" WHERE IT.ITEM_CODE="+SQL_c:ReqQuote(itemCode)
qItem.cCommande+=" AND IT.GAMP_CODE is NOT Null AND (IT.GAMT_CODE is NOT Null OR (IT.GAMT_CODE
is Null AND IT.GAM_ONLYONE=1))"
SI qItem.Exec() ALORS
SI PAS qItem.Outside() ALORS
WAS:g_Item_Code=qItem.ColC(1)
FIN
qItem.Close()
FIN
RESULT res
```

gpGPC:gcXMLVarCode="A01"

Default Variable Code: do not change

gpGPC:gbXMLItemsWithOperation=True

True = Retrieves the operations in the XML fed by the assignment tree

gpGPC:bGetTarifDiscount=True

True = Retrieves the price from the price list and applies it to the gamed item

gpGPC:bGetTarifOnRealCuts=True

True = Retrieves the weight of the item to calculate the price of the item based on the pricing

Item matching: The script uses the description of the main part of the assembly to search for a similar item. If it does not find one, it takes the default value in the system.

<u>Please note: Graitec offer services to modify and or customize SCP (Steel Connection Part) and SCA (Steel</u> <u>Connection Assemblies) XML scripts.</u>

5 STEEL ITEM SIMPLIFICATION

Because of the options available in the creation of an item record, the specificities related to Steel make the creation of this type of item difficult for the user.

The main idea is to add an overlay that allows the user to feed and create a set of metal stock items such as profiles or plates.

The purpose of this new layer is to simplify the creation of items and not to replace the existing interface. The creation by the "standard" method must also function as well as the detailed consultation of the item record.

Also, in the interest of being able to sort and display steel items more easily, adjustments will be necessary to facilitate the search for item types.

To summarize, two new user stories have been created with the same idea of being able to easily create and search for steel items:

- 1. Added search criteria for items.
- 2. Added a simplified process for steel items.



5.1 (1.10.4) ITEMS

5.1.1 New organisation of the search filter

To meet the need and the particularity of Steel, an organisation of the search menu is applied when the Workshop module is activated (steel module).

Branch code	GR	···· ^
ltem nature	All 1	•
📄 Item code	2	
Description	3	
📄 Gen. item ref.	4	
Material	5	<u></u>
📄 Grade	6	<u></u>
Thickness (in)		0,000
Length (in)	8	0,000
Supplier ref.		
Range type		<u></u>

1. Item Nature - Filter by nature, Section = profile, Plates = Sheet



- 2. Item Code
- 3. Description
- 4. Generic Item Reference
- 5. Material
- 6. Grade Grade of the Item = Finishing
- 7. Thickness Only for sheet or plate
- 8. Length For Sheet/Plate/Profile/Section = Length of the item

5.1.2 New action to create a steel Item.

From the item screen, a new action allows to open a window to create dedicated Steel items. This new process requires the Workshop module to be activated (Steel base module).



Dashboard	B	Items	×	(+	•		
Items 1.10.4	-						
<u>G</u> amut cost price computing <u>M</u> odification of prices <u>Last Price</u> <u>Create steel items</u>							
ltem code	P	Stock item code	P	SI	U 🔎		
C-16x300-8,8		AC-16x300-8,8		UN		Anchor cane 16x300-8,8	
S-16x300-S355		AS-16x300-S355		UN		Anchors straight 16x300-S355JR	

5.1.2.1 Options for profiles

- 1. Item Type: Plate = Sheet or profile
- 2. Profile ID: Profile type ID (click on the ... to open the profile selection screen)
- 3. Material: Material of the item (3.1.31.)
- 4. Coating: Coating/Finishing of the item (3.1.8.)
- 5. Range: Range/type of the item (1.6.2)
- 6. Type: Subfamily of the range (1.6.2)
- 7. Weight: Linear weight of the article, calculates the total weight based on the length entered
- 8. Default Supplier
- 9. Units: Base Management Unit (can be changed later directly in the item card)
- 10. Warehouse: list of depots that manage this item (Click on the + or to add or remove a warehouse)
- 11. Script that allows the Item to be created dynamically (to see the available options click on 13)
- 12. Script that allows the Description to be created dynamically (to see the available options click on 13)
- 13. List of options available for the script
- 14. List of Items. This table editable shows all the items already available and those to be created. The icon on the left allows to see dynamically the information:
 - a. if a cross is present, it means that the item is already created and or that an information is incorrect. In any case, the cross will have no impact on the addition of new articles.
 - b. If it is green arrow, the item can be imported
- 15. Add or delete line button
- 16. Imports all items with a green arrow

	ar a	ED trents						
(]	iteel items creatio	n	-			-		×
ltem	type	Profile						
Profi	le ID		2	Défault supplier	ARMAPLUS	8	•	
Mate	erial	10	3.	Units	BARRE	9		
Coat	ing	Miscellaneous	4 -	Warehouses				
Rang	je	WorkShop	5 -		Warehouse		-10	•
Туре		Parts	6 -	Warehouse Graitec				
Weid	ıht (lb/inch)		7 0,000				-	
ltem	code	%Section%%M	aterial%-%Length%					וםר
			-					13
Desc	ription	%Section% %N	laterial% %Length% %Sta	ndard% 12				
ltem	s to create			-				
	Length (in)	Weight (lb)	Code		Description		>	
×	229,921	0,000	10-229.921	10 229.921			-	15
X	236,220	0,000	10-236.22	10 236.22 14				
×	393,701	0,000	10-393.701	10 393.701				
×	433,071	0,000	10-433.071	10 433.071				
×	472,441	0,000	10-472.441	10 472.441				
•	476 270	0.000	10 476 270	10 476 270				



5.1.2.2 Options for sheets/plates

- 1. Item Type: Plate = Sheet or profile
- 2. Thickness: Thickness of the sheet
- 3. Material: Material of the item (3.1.31.)
- 4. Coating: Coating/Finishing of the item (3.1.8.)
- 5. Range: Range/type of the item (1.6.2)
- 6. Type: Subfamily of the range (1.6.2)
- 7. Default Supplier
- 8. Units: Base Management Unit (can be changed later directly in the item card)
- 9. Warehouse: list of depots that manage this item (Click on the + or to add or remove a warehouse)
- 10. Script that allows the Item to be created dynamically (to see the available options click on 12)
- 11. Script that allows the Description to be created dynamically (to see the available options click on 12)
- 12. List of options available for the script
- 13. List of Items. This table editable shows all the items already available and those to be created. The icon on the left allows to see dynamically the information:
- 14. if a cross is present, it means that the item is already created and or that an information is incorrect. In any case, the cross will have no impact on the addition of new articles.
- 15. If it is green arrow, the item can be imported.
- 16. Add or delete line button.
- 17. Imports all items with a green arrow.

Q s	teel items creatio	n				_		×
ltem	type	Plate		1				
Thick	mess (in)		0,000	2 Défault s	upplier Af	RMAPLUS		
Mate	rial	10	3	Units	U	NITE		
Coati	ing	Miscellaneous	-	4 Warehou	ses			
Rang	e	WorkShop	5		Ware	house	- 9	+
Туре		Parts	•	6 Warehot	ise Graitec			
0								
q						_		
ltem	code	PL%Thickness%	-%WidthMeter%	6x%LengthMeter%-%M	laterial%	0		
Desci	ription	PL%Thickness%	%Width%x%Ler	ngth% %Material%	1			
ltems	to create				-			•
q 📃	Length (in)	Width (in)	Weight (lb)	Code	l	Description	>	+
	157,480	59,055	0,000	PL0-1.5x4-10	4-10 PL0 59.055x157.48 10		-	
	157,480	78,740	0,000	PL0-2x4-10	PL0 78.74x157.4	18 10		
q 🗙	236,220	78,740	0,000	PL0-2x6-10	PL0 78.74x236.2	2 10 😈		U
X	314,961	78,740	0,000	PL0-2x8-10	PL0 78.74x314.9	61 10		
×	472,441	78,740	0,000	PL0-2x12-10	PL0 78.74x472.4	41 10	_	



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