

TBC ADAC WORKFLOW

V1.1 November 2021.





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Introduction and background information

This manual has been created to assist utilising Trimble Business Center (TBC) software to create a new ADAC project, import data, process and Export ADAC XML.

This workflow gives the user a general understanding on how to use an FXL, CAD commands and the ADAC setup tool to create, edit and then export an ADAC xml.

Users of this manual are urged to be familiar with the basics of processing feature codes in Trimble Business Center(<u>https://geospatial.trimble.com/trimble-business-center-tutorials</u>), publications and standards of Asset Design and As Constructed (ADAC) data specification and transport format (XML) available from the IPWEA website: <u>https://www.ipweaq.com/faq-s</u>

ADAC is an open source format for the standardisation of asset design and as constructed data. Covering a wide selection of asset categories, consisting of:







1.Setting up a Project in TBC

TBC Template Setup

Before importing any data, it is important to get your project template setup.

Launch a new project

In Trimble Business Centre, do either of the following:

- 1. On the Start Page, click the **New Project** button.
- 2. In the TBC ribbon, select **File > New**.

The New Project window will display.

Template	Read Only	Default
<blank template=""></blank>	Read Only	
Metric	Read Only	
Metric Scale Only	Read Only	
Sitech JG		Default
Trimble UX5 HP Solution Template	Read Only	
Hillity Mators		
ounny meters	Read Only	
ounty meters	Read Only	

Select *Metric* template and click **OK**. The **Plan View** will then display.

Change the Project Settings

1. In the top left corner of the Quick Access toolbar select project settings.



2. Fill out any of the General Information if necessary or skip this section.





3. Select Coordinate System then click Change.

Project Settings				×
General Information	•	Summary		
Coordinate System 1.		Coordinate system group:	Default	
- Datum Transformation		Zone:	Default	
Local Site		Datum transformation:	WGS 1984 (None)	
Projection	≡	Geoid model:	None	
- Shift Grid		RTX datum:	No	
- Site Calibration				
Network Adjustment Transf				
Inits	۳.			
View				
Computations				
Baseline Processing				
E RTX Post-Processing				
🛅 Network Adjustment				
📁 Default Standard Errors				
📔 Feature Code Processing				
Abbreviations	•			
Image: A transmission of the second seco	_	Change Z.		
				OK Cancel

4. Select the **specific** coordinate system associated with the job. For this workflow we are using **GDA94 Zone 56.** Click **Next.**

🌐 Change Coordinate System				-		×
Select Coordinate Syster	n Zon	θ				
 Coordinate System and Zone Calibrated Site 						
 Default projection (Transverse I 	Mercator)				
 Recently used coordinate syste 	m					
· · ·						
Coordinate System Group	^	Zone	 (Datum Transform	nation)		^
Argentina/Campo Inchauspe		Zone 52	GDA94			
Argentina/POSGAR07		Zone 53	GDA94			
Australia/AGD		Zone 54	GDA94			
Australia/GDA2020		Zone 55	GDA94			
Australia/GDA94		Zone 56	GDA94			
Australia/Mainroads WA Grids		Zone 57	GDA94			
Australia/New South Wales ISG						¥
Australia/WA Project Grids	¥	<				>
New System						
			Ne	xt >	Car	ncel





5. Select the **Geoid Model** (AUSGeoid09 for this example), the Geoid quality and the name of the vertical datum (AHD). Then click **Finish.**

🌐 Change Coordinate Syst	em	_		\times
Select Geoid Model				
O No geoid model				
Predefined geoid model:	AUSGeoid09 (Australia) V			
Geoid model quality:	Survey Quality \checkmark			
Vertical datum name:	AHD			
	< Back	Finish	Car	ncel

Note: You can change more project settings if you wish, but for this workflow, we are mainly concerned with the coordinate system and units.

Load the feature definition file (FXL) into TBC

To load the FXL into TBC you can do either of the following:

1. In the navigation pane in the **Project Settings** dialog, select **Feature Code Processing**.

Click the **Browse** button located to the right of the **Feature definition file** field.

In the **Open** dialog, browse to where the *ADAC_TBC_V?.fxl is located* and click **Open**.

Project Settings	Х
General Information Coordinate System Units View Computations Baseline Processing RTX Post-Processing Network Adjustment Default Standard Errors Feature Code Processing Abbreviations	Decimal precision: 3 Feature definition file: C:\Users\Ramin_Rad\Desktop\ADAC_TBC.fxl C:\Users\Ramin_Rad\Users\Ramin_Rad\Desk
	OK Cancel

2. Alternatively, drag and drop the FXL into the plan view.

The project is now set up and ready to import in the ADAC data.

Note: The ADAC FXL files can be found C:\Program Files\Sitech
Construction Systems and in the ANZToolbox folder for your TBC version.





2. Processing the Data

Importing the data

The next step is to **import** in the survey data you wish to use to create the ADAC xml.

- 1. Navigate to Home > Data Exchange > Import.
- 2. The Import pane will then pop up. Use the icon to navigate to the folder that contains the file you want to import. Click **OK**.
- 3. Select the file you wish to import from the list. Change the settings if required. Then click **Import**.

The image below shows the unprocessed points we have imported and will be using for this workflow.







Project Explorer

Before you process the feature codes in your project, you can view the codes and their assigned values, and make changes if necessary.

- In the TBC ribbon, select Home > Data > Project Explorer. The Project Explorer pane should display.
- 2. In the **Project Explorer** pane, expand the **Points** node. Then double-click the point you wish to view. (Point 1 in this example).

The **Properties** pane displays showing properties for point *1*. The feature code assigned to the point displays in the **Point Information** section.



Click the **Browse** button in the **Feature code** field to view more information about the feature code in the **Feature Code Editor** dialog.

Fea	ture	Code Editor							_		×
-											
Fea	ture c	ode:			ADAC_	FBC.fxl					
<u>SH</u>	<u>C</u> 2					Codes		Name	Categ	gory 🔉	7 🔺
- De	taile				۲ ۲	ACA	Ac	tivity Area	Open Sp	ace	≡
	LOO				•	ACP	Ac	tivity Point	Open Sp	ace	
S	HC2			~	•	ANN	An	notation	Enhance	ments	
		Attribute Name	Attribute Value		•	ART	Ar	t work	Open Sp	ace	
	123	Chainage (m)			•	BBQ	Ba	rbeque	Open Sp	ace	
-		Class			4	BFA	Bo	ating Facility	Open Sp	ace	
-		Class Discretes (mm)	100		•	BIN	Wa	aste Collectio	Open Sp	ace	
	123	Diameter (mm)	100	E	4	BLD	Bu	ilding	Open Sp	ace	
	ABC	DSMHID			22	BOX	Bo	x Culvert	Storm W	/ater	
	123	Invert Level (m)	1.000			BPT	Ba	rrier Point	Open Sp	ace	
	123	IO Distance (m)			22	BRC	Ba	rrier Continuo	Open Sp	ace	
	123	Length (m)				BYC	Bio	cycle Fitting	Open Sp	ace	
	ABC	Line Number			28	CL	Clo	ose	Line Cor	ntrol Co	
		Material	PVC-U		52	CON	Co	nnection	Cadastre	2	-
	123	Offset (m)								Add Code	
		Sodimont Tran		•							
								ОК		Cance	d

This dialog allows you to remove a feature codes, select a different feature code, add a feature code, and/or change attribute values.





- ₽ X

Process Time

Process Feature Codes

Select point source(s) to process

🔰 🔽 Demo.xml

🔳 🕺 🛃 🖨 🗹 🗆

Name

Processing Feature Codes

- The next step is to process the feature codes.
 Navigate to the GIS > Feature Definition > Process
 Feature Codes.
- Select the point source (demo.xml for this example) you want to process for and then click Process
 Source(s). By processing feature codes TBC uses the coding and attribute information to string together points with line codes, colour the linestrings, layer features, give points symbols and process attribute information. The image below shows the points after processing.







Comparing the properties of point 59 before processing to the properties of point 59 after processing.

F	efore Processing				
Properties		→ ₽ X	Properties	After Processing	- ₽ X
👻 💶 💷 🕞			🕴 💶 🕸 🚱		
Point 59			Point 59		
Point (1)		~	Point (1)		~
Point Information			Point Information		
Point ID:	59		Point ID:	59	
Selection sets:			Selection sets:		
Feature code:	<u>SCMH</u>		Feature code:	<u>SCMH</u>	
Description 1:			Description 1:		
Description 2:			Description 2:		
Layer:	Points		Layer:	Sewerage	
Include in surface:	Yes		Include in surface:	No	E
Label Visibility			🖃 Label Visibility		
Show label:	By view filter		Show label:	By view filter	
Show feature code:	By view filter		Show feature code:	By view filter	
Show elevation:	By view filter		Show elevation:	By view filter	
E Feature			- Feature		
Feature:			Feature:	Sewer Circ MH	
- Grid Coordinates			Locked:	Yes	
Easting:	532088.828	?	Feature Attributes		
Northing:	6921547.626	?	Use:	Maintenance Shaft	
Elevation:	6.684	?	Diameter (mm):	225	
Local Coordinates			Surface Level (m):		
Latituda	\$27%40'40 26558"		Invert Level (m):		
Longitude:	F153°19'33.07094"	1	Floor Construction:	Prefabricated	
Height:	47.495	22	Floor Material:	PE	
			Wall Construction:	Prefabricated	
Global Coordinates	i		Wall Material:	PVC	
Latitude:	\$27°49'49.26558"	?	Roof Material:	Concrete	
Longitude:	E153°19'33.07094"	?	Lining:	Unlined	
Height:	47.495		Lid Material:	Cast Iron	
			Drop Type:	Straight Through MH	
			Catchment PS:		-

As displayed above. After Processing Feature codes, point 59 now has ADAC standard attributes in the properties tab as well as having a defined feature name and corrected layer.





3. Editing using CAD and other commands

It is rare for there not to be any errors in data after processing. This workflow shows how to use CAD commands and other functions to correct and edit some errors users may come across.

Editing line and polygon geometry

In the example the lot in the far-left corner has an error. The bottom left corner of the lot is meant to be at an angle of 90 degrees. This can be corrected multiple different ways, for this example we will use two different methods one using CAD grips and smart snaps and the other method using the editing tool.







Using CAD Grips and Smart Snaps

1. Start by **clicking** on the lot selecting the polygon.



Note: you can right click and select edit to input the coordinate of the bottom left hand corner.

In the bottom right corner of the quick access toolbar click on Snap to open the Running Snap Mode Options. Ensure Perpendicular Point is checked and click OK. This ensures the bottom left corner will snap to a perpendicular when using the CAD grips.







3. Click and hold the **yellow square** in the bottom left corner. You can use the mouse to place the corner anywhere on the plan view. However, we want the point to be **perpendicular** to the other points. While holding, **place** the cursor near the **bottom right corner** of the lot. The perpendicular snap symbol should pop up (Circled below). Once the perpendicular snap symbol pops up, while holding the snap still place the cursor near the perpendicular symbol and release the mouse. The bottom left corner should snap to the perpendicular point.



 You can choose to move the lot corner point to the new corner of the polygon. However, it is not required as you will not be exporting the point with the ADAC xml.

To move the point, navigate to **CAD > Edit > Move**.

Using the Editing tool

1. Start by **clicking** on the lot selecting the polygon.



- 2. Left click in the plan view and select Edit.
- 3. In the Edit Line string click in the Current segment box and ensure it is highlighted.





4. In the **plan view** select the **line string** that has the arrow pointing to the point which you want to edit. Notice the **arrow circled** in red pointing towards the point we are going to edit.



- 5. Now the line string is selected **highlight** the coordinates box.
- 6. In the **plan view** right click and select the **Bearing Bearing** command.

Note: The Bearing Bearing command calculates the coordinates of the intersection point of two bearings.





			🔁 Edit Line string 🚽 🗸 🗙
		0 0	
	[New]	Para la	Line:
	[Close]		Polygon : Lot
	[Close All]		Horizontal Vertical
	Bearing Bearing		Current segment:
0	Bearing Distance		Editing
1 9	Distance Distance		∎ ≞
2	XY		· · · · · · · · · · · · · · · · · · ·
	End	As	Segment Tune:
	Middle of Segment	1. f f	Straight V
	Point	500 ¢	
	Line		Cod Roba
	Insertion Point		Type:
	Free		Coordinates
	Centre of Arc		Coordinates:
	Tangent		532072.926, 6921502.431
i	Point of Intersection	_/i	Bevation:
	ΔχΔγ		0.000
	Centroid	/	
	Middle of Point to Point		Save Cancel
	Intersection		
	Perpendicular		
	Consec Footback		
	Factor	<u></u>	
	Float View		
000 C			
ii	· · · · · ·		
	ļ	!	
8 8	8	2	
220	25	23.21	New Close

Select the North West corner as the reference point 1. Select the North East corner to calculate bearing 1. This calculates the bearing from the North West corner to the North East corner to be 100d 28' 51.7". See below.









11. The new coordinates have now been calculated. Input an elevation if required then **click save**.

Editing Attribute Data

In post processing TBC allows the user to edit attribute data. Errors in attributes can be adjusted and unknown attributes in the field can be input in the office. An example of how this may be carried out is demonstrated below.

The image below shows two sewer circle manhole points and three pipe (non-pressure) strings. Let us bring up a feature spreadsheet to have a look at the attributes associated with these features.

†
†





 To open a feature spreadsheet, navigate to GIS > Feature Definition > Process Feature Codes drop down > Feature. A blank feature spreadsheet should display.

The **Select Feature** drop down shows a list of all the feature names and the number of each specific features in your project. The image below shows the Pipe (non-pressure) with a feature count of three.

2. To display attribute information associated with the pipe tick the **check box** on the left-hand side and then click **Apply**.

₽ Vi	ew Filter	Mana	ger 🗶 🕂 🗙	Plan View [My Filter]	× Feature Spread	sheet	×
5	😨 🛛 🕄	*ů*	😂 🗟 🗟 🗟 🖪	Features to display:	Select Features	-	Attributes to display: Select Attributes 🔹
76	My		Feature Name	Feature Count	Geometry		
Ø,	< Every		Pavement	0	Polygon		
	Laver		Pavement_L	0	Line		
		• •	Pipe (non pressure)	3	Line		
			Pipe (pressure)	0	Line		
			Point	0	Point		
	-		Polygon	0	Polygon		
	-		Polyline	0	Line	-	
			D D	•	D-1-4		
	▶⊻	🗌 Hi	de unused features				
		Se	lect All Unselect All		Apply]
			-			.:	
		Trans	sport				
		Wate	rSupply				

Note: you can check multiple boxes to display attribute information for multiple features at once.

A list with the attribute information should then display.

Plan	/iew [My Filter] 🗙	Feature Spre	eadsheet X													
Featu	res to display: Pip	e (non press	ure) 🔻 Attrib	outes to display:	Mul	tiple 🝷										
	Features															
	Line Name 🛛 🗸	Locked 🏹	Layer 🕥	Line Numb 🗠 🛪	🛛 Use 🦷	7 Diameter (mm) 🗸	Material 🖓	Class V	Lining 🔽	Protection V	Joint Type 🗸	Alignment (m) 🖓	Average Depth (m) 🖓	Embedment V	Rock excavated? 🏹	Pipe Grade 🏹 I
	Pipe (non pressu		Sewerage	e 1	4 Reticulat.	150	PVC-U	SN8	Unlined	Uncoated	RR			Type 3	No	8.239
÷	Pipe (non pressu		Sewerage	e 1	5 Reticulat.	150	PVC-U	SN8	Unlined	Uncoated	RR			Type 3	No	8.163
	Pipe (non pressu		Sewerage	e 1	5 Reticulat.		PVC-U	SN8	FBE	Uncoated	RR			Type 3	No	5.981

Filters can be used to display features with specific attribute values. By **clicking** the range of **filter options** are displayed, including:

- All displays all attributes of the selected feature (default).
- **Custom** allows the creation of custom filters using functions such as equals to, less than, starts with etc.
- **Blanks** displays all features that have no attribute value for a specific attribute.
- **NonBlanks** displays all features that have an attribute value for a specific attribute.







Once a satisfactory filter has been selected, attribute editing can begin. For this example, the "all" filter is acceptable.

Looking at the feature spreadsheet of the example above there are some errors that need to be corrected. The diameter and lining of the pipe at the bottom of the list should match the attributes of the pipe above it as they have the same line number but are split into two different strings because a manhole separates them.

Plar	n View [My Filter]	х	Feature Spre	eadsheet >	ĸ													
Fea	tures to display:	Pip	e (non pressi	ure) 🔹 At	tribu	tes to display:	Mu	ltiple 🔹										
													Feat	ures				
	Line Name	V	Locked 🏹	Layer	7	Line Numb 🗠 🛛	Use	マ Diameter (mm) ⊽	Material マ	Class 🖓	Lining 🔽	Protection 🗸	Joint Type 🖓	Alignment (m) 🖓	Average Depth (m) マ	Embedment 🖓	Rock excavated? 🔽	' Pipe Grade 文 I
Ð	Pipe (non pres	ssu		Sewera	ige	14	Reticula	t 150	PVC-U	SN8	Unlined	i Uncoated	RR			Type 3	No	8.239
	Pipe (non pres	ssu		Sewera	ige	15	i Reticula	t 150	PVC-U	SN8	Unlined	i Uncoated	RR			Type 3	No	8.163
	Pipe (non pres	ssu		Sewera	age	15	Reticula	t 🚺	PVC-U	SN8	FBE	Uncoated	RR			Type 3	No	5.981

These attributes can be edited **two** different ways.

- 1. Using the Feature Spreadsheet
- 2. In the Properties window

The feature spreadsheet will be used for this example.

Simply, **click** on the attribute value you wish to edit and either choose from the list or input the value using your keyboard and **press enter**.

			Features	
Diameter (mm) 🗸	Material 🗸	Class 🗸	Lining 🖓	Protection V
150	PVC-U	SN8	Unlined	Uncoated
150	PVC-U	SN8	Unlined	Uncoated
150	PVC-U	SN8	Unlined	FBE

	Features					
Protection ♥	ining 🏾 🏹	V	Class	Material 🗸	Diameter (mm) 🏹	7
Uncoated	Unlined	5N8	9	PVC-U	150	
Uncoated	Unlined	5N8	9	PVC-U	150	
FBE 🗸	Unlined	5N8	5	PVC-U	0	
Tape Wra Concrete Sheathed Epoxy Pai Uncoated Unknown Other P_1						

Creating a missing point feature

In the field features can be missed during a pickup survey. TBC allows the user to easily create features manually during post processing. This workflow shows how to create points in TBC.

In the example, there is a manhole missing in between two of the pipe strings as seen below.







▽ ■ ◊		• •	×
1 M M M M M M M M M M M M M M M M M M M			
General			-
Point ID: 59 Layer: Severage Feature code: SCMH Coordinates Coordinate type: Grid Easting:			
Attributes		*	
Catchment PS	=		
Chainage (m)	=	÷	
Diameter (mm)	=	225	
Drop Type	=	Straight Through M 🗸	
Floor Construction	=	Prefabricated ~	
Floor Material	=	PE 🗸	
Invert Level (m)	=	9.778	
Lid Material	=	Concrete ~	-
		Add Close	

To create a point in between the two pipes.

1. Start by navigating to **CAD > Points > Create Point.**

2. The create point menu should then display. **Fill in** the data fields i.e. Point ID, Layer, Feature Code and attributes. For this example, the feature code of SCMH (Sewer Circ Manhole) is used.

Note: If you are creating strings in TBC make sure you give the code a string number for example giving string points a code of SNP1 all the points with this code will be strung together when processing feature codes.

- 3. The next step is to give the point some coordinates. Click in the Easting box.
- 4. With the cursor in the plan view **Right Click.** In the drop-down list **select Middle of Point to Point**.







5. Select the end points of both strings (which end point you select first does not matter).







Note: By using the middle of the point to point function the manhole point is placed at the invert level between the two pipes. See the image to the right, by using the Middle of Point to Point function the Easting, Northing and Elevation were calculated.

6. Once the point has the correct coordinates and attribute data, click **Add**.

The point that was just created should appear in the plan view.

Note: if the point did not appear in the plan view ensure the correct layer is turned on.

 The final step is to process the feature codes again (described in detail on p.g. 9). Ensure the Keyed in Block check box is ticked before processing the codes.

Note: Every time a new point is created in TBC and that point is required to be exported in the ADAC XML, ensure the Keyed in block feature codes are processed. This guarantees points are strung together correctly, the feature data is correctly displayed in the software and the data associated with that point will be correctly exported in the ADAC XML.

🔆 Create Point			•	ą	×
▽!◙ ✿					
General					
Point ID:					
59					
Layer:					
Sewerage				\sim	
Feature code:					
SCMH					
Coordinates				\$	
Coordinate type:					
Grid			\sim		
Easting:					
532138.932					
Northing:				?	
6921525.658					E
Elevation:					
9.790				2	
Height:					
. ?				2	
Status:					
Enabled			~		
Local: Latitude: S27*49'49.9' Longitude: E153*19'34. Height: 50.600 m	7517 9047	" 1"			
Global: Latitude: S27*49'49.9' Longitude: E153*19'34.3 Height: 50.600 m	7517 9047	"			
Attributes				*	
Catchment PS	=				
Chainage (m)	=			÷	
Diameter (mm)	=	225		÷	
Drop Type	=	Straight Thr	ough M		
Floor Construction	=	Prefabricate	d	\sim	
Floor Material	=	PE		~	
Invert Level (m)	=	9.778		÷	
Lid Material	=	Concrete		~	Ŧ
		Add	C	lose	





Using the TBC background map

TBC allows users to toggle on and off a background map within the plan view (as seen below). The background map is a good tool to use to check if the project is in the right general location. To use the background map feature, TBC requires the user to log in with their Trimble ID.



The following workflow will show users how to log into TBC with their Trimble ID and access the background map.

- Access the Start Page. Navigate to Support > Start-Up > Start Page.
- 2. In the **Start Page** click **Log In** located in the top right corner.
- Fill in your credentials if you have a Trimble ID or create a new Trimble ID for free in the same window. Click Sign In.
- 4. In the Plan View toggle, the background map

by clicking the **button** on the bottom **quick access toolbar**.

H New Project	Open Project	Log In







You can change the background map from a street view to satellite image. To do so navigate to the project settings.

- 1. Click button in the quick access toolbar. The Project Settings will then display.
- Navigate to View > Plan View. Under the background map tab, you can change the type from Trimble Map view to Digital Globe Imagery.

Project Settings			×
📁 General Information 🔺	Plan View		
Coordinate System	Contour mesh density: Plot scale:	Coarse mesh 600	
- 3D Drive View	Background Map		
Alignment Editor Chainage Navigation	Visible:	Yes	
Chainage/Offset Gri	Туре:	Trimble Mapview	
Corridor Template Vi			
Cross Section View			
Feature Spreadsheet			
···· IRI Diagram			
Occupation Spreads Optical Spreadsheet			
- Photo Point Spreads			
🕀 Plan View			
Profile View			
		OK Cancel	

Digital Globe Imagery

Trimble Map View







4.ANZ Toolbox customization and additional commands

ANZ Toolbox has been created by our SITECH team and features commands that are required to setup an ADAC project and assist with ADAC data preparation.

The following workflows display how some of the tools in the ANZ Toolbox can be used to create ADAC files and require the ANZ Toolbox Module.

Set Sewerage Connection Attribute Command

The Set Sewerage Connection Attributes command automatically calculates distances required to be measured between a house connection, sewerage pipes and the cadastral boundaries. Choose either V4.2 or V5.01 version depending on your required data output.

- To use the command, navigate to ANZ Toolbox > ADAC > Set Sewerage Connection Attributes. The Set Sewerage Connection window should then display.
- 2. Select the House Connection geometry representing the property sewerage connection in Plan view or 3d view.
- 3. **Select** the **Sewer line** the house connection runs into.
- 4. **Select** the **Down Stream Manhole** along the sewer line from the house connection.
- 5. Select the Lot/Cadastral Boundary.

An example is shown on the next page.

 Set Sewerage Connection Attributes X
Connection Data
House Connection
k
Sewer Line
k
Downstream Manhole
k
Lot
k
Annotate
Connection Lengths
Chainage
↔
Offset
⊷
IO Distance
⊨
SO Nearest
 →
SO Other
⊨→
Apply Calculate Close







- 6. **Check** the annotate box to display line strings with the associated connection lengths in plan view.
- 7. **Click Calculate.** The results of the connection lengths will then display. The values of the connection lengths include:

Results:

Chainage - Distance from the point of connection of the sewer line along the direction of the sewer pipe to the downstream manhole.

Offset - Perpendicular distance from the property connection to the sewer pipe.

IO-Distance – Distance from the property connection along the direction of the sewer pipe to the downstream manhole.

SO Nearest - House Connection perpendicular distance to the nearest cadastral boundary.

SO Other - House Connection perpendicular distance to the next nearest cadastral boundary.

Note: You can right-click on any measurement node and change the displayed measurement value or remeasure in Plan View or 3D View.





The results of the calculations are shown below.



- 8. If satisfied with the results, **click Apply** to save the displayed house connection to the lines attributes.
- 9. Then, click Close to finish.





ADAC Settings V5.01 or V4.2

Use the ADAC Settings panel to enter appropriate header attributes for your project. The ADAC Settings panel is brought up with any header data already entered for the current project. The ADAC settings information is only entered once for a project. This requires only a small amount of information, consisting of ADAC project name, the asset owner and construction date, the coordinate system used and other optional attributes such as the surveyor and the engineer name.

- To open the ADAC Settings navigate to ANZ Toolbox > ADAC > ADAC Settings V5.01 or V4.2. The command window will display.
- 2. Fill in the information that is required to be included in the ADAC XML. An example of setting information is shown below.

🍯 ADAC Settings V5.01		🗙 襡 ADAC Settings V5.01		×
General Information - Surveyor Details - Engineer Details - Coordinate System - Drawing Extents - Global Features	✓ Header Information Adac Receiver Council Asset Owner GCCC Construction Date 22/07/2020 Description x Drawing Number x Drawing Number x Drawing Number x Project Name DEMO Project Submission Status Preliminary Works-Approvalid PN000000 ✓ Software Project Name 5.3 Project Name Project Name	General Information Surveyor Details Coordinate System Drawing Extents Global Features	Surveyor Date Approved 22/07/2020 Date Final Survey 22/07/2020 Name SitechCS Date Approved The date of the final approval of survey.	
Auto-Fill Object ID	ОК	Cancel Auto-Fill Object ID	ОК	Cancel
Update Elevations	As-Built Surface: Demo V	Update Elevations A	As-Built Surface: Demo ~	
🍯 ADAC Settings V5.01		🗙 🏾 🍯 ADAC Settings V5.01		×
- General Information - Surveyor Details - Growneer Details - Goordnate System - Drawing Extents - Global Features	✓ Engineer Date Approved 22/07/2020 Name SitechCS	- General Irformation - Surveyor Detais - Engineer Detais - Condrate System - Orawing Extents - Global Features	Coordinate System Hortzortal Coordinate System Hortzortal Datum GDA94 Is Approximate? False Notes Origin Mark Vertical Datum AHD	
	Date Approved The date of approval of submission for the infrastructure type.		Horizontal Coordinate System Horizontal Coordinate System	
Auto-Fill Object ID	ОК	Cancel Auto-Fill Object ID	ОК	Cancel
Update Elevations	As-Built Surface: Demo 🗸	Update Elevations	As-Built Surface: Demo V	
To ADAC Settings V5.01		🗙 🏾 🍯 ADAC Settings V5.01		×
General Information Surveyor Details Cognet Details Cognitive Details Convergence Details Drawing Extents Global Features	▼ NothEastern Corner Easting (X) 532387.226664 Bievation 14.827 Nothing (Y) 6921579.74092 ▼ SouthiWestern Corner Easting (X) 532081.317068 Bevation 0 Northing (Y) 6921420.963148 Easting (X) Easting (X) Easting (X) Easting (X)	Gibbal Features	V Data Entry Asset Status Newly-Constructed Data Quality Department Infrastructure Code Supporting Files (Collection) Asset Status The operational or existential status of the asset at the time I captured. A Project may contain a mix of planned and exist	the data was ng assets as well as
Auto-Fill Object ID Update Elevations	As-Built Surface: Demo v	Cancel Auto-Fill Object ID Update Elevations	As-Buit Surface: Demo V	Cancel





3. **Click** the **Auto-Fill ObjectID** to automatically give all the attributes a unique ID value.

Note: Every asset in ADAC has a unique identifier.

- 4. Next if required, choose an **As-Built Surface** if there is one loaded into your project. Then **click Update Elevations.** Update Elevations automatically populates values for surface elevation and average depth where applicable.
- 5. Once satisfied with the information **click OK**. The settings will then save and be exported with the ADAC XML.





6.Exporting an ADAC XML from TBC

After the project has been edited, the settings created, and the user is satisfied with the standard of the data the next step is to Validate the data against the Schema using the **Validate ADAC** command. **ANZ Toolbox > ADAC > Validate ADAC**

Validate ADAC	×
ADAC version:	
V4_2	¥
 Entities 	
Entity selection:	
Selected: 0	Options
Tip! Double click on a validation error to select the relation	ted entity in the Ui.
⊖ File	
ADAC file:	
ADACId	Message
	Apply Close

Choose the version being used for this data set and select all the data on screen to be checked. Any errors that need attention will be shown in the message box and can then be resolved individually.

Note: There may be some data that has had attribute fields left empty on purpose such as pavement layers and these will get flagged. If they are correct, and are allowed to be set to nil in the schema you are able to highlight the lines and right click to display *"set parent to nil"* and this will set them correctly so they are no longer considered to be an error.

Once the data has validated, export the data as an ADAC XML format which is compatible with GIS software and other packages.

To export data:

- 1. Start by **selecting the points, lines and polygons** to be included in the XML. Select the features in the plan view, project explorer or 3D view. Everything selected will be highlighted.
- 2. Then navigate to **Home > Data Exchange > Export** or **click** the **icon** in the quick access toolbar. Opening the export window.







3. In the export window click the **Construction Tab** then select either **ADAC exporter (v4.2)** or **ADCA exporter (v5.01)** from the list.

Note: The selected box displays the number of objects to be exported.

- 4. Next, **click** the **icon**. Choose a file location to save the exported xml and give it a name.
- 5. Then click Export.

An exported file can be checked via the **Validate ADAC** command without needing to import it into TBC.

🤟 Validate ADAC	↓ 7	×
ADAC version:		
V4_2		×
⊖ Entities		
Entity selection:		
Selected: 0	Options	
Tip! Double click on a validation error to select the related entity in the Ui.		
⊙ File 벑		
ADAC file:		





7.Importing ADAC XML into TBC

TBC also allows the user to import ADAC XML files. This allows the user update XML files that have errors or bring in external data.

- 1. First step to importing an XML file is to **import the associated FXL, see page 6**.
- 2. Once the FXL file has been imported into TBC the next step is to **import the XML file**. Follow the **same steps** used to import the FXL to import the XML.

Looking at an example, a comparison of the properties of a sewer pipe (non-pressure) can be made before the pipe was exported out of TBC as an xml and after the pipe has been imported as an xml.

Before exporting					
🗄 – 🖉	• ·	^	ч ¥ 🖉		
Line string Pipe (non pressure)			Line string Pipe (non pressure)		
Line string (1)		~	Line string (1)		~
- Feature			- Feature		
Feature:	Pine (non pressure)		Feature:	Pine (non pressure)	
Locked:	No		Locked:	No	
- Frankris Attributer			- Factors Attailantes		
			- redure Attributes		
Line Number:	15		Line Number:	15	
Use:	Reticulation		Use:	Reticulation	E
Diameter (mm):	150		Diameter (mm):	150	
Material:	PVC-U		Material:	PVC-U	
Class:	SN8	≡	Class:	SN8	
Lining:	Unlined		Lining:	Unlined	
Protection:	Uncoated		Protection:	Uncoated	
Joint Type:	RR		Joint Type:	RR	
Alignment (m):			Alignment (m):		
Average Depth (m):			Average Depth (m):		
Embedment:	Type 3		Embedment:	Type 3	
Rock excavated?:	No		Rock excavated?:	No	
Pipe Grade:	8.163		Pipe Grade:	8.163	
Length (m):			Length (m):	55.828	
US Invert Level (m):			US Invert Level (m):	9.778	
DS Invert Level (m):			DS Invert Level (m):	5.236	
US Surface Level (m):			US Surface Level (m):	10.935	
DS Surface Level (m):			DS Surface Level (m):	6.456	
			ADACId:	18	
			Infrastructure Code:		
Line style:	Solid		Owner:	Council	
Line style scale:	3.000000000		Drawing Number:	x	
Weight:	By Layer		Drawing Revision:		
Colour:	Orange		Construction Date:	31/07/2018	
- Layer			Department:		
Laver:	Sewerage		Asset Status:	Existing	

Comparing the two there is a noticeable difference in the attributes. Notice the ADAC Settings have been imported with the XML and are referenced in the attributes of the imported pipe data. Also notice the lot has been assigned a unique ADACId.





8. Annotating drawings with Attribute values

It is possible to annotate your drawing with the required attribute values from your data using the "Annotate Objects" command in the ANZ Toolbox ribbon. (Example file available from anztoolbox@sitechcs.com)

By creating a rule set you can quickly apply these to your whole data set and then go and manually edit the placement of text to suit your drawing layout.



Once the text has been moved around to suit it is ready to plot.



