

WSDOT CAE SUPPORT

Example Data

MicroStation – 3D Clash Detection

Tools > Clash Detection

Overview

al conflicts between multiple elements in a 3D file. Based

Clash detection is used to analyze the potential conflicts between multiple elements in a 3D file. Based on criteria you set, it detects geometrical clashes between object element sets. You can then interactively and graphically review these clashes.

Suppression rules can be applied to identify clashes that should not be reported.

The settings associated with the clash runs are managed and tracked as a clash job. A job is a container of criteria, rules and results, which are set up and saved in the active file for reuse. A job can also be stored in a DGN library.

Workflow

The clash detection workflow includes creating a job, selecting elements to compare, setting criteria and rules, then initiating the process and reviewing the results.

Create a Clash Detection job

1. In a 3D DGN, select Tools > Clash Detection > Clash Detection.

Criteria Rules Results	
Evels	Set A.
(none)	Soft Clearance: 0.0000 US Survey Fe
AL_GA_WLineBlueBearingsText	Drag items from left
AL_GA_WLineBlueMajorStaText AL_GA_WLineBluePCPIPTText AL_GA_WLineBluePltoPlLine AL_GA_WLineBlueSRNoText	Soft Clearance: 0.0000 US Survey Fee
AL_GA_WLineBlueStaEquaText	Drag items from left
A References	5
(4) Named Groups	

The left pane lists created/saved jobs. The right portion includes three tabs for element selection and grouping, rules, and results.

- 2. Select *Job > New*.
- 3. Provide a name.

This can be changed later if needed.

4. Select the **Results** pull-down option and toggle on the **Animate Transitions** option.

This is not functionally necessary, but helps while navigating between clashes.

5. In the *Rules* tab, review and consider unchecking **Suppress clashes between elements** that are touching.

Select Elements

Two sets of elements may be compared for clash. Elements may be selected by Level, Reference, or Named Groups.

6. In the Criteria tab, highlight levels for Set A.

Click a single level, use the CTL+click, or SHIFT+click to select a subset.

Do not pick all levels.

7. Left-click and drag the selection into the box under Set A.

Note that MicroStation grays out all other levels and highlights the selected ones in red.



- 8. Highlight levels for Set B.
- 9. Left-click and drag the selection into the box under Set B.

Note that MicroStation maintains the Set A display and highlights the selected ones in blue.

Job Results Image: Set A Image: Set B	Clash Detection - Untitled	Job		
Image: Teample 1 Image: Teample 1 Image: Teample 1	Job Results			
Image: Strain	Example 1		•	Set A Soft Clearance: 0.0000 US Survey Fee Self Check OR_PP_StormSewerLine
DR_ST_ManholeNew DR_ST_ManholeTunnel DR_ST_ManholeTunnelNew Named Groups		DR_ST_InletGenericNew DR_ST_InletGenericNew DR_ST_Manhole DR_ST_ManholeBridge DR_ST_ManholeBridgeNew DR_ST_ManholeDeactive		Set B
Named Groups		DR_ST_ManholeNew DR_ST_ManholeTunnel DR_ST_ManholeTunnelNew		Self Check CR_ST_Manhole
		References Named Groups	*	

Set criteria and rules, then Process

In the Criteria tab, each set includes two options to customize the detection analysis.

10. Enter a value for *Soft Clearance* to mandate a buffer.

For example, you may want to see where a pipe is closer than 2ft from the finished surface.

Entering 2 for the set containing **XS_SF_Finished** will return all conflicts within 2ft of that set.

11. If you wish to detect clashes within the set, toggle on the **Self Check** option.

In the *Rules* tab, additional suppression rules may be created and applied. The default is to detect clashes on all selected elements in each set per above. Starting globally and suppressing specific detections can be very handy. For example, you may want to detect clashes for all drainage elements (including pipes to pipes) and surface levels but suppress clashes between pipes and structures.

12. Click Process.

This initiates the clash detection function.

Review the Results

The results tab includes navigation options between detected clashes, display options for clashes, a tabulated list of clashes, and element info for the clashing elements in each set.

	ample 1	Rules Re	esults						
		Name	Status	Туре	Clearanc	æ	Assigned To	Found By	F
	- B (A)	Clash1	New	Hard	Less Tha	n Zero		HillCl	2
~ 1		Clash2	New	Hard	Less Tha	n Zero		HillCl	2
		Clash3	New	Hard	Less Tha	n Zero		HillCl	2
	 ✓ ④ E 	ement In	III Fo	_	-				,
	() E	lement Inf ient Info A PointEnti	III fo ty2d			Element Info 8 PointEr	antity2d		
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	< () E Ber	lement Info nent Info A – PointEntii IsEmbedded State GeometryCla Geoneral	iii fo ty2d Fals 2 as: 1	e		Element Info I PointEr IsEmbedd State Geometry Genera	a ntity2d ied False 2 rClas 1		× × III

13. Cycle through the tabulated list or use the previous/next buttons to see each conflict.

Note that the display zooms to the extents of the clashing elements.



Save the job

Before closing the <u>Clash Detection</u> dialog, save the job, retaining the criteria and suppression rules. The job is saved in the DGN file.

14. Click the **Save** icon.

For questions or comments on this tech note, contact your regional CAE Support Coordinator or the WSDOT CAE Help Desk at (360) 709-**8013**.