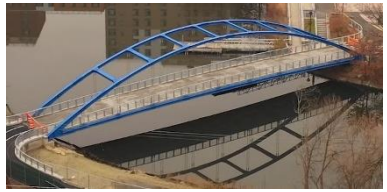
NEW YORK STATE OF OPPORTUNITY. Department of Transportation



Office of Structures

BrDR Report Generation Tool

Joe Albert, P.E.

Project Engineer, Structure Design Bureau

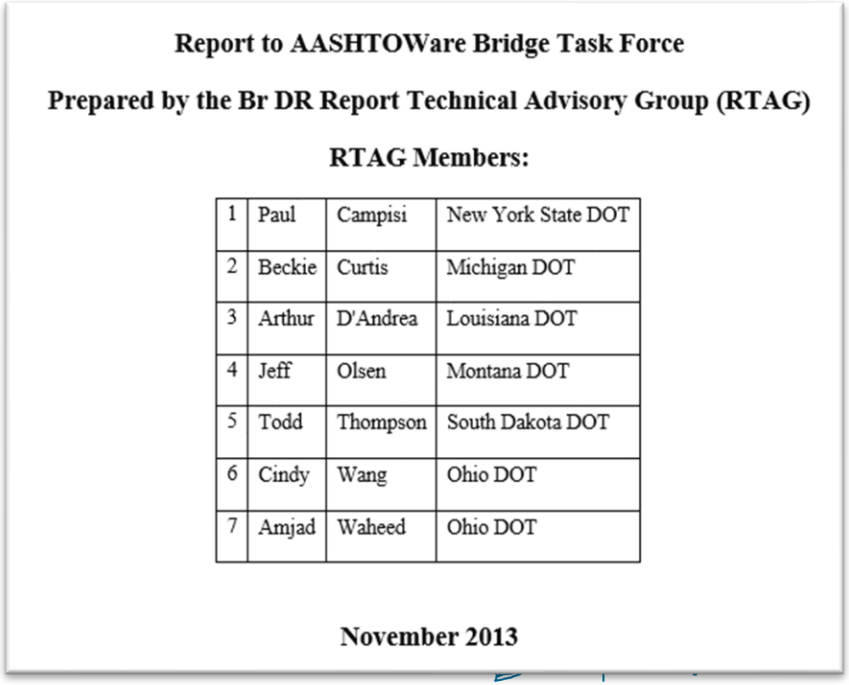
August 6th, 2024 –RADBUG

Presentation Topics

- **Background**
  - Previous Report TAG
  - User Requests
- **Report Generation Tool**
  - Why do we need a new report generation tool?
  - Report Concept
  - Report Format
  - Phase 1
- **What is the next step?**

Background

- BrDR software has been in use since 1996
- Many users have requested improved report generating capabilities
- Report TAG (RTAG) was formed in 2013
  - 7 members
  - Recommended many improvements to reporting features in BrDR



Report to AASHTOWare Bridge Task Force

Prepared by the Br DR Report Technical Advisory Group (RTAG)

RTAG Members:

1	Paul	Campisi	New York State DOT
2	Beckie	Curtis	Michigan DOT
3	Arthur	D'Andrea	Louisiana DOT
4	Jeff	Olsen	Montana DOT
5	Todd	Thompson	South Dakota DOT
6	Cindy	Wang	Ohio DOT
7	Amjad	Waheed	Ohio DOT

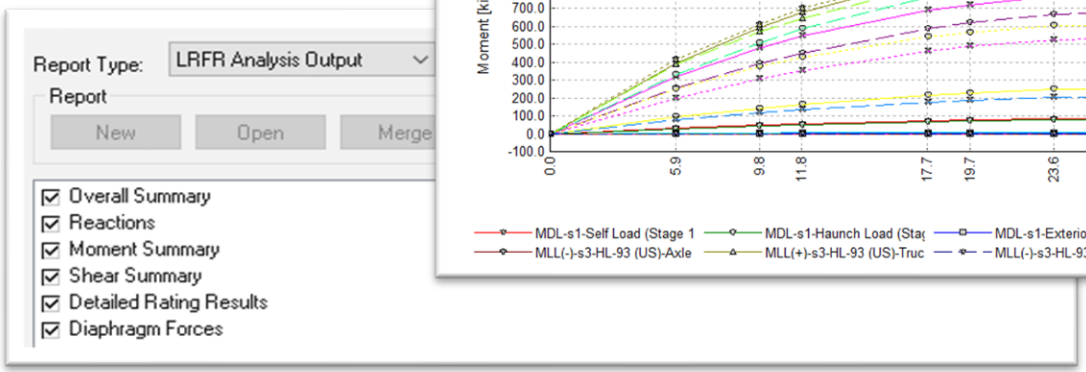
November 2013

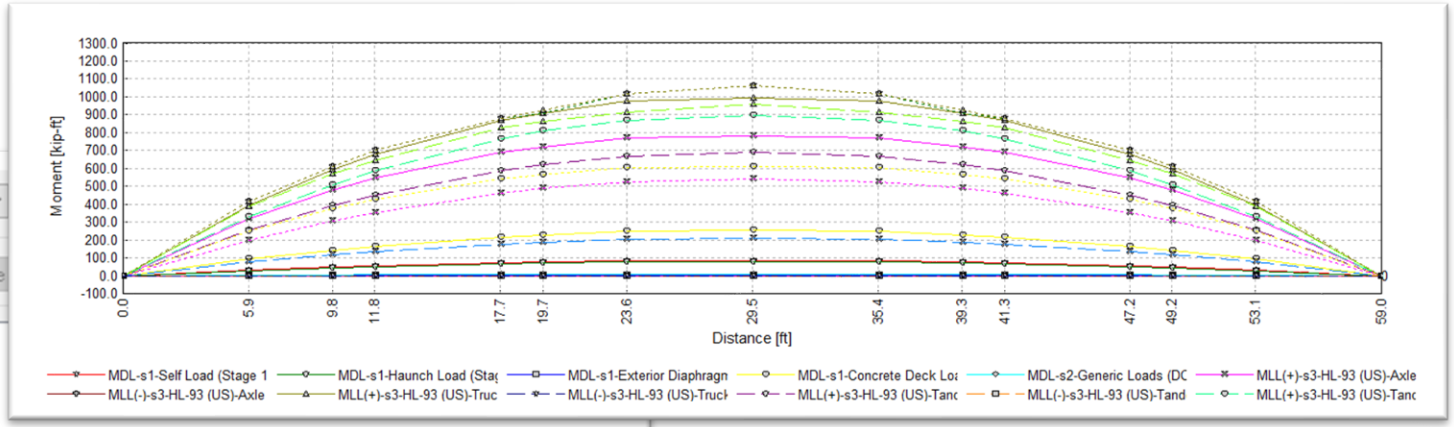
Background

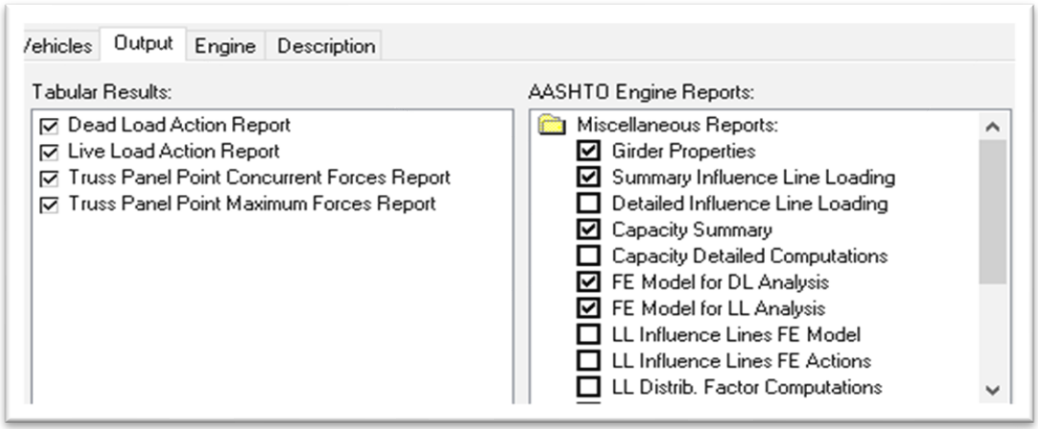
- 2013 User Requests:
  - Load Rating Summary Report
  - Comprehensive input report
  - List Dead Loads in separate columns
  - List deflections for DL (by load type, stage) and LL separately
  - Provide separate Spec Check Reports with pass/fail summary
  - Provide essential cross-sectional properties at critical points

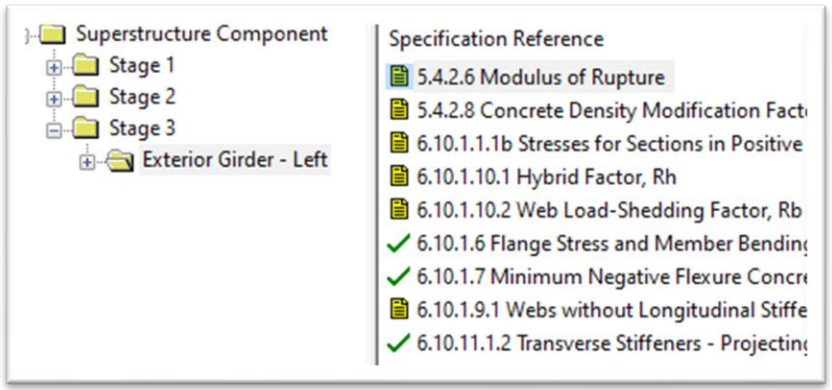
Background

- Vendor has created many output reports over the years



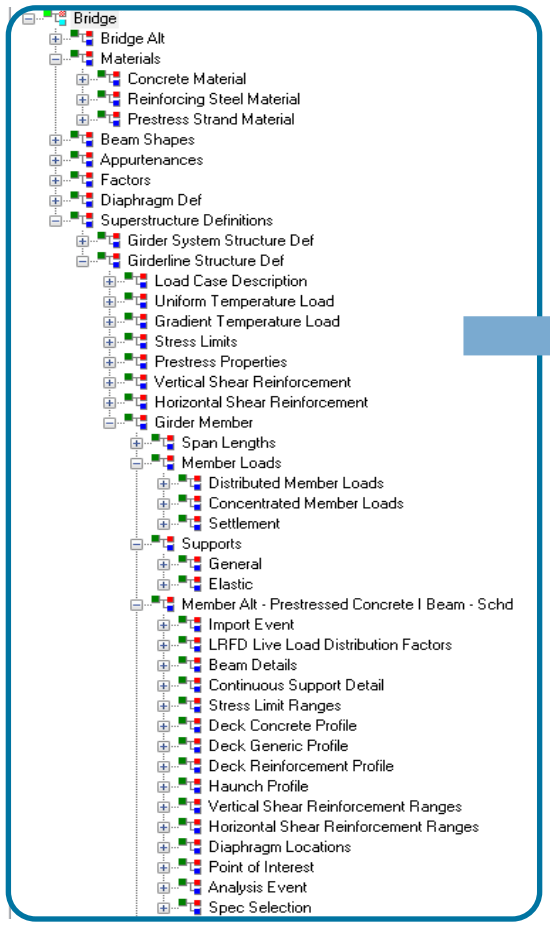


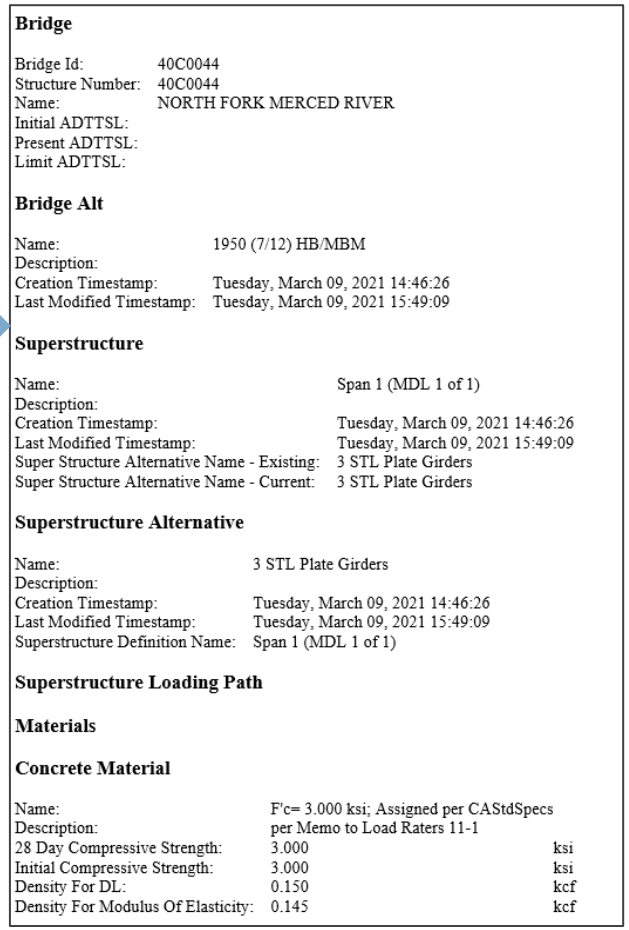




Background

- One of the most comprehensive reports is the BWS Report





Bridge

Bridge Id:	40C0044
Structure Number:	40C0044
Name:	NORTH FORK MERCED RIVER
Initial ADTTSL:	
Present ADTTSL:	
Limit ADTTSL:	

Bridge Alt

Name:	1950 (7/12) HB/MBM
Description:	
Creation Timestamp:	Tuesday, March 09, 2021 14:46:26
Last Modified Timestamp:	Tuesday, March 09, 2021 15:49:09

Superstructure

Name:	Span 1 (MDL 1 of 1)
Description:	
Creation Timestamp:	Tuesday, March 09, 2021 14:46:26
Last Modified Timestamp:	Tuesday, March 09, 2021 15:49:09
Super Structure Alternative Name - Existing:	3 STL Plate Girders
Super Structure Alternative Name - Current:	3 STL Plate Girders

Superstructure Alternative

Name:	3 STL Plate Girders
Description:	
Creation Timestamp:	Tuesday, March 09, 2021 14:46:26
Last Modified Timestamp:	Tuesday, March 09, 2021 15:49:09
Superstructure Definition Name:	Span 1 (MDL 1 of 1)

Superstructure Loading Path

Materials

Concrete Material

Name:	F'c= 3.000 ksi; Assigned per CAStdSpecs	
Description:	per Memo to Load Raters 11-1	
28 Day Compressive Strength:	3.000	ksi
Initial Compressive Strength:	3.000	ksi
Density For DL:	0.150	kcf
Density For Modulus Of Elasticity:	0.145	kcf

Superstructure Definitions

Girder System Structure Def

Name:	Span 1 (MDL 1 of 1)
Description:	
Creation Timestamp:	Tuesday, March 09, 2021 14:46:26
Last Modified Timestamp:	Tuesday, March 09, 2021 15:49:09
Number Of Girders:	3
Number Of Spans:	1
Girder Spacing Display Type:	Perpendicular

Span Lengths

Span	Length (ft)
1	59.0000

Load Case Description

Name	Description	Load Type	Stage Name	Load Application Time (Days)
DC1	DC acting on non-composite section	D,DC	Non-composite (Stage 1)	
DC2	DC acting on long-term composite section	D,DC	Composite (long term) (Stage 2)	
DW	DW acting on long-term composite section	D,DW	Composite (long term) (Stage 2)	

Structure Framing Plan Details

Support Skew

Support Number	Skew Degrees	Frame Connections Indicator
1	0.0000	FALSE
2	0.0000	FALSE

Girder Spacings

Bay Number	Start Spacing ft	End Spacing ft
1	4.5000	4.5000
2	4.5000	4.5000

Diaphragm Locations

Bay Number: 1

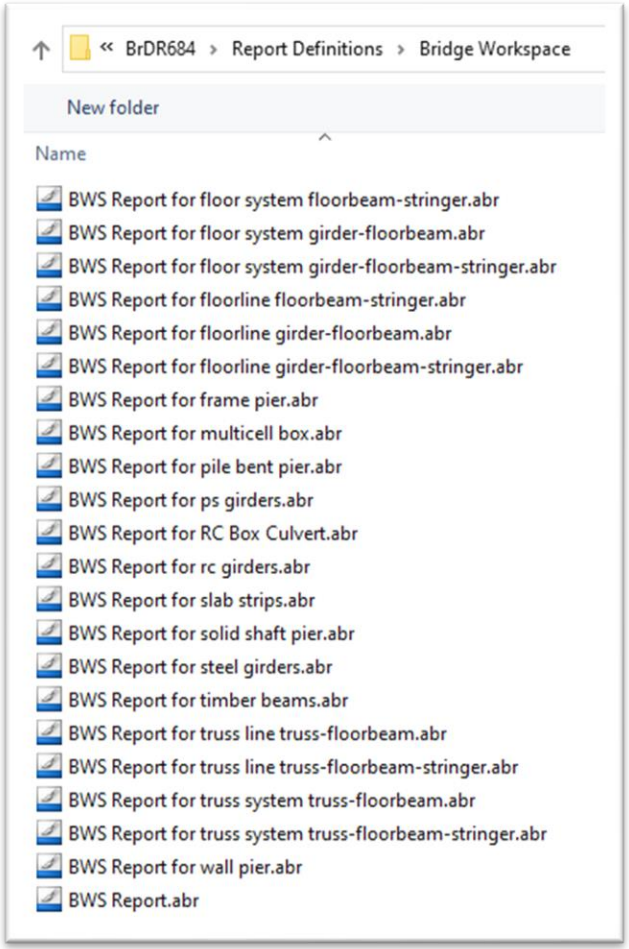
Right Member Distance (ft)	Left Member Distance (ft)	Number of Spaces	Spacing (ft)	Weight (kip)
0.00	0.00	1	0.00	0.1125
0.00	0.00	2	19.67	0.1125
59.00	59.00	1	0.00	0.1125

Bay Number: 2

Right Member Distance (ft)	Left Member Distance (ft)	Number of Spaces	Spacing (ft)	Weight (kip)
0.00	0.00	1	0.00	0.1125
0.00	0.00	2	19.67	0.1125
59.00	59.00	1	0.00	0.1125

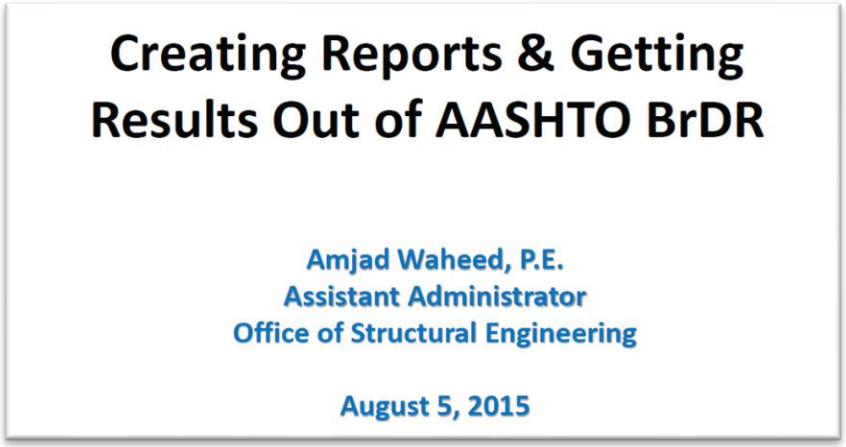
Background

- BWS Report can be customized
- Vendor provided standard BWS report templates for various bridge types
- Vendor also provided Crystal Report Tool



Background

- Amjad Waheed presented to User Group in 2015 on the reporting features available in BrDR at that time



Report Generation Tool – Why?

- Not all of 2013 requests were implemented
- With current reporting features, users must piece together separate outputs and reports to produce a comprehensive report
- Formatting among various analysis results, BWS report, and Spec Articles are not consistent
- Section properties, Spec Checks, etc must be generated separately and combined into one document

Report Generation Tool – Why?

- Formatting of existing reports are not efficient, a lot of white space exists, making the reports very lengthy
- Reporting features are not consistently presented for different structure types in BrDR
- Crystal Report Tool is not a royalty free software – requires separate purchase by state agencies, additionally it is being sunset.

Report Generation Tool – Why?

- State agency workarounds
  - Create custom reports, using cut/paste and in-house templates to combine existing reporting features in BrDR
  - Consumes a lot of time, especially updating the custom reports with each new release of BrDR

Report Generation Tool – Why?

- **Current Report TAG**
  - **Goal: Prepare mock-ups for the content and formatting requirements for a comprehensive and easy to use report generation tool**
  - **13 members**

Name	Role
Johnson, Michael	Idaho TD, Chair
Ruby, Jeff	Kansas DOT, Vice Chair
Trees, Geoff	BrDR Contractor
Albert, Joseph	New York State DOT
Bucci, Mark	Louisiana DOTD
Chernioglo, Igor	California DOT
Huda, Ratan	New York State DOT
Patria, Christopher	Connecticut DOT
Paulson, Steven	Tennessee DOT
Smith, Mary	Montana DOT
Thompson, Todd	South Dakota DOT
Waheed, Amjad	Ohio DOT
Wang, Cindy	Ohio DOT

Report Generation Tool - Concept

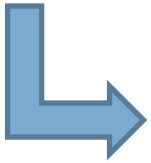
- Create a REPORTS ribbon within the Bridge Workspace in the Modernized BrDR software
- Five buttons within the ribbon to generate various reports
- BrDR will have several standard templates to generate reports
- "Report Template Editor" will also be provided to create/modify/save report templates for user customized reports
- Data will be presented in tabular format, with capability for user to add comments(options being investigated), titles, and graphics to complete the report.

Note:
All graphics are conceptual

Report Generation Tool - Format

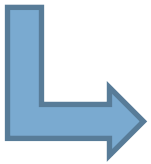
1. Bridge Level Report

2. Superstructure Level Report



One for each different superstructure type within the bridge

3. Member Level Report

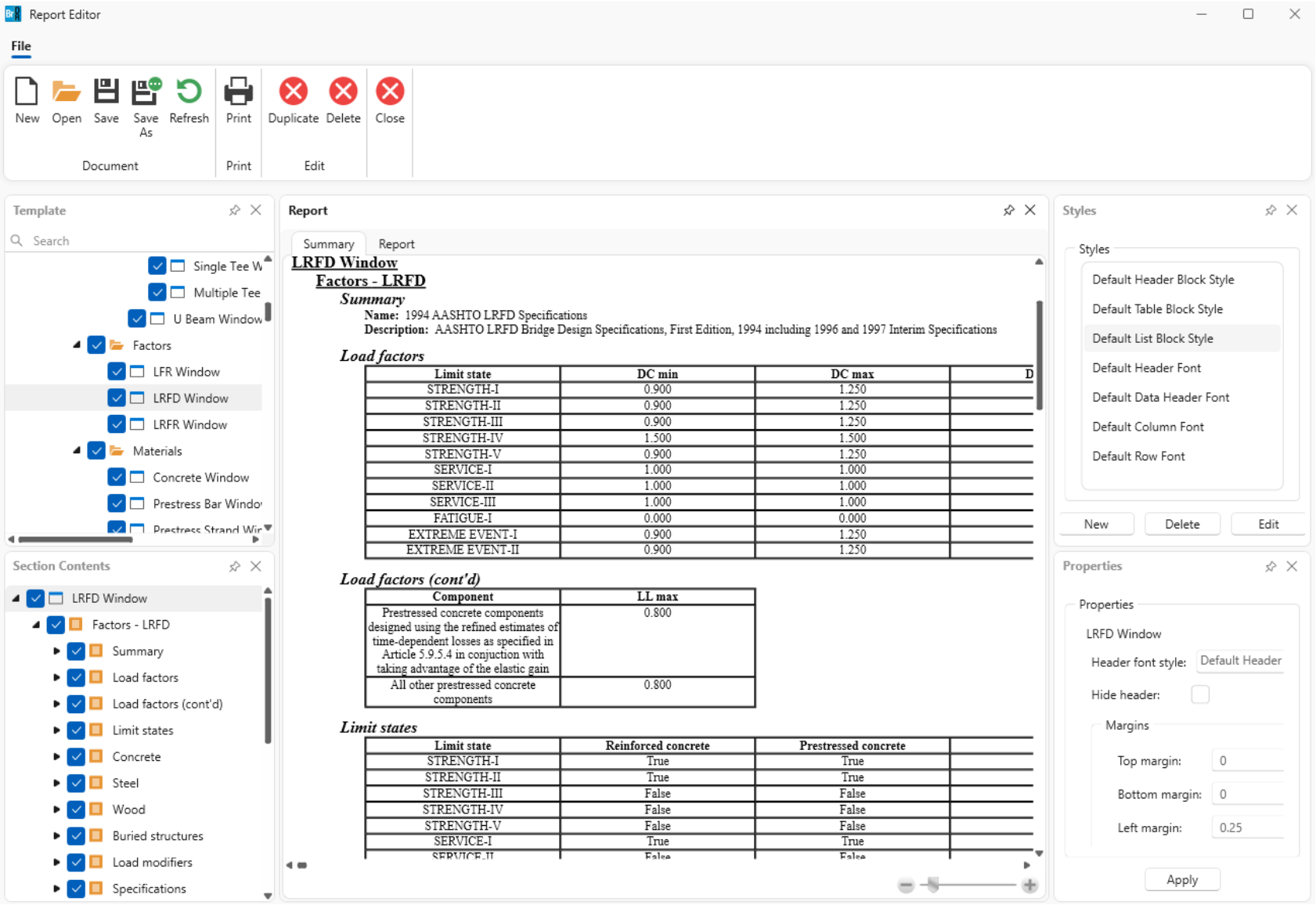


One for each different member type within the superstructure

Report Template Editor

- Use Report Template Editor to customize reports
  - Left side of screen shows available components to be included in your report.
  - Right side of screen shows the style editing and font properties to be able to customize the look of your report.
  - Middle of the screen is the preview for the individual component and the entire compiled report for the components you have selected.

Report Template Editor

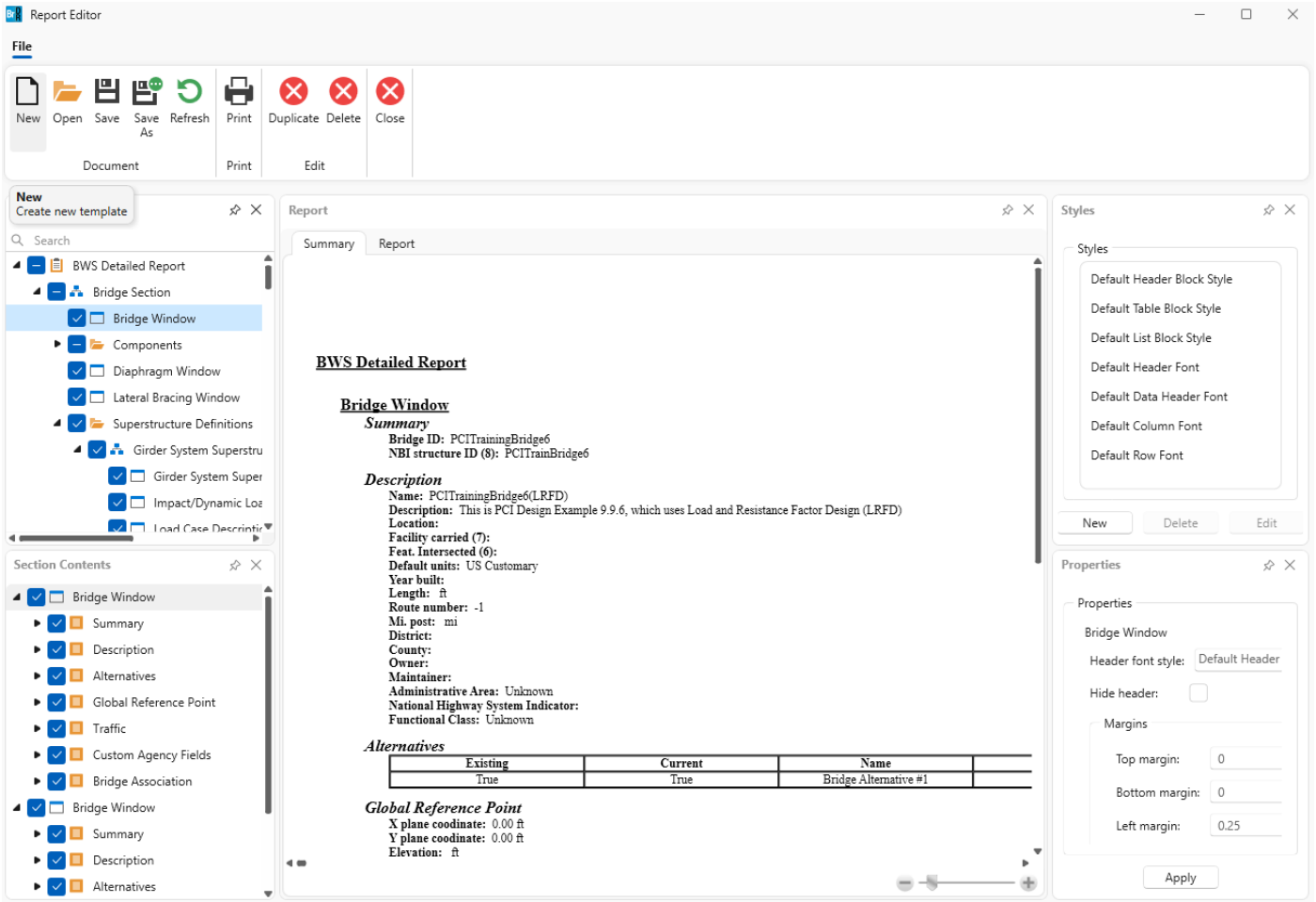


Bridge Level Report

- Input Data *(Phases 1 & 2)*
  - General Bridge Information, location, etc.
  - Number of structures, traffic information
  - FE Model
- Output Data *(Future Phases)*
  - Analysis results
  - Design summary
    (Controlling rating for entire bridge)
  - Rating summary

Bridge Level Report

User will have ability to reorganize and customize components of the report. Previews for individual report components will be available



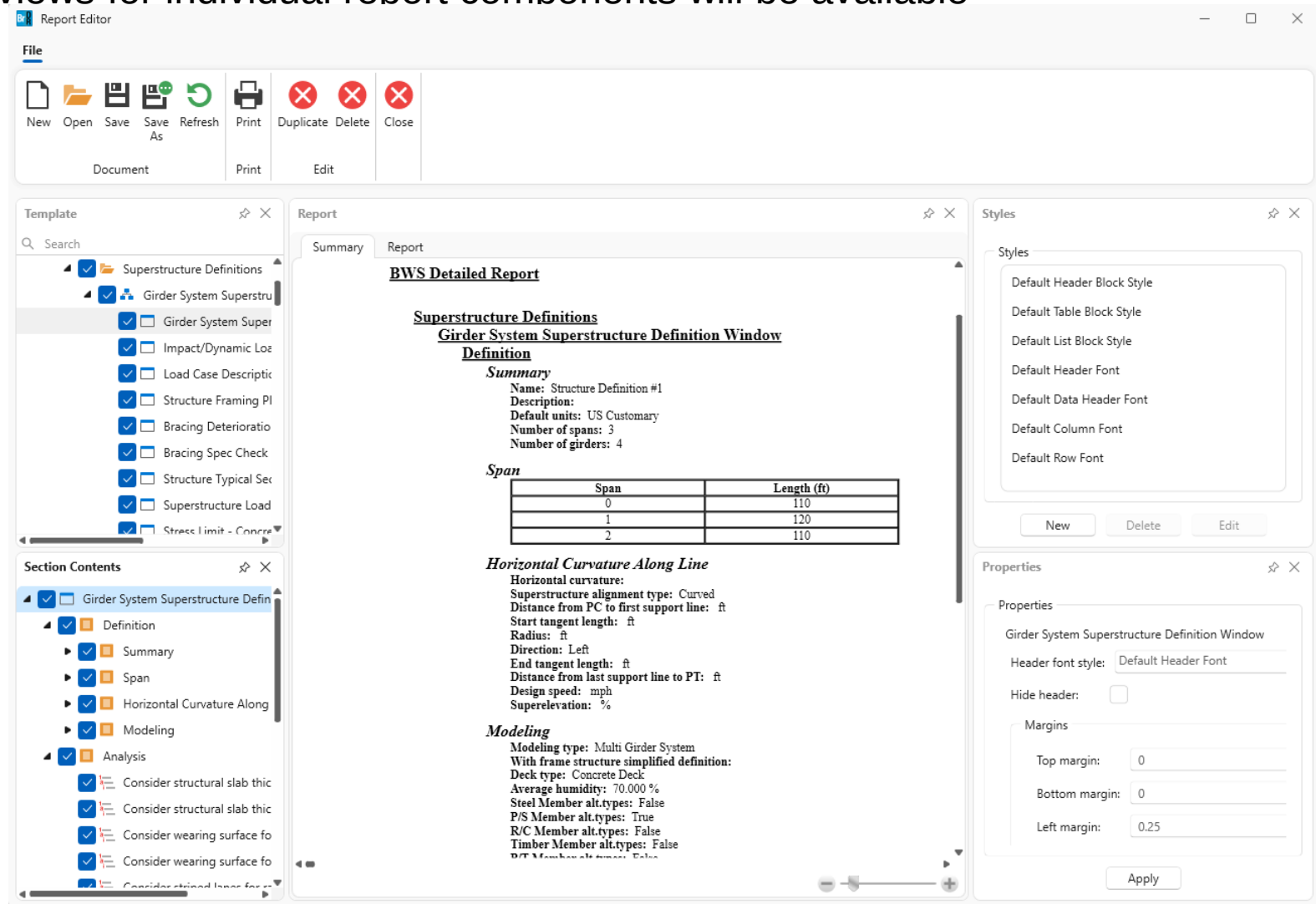
Superstructure Level Report

User will have ability to reorganize and customize components of the report.
Previews for individual report components will be available

- **Input Data*(Phases 1 & 2)***
  - **Load case description**
  - **Framing plan, typical section, etc.**
  - **Superstructure loads**
- **Output Data *(Future Phases)***
  - **Analysis results**
  - **Design summary**
  - **Rating summary**
    (Controlling rating for entire superstructure)

Superstructure Level Report

User will have ability to reorganize and customize components of the report.
Previews for individual report components will be available

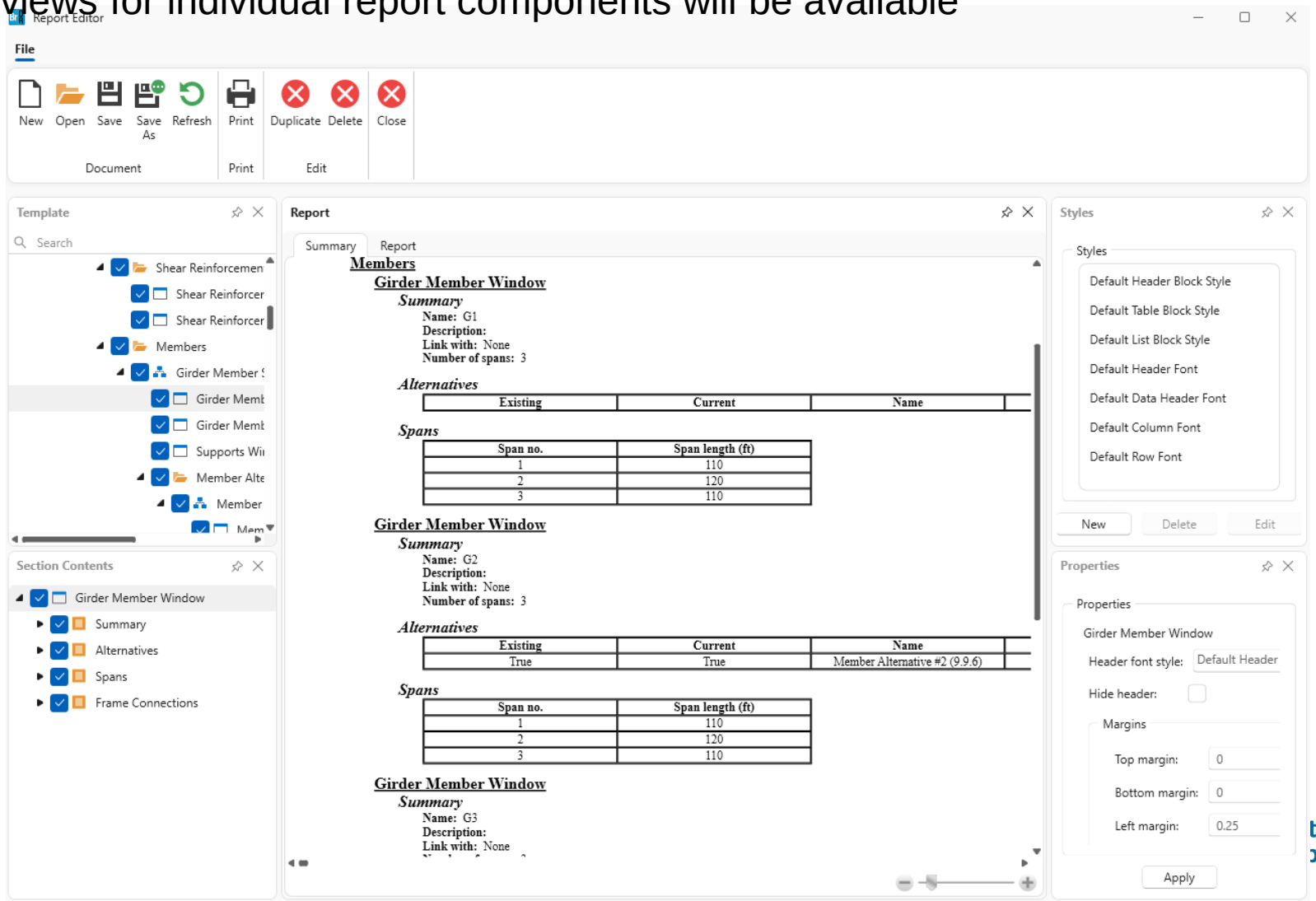


Member Level Report

- Input Data *(Phases 1 & 2)*
  - Member description
  - Girder profile, loads
  - Deck profile, Haunch profile, etc.
- Output Data *(Future Phases)*
  - Analysis results
    (DL and LL demands)
  - Design summary
    (Design ratios, spec checks)
  - Rating summary
    (Detailed rating for that member)

Member Level Report

User will have ability to reorganize and customize components of the report.
Previews for individual report components will be available



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Upcoming Releases

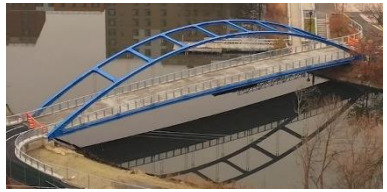
- Phase 2 of the Report Tool will be included in the BrDR 7.7 release
  - BWS Reports for remaining superstructure types
  - FE Model / Girder Member Alternative report
  - Microsoft Word report exporter and writer
- Phase 3 (Likely 7.8 but workplan not finalized)
  - LFR, LRFR, and LRFD Analysis Output Reports
  - All remaining currently supported engine reports excluding substructure reports
  - Advanced printing features
- Future Phases
  - BWS reports for substructure
  - Engine reports for substructure
  - Schematics and graphics

What are the next steps?

- Phase 2 to be rolled out in Version 7.7.
- Vendor has been and will continue to produce detailed mockups of reporting features for future phases.
- Report TAG and Vendor currently working together to customize report tool for future phases.

Do not worry!!

- All existing reporting features will remain in BrDR and BrR until the Report Generation Tool is complete and fully functional. (Future Phases)
- Existing reporting tools will be left as is and be moved to new REPORTS tab ribbon once the report tool is rolled out. (Future Phases)
- Existing reporting features will be sunset with new Report Generation Tool eventually. There will be adequate advance warning of when the existing report tool will be sunset. (Future Phases)
- Looking for input from users! This is the time to fine tune the report tool to tailor it for the specific needs of all users. Reach out to the Chair of the Report TAG or submit a ticket to JIRA with your comments and/or suggestions (Mike Johnson).



Thank You!

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