16 Sessions: 2024 Virtual Workshop

A Virtual Workshop series featuring Carlson Software training for surveying, surface modeling, construction takeoff and civil design.

The 2024 Virtual Workshops bring together practical Carlson demonstrations for surveyors, civil engineers and construction professionals. Jennifer DiBona, Doug Aaberg, Mark Long and Bruce Carlson overview Carlson Software, Survey and GIS, point clouds and Photo Capture, Civil and Hydrology, Precision 3D and the Takeoff Suite. Later sessions go deeper on advanced Field-to-Finish, SurvNet least squares with Donnie Stallings, surface modeling and advanced civil and hydrology design.

Key Topics:

- Carlson setup, project organization, Civil 3D and LandXML imports, deed entry and lot layout
- Carlson GIS data imports, imagery, feature attributes and field collection
- Carlson Point Cloud and Photo Capture workflows for drone imagery, LiDAR filtering and feature extraction
- Carlson Field-to-Finish code tables, automated linework, symbols and annotations
- Carlson Survey SNET least squares adjustment, residuals, blunder detection and accuracy checks

- Carlson surface modeling, breaklines, 3D polylines, pad grading and cut/fill analysis
- Carlson Takeoff, CADnet and Geotech workflows for PDF data, subgrades, topsoil and material quantities
- Carlson Civil, Hydrology and Precision 3D Hydro workflows for RoadNet, culverts, drainage and utility networks

Sessions In This Series:

- 1-1: Overview of Carlson Software, presented by Jennifer DiBona
- 1-2: Overview of Carlson Survey and GIS, presenter by Doug Aaberg
- 1-3: Overview of Carlson Point Cloud and Carlson Photo Capture, presented by Doug Aaberg
- 1-4: Overview of Carlson Civil and Hydrology, presented by Mark Long
- 2-1: Overview of Carlson Precision 3D Topo and Hydrology, presented by Bruce Carlson
- 2-2: Continuation of Overview of Carlson Precision 3D Topo and Hydrology, presented by Bruce Carlson
- 2-3: Overview of Carlson Takeoff Suite modules, presented by Jennifer DiBona
- 2-4: Continuation of Overview of Carlson Takeoff Suite modules, presented by Jennifer DiBona
- 3-1: Advanced Carlson Survey and Field to Finish, presented by Doug Aaberg
- 3-2: Continuation of Advanced Carlson Survey and Field to Finish, presented by Doug Aaberg
- 3-3: Adjusting YOUR Datasets with SurvNet, presented by Donnie Stallings
- 3-4: Continuation of Adjusting YOUR Datasets with SurvNet, presented by Donnie Stallings
- 4-1: Surface Modeling in Carlson Software, presented by Jennifer DiBona

- 4-2: Continuation of Surface Modeling, presented by Jennifer DiBona
- 4-3: Advanced Design with Carlson Civil and Hydrology, presented by Mark Long
- 4-4: Continuation of Advanced Design with Carlson Civil and Hydrology, presented by Mark Long

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These sessions were presented by Jennifer DiBona, Doug Aaberg, Mark Long, Bruce Carlson, or Donnie StallingsJennifer DiBona presents an overview of Carlson Software products and how they fit together.Doug Aaberg overviews Carlson Survey and GIS tools and workflows.



Doug Aaberg overviews Carlson Point Cloud and



Carlson Photo Capture.Mark Long overviews Carlson Civil and Hydrology design tools and workflows.Bruce Carlson overviews Carlson Precision 3D Topo and Hydrology tools.Bruce Carlson continues the Precision 3D Topo and Hydrology overview.Jennifer DiBona overviews the Takeoff Suite, including CADnet, Construction, Trench and GeoTech. Jennifer DiBona continues the overview of Carlson











Takeoff Suite modules.Doug Aaberg begins advanced Carlson Survey and Field-to-Finish coding techniques.Doug Aaberg continues advanced Carlson Survey and Field-to-Finish coding techniques.





Donnie Stallings shows how to adjust survey datasets with SurvNet.Donnie Stallings continues the session on adjusting survey datasets with SurvNet.Jennifer DiBona covers practical surface modeling techniques in Carlson Software.Jennifer DiBona continues practical surface modeling techniques in Carlson







Software.Mark Long presents advanced design with Carlson Civil and



Hydrology.

Mark Long continues advanced design with Carlson Civil and



Hydrology.



2024 Virtual Workshops: Session #4-4 Continuation of Advanced Design with Carlson Civil and Hydrology Presenter: Mark Long

A Virtual Workshop Using Carlson Software – Design Storm Sewer and Hydrology Models

This advanced Carlson Software virtual workshop, led by Mark Long, demonstrates integrated civil and hydrology design workflows using Carlson Hydrology, Sewer Network and Precision 3D Hydro. Participants learn how to model surfaces, design storm and sanitary systems and visualize drainage networks in 3D for more efficient, accurate engineering.

Key Topics:

- Precision 3D Hydro and Dynamic CAD integration
- Storm drainage and sewer network design in Carlson Hydrology
- Surface modeling, watershed analysis and runoff coefficients
- Pipe sizing, hydraulic grade line (HGL) setup and profile generation
- Utility network creation (water, conduit, laterals)
- Future Carlson Software enhancements (2026 release preview)

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This session was presented by Mark Long on 12/11/2024.

2024 Virtual Workshops: Session #4-3 Advanced Design with Carlson Civil and Hydrology
Presenter: Mark Long

A Virtual Workshop Using Carlson Software – Design Roads and Subdivisions with Carlson Civil

In this advanced Carlson Software virtual workshop, Mark Long demonstrates time-saving techniques for civil and hydrology design using Carlson Civil and Hydrology modules. The session focuses on efficient subdivision layout, road network design, templates, super elevation and grading transitions to enhance productivity and precision in engineering workflows.

Key Topics:

- Lot Network and Subdivision Layout Tools
- Road Network (RoadNet) Design and Settings
- Template Creation and Management
- Super Elevation and Transition Design
- Grading, Slopes and Stream Impact Minimization

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This session was presented by Mark Long on 12/11/2024.

2024 Virtual Workshops: Session #4-2 Continuation of Surface Modeling in Carlson Software
Presenter: Jennifer DiBona

A Virtual Workshop Using Carlson Software – Grade Sites with Surfaces and 3D Polylines

This virtual workshop continues the 2024 series on Carlson Software, focusing on surface modeling, pad grading and 3D polyline workflows. Participants learn practical grading techniques, daylight line creation and surface triangulation for real-world site design projects.

Key Topics:

- Pad grading and daylight line creation
- 3D polyline utilities and elevation editing
- Building pad and curb grading workflows
- Surface triangulation, contour generation and volume analy sis
- Cut/fill color mapping and contour cleanup

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ve been AI-generated and may contain errors.

This session was presented by Jennifer DiBona on 12/11/2024.

2024 Virtual Workshops: Session #4-1 Surface Modeling in Carlson Software Presenter: Jennifer DiBona

A Virtual Workshop Using Carlson Software – Build Accurate Surface Models

This session from *That CAD Girl's 2024 Virtual Workshop Series* introduces participants to surface modeling and grading workflows in Carlson Software. The training covers building existing ground surfaces, using breaklines, creating 3D polylines, merging surfaces and integrating GIS imagery for visualization.

Key Topics:

- Carlson Software surface modeling fundamentals
- Breaklines, boundaries and triangulation (TIN) creation
- Field-to-Finish automation and 3D polyline generation
- Contour labeling, line-type generation and cleanup
- Importing Google/NASA/USGS surfaces and merging TIN files

- Using GIS imagery and 3D flyovers for visualization

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This session was presented by Jennifer DiBona on 12/11/2024.

2024 Virtual Workshops: Session #3-4 Continuation of Adjusting YOUR Datasets with SurvNet
Presenter: Donnie Stallings

A Virtual Workshop Using Carlson Software – Review Least Squares Reports and Survey Control

This session from That CAD Girl's 2024 Virtual Workshop series features Donnie's in-depth training on Carlson's Least Squares Adjustment tools for survey data analysis. The workshop covers interpreting reports, identifying blunders, understanding statistical tests and applying best practices for boundary and DOT survey adjustments.

Key Topics:

- Carlson Least Squares Adjustment fundamentals
- Error analysis and residual interpretation
- Chi-square testing and blunder detection
- ALTA/NSPS accuracy standards
- Practical examples: boundary and DOT survey data

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This session was presented by Donnie Stallings on 12/10/2024.

2024 Virtual Workshops: Session #3-3 Adjusting YOUR Datasets with SurvNet Presenter: Donnie Stallings

A Virtual Workshop Using Carlson Software – Adjust Survey Networks with SurvNet Least Squares

This virtual Carlson Survey workshop, led by Donnie Stallings and hosted by That CAD Girl, introduced surveyors to the principles of least-squares adjustment and the use of Carlson Survey's SNET module. The session covered theory, workflow setup and practical examples combining total-station and GPS data.

Key Topics:

- Introduction to least-squares adjustment theory
- History and development of Carlson Survey’s SNET (Survey Net)
- Practical setup and configuration of SNET projects
- Combining total-station and GPS vectors
- Error analysis, blunder detection and ALTA/NC DOT workflows

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This session was presented by Donnie Stallings on 12/17/2024.

2024 Virtual Workshops: Session #3-2 Continuation of Advanced Carlson Survey and Field to Finish
Presenter: Doug Aaberg

A Virtual Workshop Using Carlson Software – Refine Field-to-Finish Survey Coding

This advanced Carlson Software workshop, led by Doug Aaberg, explored powerful Field to Finish tools and workflows for surveyors, including annotation automation, tree and pipe

features and special coding techniques. The session offered practical demonstrations and Q&A to help users streamline drafting, labeling and data collection processes.

Key Topics:

- Carlson Field to Finish advanced features
- Annotation and MText automation
- Tree and pipe feature configuration
- Special codes, offsets and templates
- Real-world Q&A on survey workflows

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This session was presented by Doug Aaberg on 12/10/2024.

2024 Virtual Workshops: Session #3-1 Advanced Carlson Survey and Field to Finish

A Virtual Workshop Using Carlson Software – Automate Survey Drafting with Advanced Field-to-Finish

This virtual training session, led by Carlson Software expert Doug Aaberg, provided an in-depth walkthrough of the Field to Finish feature in Carlson Survey. Attendees learned how to

automate drafting from field data, manage code tables, apply special codes and streamline survey workflows from data collection to finished CAD drawings.

Key Topics:

- Introduction to Carlson Field to Finish
- Creating and editing code tables
- Using special codes (begin, end, PC/PT, jog, rectangle, jo in point number)
- Managing layers, linework and symbols
- Handling point groups and reprocessing efficiency
- Q&A on practical field coding and data management

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This session was presented by Doug Aaberg on 12/10/2024.

2024 Virtual Workshops: Session #2-4 Continuation of Overview of Carlson Takeoff Suite modules
Presenter: Jennifer DiBona

A Virtual Workshop Using Carlson Software – Elevate 2D Plans into 3D Takeoff Models

This advanced Carlson Software workshop covered 2D-to-3D conversion tools, drawing cleanup and CADnet functions for converting and merging raster and vector PDFs. Attendees learned practical workflows for elevating contours, creating 3D polylines, digitizing plans and integrating geotechnical data into construction modeling.

Key Topics:

- Carlson Civil and Takeoff 2D-to-3D tools
- Elevate and 3D Data menus: contour and polyline elevation
- CADnet for PDF import, raster/vector conversion and image merging
- Geotech module for strata modeling and volume calculations
- Practical cleanup and modeling workflows

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This session was presented by Jennifer DiBona on 11/20/2024.