Mn/DOT MnCMAT Crash Analysis Application Help
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MnCMAT Crash Analysis Application

Login

User Login Dialog
The User Login Dialog provides access to the Crash Analysis application to authorized users. This is the first screen you see upon launching the application.

![Login Dialog]

Login
To log in, enter your email address in the Email box, and enter your password in the Password box. Then click OK.

New User
If you are new to the system, and need to request access, click the Request Access link.

Forgotten Password
If you cannot remember your password, enter your email address in the Email box, and click the I Forgot My Password link.

Request Access Dialog
This dialog provides new users with a form for applying for access to the Crash Analysis application.
Enter your email address in the Email box.

Choose your password and enter it in the Password box; then re-type it into the Confirm Password box.

Choose your Security Question from the drop-down list of questions, then enter the answer in the Answer box.

Provide your First and Last Name, Agency/Organization, and Additional Contact Info in the boxes provided.

Click OK to submit the request access information; click Cancel to return to the previous dialog.

**Forgotten Password Dialog**
This dialog displays your email address and your Security Question. Enter the answer to your Security Question in the Answer box and click OK. To go back to the previous dialog, click Cancel.
Create/Open Project
When you begin a Crash Analysis session, the system will prompt you to create a new project or open an existing project. If you are using the application for the first time, you will create a new project. This functionality can also be accessed during a Crash Analysis session through the Project Toolbar.

Create/Open Project Dialog
Click on the Create New Project button to launch the new Project Dialog.

Click on the Open Existing Project to launch the Open Project Dialog.

Select the Name of a Recent Project and then click on Open Selected Project button to open an existing Project.

New Project Dialog
The New Project Dialog allows users to create a New Project based on County, Mn/DOT District, Tribal Government, or State. Details of this can be found in the Project Toolbar Section of this document.
Open Project Dialog
The Open Project Dialog allows users to create an Open a Project that they have currently saved. Details of this can be found in the Project Toolbar Section of this document.
Open Project Dialog
Project Toolbar
The Project Toolbar provides tools to create, open, and save Crash Analysis projects.

Create New Project

Click the Create New Project button to begin with a new project. The New Project dialog window will open, and the application will prompt you to select the work area for the project. The work area can be a selection of counties, a selection of MnDOT districts, or the entire state.

The work area for the current project can be selected using the three selection buttons at the upper right of the dialog: County, Mn/DOT District, Tribal Government, and State.
County

**County Work Area Button**

Click the County button to select by county. You can click on the map to select/unselect counties, or you can click the name of desired counties in the list at the left side of the panel. To quickly select all counties or clear the selected counties, use the Select All or Clear All buttons at the bottom of the panel.

MnDOT District

**Mn/DOT District Button**

Click the MnDOT District button to select by District. You can click on the map to select/unselect districts, or you can click the name of desired districts in the list at the left side of the panel. To quickly select all districts or clear the selected districts, use the Select All or Clear All buttons at the bottom of the panel.
Tribal Government

Click the Tribal Govt button to select by Tribal Government. You can click on the map to select/unselect Tribal Government Areas, or you can click the name of desired Area in the list at the left side of the panel. To quickly select all districts or clear the selected districts, use the Select All or Clear All buttons at the bottom of the panel.

State

Click the State button to select by State. You can click on the map to select/unselect the state, or you can click the name of the state in the list at the left side of the panel.
Set as Default Work Area

When you have selected the desired work area, you have the option to make the work area the default selection each time you open the application. To do this, click the Set as Default Work Area button at the bottom of the dialog.

Select All

The Select All button allows the selection of all the features in the chosen work area.

Clear All

The Clear All button will unselect any features that have been selected for a chosen Work Area.
Open Existing Project

The Open Project dialog shows a list of Available Projects and the date they were created and last modified.
Click the desired project name to view additional information about the project, including the name of the person who created the project and the project description.

Click OK to open the selected project.

You can also delete projects from this dialog by clicking a project name and clicking the Delete Project button.

To exit this dialog without opening a new project, click Cancel.

**Save Current Project**

Click the Save Current Project tool to save your current session. The Save Project dialog allows you to enter a Project Name and Description. Click OK to Save the Project, and to return to your project without saving, click Cancel.

**Project Preferences**

The Project Preferences tool allows you to control the look and feel of the Crash Analysis application. You can set the following preferences:
- Default Stack Angle - in 5-degree increments
- Default Buffer Distance - in meters, feet, miles, or kilometers
- Default Stack Group Distance - in meters, feet, miles, or kilometers
- Selected Crash Point Symbol - change the fill and outline colors as well as the symbol and size
- Unselected Crash Point Symbol - change the fill and outline colors as well as the symbol and size. Note that the Unselected Crash Points are Off by default.

![Preferences Dialog](image)

**Project Preferences Dialog**

**Account Info**

Additionally, you can change your Account Information by clicking the Account Info button. All of the user information is displayed and is updatable in this dialog. After any changes are made, click the OK button.
You can change your Password by clicking the Change Password button. Once a new password has been entered and confirmed, click the OK button.
**Make Default**

*Make Default Button*

If you make changes and click OK, the changes will be in effect for the current project; if you click the Make Default button, the preferences will become the default for any projects you create.

**Help**

*Help Button*

Clicking the Help button will launch the help system for the MnCMAT Application
Map and Project Widgets

Project Info Widget
This widget displays information about the current project, including name, whether a filter is currently applied, and selection count. You may toggle the display of this widget by clicking the arrow in the upper right.

![Project Info Widget](image1.png)

Overview Map Widget
This widget displays an overview map of the current map display area. You may toggle the display of this widget by clicking the arrow in the upper right.

![Overview Map Widget](image2.png)

Zoom Slider
On the left side of the map display, the zoom slider shows your current zoom level. There are fourteen zoom scales at which the map can be displayed, ranging from 1:8,000,000 to 1:1,000. You can zoom in one scale level by clicking the plus button at the top of the scale bar; you can zoom out one scale level by clicking the minus button. Additionally, you can dynamically select the zoom level by clicking and dragging the zoom pointer to the desired zoom level.
Scale Bar
The Scale Bar appears in the lower left corner of the map. It will display the current map units dynamically based on the map scale.

Aerial Photos Toggle
Aerial photos can be toggled on or off using the button on the upper left of the map display. There are three options of aerial photography available for viewing in the application which are selected using the drop-down list: Farm Service Agency 2008, Farm Service Agency 2003, and 1998 Digital Orthophoto Quads.
Map Toolbar

There are a variety of ways to navigate the map display using the tools on the Map Toolbar.

**Zoom In**

![Zoom In Button]

The Zoom In tool allows you to zoom in on the map display in one of two ways. You can make a single click to zoom in to the next zoom level, or you can click and drag a box to zoom in dynamically. Note: if your mouse is equipped with a scroll wheel, you can zoom in using the scroll wheel regardless of the current tool.

**Zoom Out**

![Zoom Out Button]

The Zoom Out tool allows you to zoom out on the map display in one of two ways. You can make a single click to zoom out to the next zoom level, or you can click and drag a box to zoom out dynamically. Note: if your mouse is equipped with a scroll wheel, you can zoom out using the scroll wheel regardless of the current tool.

**Pan**

![Pan Button]

The Pan tool allows you to click and drag the map display without changing the zoom scale. If you make a single click, the map will re-center at the chosen point. You can also click and drag to dynamically pan the map display.

**Zoom Previous**

![Zoom Previous Button]

The Crash Analysis application remembers the recent zoom extents for your current session. Clicking the Zoom Previous button returns you to the last zoom extent in memory.
**Zoom Next**

*Zoom Next Button*

If you use the Zoom Previous tool to return to a previous zoom extent, you can then use the Zoom Next button to go to the next stored zoom extent in memory.

**Zoom Extent**

*Zoom Extent Button*

The Zoom Extent button zooms you to the full extent of your chosen work area.

**Measure**

*Measure Button*

The Measure tool allows you to get point-to-point distances on the map, as well as cumulative distance for the current measurement. To begin, click the Measure button. Then, click on the map. A text box will follow your cursor, displaying the current distance as well as the total distance in miles and kilometers. You can click as many points as you like. Double-click to end the measure tool.
Find Location

The Find Location tool allows you to search for locations using County, Municipality, Intersection, Crash Number, or XY Coordinate.

To begin, click the Find Location button. The Find Location dialog displays. Then, click on the desired search criteria bar (County, Municipality, etc.).

The method of searching will vary depending on the search criteria chosen; user input is entered using either drop-down menus or text boxes. For the Find Location options with a drop down menu, the choices are driven by the chosen work area.

To zoom to a location, enter or selection your desired search and click Zoom to Location Button. To close the dialog without zooming, click the Close Button.
Find County
One of the options in the Find Location is County. Click the arrow next to the drop down to choose a County.
**Find Municipality**
Click the Municipality bar and then choose the Municipality Name to Find.

![Find Location Dialog – Municipality](image)

**Find Intersection**
Click the Intersection bar and then choose the County as an area of interest. Once the County is chosen, choose Street 1. This will then populate Street 2, and then choose the desired street in Street 2.

![Find Location Dialog – Intersection](image)
Find Crash Number
To Find a Crash Location, a valid Crash Number needs to be entered.

Find Location Dialog – Crash Number

Find XY Coordinate
To Find an XY Coordinate, enter an X and Y value in meters.

Find Location Dialog – XY Coordinate
The Bookmarks tool allows you to save map extents so that you can return to them later. Click the Bookmarks tool, which will bring up the Bookmarks dialog box.

### Add Book Mark
To create a bookmark, enter a name for the new bookmark and click Add. The current map extent will be saved and the new bookmark will appear in the Saved Bookmarks list.

### Zoom to Bookmark
To Zoom to a bookmark, click the Zoom In icon next to the Bookmark Name.

### Delete Book Mark
To Delete a Bookmark, click the Delete icon next to the Bookmark Name.

### Save Map Image
Click the Save Map Image tool to export the current map display to a .jpg image file which can be opened or saved on your local computer. When the button is clicked, a new browser window opens and a dialog appears prompting for the image to be saved or opened.
Email Map Image

Click the Email Map tool to export the current map display to a .jpg image file and email it as an attachment to the address(es) you specify. You can enter multiple email addresses separated by a semi-colon in the Send To Email Address box. Then, enter an email subject in the Email Subject Line and enter any desired text for the body of the email in the Email Message box. Click OK to send. The system will display a confirmation message that the email has been sent.
Print Map

Select the desired Orientation (Landscape or Portrait) using the drop-down menu. Enter a Map Title, and any Map Notes in the text boxes. Then click OK to print.
A new browser window is then opened with the map embedded in a Crystal Report. From there, choose either the Export Button, which will allow the Map to be saved to a number of formats or the Print Button, which will generate a PDF that can be saved or printed.

Print Map Options Buttons

Print Map Window
Crash Data Toolbar

Select Crashes by Rectangle

Click the Select Crashes by Rectangle tool to begin. Then, click and drag on the map display to define a rectangle for selection. Once you have drawn a rectangle, you can either accept or cancel the rectangle.

Click Accept to proceed with the new selection set, or Cancel to discard the rectangle.

Select Crashes by Polygon
Click the Select Crashes by Polygon tool to begin. Then, click on the map display to begin drawing a polygon for selection. Continue to click points to place vertices of the polygon; double-click to complete the shape.

Then, you can accept or cancel the polygon; click Accept to proceed with the new selection set, or Cancel to discard the polygon.

**Select Crashes by Polygon**

**Select Crashes by Circle**

Click the Select Crashes by Circle tool to begin. Then, click on the map display to define the center point of a circle for selection. The center point will be shown with an ‘X’ on the map. Then, enter the desired radius in the box at the top of the map display and optionally choose the map units (feet, meters, kilometers, or miles).

Click the Accept button to draw the circle at the specified radius and make the selection, or click Cancel to discard the chosen center point.
Multiple locations for Circles can be clicked on the map.

**Select Crashes by circle**

**Select Crashes by Road Segment**

Click the Select Crashes by Road Segment tool to begin. Then, click on a road segment on the map display to define a segment for selection. You can hold the Ctrl button and click more segments to add them to the selection set. Then, enter the desired radius in the box at the top of the map display and optionally choose the map units (feet, meters, kilometers, or miles). Click the Accept button to create the selection based on the current radius and road segments, or click Cancel to discard the selection.
Select by Road Segment Options

Clear Spatial Selection

Click the Clear Spatial Selection tool to remove all selections on the map.

Crash Filters

Click the Crash Filters tool to launch the Crash Filters dialog. Here, you can specify attribute filters to apply to the crash data in your work area. To add a filter, click it in the Available Filters list at the left. Then click the arrow button in the center of the panel to add it to the Selected Filters list. You can repeat this process to add as many filters as you need for the particular session. In the Selected Filters list, each attribute is unchecked by default. Click the box next to a particular attribute to activate it.
you add multiple features, you can click the arrow symbol next to the filter name to minimize or maximize a particular filter. When you have finished setting up the filters, click OK to apply them.

**Crash Filters Dialog**
The Crash Filters Dialog is broken into two sections – Attribute Filters and Crash Case.

**Attribute Filters**
In the Attribute Filters portion of the dialog, the Filters are broken out between Location and Attributes. The Location Filters allow users to Filter Crash Points based on a spatial entity. The Attribute Filters allow the Filtering of Crash Points based on Business Attributes.

To select a type of Filter to use, double-click the Filter in the Available Filters column. This will move the Filter and available Filter options (based on the Work Area) to the Selected Filters column. Filters can then be checked and unchecked in order to apply them.

To Remove a Filter, click the “X” on the desired Filter to remove in the Selected Filters Column. The Arrow in the Selected Filters will minimize and maximize the Filter List.
**Crash Case Number Filters**

In the Crash Number portion of the dialog, enter a valid Crash Number of the Work Area. If the Crash Number is not present in the Work Area that is being used, no results will be found.

![Crash Case Number Filter](image)

**Show Crash Data**

Click the Show Crash Data tool to launch the Crash Data Display dialog. This panel defaults to the Data Grid view which provides a look at the attribute data for the selected records. The second view of the data is by Crash Number.

Clicking on the Tab in the dialog toggles between the two Data Displays.
Crash Data Display – Data Grid View Dialog

Crash Data Display – Details View

Crash Data Display – Details View
In the Crash Data Display – Details View – a number of options for displaying or using the data are available.
Show Database Values

By checking or un-checking this button, the Data Aliases or Database Values will be displayed in the Data Grid.
Lock Left Columns

Increasing or Decreasing the number of columns in the option allows the data to be scrolled in the Data Grid, while those columns that are locked do not move.

Data Grid Column Locked and Scrolled

Zoom to Highlighted Crash

By clicking the Zoom to Highlighted Crash Button, the Map will zoom to the location of the crash that has been selected in the Data Grid.
For performance reasons, results in the Data Grid are paged. To navigate through the results, the Paging Results options can be used.

The First button moves the records to the first page of results.

The Prev button moves the records to the previous page of results.

The X to XXX of XXXX displays the records that are present within the Data Grid.

The Next button moves the records to the next page of results.

The Last button moves the records to the last page of results.

The Display XXX records allows the choice of paging records 100, 500, or 1000 results at a time.

**Crash Data Display – Crash Details View**

Choosing the Crash Details View Tab allows a different view of the Crash Data. The orientation of the results is different and the Lock XX Columns option is removed, but the remainder of the dialog is the same as the Data Grid Display.
Export Crash Data

The Export Crash Data Button allows the currently selected features to be exported for use outside the MnCMAT Application. The Dialog allows for two options for exporting data (CSV and Shapefile). Choose the desired option and then click OK to begin the Export Process.

After clicking the OK button, a new Web Page opens, and once the process is complete, a new dialog for Saving or Opening the Data Export Results is presented.
The Crash Analysis application allows you to set the transparency of the crash point symbols. Simply move the slider to the desired transparency and the display will automatically adjust the crash point symbols.
Default Transparency Setting

Data at 85% Transparent
**Stacks Toolbar**

*Stacks Toolbar*

Crash Stacks are toggled on or off by clicking the button on the Stacks toolbar. The button is red when stacks are turned off and green then stacks are turned on. When turned on, stacks will display for the current selection set according to the current angle and transparency settings. Note: you must be zoomed in to the 1:8,000 zoom scale or closer to view stacks.
Stacks Toolbar with Stacks not able to be displayed because of zoom level

Angle

You can adjust the display angle of the stacks in five-degree increments from 0 to 180 degrees. Stacks will automatically update to show the new angle.

Stack Transpareny

The Crash Analysis application allows you to set the transparency of the crash stacks. Simply move the slider to the desired transparency and the display will automatically adjust the stacks.

Note

Please note that any Attribute Filters or Spatial Selections applied to the Crash Points are not applied to the Stacks.
Charts Toolbar

Chart Type Drop-down
Use this list to select the type of chart to create.

Add Chart

Click the Add Chart tool to create the selected chart. The Chart dialog will appear, and a chart widget will be added to the right side of the map display.

Chart Dialog
When you add a chart, the application displays the Chart dialog. You can set the title of the chart by typing in the Title box. You can also change the appearance of the chart, choosing from pie chart, bar chart, column chart, or line chart.
You can save the current chart as an image by clicking the Save Chart Image button. A new browser window opens and once completed, a dialog prompts for either Opening or Saving the Chart.
Print Chart

Click the Print Chart button to print the current chart. A new browser window opens with the Chart embedded in a Crystal Report that can then exported or printed.

Chart Types

The Chart Dialog allows for the Chart Type to be changed for displaying the data differently.
**Pie Chart**

Pie Chart Button

![Pie Chart Display](image)

**Bar Chart**

Bar Chart Button

![Bar Chart Display](image)
**Column Chart**

Column Chart Button

Column Chart Display

**Line Chart**

Line Chart Button

Line Chart Display

**Chart Widgets**

Each time you create a chart, a chart widget is also created and placed along the right side of the map display. Chart widgets provide an easy way to keep track of recently-used charts. You can hover the
mouse over a widget to get information about the chart, and you can click a chart widget to expand and view the full chart. You can also click the arrow button to hide or show a widget, or click the X button to remove a widget. Also, if you make changes to the crash selection set or data filters, all chart widgets will automatically update to reflect the new data set.

![Day of Month Chart](image)

**Chart Widget**

**Clear All Charts**

![Clear All Charts Button](image)

Click the Clear All Charts tool to remove all of the current Charts and Chart Widgets.
Reports Toolbar

Report Type Drop-down
Use this list to select the Report to generate.

Execute Report

Click the Execute Report tool to create the selected report.

Report Settings Dialog
When you create a report, the application displays the Report Settings dialog. You can set the Subtitle of the report and enter any notes into the text boxes. When you've finished typing, click OK to create the report.

Report Window
The report will open in a new browser window. The report content will be based on the type selected, and will also display the subtitle and notes that were entered in the report settings and will display your email address as the analyst who created the report.

In the report window, you can export data, print the report, set the zoom level, and find text strings using the tools at the top of the report.
Report Window

Top 100 Reports
Two new reports have been added to the system. The following section describes each of these reports.

Top 100 Road Segments
The Top 100 Road Segments report works off of an existing user selection. To generate results it counts the total number of selected incidents on each road segment and displays the highest counts in descending order. A road segment is a length of road extending from one intersection to the next.

Top 100 Intersections
The Top 100 Intersections report works off of an existing user selection. To support this report, all crashes within a specified distance are associated with an intersection. Therefore the report query only need to perform a simple grouping based on the intersection field and sort by count. By default it is set to 25 meters.