

Downtime

Downtime is a tool designed to aid SMS in manually tracking and attributing reasons to downtime in the operation, to replace the use of text editors for manual tracking (Notes, TextEdit...)

Downtime has three major components: the downtime entry area, the downtime table view, and the report controls.

Entry Area

Table View

Controls

The screenshot shows the 'Downtime' application window. The 'Entry Area' at the top contains fields for 'Start Time' (0000), 'End Time' (0000), 'Downtime Reason' (a text box with placeholder 'Enter downtime explanation...'), 'Total Time' (0.0), and 'Category' (Category...). An 'Add Downtime' button is below these fields. The 'Table View' in the middle is a table with columns: Start Time, End Time, Downtime Reason, Total Time, and Category. The 'Controls' at the bottom include a 'Remove Downtime' button, 'Options' (Flex Hour, Extended), 'Shift' (Day, Night, Hoot), and report buttons (Text, Spreadsheet).

Start Time	End Time	Downtime Reason	Total Time	Category

Adding Downtime - Entry Area

The Entry Area is where you will enter all the salient details for each downtime entry. It has labeled fields for each component of a downtime entry.

Start Time and **End Time** need to be in 24-hour format.

You cannot add a downtime entry to the table without first selecting a category - any or all of the other fields may be blank for the initial adding to the table, but for all entries that aren't **Notes**, you have to populate all the fields before generating a report.

If you add an entry with no **End Time** (like if you added some downtime before you knew when it would be over), it will display “**missing**” in the end time field. You must correct this (and assign the **Total Time**, once you have an **End Time**) before being able to generate a report.

The **Total Times** field is populated with the amount of hours (to the tenths place) between the **Start Time** and **End Time**, multiplied by one through seven (so you can assign a downtime entry for one crane, all seven cranes, or any number of cranes in between). If you click the **Total Times** box without having real **Start Times** and **End Times**, it will be populated with all zeroes, or the **Total Times** from the last entry you added.

You can, but you do not have to, use the **Downtime Reason** field to assign a category with prefix commands. There is one prefix command for each category. To use a prefix command, just make sure it is the first text in the **Downtime Reason** field, like the picture below.

Prefixes:

#mech - Mechanical

#op - Operational Scenario

#estop - E-Stop

#sys - System / Tech

#dead - Deadtime

#note - Note

The screenshot shows a window titled "Downtime" with a form for adding a new entry. The form has five main fields: "Start Time" (dropdown menu showing "0000"), "End Time" (dropdown menu showing "0000"), "Downtime Reason" (text input field containing "#mech"), "Total Time" (dropdown menu showing "0.0"), and "Category" (dropdown menu showing "Mechanical"). Below these fields is an "Add Downtime" button. At the bottom of the window, there is a section for "Options" and "Shift". The "Options" section includes a "Remove Downtime" button and checkboxes for "Flex Hour" and "Extended". The "Shift" section includes radio buttons for "Day", "Night", and "Hoot". There are also buttons for "Text" and "Spreadsheet".

There are six categories, listed above next to their prefix.

The **Note** category is special. You cannot select a **Total Time** for a **Note**. Because of this, you can create a **Note** with no times at all (a note general to the entire operation), or a note with just a **Start Time** (a note general to the hour), or a note with a **Start Time** and **End Time** (a note specific to a range of time.) Because you cannot select a **Total Time**, you have free range to attribute times to any **Note** as you would like with no worry that the time will be counted when calculating the total downtime values.

Notes with no times will be displayed at the end of the report, before the total values. Notes with times will be displayed with the hour of their **Start Time** in the report.

When you click “Add Downtime,” the program will not keep the #mech prefix (or any other prefix) inside the **Downtime Reason** text when adding it to the table.

The screenshot shows the 'Downtime' application window. At the top, there are five input fields: 'Start Time' (1800), 'End Time' (1812), 'Downtime Reason' (#mech Crane 8 swapping beam.), 'Total Time' (0.2), and 'Category' (Mechanical). Below these fields is an 'Add Downtime' button. The bottom section of the window contains a table with the same headers: 'Start Time', 'End Time', 'Downtime Reason', 'Total Time', and 'Category'. The table is currently empty. At the very bottom, there are 'Options' (Flex Hour, Extended) and 'Shift' (Day, Night, Hoot) checkboxes, along with 'Text' and 'Spreadsheet' buttons.

Start Time	End Time	Downtime Reason	Total Time	Category
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When you click “Add Downtime”, the details are moved to their own row in the downtime table view area.

The screenshot shows the 'Downtime' application window after clicking 'Add Downtime'. The form fields at the top are now: 'Start Time' (0000), 'End Time' (0000), 'Downtime Reason' (Enter downtime explanation...), 'Total Time' (0.0), and 'Category' (Category...). The 'Add Downtime' button is still present. The table below now contains one row with the data from the form: '1800', '1812', 'Crane 8 swapping beam.', '0.2', and 'Mechanical'. The bottom section with 'Options', 'Shift', and buttons remains the same.

Start Time	End Time	Downtime Reason	Total Time	Category
1800	1812	Crane 8 swapping beam.	0.2	Mechanical

Editing and Viewing Downtime - Table View

The fields in the table view can also be edited, if for example you made a typo in the **Downtime Reason**, wanted to change the **Start Time** or **End Time**, or mistakenly clicked the wrong multiple of **Total Times**, or need to change the **Category**. To edit the **Start Time, End Time, or Downtime Reason** for a table view entry, just double click the text. To edit **Total Times** and **Category**, click the arrows next to those values.

If you change a Start Time or End Time and it would change the sorting of an entry, it will re-sort immediately after exiting the text field that you changed. This may look like the value “disappeared,” but it only moved.

The table automatically sorts the downtime entries according to the following rules;

- Downtime entries are initially sorted by **Start Time**, low to high.
- If two entries have the same **Start Time**, they are sorted by the **End Time**, low to high.
- If a downtime entry stretches into the next hour (i.e., 0830-0942), then it will be sorted based on the **Start Time**.
- If an entry is a **Note** that **DOES NOT HAVE** a **Start Time**, it is sorted to the very end of the table, in the order it was added.
- If an entry is a **Note** that **DOES HAVE** a **Start Time**, it is sorted to the end of the hour for that **Start Time**, in the order it was added.

Configuring and Generating Reports - Control Area

Downtime can generate text and spreadsheet reports for all of the entries currently in the table view.

Before exporting a **Text Report** or a **Spreadsheet Report**, you have to first select the **Shift** you will be generating a report for.

If your **Shift** will include a flex hour, or go extended, be sure to check these boxes so that the program will display and count these downtimes.

Clicking the **Flex Hour** checkbox will generate the **Text Report** or **Spreadsheet** report with an extra hour before the shift start (0700-0800, 1700-1800). Clicking the **Extended** checkbox will generate the **Text Report** or **Spreadsheet Report** with two extra hours after the shift end (1700-1900, 0300-0500).

Fixing Malformed Data

To be able to export a report with Downtime, the data you provide the application has to meet certain criteria. These are:

- **All entries** must have a **Category** assigned from the list.
- If an entry **is not** a **Note**;
 - **Start Time** must be 4 digits and numeric only.
 - **End Time** must be 4 digits and numeric only.
 - **Downtime Reason** must **not** be empty.
 - **Downtime Reason** must **not** contain the strings '%\$ or &#~. Downtime uses these strings to delimit your save data, so you may not use them in your downtime fields.
 - **Total Time** must **not** be empty and **must** match one of the total times from the list.
- If an entry **is** a **Note**;
 - **Start Time** must be 4 digits and numeric only **or** empty.
 - **End Time** must be 4 digits and numeric only **or** empty.
 - **Downtime Reason** must **not** be empty.
 - **Downtime Reason** must **not** contain the strings '%\$ or &#~. Downtime uses these strings to delimit your save data, so you may not use them in your downtime fields.
 - **Total Time** **must** be empty.

If any of your values do not match the export criteria when you click the button to export a text or spreadsheet report, Downtime will display a warning indicating what is wrong. Downtime also checks your data every time you make an entry, but only displays the warning when you click a button or try to quit the application and data is malformed.

When data is missing entirely, the field will be highlighted yellow. When data is not allowed (like times with letters in them, or fields that contain the save characters), the text will turn red.