How to Use create_mat_file

The create_mat_file function generates a .mat file that is compatible with the MNG toolbox.
It allows you to save **channel data** and **comments** with precise timing information.

Syntax

create_mat_file(filename, 'channel', data, timestamps_or_fs_start, name, units,... 'comments', comment_strings, comment_timestamps)

- filename — name of the file to save (string, **without .mat extension**).
- 'channel' — keyword to start defining a data channel.
- data — numeric array of the channel's data points.
- timestamps_or_fs_start —
    - **Option 1**: An array of timestamps, same length as data,
    - **Option 2**: A 2-element vector: [sampling_frequency, start_time].
- name — channel name (character array).
- units — channel units (character array).
- 'comments' — keyword to start defining comments.
- comment_strings — cell array of comment texts.
- comment_timestamps — array of timestamps for each comment.

Key Features

- Add **multiple channels** by repeating the 'channel' block.
- Add **multiple comments** tied to specific timestamps.
- Automatically saves sampling information, channel metadata, and comments into the .mat file.

Example

% Create example data

data1 = sin(0:0.01:10); % Channel 1: sine wave

data2 = cos(0:0.01:10); % Channel 2: cosine wave

```
sampling_frequency = 100; % Hz
start_time = 0; % Start at 0 seconds

comments = {'Start of recording', 'Midpoint', 'End of recording'};
comment_times = [0, 5, 10];

% Create the .mat file
create_mat_file('example_data', ...
  'channel', data1, [sampling_frequency, start_time], 'Sine Wave', 'V', ...
  'channel', data2, [sampling_frequency, start_time], 'Cosine Wave', 'V', ...
  'comments', comments, comment_times);
```

This will create a file called example_data.mat containing:

- Two channels ("Sine Wave" and "Cosine Wave") with their data, sampling frequency, and units.
- Three comments at 0 s, 5 s, and 10 s.

Notes

- **Timestamps vs Sampling Frequency**: If you already have precise timestamps for each data point, pass them instead of [fs, start].
- **Multiple Channels**: You can define as many 'channel' sections as you need.
- **Optional Comments**: 'comments' are optional. If omitted, only channel data is saved.
- **File Saving**: The .mat file will be saved in the current working directory unless you provide a path in filename.