

So you want to write a load routine:

If you have data in a custom format not supported by our functions, then you need to write a custom load routine. This is not difficult, but there are certain guarantees your code must make in order for it to be compatible with our code. The TSlibrary functions expect certain information about Sessions, all of which must be passed back by your function. After getting all this information, our session loading routines will place it into the appropriate spot in the Experiment structure.

Your function must have the following syntax. It takes one argument, the filename to be loaded. It returns:

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[ SUCCESS , ExperimentID, SubjectID, Phase, Box, MatlabStartDate, Duration, TSdata, Notes, Weight, Program, FileReportedUnits ]
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All fields are required to be returned by your function.

All fields should default to [] if they are not found in the file, or not supported in your custom data format.

Success - This is a flag which should be true if the load was successful and false if it was a failure.

ExperimentID - This is the identification number of the Experiment. This is not a stringent requirement for your function to meet. However, if you do not provide it, you will receive a warning, and we will assume that it belongs to the current Experiment. If you provide the number but it does not match the current Experiment, you will receive a warning. We generally assume that you won't load the wrong Experiment's data.

SubjectID - This is the identification number of the Subject this data is for. This is a required field, because if we do not know what subject it is we don't know where to put the Session. If it is empty, it is an error. If the number returned is not listed in this Experiment's list of subjects, that is also an error.

Phase - This is the phase number that this Session represents. This is not stringently required, if the empty matrix is returned you will receive a warning and it will be set to 1.

Box - This is the number of the box in which the session was recorded. This is not stringently required, if the empty matrix is returned you will receive a warning and it will be set to 1.

MatlabStartDate - This is the date and time at which the Session started. This is a stringent requirement, if it is missing you will receive an error. This should be a matlab date number, e.g., something returned from the matlab function "datenum". Datenum will accept a vector containing [Y, M, D, H, M, S] (year month date hours minutes seconds), or a string representing a date. See help datenum for more information about this.

Duration - This is a totally optional field representing the duration of the trial, also as a matlab date number. If you do not record this in your data file, set it to [], and we will determine it by using the last time stamp in the TSdata and converting that time into seconds.

TSdata - This field should contain the actual raw data of your Experiment, in 2 column time stamped data format. Most of our functions assume this data format, but if you really have a need for it, you could use a different format and most things would continue to work just fine, especially if you still have a double matrix with time-stamps in the left column. In reality, no checks are made on this field, so you can put your data in whatever form is convenient for you. If you do this, be sure to provide a duration, or else there will be an error.

Notes - This totally optional field should hold a character array or cell string containing notes on this session. This is not critical in any way to the functioning of the TS library, and if you do not store it in your data file, you should return an empty character array (''), and it is easy to add your notes to the Sessions using the TSexperimentbrowser.

Weight - This, like notes, is a totally optional field, which should hold a number representing the weight of the subject at the time of the session. It is easy to add it later, return an [] if you do not want to add it.

Program - This is another optional field meant to keep a record of the program used to collect this data. It should hold a string or cell string. Return '' if you do not want to add it.

FileReportedUnits - This field is used if the datafile has a record of what units its timestamps are in. It is analogous to the InputTimeUnit field in the TSsetloadparameters function. If these 2 values do not match, a warning will be given, and the file will override the load parameter setting.

Your function will not need to access the Experiment structure at all, nor will it need to access or apply the loading parameters. You should NOT perform any unit conversions in this function, the routine which calls it will take care of that.

You should throw warnings and errors if the data file is flawed.

In general you can craft this function around the custom format you choose to use. Matlab has numerous routines for reading different formats, and is capable of reading just about anything. As long as you can get the Subject ID, Date, and TSData at a bare minimum, you can pretty much ignore the other fields and either hardcode them as empty or [1]. In fact, it is possible to encode the Subject ID, Date, and even other fields into the filename, and have the file just contain ascii, or binary, TSdata.

That said, these other fields are here for later convenience, and we encourage you to use a format that has enough information so that years later you will be able to figure out what the file was and what session it represents. If you provide them, then they will be readily accessible from the Experiment Browser window, and your records of the Experiment will be that much more complete.