

file_management.rs — Persistent File Storage

Handles all file I/O for the application. Files are stored inside Tauri's `app_data_dir`, which is platform-specific (e.g. `%APPDATA%\base_station` on Windows). Three subdirectories are used:

Directory	Purpose
<code>tasks/</code>	Saved task plan files
<code>images/</code>	Snapshots captured from video feeds
<code>maps/</code>	Imported map files

These directories are created automatically on startup by `ensure_storage_dirs_internal()`.

Commands

`save_task_file(file_name, data, directory)` Writes raw bytes to a file in the given subdirectory. Used to persist task plans.

`list_task_files(directory) → Vec<String>` Returns a list of filenames in the given subdirectory. Returns an empty list if the directory doesn't exist yet.

`read_task_file(file_name) → Vec<u8>` Reads a file from the `tasks/` directory and returns its raw bytes.

`delete_one_file(directory, file_name)` Deletes a single named file from the given subdirectory. Does nothing if the file doesn't exist.

`delete_all_task_files(directory)` Removes all files in a subdirectory by deleting and recreating it.

`import_map_file(directory)` Copies a file from an arbitrary path on the filesystem into the `maps/` subdirectory. Used when the operator imports a new map via the file picker. The original filename is preserved.

`save_snapshot(port, file_name)` Captures a single JPEG frame from an MJPEG stream (given by its localhost URL/port) and saves it to the `images/` directory as `{file_name}.jpg`. Used in the Science task to photograph samples. It scans the raw HTTP stream for the JPEG start marker (`0xFF 0xD8`) and end marker (`0xFF 0xD9`), extracting the first complete frame. Has a 5 MB safety limit per frame.

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