

SHOGUN-SYNC

Total War: Shogun 2 Multiplayer Synchronization Tool

System Errors & Troubleshooting Reference

Comprehensive 3-Digit Diagnostic Code Matrix (**Error** 001–034)

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Contents

1	Diagnostic Architecture	2
2	System Error Codes Matrix	2
3	Subsystem Classification & Troubleshooting	3
3.1	Filesystem & Saves (001, 002, 005, 006, 007, 008, 009, 018)	3
3.2	Compression & Memory Allocation (003, 004, 010, 011, 012, 013, 017)	4
3.3	Network Transport & Relay Protocol (014, 015, 016, 019, 020)	4
3.4	Inter-Process Communication & In-Game Overlay (021, 022)	4
3.5	Process Injection & Remote Execution (023, 024, 025, 026, 027, 028, 029)	4
3.6	Application Updates, Maintenance & Installation (030, 031, 032, 033, 034)	5

1 Diagnostic Architecture

Shogun-Sync employs a unified, 3-digit error classification scheme (**Error 001** through **Error 034**) across all C and C++ modules. When an unrecoverable condition or operational failure occurs, the application outputs a formatted diagnostic message:

Error <XXX>: <MESSAGE>

All error codes are deterministic, unique, and categorized across specific functional subsystems.

2 System Error Codes Matrix

Code	Identifier	Description
001	SAVE_NOT_FOUND	The target <code>.save_multiplayer</code> file was not found in the save directory.
002	FILE_WRITE_FAILED	Unable to open or write a file stream to disk.
003	COMPRESSION_FAILED	Zlib stream compression operation returned an error code.
004	COMPRESSION_INIT_FAILED	Zlib <code>deflateInit</code> failed to initialize the compression stream.
005	APPDATA_NOT_FOUND	The <code>%APPDATA%</code> environment variable is undefined or variable initialization failed.
006	LOCALAPPDATA_NOT_FOUND	The <code>%LOCALAPPDATA%</code> environment variable is undefined in the operating system.
007	INIT_FAILED	Could not create the hidden <code>.sync</code> metadata directories on disk.
008	SCAN_FAILED	Failed to open or enumerate the multiplayer save games directory.
009	CTRL_HANDLER_FAILED	Win32 console control handler failed to attach via <code>SetConsoleCtrlHandler</code> .
010	DECOMPRESS_INIT_FAILED	Zlib <code>inflateInit</code> failed to initialize the decompression stream.
011	DECOMPRESS_STREAM_FAILED	Zlib decompression error encountered during stream inflation.
012	DECOMPRESS_WRITE_FAILED	Failed to write restored uncompressed save data to the destination path.
013	DECOMPRESS_OPEN_FAILED	Could not open a compressed blob file for inflation.
014	HOSTNAME_FAILED	Windows Sockets failed to resolve the local machine identity.
015	CONN_FAILED	WebSocket connection to relay broker failed or timed out.
016	INVALID_PACKET	Received malformed packet or invalid path sequence across the network.
017	MEMORY_ALLOC_FAILED	Heap memory allocation (<code>malloc</code>) failed due to memory exhaustion.
018	COMMIT_FAILED	Failed to write commit manifest or update reference pointer (<code>refs/latest</code>).
019	RESYNC_RESTORE_FAILED	Failed to decompress a received save payload during Auto-Resync.

Code	Identifier	Description
020	INVALID_ARGUMENTS	Required command-line arguments are missing or malformed (e.g. room code or password).
021	SHARED_MEMORY_FAILED	Failed to initialize Win32 named shared memory mapping (<code>Local\ShogunSyncIPC</code>).
022	MEMORY_VIEW_FAILED	Failed to map view of IPC shared memory buffer (<code>MapViewOfFile</code>).
023	PROCESS_NOT_FOUND	Target game process <code>Shogun2.exe</code> is not currently running.
024	PROCESS_OPEN_FAILED	Failed to obtain process handle with <code>PROCESS_ALL_ACCESS</code> rights.
025	REMOTE_ALLOC_FAILED	Failed to allocate virtual memory in target game process (<code>VirtualAllocEx</code>).
026	REMOTE_WRITE_FAILED	Failed to write DLL path into target process memory space (<code>WriteProcessMemory</code>).
027	REMOTE_THREAD_FAILED	Failed to spawn remote execution thread in target process (<code>CreateRemoteThread</code>).
028	OVERLAY_NOT_FOUND	Target overlay DLL (<code>shogun_overlay32.dll</code>) was not found at specified path.
029	REMOTE_LOAD_FAILED	Injected overlay DLL failed to load in remote process (<code>LoadLibraryA</code> returned null).
030	UPDATE_CHECK_FAILED	Failed to query remote distribution server for latest version information.
031	UPDATE_DOWNLOAD_FAILED	WinINet failed to download updated binary or overlay payload from remote URL.
032	UNINSTALL_FAILED	Uninstaller failed to remove system environment variables or installation folders.
033	SELF_REPLACE_FAILED	Failed to execute atomic file replacement during in-place application update.
034	INSTALLATION_FAILED	Setup wizard failed to extract embedded resources or create desktop shortcuts.

3 Subsystem Classification & Troubleshooting

3.1 Filesystem & Saves (001, 002, 005, 006, 007, 008, 009, 018)

Errors related to finding, opening, reading, and writing game save files and CAS repository metadata:

- **Error 001:** Triggered when attempting a commit or synchronization before any multiplayer campaign save exists. Ensure at least one autosave or manual save exists in `%APPDATA%\TheCreativeAssembly\Shogun2\save_games_multiplayer/`.
- **Error 002:** File write stream failed. Check disk space and folder write permissions.
- **Error 005 & 006:** System environment variables `%APPDATA%` or `%LOCALAPPDATA%` are missing or inaccessible.
- **Error 007:** Permission denied when creating the hidden repository directory `.sync`.
- **Error 008:** Directory scanning failed. Confirm that the path exists and is not locked by an external process.

- **Error 009:** Failed to register console control signal handler via `SetConsoleCtrlHandler`.
- **Error 018:** Failed to record commit manifest or update pointer in `refs/latest`.

3.2 Compression & Memory Allocation (003, 004, 010, 011, 012, 013, 017)

Errors within the zlib streaming layer and runtime memory allocations:

- **Errors 003 & 004:** Occur during zlib deflate stream initialization or chunk compression.
- **Errors 010, 011, 012, 013:** Occur during inflate operations when expanding save payloads from disk or network streams.
- **Error 017:** Heap allocation (`malloc`) failed due to insufficient available memory.

3.3 Network Transport & Relay Protocol (014, 015, 016, 019, 020)

Multiplayer communication, WebSocket signaling, and save transfers:

- **Error 014:** Hostname resolution failed via `Winsock2`.
- **Error 015:** WebSocket connection to relay broker failed or timed out. Verify internet connectivity, firewall settings, and room credentials.
- **Error 016:** Malformed frame received, missing required 64-byte filename header, or path traversal sequence detected.
- **Error 019:** Client received binary save payload from host, but zlib stream inflation failed on write.
- **Error 020:** Command syntax error: required room code or password argument missing.

3.4 Inter-Process Communication & In-Game Overlay (021, 022)

Telemetry exchange between the host daemon and the injected Direct3D overlay:

- **Error 021:** Failed to create named shared memory mapping (`Local\ShogunSyncIPC`).
- **Error 022:** Failed to map view of shared memory buffer. Check permissions or ensure the primary synchronization session is active.

3.5 Process Injection & Remote Execution (023, 024, 025, 026, 027, 028, 029)

Dynamic injection of `shogun_overlay32.dll` into `Shogun2.exe`:

- **Error 023:** Target game process was not found in process snapshot. Ensure *Total War: Shogun 2* is running.
- **Error 024:** Failed to open process handle. Run the application with administrative privileges if the game runs elevated.
- **Error 025 & 026:** Virtual memory allocation or writing in the remote process space failed.
- **Error 027:** Remote thread creation failed via `CreateRemoteThread`.
- **Error 028:** The overlay DLL (`shogun_overlay32.dll`) is missing from the application directory.
- **Error 029:** Remote invocation of `LoadLibraryA` returned null, indicating the DLL failed its initialization routine.

3.6 Application Updates, Maintenance & Installation (030, 031, 032, 033, 034)

Automatic updates, self-replacement, and system deployment:

- **Error 030:** WinINet failed to check for software updates from remote repository.
- **Error 031:** Failed to download latest binary payload via HTTPS.
- **Error 032:** Uninstallation routine failed to clean user environment variables or file directories.
- **Error 033:** Atomic self-replacement failed during in-place upgrade.
- **Error 034:** Installation wizard (`ShogunSyncSetup.exe`) failed to extract embedded PE resources or register shortcuts.