@git.zone/tspm

no fuzz process manager.

- readme.md for @git.zone/tspm
- changelog.md for @git.zone/tspm

readme.md for @git.zone/tspm

TypeScript Process Manager — A robust, no-fuss process manager built for the modern TypeScript and Node.js ecosystem. Production-ready process management without the bloat.

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□□ What is TSPM?

TSPM is your production-ready process manager that handles the hard parts of running Node.js applications. Think PM2, but built from scratch for the TypeScript-first ecosystem with better memory management, intelligent logging, a clean daemon architecture, and native ESM support.

□ Key Features

- □□ **Smart Memory Management** — Tracks memory across entire process trees (parent + children), enforces limits, and auto-restarts on OOM
- □□ **Persistent Log Storage** — 10MB in-memory ring buffer per process, auto-persists to disk on stop/restart/crash
- □□ **Intelligent Auto-Restart** — Crashed processes restart with incremental backoff (1s → 10s), auto-stop after 10 consecutive failures
- □□ **File Watching** — Auto-restart on file changes for seamless development workflows
- □□ **Process Tree Tracking** — Monitors parent and all child processes as a unit — no orphans, ever
- □□ **Daemon Architecture** — Persistent background service that survives terminal sessions via Unix socket IPC

- □□ **Beautiful CLI** — Clean, informative output with table views, real-time log streaming, and search
- ⚡ **Zero Config** — Works out of the box; customize only when you need to
- □□ **Systemd Integration** — Run as a system service for production deployments with `tspm enable`
- □□ **Crash Log Reports** — Detailed crash reports with metadata, memory snapshots, and log history

□□ Installation

```
# Global install (recommended)
pnpm add -g @git.zone/tspm

# Or with npm
npm install -g @git.zone/tspm

# Or as a project dependency
pnpm add --save-dev @git.zone/tspm
```

□□ Quick Start

```
# Start the daemon
tspm daemon start

# Add a process
tspm add "node server.js" --name my-server --memory 1GB

# Start it
tspm start name:my-server

# See what's running
tspm list

# View logs
tspm logs name:my-server
```

```
# Stop it
tspm stop name:my-server
```

□□ CLI Reference

Targeting Processes

Most commands accept flexible process targeting:

Format	Example	Description
Numeric ID	`tspm start 1`	Direct ID reference
`id:N`	`tspm start id:1`	Explicit ID prefix
`name:LABEL`	`tspm start name:api`	Target by name

Use `tspm search <query>` to find processes by name or ID substring.

Process Management

`tspm add <command> [options]`

Register a new process configuration (without starting it).

Option	Description	Default
`--name <name>`	Process name	command string
`--memory <size>`	Memory limit (e.g. `512MB`, `2GB`)	`512MB`
`--cwd <path>`	Working directory	current directory
`--watch`	Enable file watching	`false`
`--watch-paths <paths>`	Comma-separated watch paths	—
`--autorestart`	Auto-restart on crash	`true`
`-i, --interactive`	Enter interactive edit after adding	—

```
# Simple Node.js app
tspm add "node server.js" --name api-server

# TypeScript with 2GB memory limit
```

```
tspm add "tsx src/index.ts" --name production-api --memory 2GB

# Dev mode with file watching
tspm add "tsx watch src/index.ts" --name dev-server --watch --watch-paths "src,config"

# One-shot worker (no auto-restart)
tspm add "node worker.js" --name batch-job --autorestart false

# Add + interactive edit
tspm add "node server.js" --name api -i
```

`tspm start <target>`

Start a registered process.

```
tspm start name:my-server
tspm start id:1
tspm start 1          # bare numeric id also works
```

`tspm stop <target>`

Gracefully stop a process (SIGTERM → 5s grace → SIGKILL).

```
tspm stop name:my-server
```

`tspm restart <target>`

Stop and restart a process, preserving its configuration.

```
tspm restart name:my-server
```

`tspm delete <target>`

Stop, remove from management, and delete persisted logs.

```
tspm delete name:old-server
```

`tspm edit <target>`

Interactively modify a process configuration (name, command, memory, etc.).

```
tspm edit name:my-server
```

`tspm search <query>`

Search processes by name or ID substring.

```
tspm search api
# Matches for "api":
#   id:3    name:api-server
```

Monitoring

`tspm list`

Display all managed processes in a table.

```
┌─────┬──────────────┬──────────┬───────┬────────────┬────────────┐
│ ID  │ Name         │ Status   │ PID   │ Memory     │ Restarts   │
├─────┼──────────────┼──────────┼───────┼────────────┼────────────┤
│ 1   │ my-app       │ online   │ 45123 │ 245.3 MB   │ 0          │
│ 2   │ worker       │ online   │ 45456 │ 128.7 MB   │ 2          │
│ 3   │ api-server   │ stopped  │ -     │ 0 B        │ 5          │
└─────┴──────────────┴──────────┴───────┴────────────┴────────────┘
```

`tspm describe <target>`

Detailed information about a specific process.

```
tspm describe name:my-server


# Process Details: my-server
# ──────────────────────────────────────────
# Status:       online
# PID:          45123
# Memory:       245.3 MB
# Uptime:       3600s
# Restarts:     0
#
# Configuration:
# ──────────────────────────────────────────
# Command:      node server.js
# Directory:    /home/user/project
```

```
# Memory Limit: 2 GB
# Auto-restart: true
# Watch:        disabled
```

`tspm logs <target> [options]`

View and stream process logs.

Option	Description	Default
`--lines <n>`	Number of lines	`50`
`--since <dur>`	Time filter (`10m`, `2h`, `1d`)	—
`--stderr-only`	Only stderr	—
`--stdout-only`	Only stdout	—
`--ndjson`	Output as newline-delimited JSON	—
`--follow`	Real-time streaming (like `tail -f`)	—

```
# View last 50 lines
tspm logs name:my-server

# Last 100 lines of stderr only
tspm logs name:my-server --lines 100 --stderr-only

# Stream logs in real time
tspm logs name:my-server --follow

# NDJSON output since 10 minutes ago
tspm logs name:my-server --since 10m --ndjson
```

Batch Operations

```
tspm start-all      # Start all saved processes
tspm stop-all       # Stop all running processes
tspm restart-all    # Restart all running processes
tspm reset          # ⚠ Stop all + clear all configs (prompts for confirmation)
```

Daemon Management

The daemon is a persistent background service that manages all processes. It starts automatically when needed.

```
tspm daemon start     # Start the daemon
tspm daemon stop      # Stop daemon + all managed processes
tspm daemon restart   # Restart daemon (preserves processes)
tspm daemon status    # Check daemon health + stats
```

System Service (systemd)

```
sudo tspm enable      # Install + enable as systemd service (auto-start on boot)
sudo tspm disable     # Remove systemd service
```

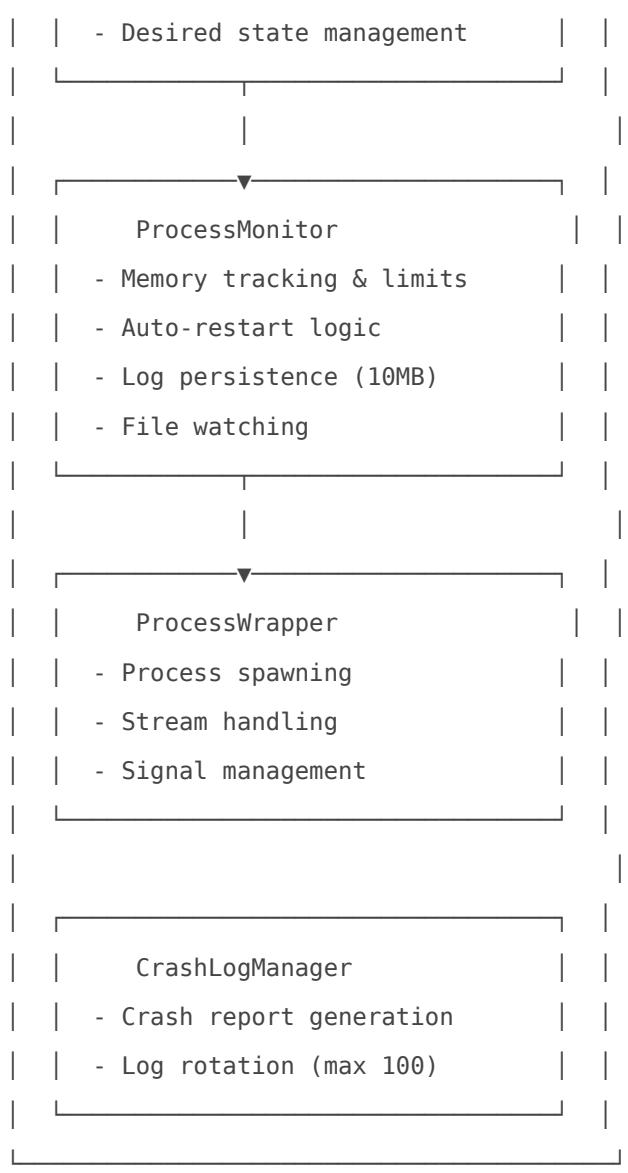
Version Check

```
tspm -v
# tspm CLI: 5.x.y
# Daemon: running v5.x.z (pid 1234)
# Version mismatch detected → optionally refresh the systemd service
```

□□ Architecture

TSPM uses a clean three-tier architecture:

```
┌──────────────────────────────────────────┐
│            CLI Interface                 │
│         (tspm commands)                  │
└──────────────────┬───────────────────────┘
                   │ Unix Socket IPC
┌──────────────────▼───────────────────────┐
│          TSPM Daemon                     │
│     (Background Service)                 │
│  ┌──────────────────────────────────┐    │
│  │     ProcessManager               │    │
│  │  - Configuration persistence     │    │
│  │  - Process lifecycle             │    │
```



Key Components

Component	Role
CLI	Lightweight client that sends commands to daemon via IPC
Daemon	Persistent background service managing all processes
ProcessManager	High-level orchestration, config persistence, state management
ProcessMonitor	Memory limits, auto-restart with backoff, log persistence, file watching
ProcessWrapper	Low-level process lifecycle, stream handling, signal management
CrashLogManager	Detailed crash reports with metadata and log history

□□ Programmatic API

TSPM exposes a typed IPC client for programmatic use:

```
import { TspmIpcClient } from '@git.zone/tspm/client';

const client = new TspmIpcClient();
await client.connect();

// Add a process configuration
const { id } = await client.request('add', {
  config: {
    command: 'node worker.js',
    name: 'background-worker',
    projectDir: process.cwd(),
    memoryLimitBytes: 512 * 1024 * 1024,
    autorestart: true,
  },
});

// Start it
await client.request('startById', { id });

// Get process info
const { processInfo } = await client.request('describe', { id });
console.log(`Status: ${processInfo.status}, Memory: ${processInfo.memory} bytes`);

// Get logs
const { logs } = await client.request('getLogs', { id, limit: 100 });
logs.forEach(log => console.log(`[${log.timestamp}] [${log.type}] ${log.message}`));

// Stop and remove
await client.request('stop', { id });
await client.request('delete', { id });
await client.disconnect();
```

Module Exports

Export Path	Purpose
`@git.zone/tspm`	Main entry point (re-exports client + daemon)
`@git.zone/tspm/client`	IPC client (`TspmIpcClient`, `TspmServiceManager`)
`@git.zone/tspm/daemon`	Daemon entry point (`startDaemon`)
`@git.zone/tspm/protocol`	IPC type definitions

□□ Advanced Features

Restart Backoff & Failure Handling

TSPM handles crashed processes with intelligent backoff:

- **Incremental delay**: Grows linearly from 1s up to 10s for consecutive restarts
- **Failure threshold**: After 10 consecutive failures, the process is marked `errored` and auto-restart stops
- **Auto-reset**: The retry counter resets if no failure occurs for 1 hour
- **Manual recovery**: `tspm restart id:1` always works, even on errored processes

Memory Management

Full process tree memory tracking:

- Discovers all child processes via `ps-tree`
- Calculates combined memory usage across the entire tree
- Gracefully restarts when limit is exceeded (SIGTERM → SIGKILL)
- Prevents memory leaks from taking down production systems

Log Persistence

Smart in-memory log management:

- 10MB ring buffer per process with automatic trimming
- Flushes to disk on stop, restart, or crash
- Reloads persisted logs when process restarts
- Crash logs stored separately with full metadata (exit code, signal, memory, timestamps)

Graceful Shutdown

Multi-stage shutdown for reliability:

1. Send **SIGTERM** for graceful shutdown
2. Wait **5 seconds** for process cleanup
3. Send **SIGKILL** if still alive
4. Clean up **all child processes** in the tree

File Watching

Development-friendly auto-restart:

- Watch specific directories or files
- `node_modules` ignored by default
- Debounced restart on file changes
- Configurable via `--watch-paths`

□□ Debugging

```
# Check daemon status
tspm daemon status

# View process logs
tspm logs name:my-app --lines 200

# Check daemon stderr
tail -f /tmp/daemon-stderr.log

# Force daemon restart
tspm daemon restart
```

Common issues:

Problem	Solution
"Daemon not running"	`tspm daemon start` or `sudo tspm enable`
"Permission denied"	Check socket permissions in `~/.tspm/`
Process won't start	Check logs with `tspm logs <target>`
Memory limit exceeded	Increase with `tspm edit <target>`

□□ Why TSPM?

Feature	TSPM	PM2
TypeScript Native	□ Built in TypeScript	□ JavaScript
Memory Tracking	□ Full process tree	⚠ Main process only
Log Management	□ Smart 10MB buffer	⚠ Can grow unbounded
Architecture	□ Clean 3-tier daemon	□ Monolithic
Dependencies	□ Minimal	□ Heavy
ESM Support	□ Native	⚠ Partial
Crash Reports	□ Detailed with metadata	□ Basic

Perfect For

- □□ **Production Node.js apps** — Reliable process management with memory guards
- □□ **Microservices** — Manage multiple services from a single tool
- □□□ **Development** — File watching and instant auto-restart
- □□ **Workers & Jobs** — Queue workers, cron jobs, background tasks
- □□ **Resource-constrained environments** — Memory limits prevent OOM kills

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changelog.md for @git.zone/tspm

2026-03-24 - 5.10.4 - fix(crash-logging)

migrate filesystem persistence to smartfs and stabilize crash log tests

- replace smartfile usage with smartfs in crash log and log persistence modules
- update crash log tests to use tap assertions and current CLI command output
- move project config from npmextra.json to .smartconfig.json and refresh build dependencies

2026-03-24 - 5.10.3 - fix(config)

replace npmextra with smartconfig for daemon key-value storage and release settings

- swap the configuration storage dependency from @push.rocks/npmextra to @push.rocks/smartconfig
- update daemon config accessors to use the smartconfig KeyValueStore implementation
- add @git.zone/cli release registry and access configuration to npmextra.json

2025-09-03 - 5.10.2 - fix(processmonitor)

Bump smartdaemon and stop aggressive pidusage cache clearing in ProcessMonitor

- Update dependency @push.rocks/smartdaemon from ^2.0.9 to ^2.1.0 in package.json.

- Remove per-PID pidusage.clear calls in ts/daemon/processmonitor.ts (getProcessGroupStats) to avoid potential errors or unexpected behavior from manually clearing pidusage cache.

2025-09-03 - 5.10.1 - fix(processmonitor)

Skip null pidusage entries when aggregating process-group memory/CPU to avoid errors

- Add defensive check for null/undefined entries returned by pidusage before accessing memory/cpu fields
- Log a debug message when an individual process stat is null (process may have exited)
- Improve robustness of ProcessMonitor.getProcessGroupStats to prevent runtime exceptions during aggregation

2025-09-01 - 5.10.0 - feat(daemon)

Add crash log manager with rotation and integrate crash logging; improve IPC & process listener cleanup

- Introduce CrashLogManager to create formatted crash reports, persist them to disk and rotate old logs (max 100)
- Persist recent process logs, include metadata (exit code, signal, restart attempts, memory) and human-readable sizes in crash reports
- Integrate crash logging into ProcessMonitor: save crash logs on non-zero exits and errors, and persist/rotate logs
- Improve ProcessMonitor and ProcessWrapper by tracking and removing event listeners to avoid memory leaks
- Clear pidusage cache more aggressively to prevent stale entries
- Enhance TspmIpcClient to store/remove lifecycle event handlers on disconnect to avoid dangling listeners
- Add tests and utilities: test/test.crashlog.direct.ts, test/test.crashlog.manual.ts and test/test.crashlog.ts to validate crash log creation and rotation

2025-08-31 - 5.9.0 - feat(cli)

Add interactive edit flow to CLI and improve UX

- Add -i / --interactive flag to tspm add to open an interactive editor immediately after adding a process
- Implement interactiveEditProcess helper (smartinteract-based) to provide interactive editing for process configs
- Enable tspm edit to launch the interactive editor (replaces prior placeholder flow)
- Improve user-facing message when no processes are configured in tspm list
- Lower verbosity for missing saved configs on daemon startup (changed logger.info → logger.debug)

2025-08-31 - 5.8.0 - feat(core)

Add core TypeScript TSPM implementation: CLI, daemon, client, process management and tests

- Add CLI entrypoint and command set (start/stop/add/list/logs/daemon/service/stats/reset and batch ops)
- Add daemon implementation with ProcessManager, ProcessMonitor, ProcessWrapper, LogPersistence and config storage
- Add IPC client (tspmIpcClient) and TspmServiceManager for systemd integration using smartipc/smartdaemon
- Introduce shared protocol types, process ID helpers and standardized error codes for stable IPC
- Include tests and test assets for daemon, integration and IPC client scenarios
- Add README and package metadata (package.json, npmextra.json, commitinfo)

2025-08-31 - 5.7.0 - feat(cli)

Add 'stats' CLI command and daemon stats aggregation; fix process manager & wrapper state handling

- Add new 'stats' CLI command to show daemon + process statistics (memory, CPU, uptime, logs in memory, paths, configs) and include it in the default help output
- Implement daemon-side aggregation for logs-in-memory, per-process log counts/bytes, and expose tspmDir/socket/pidFile and config counts in daemon:status
- Enhance startById handler to detect already-running monitors and return current status/pid instead of attempting to restart
- Improve ProcessManager start/restart/stop behavior: if an existing monitor exists but is not running, restart it; ensure PID and status are updated consistently (clear PID on stop)
- Fix ProcessWrapper lifecycle handling: clear internal process reference on exit, improve isRunning() and getPid() semantics to reflect actual runtime state

- Update IPC types to include optional metadata fields (paths, configs, logsInMemory) in DaemonStatusResponse

2025-08-31 - 5.6.2 - fix(processmanager)

Improve process lifecycle handling and cleanup in daemon, monitors and wrappers

- StartAll: when a monitor exists but is not running, restart it instead of skipping — ensures saved processes are reliably brought online.
- ProcessMonitor.stop: cancel any pending restart timers to prevent stray restarts after explicit stop.
- ProcessWrapper: add killProcessTree helper and use it for graceful (SIGTERM) and force (SIGKILL) shutdowns to reliably signal child processes.
- Daemon stopAll: yield briefly after stopping processes and inspect monitors (not only processInfo) to accurately report stopped vs failed processes.

2025-08-31 - 5.6.1 - fix(daemon)

Ensure robust process shutdown and improve logs/subscriber diagnostics

- Make ProcessWrapper.stop asynchronous and awaitable to avoid race conditions when stopping processes
- Signal entire process groups on POSIX (kill by negative PID) and fall back to per-PID signalling; escalate to SIGKILL after a timeout
- Await processWrapper.stop() from ProcessMonitor when enforcing memory limits or handling exits/errors to ensure child processes are cleaned up
- Add logs:subscribers IPC endpoint and corresponding types to inspect current subscribers for a process log topic
- Add optional CLI debug output in logs command (enabled via TSPM_DEBUG=true) to print subscriber counts and details
- Support passing request.lines to getLogs handler in daemon to limit returned log entries

2025-08-30 - 5.6.0 - feat(processmonitor)

Add CPU monitoring and display CPU in process list

- CLI: show a CPU column in the `tspm list` output (adds formatting and placeholder name display)
- Daemon: ProcessMonitor now collects CPU usage for the process group in addition to memory
- Daemon: ProcessMonitor exposes getLastCpuUsage() and ProcessManager syncs CPU values into IProcessInfo
- Non-breaking: UI and internal stats enriched to surface CPU metrics for processes

2025-08-30 - 5.5.0 - feat(logs)

Improve logs streaming and backlog delivery; add CLI filters and ndjson output

- CLI: add new logs options: --since, --stderr-only, --stdout-only and --ndjson; enhance streaming output and gap detection
- CLI: fetch backlog conditionally (honoring --since) and print filtered results before live streaming
- Client: add TspmIpcClient.requestLogsBacklogStream, onStream and onBacklogTopic helpers to receive backlog chunks and streams
- Daemon: add logs:subscribe IPC handler to stream backlog entries to requesting client in small batches
- Protocol: extend IPC types with LogsSubscribeRequest/Response and register 'logs:subscribe' method
- Dependency: bump @push.rocks/smartipc to ^2.3.0 to support the streaming/IPC changes

2025-08-30 - 5.4.2 - fix(cli/process/logs)

Reset log sequence on process restart to avoid false log gap warnings

- Track process runId when streaming logs and initialize lastRunId from fetched logs
- When a new runId is detected, reset lastSeq so that subsequent streamed logs are accepted (prevents spurious gap warnings)
- Emit an informational message when a restart/runId change is detected to aid debugging of log streams

2025-08-30 - 5.4.1 - fix(processmonitor)

Bump tsbuild devDependency and relax ps-tree callback typing in ProcessMonitor

- Update devDependency @git.zone/tsbuild from ^2.6.7 to ^2.6.8
- Change psTree callback types in ts/daemon/processmonitor.ts to accept any error and ReadonlyArray for children to improve type compatibility

2025-08-30 - 5.4.0 - feat(daemon)

Add CLI systemd service refresh on version mismatch and fix daemon memory leak; update dependencies

- CLI: when client and daemon versions differ, prompt to refresh the systemd service and optionally disable/enable the service automatically
- Daemon: clear pidusage state for PIDs on process exit/stop to prevent memory leaks in long-running monitors
- Client: expose smartdaemon in client plugin exports and fix import path for tspm.servicemanager
- Package: tighten dependency ranges (set specific versions) and add @types for pidusage and ps-tree
- Misc: ensure IPC disconnects and PID/socket handling improvements were integrated alongside the above changes

2025-08-30 - 5.3.2 - fix(daemon)

Improve daemon log delivery and process monitor memory accounting; gate debug output and update tests to numeric ProcessId

- Deliver process logs only to subscribed clients instead of broadcasting to all connections (reduce unnecessary IPC traffic and noise)
- Implement incremental log memory accounting in ProcessMonitor using an estimateLogSize helper and WeakMap to avoid repeated JSON.stringify and reduce CPU/memory overhead
- Seed the incremental size map when loading persisted logs so memory accounting is accurate after restart

- Trim logs incrementally by subtracting estimated sizes of removed entries (avoids O(n) recalculation)
- Gate verbose console/debug output behind TSPM_DEBUG to prevent spamming in normal runs (applies to ProcessWrapper and ProcessMonitor)
- Improve process wrapper stdout/stderr debug logging to be conditional on debug mode
- Update tests to use numeric ProcessId via toProcessId(...) for consistency with typed IDs

2025-08-30 - 5.3.1 - fix(client(tspmIpcClient))

Use bare topic names for IPC client subscribe/unsubscribe to fix log subscription issues

- Updated ts/client/tspm.ipcclient.ts to call ipcClient.subscribe/unsubscribe with the bare topic (e.g. 'logs.') instead of prefixed 'topic:<...>'.
- Added comments clarifying that the IpcClient registers the 'topic:' prefix internally.
- Fixes incorrect topic registration that could prevent log streaming handlers from receiving messages.

2025-08-30 - 5.3.0 - feat(cli/daemon/processmonitor)

Add flexible target resolution and search command; improve restart/backoff and error handling

- Add new cli command `search` to find processes by id or name fragment.
- Allow flexible process targets in CLI commands (accepts numeric id, id:, or name:) for start/stop/restart/delete/describe/logs/edit commands.
- Introduce a new daemon IPC method `resolveTarget` to normalize user-provided targets to ProcessId (supports id:, name:, or bare numeric id).
- Keep `remove` as a CLI alias but daemon exposes `delete` only; CLI resolves targets and always calls daemon `delete`.
- Implement scheduled restart/backoff in ProcessMonitor with incremental debounce, max retries, and a 1-hour reset window.
- Emit a `failed` event from ProcessMonitor when max restart attempts are exceeded; ProcessManager listens and marks processes as `errored` and clears pid.
- Ensure desired state is set to `stopped` before deleting a process to avoid race conditions.
- Improve cli output messages to include resolved names alongside numeric ids where available.

2025-08-30 - 5.2.0 - feat(cli)

Preserve CLI environment when adding processes, simplify edit flow, and refresh README docs

- CLI: When adding a process, capture and persist essential environment variables from the CLI (PATH, HOME, USER, SHELL, LANG, LC_ALL, NODE_ENV, NODE_PATH, npm_config_prefix and any TSPM_* variables). Undefined values are removed before storing.
- CLI: Interactive edit flow temporarily disabled. The edit command now displays the current configuration and updates stored environment variables to match the current CLI environment.
- Docs: Major README refresh — reorganized sections, clarified add vs start semantics, expanded examples, added daemon/service usage and programmatic API examples, and improved command reference and output examples.

2025-08-30 - 5.1.0 - feat(cli)

Add interactive edit command and update support for process configurations

- Add 'tspm edit' interactive CLI command to modify saved process configurations (prompts for name, command, args, cwd, memory, autorestart, watch, watch paths) with an option to replace stored PATH.
- Implement ProcessManager.update(id, updates) to merge updates, persist them, and return the updated configuration.
- Add 'update' IPC method and daemon handler to allow remote/configurations updates via IPC.
- Persist the current CLI PATH when adding a process so managed processes inherit the same PATH environment.
- Merge provided env with the runtime process.env when spawning processes to avoid fully overriding the runtime environment.

2025-08-30 - 5.0.0 - BREAKING CHANGE(daemon)

Introduce persistent log storage, numeric ProcessId type, and improved process monitoring / IPC handling

- Add LogPersistence: persistent on-disk storage for process logs (save/load/delete/cleanup).
- Persist logs on process exit/error/stop and trim in-memory buffers to avoid excessive memory usage.
- Introduce a branded numeric ProcessId type and toProcessId helpers; migrate IPC types and internal maps from string ids to ProcessId.
- ProcessManager refactor: typed maps for processes/configs/info/logs, async start/stop/restart flows, improved PID/uptime/restart tracking, and desired state persistence handling.
- ProcessMonitor refactor: async lifecycle (start/stop), load persisted logs on startup, flush logs to disk on exit/error/stop, log memory capping, and improved event emissions.
- ProcessWrapper improvements: buffer stdout/stderr remainders, flush partial lines on stream end, clearer debug logging.
- IPC client/server changes: handlers now normalize ids with toProcessId, subscribe/unsubscribe accept numeric/string ids, getLogs/start/stop/restart/delete use typed ids.
- CLI tweaks: format process id output safely with String() to avoid formatting issues.
- Add dependency and plugin export for @push.rocks/smartfile and update package.json accordingly.

2025-08-29 - 4.4.2 - fix(daemon)

Fix daemon IPC id handling, reload configs on demand and correct CLI daemon start path

- Normalize process IDs in daemon IPC handlers (trim strings) to avoid lookup mismatches
- Attempt to reload saved process configurations when a startById request cannot find a config (handles races/stale state)
- Use normalized IDs in responses and messages for stop/restart/delete/remove/describe handlers
- Fix CLI daemon start path to point at dist_ts/daemon/tspm.daemon.js when launching the background daemon
- Ensure the IPC client disconnects after showing CLI version/status to avoid leaked connections

2025-08-29 - 4.4.1 - fix(cli)

Use server-side start-by-id flow for starting processes

- CLI: 'tspm start ' now calls a new 'startById' IPC method instead of fetching the full config via 'describe' and submitting it back to 'start'.

- Daemon: Added server-side handler for 'startById' which resolves the stored process config and starts the process on the daemon.
- Protocol: Added StartByIdRequest/StartByIdResponse types and registered 'startById' in the IPC method map.

2025-08-29 - 4.4.0 - feat(daemon)

Persist desired process states and add daemon restart command

- Persist desired process states: ProcessManager now stores desiredStates to user storage (desiredStates key) and reloads them on startup.
- Start/stop operations update desired state: IPC handlers in the daemon now set desired state when processes are started, stopped, restarted or when batch start/stop is invoked.
- Resume desired state on daemon start: Daemon loads desired states and calls startDesired() to bring processes to their desired 'online' state after startup.
- Remove desired state on deletion/reset: Deleting a process or resetting clears its desired state; reset clears all desired states as well.
- CLI: Added 'tspm daemon restart' — stops the daemon (gracefully) and restarts it in the foreground for the current session, with checks and informative output.

2025-08-29 - 4.3.1 - fix(daemon)

Fix daemon describe handler to return correct process info and config; bump @push.rocks/smartipc to ^2.2.2

- Corrected the 'describe' IPC handler in the daemon to use ProcessManager.describe(...) result and return { processInfo, config } — this fixes a mismatch between the handler and the ProcessManager.describe() return shape.
- Bumped dependency @push.rocks/smartipc to ^2.2.2 in package.json.

2025-08-29 - 4.3.0 - feat(cli)

Correct CLI plugin imports and add reset command/IPC to stop processes and clear persisted configs

- Fixed relative plugin imports in many CLI command modules to use the local CLI plugin wrapper (reduces startup surface and fixes import paths).
- Added a lightweight ts/cli/plugins.ts that exposes only the minimal plugin set used by the CLI.

- Implemented ProcessManager.reset(): stops running processes, collects per-id stop errors, clears in-memory maps and removes persisted configurations (with fallback to write an empty list on delete failure).
- Daemon now exposes a 'reset' IPC handler that delegates to ProcessManager.reset() so CLI can perform a single RPC to reset TSPM state.
- Updated shared IPC protocol types to include ResetRequest and ResetResponse.
- Refactored the CLI reset command to call the new 'reset' RPC (replaces previous stopAll + per-config removal logic).

2025-08-29 - 4.2.0 - feat(cli)

Add 'reset' CLI command to stop all processes and clear saved configurations; integrate interactive confirmation and client plugin updates

- Add new CLI command 'reset' (ts/cli/commands/reset.ts) which stops all processes and removes saved process configurations after an interactive confirmation.
- Use @push.rocks/smartinteract for a confirmation prompt before destructive action.
- Register the new reset command in the CLI bootstrap (ts/cli/index.ts).
- Expose smartinteract from ts/plugins.ts and add @push.rocks/smartinteract to package.json dependencies.
- Introduce a lightweight client plugin shim (ts/client/plugins.ts) and switch tspm.ipcclient to import client plugins from ./plugins.js.

2025-08-29 - 4.1.1 - fix(daemon)

Bump @push.rocks/smartdaemon to ^2.0.9

- Update @push.rocks/smartdaemon from ^2.0.8 to ^2.0.9 (dependency version bump)

2025-08-29 - 4.1.0 - feat(cli)

Add support for restarting all processes from CLI; improve usage message and reporting

- CLI 'restart' command now accepts 'all' to restart all processes via the daemon (tspm restart all).
- Improved usage/help output when no process id is provided.
- CLI now prints summaries of restarted process IDs and failed restarts and sets a non-zero exit code when any restarts failed.

2025-08-29 - 4.0.0 - BREAKING CHANGE(cli)

Add persistent process registration (tspm add), alias remove, and change start to use saved process IDs (breaking CLI behavior)

- Add a new CLI command `tspm add` that registers a process configuration without starting it; daemon assigns a sequential numeric ID and returns the stored config.
- Change `tspm start` to accept a process ID and start the saved configuration instead of accepting ad-hoc commands/files. This is a breaking change to the CLI contract.
- Add `remove` as an alias for the existing `delete` command; both CLI and daemon now support `remove` which stops and deletes the stored process.
- Daemon and IPC protocol updated to support `add` and `remove` methods; shared IPC types extended accordingly.
- ProcessManager: implemented add() and getNextSequentialId() to persist configs and produce numeric IDs.
- CLI registration updated (registerIpcCommand) to accept multiple command names, enabling aliases for commands.

2025-08-29 - 3.1.3 - fix(client)

Improve IPC client robustness and daemon debug logging; update tests and package metadata

- IPC client: generate unique clientId for each CLI session, increase register timeout, mark client disconnected on lifecycle events and socket errors, and surface a clearer connection error message
- Daemon: add debug hooks to log client connect/disconnect and server errors to help troubleshoot IPC issues
- Tests: update imports to new client/daemon locations, add helpers to start the daemon and retry connections, relax timing assertions, and improve test reliability
- Package: add exports map and typings entry, update test script to run with verbose logging and longer timeout, and bump @push.rocks/smartipc to ^2.2.1

2025-08-28 - 3.1.2 - fix(daemon)

Reorganize project into daemon/client/shared layout, update imports and protocol, rename Tspm → ProcessManager, and bump smartipc to ^2.1.3

- Reorganized source tree: moved files into ts/daemon, ts/client and ts/shared with updated index/barrel exports.
- Renamed core class Tspm → ProcessManager and updated all references.
- Consolidated IPC types under ts/shared/protocol/ipc.types.ts and added protocol.version + standardized error codes.
- Updated CLI to use the new client API (tspmIpcClient) and adjusted command registration/registration helpers.
- Bumped dependency @push.rocks/smartipc from ^2.1.2 to ^2.1.3 to address daemon connectivity; updated daemon heartbeat behavior (heartbeatThrowOnTimeout=false).
- Updated readme.plan.md to reflect completed refactor tasks and testing status.
- Minor fixes and stabilization across daemon, process manager/monitor/wrapper, and client service manager implementations.

2025-08-28 - 3.1.1 - fix(cli)

Fix internal imports, centralize IPC types and improve daemon entry/start behavior

- Corrected import paths in CLI commands and utilities to use client/tspm.ipcclient and shared/common/utils.errorhandler
- Centralized process/IPC type definitions into ts/shared/protocol/ipc.types.ts and updated references across daemon and client code
- Refactored ts/daemon/index.ts to export startDaemon and only auto-start the daemon when the module is executed directly
- Adjusted ts/index.ts exports to expose client API, shared protocol types, and daemon start entrypoint

2025-08-28 - 3.1.0 - feat(daemon)

Reorganize and refactor core into client/daemon/shared modules; add IPC protocol and tests

- Reorganized core code: split daemon and client logic into ts/daemon and ts/client directories
- Moved process management into ProcessManager, ProcessMonitor and ProcessWrapper under ts/daemon
- Added a dedicated IPC client and service manager under ts/client (tspm.ipcclient, tspm.servicemanager)
- Introduced shared protocol and error handling: ts/shared/protocol/ipc.types.ts, protocol.version.ts and ts/shared/common/utils.errorhandler.ts
- Updated CLI to import Logger from shared/common utils and updated related helpers
- Added daemon entrypoint at ts/daemon/index.ts and reorganized daemon startup/shutdown/heartbeat handling

- Added test assets (test/testassets/simple-test.ts, simple-script2.ts) and expanded test files under test/
- Removed legacy top-level class files (classes.*) in favor of the new structured layout

2025-08-28 - 3.0.2 - fix(daemon)

Ensure TSPM runtime dir exists and improve daemon startup/debug output

- Create ~/.tspm directory before starting the daemon to avoid missing-directory errors
- Start daemon child process with stdio inherited when TSPM_DEBUG=true to surface startup errors during debugging
- Add warning and troubleshooting guidance when daemon process starts but does not respond (suggest checking socket file and using TSPM_DEBUG)
- Bump package version to 3.0.1

2025-08-28 - 3.0.0 - BREAKING CHANGE(daemon)

Refactor daemon and service management: remove IPC auto-spawn, add TspmServiceManager, tighten IPC/client/CLI behavior and tests

- Remove automatic daemon spawn from the IPC client — clients now error with guidance and require the daemon to be started manually or enabled as a system service
- Add TspmServiceManager to manage the daemon as a systemd service (enable/disable/reload/status)
- Update IPC server/client to use SmartIpc.createServer/createClient with heartbeat defaults and explicit onMessage handlers
- Daemon publishes per-process logs to topics (logs.<processId>) and re-emits ProcessMonitor logs for pub/sub
- CLI updated: add enable/disable service commands, adjust daemon start/stop/status workflows and improve user hints when daemon is not running
- Add/adjust integration and unit tests to cover daemon lifecycle, IPC client behavior, log streaming, heartbeat and resource reporting
- Documentation expanded (README, readme.plan.md, changelog) to reflect the refactor and migration notes
- Various code cleanups, formatting fixes and defensive checks across modules

2025-08-28 - 2.0.0 - BREAKING CHANGE(daemon)

Refactor daemon lifecycle and service management: remove IPC auto-spawn, add TspmServiceManager and CLI enable/disable

- Do not auto-spawn the daemon from the IPC client anymore — attempts to connect will now error with instructions to start the daemon manually or enable the system service (breaking change).
- Add TspmServiceManager to manage the daemon as a systemd service via smartdaemon (enable/disable/reload/status helpers).
- CLI: add 'enable' and 'disable' commands to install/uninstall the daemon as a system service and add 'daemon start-service' entrypoint used by systemd.
- CLI: improve error handling and user hints when the daemon is not running (suggests `tspm daemon start` or `tspm enable`).
- IPC client: removed startDaemon() and related auto-reconnect/start logic; request() no longer auto-reconnects or implicitly start the daemon.
- Export TspmServiceManager from the package index so service management is part of the public API.
- Updated development plan/readme (readme.plan.md) to reflect the refactor toward proper SmartDaemon integration and migration notes.

2025-08-26 - 1.8.0 - feat(daemon)

Add real-time log streaming and pub/sub: daemon publishes per-process logs, IPC client subscribe/unsubscribe, CLI --follow streaming, and sequencing for logs

- Upgrade @push.rocks/smartipc dependency to ^2.1.2
- Daemon: initialize SmartIpc server with heartbeat and publish process logs to topic `logs.<processId>`; write PID file and start heartbeat monitoring
- Tspm: re-emit monitor log events as 'process:log' so daemon can broadcast logs
- ProcessWrapper: include seq and runId on IProcessLog entries and maintain nextSeq/runId (adds sequencing to logs); default log buffer size applied
- TspmIpcClient: improved connect options (retries, timeouts, heartbeat handling), add subscribe/unsubscribe for real-time logs, and use SmartIpc.waitForServer when starting daemon
- CLI: add --follow flag to `logs` command to stream live logs, detect sequence gaps/duplicates, and handle graceful cleanup on Ctrl+C
- ProcessMonitor: now extends EventEmitter and re-emits process logs for upstream consumption

- Standardized heartbeat and IPC timing defaults (heartbeatInterval: 5000ms, heartbeatTimeout: 20000ms, heartbeatInitialGracePeriodMs: 10000ms)

2025-08-25 - 1.7.0 - feat(readme)

Add comprehensive README with detailed usage, command reference, daemon management, architecture and development instructions

- Expanded README from a short placeholder to a full documentation covering: Quick Start, Installation, Command Reference, Daemon Management, Monitoring & Information, Batch Operations, Architecture, Programmatic Usage, Advanced Features, Development, Debugging, Performance, and Legal information
- Included usage examples and CLI command reference for start/stop/restart/delete/list/describe/logs and batch/daemon commands
- Added human-friendly memory formatting and examples, process and daemon status outputs, and programmatic TypeScript usage snippet
- Improved onboarding instructions: cloning, installing, testing, building, and running the project

2025-08-25 - 1.6.1 - fix(daemon)

Fix smartipc integration and add daemon/ipc integration tests

- Replace direct smartipc server/client construction with SmartIpc.createServer/createClient and set heartbeat: false
- Switch IPC handler registration to use onMessage and add explicit Request/Response typing for handlers
- Update IPC client to use SmartIpc.createClient and improve daemon start/connect logic
- Add comprehensive tests: unit tests for TspmDaemon and TspmIpcClient and full integration tests for daemon lifecycle, process management, error handling, heartbeat and resource reporting

2025-08-25 - 1.6.0 - feat(daemon)

Add central TSPM daemon and IPC client; refactor CLI to use daemon and improve monitoring/error handling

- Add central daemon implementation (ts/classes.daemon.ts) to manage all processes via a single background service and Unix socket.

- Introduce IPC client and typed IPC contracts (ts/classes.ipcclient.ts, ts/ipc.types.ts) so CLI communicates with the daemon.
- Refactor CLI to use the daemon for commands (ts/cli.ts): start/stop/restart/delete/list/describe/logs/start-all/stop-all/restart-all and new daemon start/stop/status commands.
- Enhance process monitoring and wrapping: ProcessMonitor and ProcessWrapper improvements (ts/classes.processmonitor.ts, ts/classes.processwrapper.ts) with better logging, memory checks, and restart behavior.
- Improve centralized error handling and Logger behavior (ts/utils.errorhandler.ts).
- Persist and load process configurations via TspmConfig and config storage changes (ts/classes.config.ts, ts/classes.tspm.ts).
- Bump dependency and devDependency versions and add packageManager entry in package.json.
- Add ts/daemon entrypoint and export daemon/ipc types from ts/index.ts; add paths for tspm runtime dir (ts/paths.ts).
- Update tests and test tooling imports (test/test.ts) and adjust commitinfo and readme hints.

2025-03-10 - 1.5.1 - fix(core)

Improve error handling, logging, and test suite; update dependency versions

- Updated devDependencies versions in package.json (@git.zone/tsbuild, @push.rocks/tapbundle, and @push.rocks/smartdaemon)
- Refactored error handling and enhanced logging in ProcessMonitor and ProcessWrapper modules
- Improved test structure by adding clear module import tests and usage examples in test files

2025-03-04 - 1.5.0 - feat(cli)

Enhance CLI with new process management commands

- Added comprehensive CLI commands for process management including start, stop, restart, list, describe and logs.
- Implemented memory string parsing for process memory limits.
- Enhanced CLI output with formatted table listings for active processes.

2025-03-03 - 1.4.0 - feat(core)

Introduced process management features using ProcessWrapper and enhanced configuration.

- Added ProcessWrapper for wrapping and managing child processes.
- Refactored process monitoring logic using ProcessWrapper.
- Introduced TspmConfig for configuration handling.
- Enhanced CLI to support new process management commands like 'startAsDaemon'.

2025-03-01 - 1.3.1 - fix(test)

Update test script to fix type references and remove private method call

- Corrected type references in test script for IMonitorConfig.
- Fixed test script to use console.log instead of private method monitor.log.

2025-03-01 - 1.3.0 - feat(cli)

Add CLI support with command parsing and version display

- Added a basic CLI interface using smartcli.
- Implemented command parsing with a 'restart' command.
- Integrated project version display in the CLI.

2025-03-01 - 1.2.0 - feat(core)

Introduce ProcessMonitor with memory management and spawning features

- Added ProcessMonitor class with functionality to manage process execution and memory usage.
- Implemented process spawning with ability to handle command arguments and directories.
- Added periodic memory monitoring and automatic restarts when memory thresholds are exceeded.
- ProcessMonitor now logs its actions with optional configuration name for better identification.
- Updated test file to include example usage of ProcessMonitor.

2025-03-01 - 1.1.1 - fix(package)

Update dependencies and pnpm configuration

- Updated @types/node to 22.13.8
- Updated pnpm configuration to include onlyBuiltDependencies with esbuild, mongodb-memory-server, and puppeteer

2025-03-01 - 1.1.0 - feat(core)

Introduce ProcessMonitor class and integrate native and external plugins

- Added a new ProcessMonitor class to manage and monitor child processes with memory constraints.
- Integrated native 'path' and external '@push.rocks/smartpath' packages in a unified plugins file.
- Adjusted index and related files for improved modular structure.

2025-02-24 - 1.0.3 - fix(core)

Corrected description in package.json and readme.md from 'task manager' to 'process manager'.

- Updated the project description in package.json.
- Aligned the description in readme.md with package.json.

2025-02-24 - 1.0.2 - fix(core)

Internal changes with no functional impact.

2025-02-24 - 1.0.1 - initial release

Initial release with baseline functionality.