

@push.rocks/smartn ginx

A TypeScript library for controlling Nginx from Node.js, with support for generating and managing Nginx configurations dynamically.

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readme.md for @push.rocks/smartnginx

Control Nginx programmatically from Node.js with full TypeScript support ☑

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Features

- ☑ **Dynamic Configuration** - Generate and manage Nginx configs on the fly
- ☑ **SSL/TLS Ready** - Built-in support for SSL certificates with automatic HTTP→HTTPS redirects
- ☑ **Hot Reload** - Apply configuration changes without downtime
- ☑ **Zero-Config Defaults** - Self-signed certificates auto-generated for immediate testing
- ☑ **Reverse Proxy Made Easy** - Set up proxy hosts with a single method call
- ☑ **Smart Diffing** - Only reloads Nginx when configurations actually change
- ☑ **TypeScript First** - Full type definitions included

Install

```
pnpm add @push.rocks/smartnginx  
# or  
npm install @push.rocks/smartnginx
```



Prerequisites: Nginx must be installed and available in your system PATH.

Quick Start

```
import { SmartNginx } from '@push.rocks/smartnginx';

// Create a SmartNginx instance with a default fallback URL
const nginx = new SmartNginx({
  defaultProxyUrl: 'https://your-default-site.com'
});

// Add a reverse proxy host
nginx.addHostCandidate({
  hostName: 'api.example.com',
  destination: 'localhost',
  destinationPort: 3000,
  privateKey: '<your-ssl-private-key>',
  publicKey: '<your-ssl-certificate>'
});

// Deploy and start Nginx
await nginx.deploy();
```

That's it! Your reverse proxy is now running ☑

Usage

Creating the SmartNginx Instance

The `SmartNginx` class is your main interface for managing Nginx:

```
import { SmartNginx } from '@push.rocks/smartnginx';

const nginx = new SmartNginx({
```

```
defaultProxyUrl: 'https://fallback.example.com', // Where unmatched requests go
logger: myCustomLogger // Optional: pass a @push.rocks/smartlog instance
});
```

Adding Host Configurations

Each host represents a domain/subdomain with its proxy rules and SSL certificates:

```
// Add a host using addHostCandidate()
const myHost = nginx.addHostCandidate({
  hostName: 'app.example.com', // Domain name
  destination: '127.0.0.1', // Backend server address
  destinationPort: 8080, // Backend port
  privateKey: sslPrivateKeyPem, // SSL private key (PEM format)
  publicKey: sslCertificatePem // SSL certificate (PEM format)
});
```

Multi-Host Setup

Run multiple sites through a single Nginx instance:

```
// Production API
nginx.addHostCandidate({
  hostName: 'api.myapp.com',
  destination: 'localhost',
  destinationPort: 3000,
  privateKey: apiPrivateKey,
  publicKey: apiCertificate
});

// Admin panel
nginx.addHostCandidate({
  hostName: 'admin.myapp.com',
  destination: 'localhost',
  destinationPort: 4000,
  privateKey: adminPrivateKey,
  publicKey: adminCertificate
});
```

```
// Staging environment
nginx.addHostCandidate({
  hostName: 'staging.myapp.com',
  destination: '192.168.1.100',
  destinationPort: 8080,
  privateKey: stagingPrivateKey,
  publicKey: stagingCertificate
});

// Deploy all at once
await nginx.deploy();
```

Deploying Configurations

The `deploy()` method is smart about changes:

```
// First deploy - writes configs and starts Nginx
await nginx.deploy();

// Add more hosts dynamically
nginx.addHostCandidate({
  hostName: 'newsite.example.com',
  destination: 'localhost',
  destinationPort: 5000,
  privateKey: newPrivateKey,
  publicKey: newCertificate
});

// Second deploy - detects changes, updates configs, hot-reloads Nginx
await nginx.deploy();

// If you call deploy() with no changes, it skips the reload (efficient!)
await nginx.deploy(); // → "hosts have not diverged, skipping nginx reload"
```

Querying Deployed Hosts

```
// Get all deployed hosts
const hosts = await nginx.listDeployedHosts();
console.log(`Running ${hosts.length} hosts`);

// Find a specific host by domain
const apiHost = nginx.getDeployedNginxHostByHostName('api.example.com');
if (apiHost) {
  console.log(`API proxying to ${apiHost.destination}:${apiHost.destinationPort}`);
}
```

Removing Hosts

```
const hostToRemove = nginx.getDeployedNginxHostByHostName('staging.myapp.com');
if (hostToRemove) {
  await nginx.removeDeployedHost(hostToRemove);
  // Nginx automatically reloaded with updated config
}
```

Stopping Nginx

```
// Gracefully stop the Nginx process
await nginx.stop();
```

Generated Configuration

SmartNginx generates production-ready Nginx configurations:

For each host, you get:

- HTTP (port 80) → HTTPS (port 443) automatic redirect
- Upstream with keepalive connections (100 idle connections)
- WebSocket-friendly proxy settings (HTTP/1.1, no buffering)
- Proper proxy headers (X-Real-IP, X-Forwarded-For, X-Forwarded-Proto)
- Smart failover (proxy_next_upstream on errors, timeouts, 404/429/500/502)

Default server:

- Self-signed certificate for unmatched domains
- Redirects to your configured `defaultProxyUrl`

Architecture



API Reference

SmartNginx

Method	Description
<code>addHostCandidate(config)</code>	Add a new host configuration
<code>deploy()</code>	Write configs and start/reload Nginx

Method	Description
<code>listDeployedHosts()</code>	Get all currently deployed hosts
<code>getDeployedNginxHostByHostName(hostname)</code>	Find a host by domain name
<code>removeDeployedHost(host)</code>	Remove a host and reload Nginx
<code>stop()</code>	Gracefully stop Nginx

IHostConfig

```
interface IHostConfig {  
  hostName: string;      // Domain name (e.g., 'api.example.com')  
  destination: string;   // Backend server IP/hostname  
  destinationPort: number; // Backend port  
  privateKey: string;    // SSL private key (PEM)  
  publicKey: string;     // SSL certificate (PEM)  
}
```

NginxHost

Each host instance exposes:

- `hostName` - The configured domain
- `destination` - Backend address
- `destinationPort` - Backend port
- `configString` - The generated Nginx config (after deploy)
- `deploy()` - Write this host's config files

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changelog.md for @push.rocks/smartnginx

2025-11-27 - 2.0.54 - fix(package)

Pin package manager to pnpm@10.18.1 in package.json

- Added packageManager field to package.json to pin pnpm to 10.18.1 with integrity hash
- No runtime code changes; only package metadata updated

2025-11-27 - 2.0.53 - fix(core)

Refactor filesystem usage to smartfs async provider, update dependencies, tests and nginx config paths

- Replace @push.rocks/smartfile usage with @push.rocks/smartfs and introduce a shared SmartFs instance in plugins
- Convert sync file operations to async fs APIs (plugins.fs.file(...).write / plugins.fs.directory(...).create) in SmartNginx and NginxHost
- Adjust package.json: update test/build scripts, replace dependencies/devDependencies to new packages (@push.rocks/smartfs, @git.zone/*), and update versions
- Update test imports to new tapbundle path and node:path; export default tap.start() and remove unused Qenv instantiation
- Update internal path imports to 'node:path' and refactor smartnginx.plugins exports
- Change generated nginx certificate/config paths in configs from /mnt/HC_Volume_11396573/... to /mnt/data/... and regenerate default cert files
- Remove CI config (.gitlab-ci.yml) from repository

2024-05-29 - 2.0.52 - maintenance

Various metadata and TypeScript configuration updates; release 2.0.52.

- Update package description.

- Update tsconfig.
- Update npmextra.json (github) entries across multiple commits.
- Release tag for 2.0.52.

2023-07-26 - 2.0.51 - maintenance

Org migration and core fixes; release 2.0.51.

- Switch to new organization scheme.
- fix(core): miscellaneous updates.
- Release tag for 2.0.51.

2019-01-09..2019-08-20 - 2.0.19..2.0.50 - maintenance (multiple patch releases)

Series of incremental patch releases with small fixes and cleanups.

- Many patch releases across the 2.0.x line (2.0.19 through 2.0.50).
- Multiple "fix(core): update" commits addressing internal issues.
- CI and cleanup fixes (including 2.0.38 cleanup).
- Release tags for each patch.

2018-08-10 - 2.0.0 - breaking

Major release and scope / packaging changes.

- 2.0.0 release with core updates.
- BREAKING CHANGE: change scope to @pushrocks (package scope/name changed).
- Various CI and core fixes accompanying the major release.

2016-08-03..2016-07-25 - 1.0.6..1.0.0 - release / maintenance

1.x series consolidations, dependency updates and interface exports.

- Update dependencies and types.
- Consolidate naming and start exporting interfaces.
- Add license.
- Release tags for 1.0.0 through 1.0.6.

2016-07-06..2016-07-25 - 0.0.0..0.1.0 - initial development

Initial implementation and feature work establishing core functionality.

- Initial project setup, README and CI added.
- Implement nginx communication and child process handling.
- Start storing generated configs to filesystem and improve config handling.
- Add snippets support and tests; multiple README improvements.
- Early releases and version tags (0.0.0 through 0.1.0).