

@push.rocks/smarts ocket

Provides easy and secure websocket communication mechanisms, including server and client implementation, function call routing, connection management, and tagging.

- [readme.md for @push.rocks/smartssocket](#)
- [changelog.md for @push.rocks/smartssocket](#)

readme.md for @push.rocks/smartsocket

Easy and secure WebSocket communication with native WebSocket support ☑

Features

- ☑ **Native WebSocket** - Uses native WebSocket API (browser) and `ws` library (Node.js)
- ☑ **Auto Reconnection** - Exponential backoff with configurable retry limits
- ☑ **RPC-style Function Calls** - Define and call functions across server/client
- ☑ **Connection Tagging** - Tag connections for easy identification and routing
- ☑ **Smartserve Integration** - Works seamlessly with `@push.rocks/smartserve`
- ☑ **Secure Communication** - WSS support for encrypted connections

Issue Reporting and Security

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Install

```
npm install @push.rocks/smartsocket --save
```

or with pnpm:

```
pnpm add @push.rocks/smartsocket
```

Usage

Quick Start - Server

```
import { Smartsocket, SocketFunction } from '@push.rocks/smartsocket';

// Create server
const server = new Smartsocket({
  alias: 'myServer',
  port: 3000
});

// Define a function that clients can call
const greetFunction = new SocketFunction({
  funcName: 'greet',
  funcDef: async (data, socketConnection) => {
    console.log(`Received greeting from ${data.name}`);
    return { message: `Hello, ${data.name}!` };
  }
});

server.addSocketFunction(greetFunction);

// Start the server
await server.start();
console.log('WebSocket server running on port 3000');
```

Quick Start - Client

```
import { SmartsocketClient } from '@push.rocks/smartsocket';

// Create client
const client = new SmartsocketClient({
  url: 'http://localhost',
  port: 3000,
  alias: 'myClient',
```

```
    autoReconnect: true
  });

  // Connect to server
  await client.connect();

  // Call server function
  const response = await client.serverCall('greet', { name: 'Alice' });
  console.log(response.message); // "Hello, Alice!"
```

Connection Options

The `SmartsocketClient` supports several configuration options:

```
const client = new SmartsocketClient({
  url: 'http://localhost',          // Server URL (http/https)
  port: 3000,                      // Server port
  alias: 'myClient',               // Client identifier
  autoReconnect: true,             // Auto-reconnect on disconnect
  maxRetries: 100,                 // Max reconnection attempts (default: 100)
  initialBackoffDelay: 1000,       // Initial backoff in ms (default: 1000)
  maxBackoffDelay: 60000           // Max backoff in ms (default: 60000)
});
```

Two-Way Function Calls

Both server and client can define and call functions on each other:

```
// Server calling client
const clientFunction = new SocketFunction({
  funcName: 'clientTask',
  funcDef: async (data) => {
    return { result: 'Task completed' };
  }
});

// On client
client.addSocketFunction(clientFunction);
```

```
// On server - call the client
const socketConnection = server.socketConnections.findSync(conn => conn.alias === 'myClient');
const result = await server.clientCall('clientTask', { task: 'doSomething' },
socketConnection);
```

Connection Tagging

Tag connections to identify and group them:

```
// On client
await client.addTag({
  id: 'role',
  payload: 'admin'
});

// On server - find tagged connections
const adminConnections = server.socketConnections.toArray().filter(async conn => {
  const tag = await conn.getTagById('role');
  return tag?.payload === 'admin';
});

// Server can also tag connections
await socketConnection.addTag({
  id: 'verified',
  payload: true
});
```

Integration with Smartserve

Use smartsocket with [@push.rocks/smartserve](https://github.com/pushrocks/smartserve) for advanced HTTP/WebSocket handling:

```
import { SmartServe } from '@push.rocks/smartserve';
import { Smartsocket } from '@push.rocks/smartsocket';

// Create smartsocket without a port (hooks mode)
const smartsocket = new Smartsocket({ alias: 'myServer' });
```

```
// Get WebSocket hooks and pass them to SmartServe
const wsHooks = smartsocket.getSmartserveWebSocketHooks();
const smartserve = new SmartServe({
  port: 3000,
  websocket: wsHooks
});

// Add socket functions as usual
smartsocket.addSocketFunction(myFunction);

// Start smartserve (smartsocket hooks mode doesn't need start())
await smartserve.start();
```

Handling Disconnections

The client automatically handles reconnection with exponential backoff:

```
const client = new SmartsocketClient({
  url: 'http://localhost',
  port: 3000,
  alias: 'myClient',
  autoReconnect: true,
  maxRetries: 10,
  initialBackoffDelay: 500,
  maxBackoffDelay: 5000
});

// Listen for connection status changes
client.eventSubject.subscribe(status => {
  console.log('Connection status:', status);
  // Status can be: 'new', 'connecting', 'connected', 'disconnecting', 'timedOut'
});

await client.connect();

// Manually disconnect without auto-reconnect
await client.disconnect();

// Stop the client completely (disables auto-reconnect)
```

```
await client.stop();
```

Secure Connections (WSS)

For secure WebSocket connections, use HTTPS URLs:

```
const client = new SmartsocketClient({
  url: 'https://secure.example.com', // HTTPS triggers WSS
  port: 443,
  alias: 'secureClient'
});
```

TypedRequest Integration

For strongly-typed RPC calls, define interfaces:

```
interface IGreetRequest {
  method: 'greet';
  request: { name: string };
  response: { message: string };
}

// Type-safe server call
const response = await client.serverCall<IGreetRequest>('greet', { name: 'Bob' });
// response is typed as { message: string }
```

API Reference

Smartsocket (Server)

Method	Description
<code>start()</code>	Start the WebSocket server (not needed in hooks mode)
<code>stop()</code>	Stop the server and close all connections
<code>addSocketFunction(fn)</code>	Register a function that clients can call

Method	Description
<code>clientCall(funcName, data, connection)</code>	Call a function on a specific client
<code>getSmartserveWebSocketHooks()</code>	Get hooks for smartserve integration

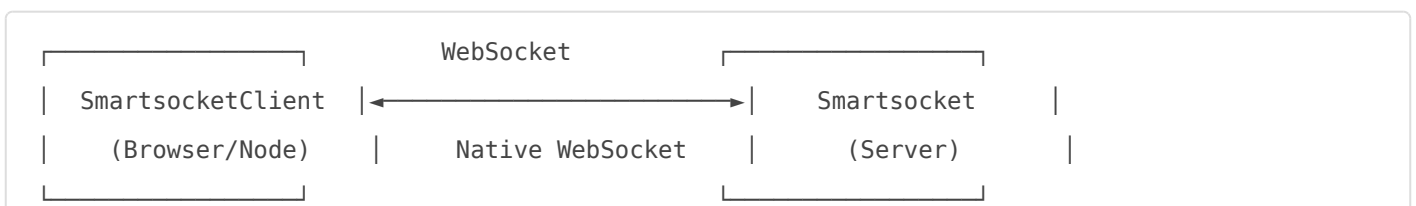
SmartsocketClient

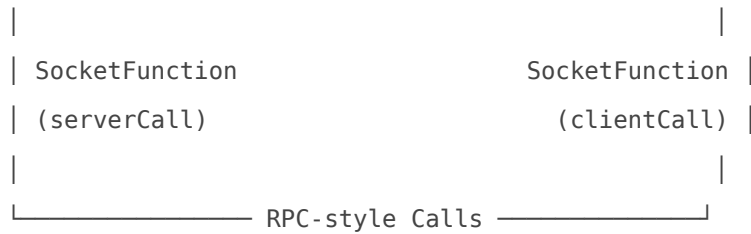
Method	Description
<code>connect()</code>	Connect to the server
<code>disconnect()</code>	Disconnect from the server
<code>stop()</code>	Disconnect and disable auto-reconnect
<code>serverCall(funcName, data)</code>	Call a function on the server
<code>addSocketFunction(fn)</code>	Register a function the server can call
<code>addTag(tag)</code>	Add a tag to the connection
<code>getTagById(id)</code>	Get a tag by its ID
<code>removeTagById(id)</code>	Remove a tag by its ID

SocketFunction

```
const fn = new SocketFunction({
  funcName: 'myFunction',
  funcDef: async (data, socketConnection) => {
    // data: the request payload
    // socketConnection: the calling connection
    return { result: 'response' };
  }
});
```

Architecture





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changelog.md for @push.rocks/smartsocket

2025-12-04 - 4.0.0 - BREAKING CHANGE(socketconnection)

Stricter typings, smartserve hooks, connection fixes, and tag API change

- Add unified WebSocket types and adapter interface (TWebSocket, TMessageEvent, IWebSocketLike) for browser/Node and smartserve peers
- Expose smartserve integration via getSmartserveWebSocketHooks() and adapt smartserve peers to a WebSocket-like interface (readyState getter, message/close/error dispatch)
- Improve SmartsocketClient connection logic: prevent duplicate connect attempts with isConnecting flag, ensure flags are cleared on success/failure, and tighten timeout/reconnect behavior
- Improve message parsing logging to surface JSON parse errors during authentication and normal operation
- Tighten TypeScript message and payload types (use unknown instead of any, Record<string, unknown> for tag payloads)
- SocketConnection API change: getTagById() and removeTagById() are now synchronous (no longer return Promises) — this is a breaking API change
- SocketRequest: log errors when function invocation fails and ensure pending requests are removed on errors
- Bump dependency @push.rocks/smartserve to ^1.1.2 and update README to reflect SmartServe integration changes

2025-12-03 - 3.0.0 - BREAKING CHANGE(smartsocket)

Replace setExternalServer with hooks-based SmartServe integration and refactor SocketServer to support standalone and hooks modes

- Remove setExternalServer API and add getSmartserveWebSocketHooks on Smartsocket to provide SmartServe-compatible websocket hooks.
- SocketServer.start now becomes a no-op when no port is provided (hooks mode). When a port is set, it starts a standalone HTTP + ws server as before.
- Introduce an adapter (createWsLikeFromPeer) to adapt SmartServe peers to a WebSocket-like interface and route onMessage/onClose/onError via the adapter.
- Dispatch smartserve messages through the adapter: text/binary handling for onMessage, and dispatchClose/dispatchError for close/error events.
- Update tests: add smartserve integration test (test.smartserve.ts), adjust tagging test cleanup to stop client and delay before exit, remove outdated expressserver test.

2025-03-10 - 2.1.0 - feat(SmartsocketClient)

Improve client reconnection logic with exponential backoff and jitter; update socket.io and @types/node dependencies

- Bump engine.io from 6.5.4 to 6.6.4, socket.io and socket.io-client from 4.7.5 to 4.8.1
- Bump @types/node from ^20.12.7 to ^22.13.10
- Add new optional reconnection parameters (maxRetries, initialBackoffDelay, maxBackoffDelay) to SmartsocketClient options
- Implement exponential backoff with jitter for auto-reconnect and reset reconnection state on successful connection

2024-05-29 - 2.0.27 - docs

update description

2024-04-26 to 2024-03-30 - 2.0.26 ... 2.0.24 - core & configuration

A series of internal fixes and configuration tweaks.

- fix(core): update
- update tsconfig

- update npmextra.json: githost

2023-09-10 to 2023-07-21 - 2.0.23
... 2.0.20 - core

Multiple minor core fixes were applied in rapid succession.

- fix(core): update

2023-07-21 to 2023-03-20 - 2.0.19
... 2.0.15 - core

Routine internal updates addressing core functionality.

- fix(core): update

2023-02-07 to 2022-03-24 - 2.0.14
... 2.0.0 - core

Further minor core updates were rolled out over several versions.

- fix(core): update

2022-03-14 - 1.2.22 - esm

A breaking change was introduced to switch the module system.

- BREAKING CHANGE(switch to esm): update

2022-01-20 to 2021-01-23 - 1.2.21 ... 1.2.0 - core

A range of minor core fixes.

- fix(core): update

2020-12-26 - 1.1.71 - SmartsocketClient

New functionality in the socket client was added.

- feat(SmartsocketClient): socket client can now be stopped with `.stop()` in addition to `.reconnect()`

2020-12-26 to 2020-09-24 - 1.1.70 ... 1.1.58 - core & test

A group of updates addressing both core mechanics and tests.

- fix(core): update
- fix(test): use `@pushrocks/isohash` instead of `@pushrocks/smarthash`

2019-11-08 to 2019-04-23 - 1.1.57 ... 1.1.27 - core

Numerous versions in this period included only internal core fixes.

- fix(core): update

2019-01-31 to 2019-01-30 - 1.1.26 ... 1.1.19 - build, docs & configuration

Updates went beyond the core, affecting build tooling and package metadata.

- fix(build): now building with tsbuild
- fix(readme): update
- fix(npmextra): adjust access level
- fix(scope): switch to @pushrocks
- fix(package.json): private setting
- fix(snyk): add .snyk file
- fix(structure): update to latest standards

2018-03-19 to 2018-03-15 - 1.1.18 ... 1.1.12 - core & docs

Several improvements touching both functionality and documentation.

- now working as expected
- start transitioning to better SocketFunction handling
- add @types/node
- format and update README
- update to latest standards

2017-10-09 to 2017-07-07 - 1.1.11 ... 1.1.07 - core & docs

Updates in this range improved both the internal mechanics and the developer-facing materials.

- allow setting of specific server
- fix not ending error correctly

- update to newest version
- update docs and tests
- remove taskbuffer
- update to latest standards

2016-09-25 to 2016-09-03 - 1.1.6 ... 1.1.3 - docs & core

Minor improvements in documentation and code quality.

- improve README
- added docs
- fix scoping of socket roles and perform small syntax fixes

2016-09-02 to 2016-08-16 - 1.1.2 ... 1.1.1 - dependencies & security

Several housekeeping tasks to update dependencies and improve security.

- updated dependencies and exported socketConnection
- now authenticating sockets by checking the password hash

2016-08-15 - 1.1.0 - docs

A documentation update was published.

- update README

2016-08-15 - 1.0.7 - networking

A key update made the socket client work bi-directionally, enabling mesh setups.

- now working in both directions so mesh setups work

2016-08-14 to 2016-08-07 - 1.0.6

... 1.0.0 - internal changes

From the initial release onward, several internal improvements were introduced:

- updated tests and structure
- reworked reconnection logic and added a request/response abstraction for transparent function calls
- initial release features with updated documentation and structure