

Make Server Address Part of Client Options

Proposal: 0014

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Status: Initial proposal

Implementation: TBD

Introduction

When initializing a transport client using the IPC protocol, the address of the transport server is currently required. Under this proposal, the transport server address would be made part of the transport client options.

Motivation

Older transports had a simple model for how communication between the transport client and transport server would work. In this model, there is a single transport server and the transport client is initialized with the address of the transport server. However, this simple model does not work for newer transports. For instance, the meek transport does not have a server at all. Similarly, the Optimizer transport uses multiple servers.

Proposed solution

As the transport server address is no longer universal, it should be moved from its current place of primary importance in the IPC protocol to being one among several transport-specific options.

Design

1. Base Specification

The architectural overview in the base specification should be expanded to cover scenarios in which there are zero or more than one transport servers.

2. IPC Interface

On the transport client, the TOR_PT_ORPORT environment variable and the corresponding -target command line flag should be removed.

For transports that accept a server address parameter, this should be specified in the transport-specific options using either the -options command line flag or the -optionsFile command line flag. For consistency, transports that accept this option should use the parameter name “serverAddress” for this parameter and it should follow the syntax and semantics previously applied to the -target command line flag, as follows:

Specifies the destination that the PT reverse proxy should forward traffic to after transforming it as appropriate, as an <address>:<port>. Unless otherwise specified in the documentation of the specific transport being used, the address can be an IPv4 IP address, an IPv6 IP address, or a domain name.

Effect on API Compatibility

This proposal only affects the IPC layer. The APIs already support the required functionality.

Effect on IPC Compatibility

As this proposal moves an IPC parameter, it is not backwards compatible and will require a new major version.

Alternatives considered

A more backwards-compatible approach could be taken in which the -target command line option becomes optional and the server address can also optionally be added to the transport options. However, maintaining backwards compatibility would require complex, transport-specific logic to be added to the dispatcher. It would be necessary to check for the -target flag, check for the presence of the serverAddress option in the transport options, and choose which one to use or present an error if both are specified at the same time. The advantage of that alternative approach would be that backwards compatibility would be maintained, allowing old configurations to be used. However, this is only of benefit until a new major version of the specification is released, at which point configurations will need to be updated due to other breaking changes anyway.