

smbclient

SMB Network Filesystem Client for Singularity

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Introduction

SMB is the network protocol used for remote filesystem access on Windows and related operating systems. This document describes `smbclient`, which is an implementation of an SMB client (redirector) for Singularity.

The implementation consists of several assemblies.

<code>net.exe</code>	The “control” tool. This is a command-line utility, meant to be invoked by Shell, which allows you to start and control instances of the SMB client process. <code>net.exe</code> provides several commands, which are described in this document.
<code>smbclient.exe</code>	<p>This assembly implements the SMB client logic. It is not meant to be invoked directly by Shell. Instead, instances of this process are created and managed by <code>smb.exe</code>.</p> <p>This assembly registers several endpoints with the root directory service. It registers a <code>DirectoryServiceContract</code> channel in order to provide access to the namespace of the remote filesystem; this registration is known as the “mount path.”</p> <p><code>smbclient.exe</code> also registers a control endpoint, which exports the <code>SmbClientControlContract</code>. This allows other processes to query configuration and status information from the <code>smbclient.exe</code> process, and to send control requests to the process.</p>
<code>smbclientservice.exe</code>	<p>[Planned – Does not yet exist.]</p> <p>A single instance of this executable exists, and its sole purpose is to create and manage instances of <code>smbclient.exe</code>. This process is launched by the Service Manager process.</p>
<code>Smb.PrivateChannels.dll</code>	Contains contracts for use within the SMB client. Not for external use.
<code>Smb.PublicChannels.dll</code>	Contains contracts that the <code>smbclient</code> and control tool (<code>net.exe</code>) use to communicate. These channels allow apps to control the SMB client instance, query its status, and to terminate (unmount, etc.) a particular SMB client instance.

Control Commands

The `smb.exe` tool provides several commands.

<code>mount</code>	Creates a new SMB client, which provides access to a remote filesystem. The command takes as parameters the local mount path, the UNC of the remote service (e.g. <code>\\server\share</code>), and the credentials (username, domain, and password) to use during authentication.
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unmount	Terminates an SMB client process. The service unregisters its mount path, making the namespace that it exposed unavailable, and then the service process terminates. No attempt is made to coordinate with processes that are actively using the remote filesystem. The <code>smbclient</code> process simply exits.
list	Lists all SMB clients, and shows status information about each.

How to Install and Use

The SMB client is part of the default Singularity build. To connect to a remote file share, use the “`net @mount`” command, like so:

```
Singularity>net @mount /distro \\server\share -user=test -password=foo &
```

The `/distro` parameter specifies the local mount point in the Singularity namespace. The `-user` parameter specifies the username to use when connecting to the remote server. You can specify a domain name using the `-user=domain\user` syntax.

You can then enumerate the directory, use `type` to read files, etc.:

```
Singularity>dir /distro
<dir> ./
<dir> ../
<file> Edfs_BS.bin
<file> Fat16_BS.bin
<file> Fat32_BS.bin
<file> files.txt
<file> Singldr
<file> Singularity/
<file> UsbFat16_BS.bin
```

The `&` operator is necessary for now due to a limitation. For now, the `net` command directly creates the SMB client process. In the future, the `net` command will send a request to a background service, which will create the process.

Feedback

Please send any feedback to Arlie Davis (arlie).