Specification: MsDav connection test script (a.k.a. Dr DAV)

# Purpose:

Distributed Authoring and Versioning (DAV) is an extension of the HTTP protocol that allows the user to interact with and manipulate files stored on a web server. The Windows implementation of the DAV protocol as a mini-redirector is handled by the WebClient service. As a mini-redirector it allows native Windows applications to interact with the remote file system through native networking API calls similar to the local file system and other remote file storage servers (such as CIFS and SMB). This is most commonly experienced by the user as mapped drives or a Windows Explorer view.

Following the re-writing of the service in Windows Vista, the feature set was considered mature and further changes were primarily bug fixes and security updates. As of this writing this author considers the latest binaries of the WebClient service quite stable. The service consists of webclnt.dll, davclnt.dll and mrxdav.sys but is also reliant upon webio.dll, winhttp.dll and shell32.dll.

With those files at their latest versions, undesired behavior is most commonly experienced because of misconfiguration or a limitation of the implementation.

The purpose of this test script is to identify the most common causes for undesired behaviors.

PowerShell was chosen in order that the code be transparent for inspection and ease of updating. It can also be transmitted easily via email without getting filtered and removes reliance on external executables that are not native to the operating system.

The most common undesired behaviors are failure to connect, failures after connection or performance.

# Fail to Connect

1. WebClient not installed or disabled
2. Bad Network Provider order
   1. WebClient missing from provider order
   2. Third-party providers interfering
3. Port blocked
4. Version of SSL/TLS not supported by server
5. Certificate is expired, doesn't match or is untrusted
6. Bad proxy settings
   1. Proxy misdirection
   2. Proxy authentication required

# Failure after connect

1. OPTIONS and/or PROPFIND verb blocked
2. Failing Authentication / Unexpected credential prompts
   1. NTLM or Kerberos - AuthForwardServerList
   2. Basic - not over SSL
   3. Claims/FBA - No persistent cookie passed
      1. Cookie not created persistent
      2. Cookie not stored in shareable location
3. PROPFIND returns bad results
   1. XML missing
   2. XML malformed/gzipped
4. Custom header name with space
5. Root site access
   1. No DAV at root
   2. No permissions at root

# Root site missing Performance

1. Slow to connect
   1. Auto-detect proxy unnecessarily selected
   2. SMB attempts receive no response before falling through to WebClient
   3. The WebClient service was not already started
2. Slow to browse
   1. Read-Only Win32 attribute on SharePoint folders can cause unnecessary PROPFIND on contents.
   2. Too many items in the destination folder will result in slow response in Windows Explorer
3. Uploads fail to complete or are very slow
   1. PUT requests are blocked
   2. File exceeds file size limit
   3. Upload takes longer than the Timeout setting