

Grasshopper Module Guide - NetMan v1.0

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1 Overview

Netman is a persistence module that uses the Windows Network Connections Manager Service to persist a payload. When a payload is chosen to use this module, Netman will install a stub into the service and deploy the payload to the target.

Netman supports 32- and 64-bit EXE, DLL, and GH1 payloads. The bitness of the stub and DLL, GH1 payloads must match the target OS. A 32-bit EXE payload may be installed on a 64-bit target, but not vice versa.

2 Installation

Netman uses direct registry modification to register a stub DLL as a Startup DLL for the Network Connection Manager Service. If the module fails to install the payload, it will delete any deployed components and remove the registry modifications.

Netman can be configured to start the payload immediately by restarting the Network Connections Manager Service using `sc stop` and `sc start`.

2.1 Configuration

The following fields are configured at build time to specify Netman's installation behavior.

Field	Default	Description
Startup Name	<i>None</i>	Overt key value for Netman Startup DLL Stub stored in registry
Startup DLL Path	<i>None</i>	Path to Netman Startup DLL on target If the path does not exist, it is created.
Payload Path	<i>None</i>	Path to Payload on target, executed by Startup DLL If the path does not exist, it is created.
Start Now	<i>True</i>	Whether the payload should be started immediately

3 Payload Execution

Whenever the system starts, the Network Connections Manager Service loads a series of startup DLLs specified by a list in the registry. When the Netman stub is loaded and executed by the service, it will inject itself into the `netshvc svchost` process. The injected stub will then start the payload. Netman supports three kinds of payload: EXE, DLL, GH1.

3.1 EXE and DLL

If the payload is an EXE or DLL, the stub is configured with the path to the payload. Once the stub is injected into the `netshvc svchost` process, Netman will run the payload.

If the payload is an EXE, the Netman stub will execute it with SYSTEM privileges and terminate. If the payload is a DLL the stub will call `LoadLibrary()` and begin monitoring the payload.

If the stub is unable to locate or start the payload or if the payload disappears, it will uninstall. During uninstallation, Netman will delete the payload, remove the registry entry, and self delete the stub.

The EXE or DLL payload is responsible for deleting itself from the target to trigger uninstallation.

3.2 GH1

If the payload implements the GH1 interface, Netman embeds the payload as a resource in the stub. Upon injection, the stub will load the payload DLL in memory.

The stub will uninstall the payload on demand or failure to start the payload. During uninstallation, Netman will remove the registry entry and self delete the stub and payload.

4 Footprint

Netman writes unobfuscated binaries to the target filesystem. The Netman Startup stub is written to the filesystem at a user-specified path. If the payload is an EXE or DLL, it is written to the filesystem at a user-specified path. If the payload implements GH1, the payload is embedded as a resource in the Netman stub.

If the payload is an EXE, the process of the payload executable is visible in the Task Manager during execution.

Netman will create a registry key in `HKLM\SYSTEM\CurrentControlSet\Control\Network\LightweightCallHandlers\NETMAN\Startup` storing the path to the Netman Stub DLL.

5 Receipt XML Format

Netman's configuration is recorded in the Grasshopper receipt at build time under `build.xml`. An example and description of the xml format is provided below.

5.1 XML Example

```
<PersistModule>
  <UUID>9d03da02ab3a47d7bd28c9a776ba9806</UUID>
  <Netman>
    <StartupName>Cover Name</StartupName>
    <StartupDllPath>C:\Test\stub.dll</StartupDllPath>
    <PayloadPath>C:\Test\payload.dll</PayloadPath>
    <StartNow />
  </Netman>
</PersistModule>
```

5.2 Field Definitions

UUID

The universally unique identifier for the module variant used in the build.

Netman

The Netman configuration information used by the Netman module.

StartupName

The overt name of the registry key used to persist the Netman startup DLL stub.

StartupDllPath

The path to the Netman Stub DLL on the target filesystem.

PayloadPath

The path to the payload on the target filesystem run by the Netman stub.

StartNow

Whether `sc stop/start` should be used to start the payload immediately after installation. The presence of the tag indicates that the task will be started immediately.

Appendix A:

Appendix B: Change Log

Date	Change Description	Authority
05/2012	Document Initialization	235567 9
09/2012	Update for Grasshopper v1.0 Phase 2 Delivery	235567 9
11/2012	Update for Grasshopper v1.0.1 Delivery	235567 9