Enumerating Installed Providers

learn.microsoft.com/en-us/windows/win32/seccertenroll/enumerating-installed-providers

- Article
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The following example shows how to use the Certificate Enrollment API to enumerate the providers installed on a computer.

syntax

```cpp
// enumeratinginstalledproviders.cpp : Defines the entry point for the console
application.
//


//////////////////////////////////////////////////////////////////////
// EnumProviders.cpp
//    Enumerate the cryptographic providers installed on the
//    computer. This sample enumerates the Cryptography API
//    (CryptoAPI) and Cryptography API: Next Generation (CNG)
//    providers.

#include <certenroll.h>
#include <windows.h>
#include <stdio.h>
#include <conio.h>
#include <tchar.h>
#include <atlbase.h>

// Forward declaration.
HRESULT enumProviders(void);

int _tmain(int argc, _TCHAR* argv[])
{
    UNREFERENCED_PARAMETER(argc);
    UNREFERENCED_PARAMETER(argv);

    HRESULT hr = S_OK;

    // Initialize COM.
    hr = CoInitializeEx(NULL, COINIT_APARTMENTTHREADED);
    if(FAILED(hr)) return hr;

    // Enumerate the CryptoAPI and CNG providers.
    hr = enumProviders();

    CoUninitialize();
    return hr;
}

HRESULT enumProviders(void)
{
    CComPtr<ICspInformations>    pCSPs;   // Provider collection
    CComPtr<ICspInformation>     pCSP;    // Provider instgance
    HRESULT            hr        = S_OK;  // Return value
    long               lCount    = 0;     // Count of providers
    CComBSTR           bstrName;          // Provider name
    VARIANT_BOOL       bLegacy;           // CryptoAPI or CNG

    // Create a collection of cryptographic providers.
    hr = CoCreateInstance(
            __uuidof(CCspInformations),
            NULL,
            CLSCTX_INPROC_SERVER,
            __uuidof(ICspInformations),
            (void **) &pCSPs);
```

```
    if(FAILED(hr)) return hr;

    // Add the providers installed on the computer.
    hr = pCSPs->AddAvailableCsps();
    if(FAILED(hr)) return hr;

    // Retrieve the number of installed providers.
    hr = pCSPs->get_Count(&lCount);
    if(FAILED(hr)) return hr;

    // Print the providers to the console. Print the
    // name and a value that specifies whether the
    // CSP is a legacy or CNG provider.
    for (long i=0; i<lCount; i++)
    {
       hr = pCSPs->get_ItemByIndex(i, &pCSP);
       if(FAILED(hr)) return hr;

       hr = pCSP->get_Name(&bstrName);
       if(FAILED(hr)) return hr;

       hr = pCSP->get_LegacyCsp(&bLegacy);
       if(FAILED(hr)) return hr;

       if(VARIANT_TRUE == bLegacy)
          wprintf_s(L"%2d. Legacy: ", i);
       else
          wprintf_s(L"%2d. CNG: ", i);

       wprintf_s(L"%s\n", static_cast<wchar_t*>(bstrName.m_str));

       pCSP=NULL;

    }

    printf_s("\n\nHit any key to continue: ");
    _getch();

    return hr;

}
```

Related topics

Understanding Cryptographic Providers

Additional resources

Training

Module

Enumerate objects in the pipeline - Training

This module explains how to enumerate objects in the pipeline so that you can work with one object at a time during automation.