
Subject: Get MAC addresses for windows and linux
Posted by [tojocky](#) on Tue, 24 May 2011 11:14:00 GMT
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Hello all,

Some time ago I needed to create a function to get MAC addresses fro windows and linux.

In the end I have this functions:
in header file:

```
Array<String> GetMACAddresses();  
#ifdef PLATFORM_WIN32  
Array<String> GetMACAddressesIPv4();  
#endif
```

and cpp file

```
#ifdef PLATFORM_WIN32  
#include <winsock2.h>  
#include <Windows.h>  
#include <Iphlpapi.h>  
#include <Assert.h>  
#pragma comment(lib, "iphlpapi.lib")  
  
// Fetches the MAC addresses, valid only for IPV8, min vers. windows 200 client/server  
Array<String> GetMACAddressesIPv4(){  
    Array<String> result;  
    IP_ADAPTER_INFO AdapterInfo[32]; // Allocate information for up to 32 NICs  
    DWORD dwBufLen = sizeof(AdapterInfo); // Save the memory size of buffer  
  
    DWORD dwStatus = GetAdaptersInfo( // Call GetAdapterInfo  
        AdapterInfo, // [out] buffer to receive data  
        &dwBufLen); // [in] size of receive data buffer  
    ASSERT(dwStatus == ERROR_SUCCESS); // Verify return value is valid, no buffer overflow  
    String curr_mac_str;  
  
    PIP_ADAPTER_INFO pAdapterInfo = AdapterInfo; // Contains pointer to current adapter info  
    do {  
        String &curr_uuid = result.Add();  
        for(int i=0;i<8;++i)  
            curr_uuid << Format("%02X", pAdapterInfo->Address[i]);  
        pAdapterInfo = pAdapterInfo->Next; // Progress through linked list  
    } while(pAdapterInfo); // Terminate if last adapter  
    return result;  
}
```

```

}

// Fetches the MAC addresses, minimum version windows XP, windows 2003 server
Array<String> GetMACAddresses(){
    Array<String> result;

    Buffer<IP_ADAPTER_ADDRESSES> pAddresses;

    uint32 buffer_size = 16;
    uint32 buffer_item_bytes = sizeof(IP_ADAPTER_ADDRESSES);
    uint32 buffer_bytes;
    DWORD dwRetVal = 0;
    ULONG family = AF_UNSPEC; //can be: AF_INET, AF_INET6
    ULONG flags = GAA_FLAG_INCLUDE_PREFIX;
    int tries = 0;

    do{
        buffer_bytes = buffer_size * buffer_item_bytes;
        pAddresses.Alloc(buffer_size);

        dwRetVal = GetAdaptersAddresses(family, flags, NULL, ~pAddresses, &buffer_bytes);
        if(dwRetVal==ERROR_BUFFER_OVERFLOW)
            buffer_size=buffer_bytes/buffer_item_bytes+1;
        tries++;
    }while((dwRetVal==ERROR_BUFFER_OVERFLOW)&&(tries<3));

    if(dwRetVal == NO_ERROR){
        IP_ADAPTER_ADDRESSES *pCurrAddresses = ~pAddresses;
        while(pCurrAddresses){
            if (pCurrAddresses->PhysicalAddressLength != 0){
                String &curr_uuid = result.Add();

                for (int i = 0; i < (int) pCurrAddresses->PhysicalAddressLength; i++) {
                    curr_uuid << Format("%02X", pCurrAddresses->PhysicalAddress[i]);
                }
            }
            pCurrAddresses = pCurrAddresses->Next;
        }
    }else{
        if(dwRetVal == ERROR_NO_DATA)
            ASSERT_(0, "Error to get MAC address");
    }
    return result;
}

#ifdef PLATFORM_POSIX

#include <net/if.h>
#include <sys/ioctl.h>

```

```

// Fetches the MAC addresses
Array<String> GetMACAddresses(){
    Array<String> result;
    int nSD; // Socket descriptor
    struct ifreq slfReq; // Interface request
    struct if_nameindex *pIfList; // Ptr to interface name index
    struct if_nameindex *pListSave; // Ptr to interface name index

    //
    // Initialize this function
    //
    pIfList = (struct if_nameindex *)NULL;
    pListSave = (struct if_nameindex *)NULL;
    #ifndef SIOCGIFADDR
        // The kernel does not support the required ioctls
        return result;
    #endif

    //
    // Create a socket that we can use for all of our ioctls
    //
    nSD = socket( PF_INET, SOCK_STREAM, 0 );
    ASSERT(nSD >= 0);

    //
    // Obtain a list of dynamically allocated structures
    //
    pIfList = pListSave = if_nameindex();

    //
    // Walk thru the array returned and query for each interface's
    // address
    //
    unsigned char cMacAddr[8]; // Server's MAC address

    for ( pIfList; *(char *)pIfList != 0; pIfList++){
        //pIfList->if_name // address name like eth0, eth1, ...
        strncpy( slfReq.ifr_name, pIfList->if_name, IF_NAMESIZE );

        //
        // Get the MAC address for this interface
        //
        ASSERT(ioctl(nSD, SIOCGIFHWADDR, &slfReq) == 0); // We failed to get the MAC address for
the interface
        byte* curr_address = (byte*)&(slfReq.ifr_ifru.ifru_hwaddr.sa_data[0]);

        String &curr_uuid = result.Add();
    }
}

```

```

for(int i=0;i<8;++i)
    curr_uuid << Format("%02X", curr_address[i]);
}

//
// Clean up things and return
//
if_freenameindex( pListSave );
close( nSD );
return result;
}
#else
Array<String> GetMACAddresses(){
    Array<String> result;
    return result;
}
#error GetMACAddresses not supported for this plathform.
#endif

```

It must to works fine for IPV4 and IPV6 (for windows only).

If somebody know how to get MAC addresses for IPV6 I will be glad.

Any comments are welcome.