[MS-HNDS]:
Host Name Data Structure Extension

Revision Summary

Date	Revision History	Revision Class	Comments
10/24/2008	0.1		Initial Availability.
12/05/2008	0.2	Minor	Updated the technical content.
01/16/2009	0.2.1	Editorial	Revised and edited the technical content.
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Date	Revision History	Revision Class	Comments
			the technical content.
06/17/2011	1.2	Minor	Clarified the meaning of the technical content.
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1 Introduction

This document specifies the extension to the allowable **host names** that may be assigned to a computer.

Sections 1.7 and 2 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in RFC 2119. All other sections and examples in this specification are informative.

1.1 Glossary

The following terms are defined in [MS-GLOS]:

Augmented Backus-Naur Form (ABNF)
ASCII
client
Domain Name System (DNS)
syntax
Unicode
UTF-8

The following terms are specific to this document:

host name: A string assigned to a computer in order to identify itself and to differentiate itself from other hosts on the network.

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as specified in [RFC2119]. All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2 References

References to Microsoft Open Specifications documentation do not include a publishing year because links are to the latest version of the documents, which are updated frequently. References to other documents include a publishing year when one is available.

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information.

[RFC952] Harrenstien, K., Stahl, M., and Feinler, E., "DoD Internet Host Table Specification", RFC 952, October 1985, http://www.ietf.org/rfc/rfc952.txt

[RFC1123] Braden, R., "Requirements for Internet Hosts - Application and Support", STD 3, RFC 1123, October 1989, http://www.ietf.org/rfc/rfc1123.txt

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, http://www.rfc-editor.org/rfc/rfc2119.txt

[RFC3629] Yergeau, F., "UTF-8, A Transformation Format of ISO 10646", STD 63, RFC 3629, November 2003, http://www.ietf.org/rfc/rfc3629.txt

[RFC5234] Crocker, D., Ed., and Overell, P., "Augmented BNF for Syntax Specifications: ABNF", STD 68, RFC 5234, January 2008, http://www.rfc-editor.org/rfc/rfc5234.txt

1.2.2 Informative References

[ICANN] Internet Corporation for Assigned Names and Numbers, "DNS Stability: The Effect of New Generic Top Level Domains on the Internet Domain Name System", February 2008, http://www.icann.org/en/topics/dns-stability-draft-paper-06feb08.pdf

[MS-GLOS] Microsoft Corporation, "Windows Protocols Master Glossary".

[MS-NBTE] Microsoft Corporation, "NetBIOS over TCP (NBT) Extensions".

[RFC1034] Mockapetris, P., "Domain Names - Concepts and Facilities", STD 13, RFC 1034, November 1987, http://www.ietf.org/rfc/rfc1034.txt

[RFC1035] Mockapetris, P., "Domain Names - Implementation and Specification", STD 13, RFC 1035, November 1987, http://www.ietf.org/rfc/rfc1035.txt

[RFC2181] Elz, R., and Bush, R., "Clarifications to the DNS Specification", RFC 2181, July 1997, http://www.ietf.org/rfc/rfc2181.txt

[RFC3493] Gilligan, R., Thomson, S., Bound, J., et al., "Basic Socket Interface Extensions for IPv6", RFC 3493, February 2003, http://www.ietf.org/rfc/rfc3493.txt

1.3 Overview

A host name is a string assigned to a computer in order to identify itself and to differentiate itself from other hosts on the network. The **syntax** for a host name was first defined in [RFC952] and was subsequently updated in [RFC1123] section 2.1.

This document extends that syntax to allow underscores and non-**ASCII** characters.

1.4 Relationship to Protocols and Other Structures

Various protocols use host names in their own protocols and it is the responsibility of those protocols to state whether they use the standard host name syntax, or this extended syntax.

One protocol worth noting is the DNS protocol [RFC1034] [RFC1035] [RFC2181], which does not depend on host names in any way. The DNS protocol uses **DNS** names which allow binary labels (and hence inherently supports host names as well as names that would not be legal host names).

Note This document does not apply to NetBIOS names, which are instead discussed in [MS-NBTE].

1.5 Applicability Statement

A computer is typically configured with a host name which is used to uniquely identify that computer. That is, hosts can identify one another through the host names.

1.6 Versioning and Localization

There is no versioning or localization support in this structure.

1.7 Vendor-Extensible Fields

The host name structure does not contain any vendor-extensible fields.

2 Structures

2.1 Extended Host Name

The extended host name syntax is a **UTF-8** [RFC3629] string specified by the following **ABNF** [RFC5234]:

```
hname = name *("." name)
name = 1*63let-dig-hyp-und
let-dig-hyp-und = ALPHA / DIGIT / UTF8-2 / UTF8-3 / UTF8-4 / "-" / "_"
```

where UTF8-2, UTF8-3, and UTF8-4 are as specified in [RFC3629] section 4. In addition, the entire extended host name MUST be at most 255 bytes long.

An implementation MAY<1> disallow a string where a substring constructed from the 'name' rule does not contain at least one non-DIGIT character.

3 Structure Examples

The following strings are all examples of extended host names:

```
"my_computer.contoso.com"
"my_computer"
"_123"
 "0x123"
"-"
"-._.-._.-"
```

4 Security Considerations

Because the string "0x123" is a valid extended host name, there may be security issues depending on how **client** software interprets such strings. For example, as discussed in [ICANN], the inet_addr() method of the classic sockets Application Programming Interface (API) will interpret these strings as string representations of an IP address, and as discussed in [RFC3493] section 6.1, the getaddrinfo() method of the sockets API will perform a simple conversion of strings accepted by inet_addr(), instead of trying to resolve the name using any type of name resolution service. This could redirect the client software to an address other than an address registered for that host name. As such, great care should be taken before using an extended host name that could be interpreted as a hexadecimal number.

5 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs:

- Windows NT operating system
- Windows 2000 operating system
- Windows XP operating system
- Windows Server 2003 operating system
- Windows Vista operating system
- Windows Server 2008 operating system
- Windows 7 operating system
- Windows Server 2008 R2 operating system
- Windows 8 operating system
- Windows Server 2012 operating system
- Windows 8.1 operating system
- Windows Server 2012 R2 operating system

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms SHOULD or SHOULD NOT implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that the product does not follow the prescription.

<1> Section 2.1: Windows NT, Windows 2000, Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008, Windows 7, and Windows Server 2008 R2 follow this behavior.

6 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

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