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A String Representation of General Name

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Abstract

The PKIX working group has created the GeneralName [[RFC2459](#)] to support more name types than just the distinguished name specified by OSI. GeneralName is encoded in ASN.1. When a GeneralName is communicated not using a ASN.1 encoded protocol (e.g., in a configuration file), there is a need to have a string representation of GeneralName. This document specifies a string format for representing names, which is designed to give a clean representation of commonly used names, whilst being able to represent any GeneralName. This specification also recognizes that GeneralName needs to be communicated to humans, in which case the encoding has to be user friendly

for display purposes, for e.g. on a business card or in an email message.

This is being published as a separate draft for convenience, but probably will be merged with [RFC 2459](#) [[RFC2459](#)].

The key words "MUST", "MUST NOT", "REQUIRED", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document (in uppercase, as shown) are to be interpreted as described in [[RFC2119](#)].

1. A notation for GeneralName

1.1 Goals

The following goals are laid out:

- o To provide an unambiguous representation of a GeneralName
- o To be an intuitive format for the majority of GeneralNames
- o To be fully general, and able to represent GeneralName with extension capability
- o To give a clear representation of the contents of the GeneralName

1.2 Informal definition

This notation is designed to be convenient for common forms of name. Some examples are given. The author's directory distinguished name would be written:

directory:CN=Amit Kapoor, O=Trustpoint, C=US

Or the author's mail name could be written as:

mail:ronald@trustpoint.com

The IP address for a machine could be written as:

ip:192.168.0.10

The basic structure is to provide the name type tag followed by the string representation of the name value.

1.3 Formal definition

A formal definition can now be given. The structure is specified using the [[ABNF](#)] grammar:

```

general-name = name-type ":" name-value
name-type    = ALPHA *( ALPHA | DIGIT | "_" | "-" )
name-value   = <any character>

```

The name-type is case-insensitive.

The list of valid name types and the corresponding name values with both application and display encodings are given below:

GeneralName	Name-type	Name-value	Application	Display
RFC822	"mail"	addr-spec	[RFC822]	[RFC822]
Directory	"directory"	name	[DN1]	[DN2]
RegisteredId	"registeredID"	oid	[DN1]	[DN1]
DNSName	"dns"	hostname	[URI]	[URI]
URI	"uri"	absoluteURI	[URI]	[IURI]
X400Address	"x400"	O/R	[O/R]	[O/R]
OtherName	"other"	other-value	<specified below>	
EDIPartyName	"edi"	edi-value	<specified below>	
IPAddress	"ip"	(IPv4address IPv6address)	[IPv6]	[IPv6]

```
other-value      = <oid [DN1]> ":" <base64 encoded ANY value>
```

```
edi-value      = [ name-assigner "," ] party-name
name-assigner  = "assigner" ":" directory-string
party-name     = "name" ":" directory-string
               ; The "name" and "assigner" are case-insensitive
```

```
directory-string = *(stringchar | pair) |
                    QUOTATION *(quotechar | pair) QUOTATION
```

```
stringchar      = <any character except one of special, "\" or
                  QUOTATION >
```

```
quotechar      = <any character except "\" or QUOTATION >
```

```
pair = "\" ( special | "\"" | QUOTATION | hexpair )
```

```
special      = " , "
```

```
hexpair      = hexchar hexchar
```

hexchar	=	DIGIT		"A"		"B"		"C"		"D"		"E"		"F"
				"a"		"b"		"c"		"d"		"e"		"f"

QUOTATION = <ASCII double quotation mark character '"'">

Elements of GeneralName not specified in this specification SHOULD be encoded in ASN.1 value notation form [[X680](#)].

Application encoding MUST be used when communicating the name between applications, whereas Display encoding SHOULD be used for human readable purposes like business cards etc. The difference between the Application and Display encodings (if any) is that the Application encodings use a UTF-8 encoding step; this step is not desirable when intending a name for human consumption. Conversion between Display and Application encoding is an implementation detail and outside the scope of this specification.

2. Examples

This section gives a few examples of GeneralName's written using this notation:

1. Distinguished Name

display encoding:

directory:CN=Ronald Tschal r, O=Trustpoint, C=US

application encoding:

directory:CN=Ronald Tschal\C3\A4r, O=Trustpoint, C=US

2. RFC822Mail Name

mail:amit@trustpoint.com

3. URI

uri:http://www.trustpoint.com/

4. DNS

dns:gandalf.trustpoint.com

5. IP Address

ip:191.162.20.10

6. Registered

registeredID:1.22.3456.4.58.60

3. References

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[4. Acknowledgments](#)

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[5. Security Considerations](#)

Security issues are not discussed in this memo.

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