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SSH Protocol Assigned Numbers
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Abstract

This document defines the initial state of the IANA assigned numbers for the SSH protocol as defined in [[SSH-ARCH](#)], [[SSH-TRANS](#)], [[SSH-CONNECT](#)], [[SSH-USERAUTH](#)]. Except for one HISTORIC algorithm generally regarded as obsolete, this document does not define any new protocols or any number ranges not already defined in the above referenced documents. It is intended only for initialization of the IANA databases referenced in those documents.

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SSH Protocol Assigned Numbers

August 2003

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1. Message Numbers

The Message Number is an 8-bit value, which describes the payload of a packet.

Protocol packets have message numbers in the range 1 to 255. These numbers have been allocated as follows in [[SSH-ARCH](#)]:

Transport layer protocol:

- 1 to 19 Transport layer generic (e.g. disconnect, ignore, debug, etc.)
- 20 to 29 Algorithm negotiation
- 30 to 49 Key exchange method specific (numbers can be reused for different authentication methods)

User authentication protocol:

- 50 to 59 User authentication generic
- 60 to 79 User authentication method specific (numbers can be reused for different authentication methods)

Connection protocol:

- 80 to 89 Connection protocol generic
- 90 to 127 Channel related messages

Reserved for client protocols:

- 128 to 191 Reserved

Local extensions:

- 192 to 255 Local extensions

Requests for assignments of new message numbers must be accompanied by an RFC which describes the new packet type. If the RFC is not on the standards-track (i.e. it is an informational or experimental RFC), it must be explicitly reviewed and approved by the IESG before the RFC is published and the message number is assigned.

| Message ID ----- | Value ----- | Reference ----- |
|-------------------------|----------------|-------------------------------|
| SSH_MSG_DISCONNECT | 1 | [SSH-TRANS] |
| SSH_MSG_IGNORE | 2 | [SSH-TRANS] |
| SSH_MSG_UNIMPLEMENTED | 3 | [SSH-TRANS] |
| SSH_MSG_DEBUG | 4 | [SSH-TRANS] |
| SSH_MSG_SERVICE_REQUEST | 5 | [SSH-TRANS] |

| | | |
|-----------------------------------|-----|----------------------------------|
| SSH_MSG_SERVICE_ACCEPT | 6 | [SSH-TRANS] |
| SSH_MSG_KEXINIT | 20 | [SSH-TRANS] |
| SSH_MSG_NEWKEYS | 21 | [SSH-TRANS] |
| SSH_MSG_KEXDH_INIT | 30 | [SSH-TRANS] |
| SSH_MSG_KEXDH_REPLY | 31 | [SSH-TRANS] |
| SSH_MSG_USERAUTH_REQUEST | 50 | [SSH-USERAUTH] |
| SSH_MSG_USERAUTH_FAILURE | 51 | [SSH-USERAUTH] |
| SSH_MSG_USERAUTH_SUCCESS | 52 | [SSH-USERAUTH] |
| SSH_MSG_USERAUTH_BANNER | 53 | [SSH-USERAUTH] |
| SSH_MSG_USERAUTH_PK_OK | 60 | [SSH-USERAUTH] |
| SSH_MSG_GLOBAL_REQUEST | 80 | [SSH-CONNECT] |
| SSH_MSG_REQUEST_SUCCESS | 81 | [SSH-CONNECT] |
| SSH_MSG_REQUEST_FAILURE | 82 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_OPEN | 90 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_OPEN_CONFIRMATION | 91 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_OPEN_FAILURE | 92 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_WINDOW_ADJUST | 93 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_DATA | 94 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_EXTENDED_DATA | 95 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_EOF | 96 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_CLOSE | 97 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_REQUEST | 98 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_SUCCESS | 99 | [SSH-CONNECT] |
| SSH_MSG_CHANNEL_FAILURE | 100 | [SSH-CONNECT] |

[1.1](#) Disconnect Codes

The Disconnect code is an 8-bit value, which describes the disconnect reason. Requests for assignments of new disconnect codes must be accompanied by an RFC which describes the new disconnect reason code.

| Disconnect code | Value | Reference |
|---|-------|-------------------------------|
| ----- | ----- | ----- |
| SSH_DISCONNECT_HOST_NOT_ALLOWED_TO_CONNECT | 1 | [SSH-TRANS] |
| SSH_DISCONNECT_PROTOCOL_ERROR | 2 | [SSH-TRANS] |
| SSH_DISCONNECT_KEY_EXCHANGE_FAILED | 3 | [SSH-TRANS] |
| SSH_DISCONNECT_RESERVED | 4 | [SSH-TRANS] |
| SSH_DISCONNECT_MAC_ERROR | 5 | [SSH-TRANS] |
| SSH_DISCONNECT_COMPRESSION_ERROR | 6 | [SSH-TRANS] |
| SSH_DISCONNECT_SERVICE_NOT_AVAILABLE | 7 | [SSH-TRANS] |
| SSH_DISCONNECT_PROTOCOL_VERSION_NOT_SUPPORTED | 8 | [SSH-TRANS] |
| SSH_DISCONNECT_HOST_KEY_NOT_VERIFIABLE | 9 | [SSH-TRANS] |
| SSH_DISCONNECT_CONNECTION_LOST | 10 | [SSH-TRANS] |
| SSH_DISCONNECT_BY_APPLICATION | 11 | [SSH-TRANS] |
| SSH_DISCONNECT_TOO_MANY_CONNECTIONS | 12 | [SSH-TRANS] |
| SSH_DISCONNECT_AUTH_CANCELLED_BY_USER | 13 | [SSH-TRANS] |

| | | |
|---|----|-------------------------------|
| SSH_DISCONNECT_NO_MORE_AUTH_METHODS_AVAILABLE | 14 | [SSH-TRANS] |
| SSH_DISCONNECT_ILLEGAL_USER_NAME | 15 | [SSH-TRANS] |

2. Service Names

The Service Name is used to describe a protocol layer. These names MUST be printable US-ASCII strings, and MUST NOT contain the characters at-sign ('@'), comma (','), or whitespace or control characters (ASCII codes 32 or less). Names are case-sensitive, and MUST NOT be longer than 64 characters.

Requests for assignments of new service names must be accompanied by an RFC which describes the interpretation for the service name. If the RFC is not on the standards-track (i.e. it is an informational or experimental RFC), it must be explicitly reviewed and approved by the IESG before the RFC is published and the service name is assigned.

| Service name | Reference |
|--------------|-----------|
| ----- | ----- |

| | |
|----------------|----------------------------------|
| ssh-userauth | [SSH-USERAUTH] |
| ssh-connection | [SSH-CONNECT] |

[2.1](#) Authentication Method Names

The Authentication Method Name is used to describe an authentication method for the "ssh-userauth" service [[SSH-USERAUTH](#)]. These names MUST be printable US-ASCII strings, and MUST NOT contain the characters at-sign ('@'), comma (','), or whitespace or control characters (ASCII codes 32 or less). Names are case-sensitive, and MUST NOT be longer than 64 characters.

Requests for assignments of new authentication method names must be accompanied by an RFC which describes the interpretation for the authentication method.

| Method name ----- | Reference ----- |
|----------------------|--|
| publickey | [SSH-USERAUTH, Section 4] |
| password | [SSH-USERAUTH, Section 5] |
| hostbased | [SSH-USERAUTH, Section 6] |
| none | [SSH-USERAUTH, Section 2.3] |

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[2.2](#) Connection Protocol Assigned Names

The following request and type names MUST be printable US-ASCII strings, and MUST NOT contain the characters at-sign ('@'), comma (','), or whitespace or control characters (ASCII codes 32 or less). Names are case-sensitive, and MUST NOT be longer than 64 characters.

Requests for assignments of new assigned names must be accompanied by an RFC which describes the interpretation for the type or request.

[2.2.1](#) Connection Protocol Channel Types

| Channel type ----- | Reference ----- |
|-----------------------|--------------------|
|-----------------------|--------------------|

| | |
|-----------------|---|
| session | [SSH-CONNECT, Section 4.1] |
| x11 | [SSH-CONNECT, Section 4.3.2] |
| forwarded-tcpip | [SSH-CONNECT, Section 5.2] |
| direct-tcpip | [SSH-CONNECT, Section 5.2] |

[2.2.2](#) Connection Protocol Global Request Names

| Request type | Reference |
|----------------------|---|
| ----- | ----- |
| tcpip-forward | [SSH-CONNECT, Section 5.1] |
| cancel-tcpip-forward | [SSH-CONNECT, Section 5.1] |

[2.2.3](#) Connection Protocol Channel Request Names

| Request type | Reference |
|---------------|---|
| ----- | ----- |
| pty-req | [SSH-CONNECT, Section 4.2] |
| x11-req | [SSH-CONNECT, Section 4.3.1] |
| env | [SSH-CONNECT, Section 4.4] |
| shell | [SSH-CONNECT, Section 4.5] |
| exec | [SSH-CONNECT, Section 4.5] |
| subsystem | [SSH-CONNECT, Section 4.5] |
| window-change | [SSH-CONNECT, Section 4.7] |
| xon-xoff | [SSH-CONNECT, Section 4.8] |
| signal | [SSH-CONNECT, Section 4.9] |
| exit-status | [SSH-CONNECT, Section 4.10] |
| exit-signal | [SSH-CONNECT, Section 4.10] |

[3.](#) Key Exchange Method Names

The Key Exchange Method Name describes a key-exchange method for the protocol [[SSH-TRANS](#)]. The names MUST be printable US-ASCII strings, and MUST NOT contain the characters at-sign ('@'), comma (','), or whitespace or control characters (ASCII codes 32 or less). Names are case-sensitive, and MUST NOT be longer than 64 characters.

Requests for assignment of new key-exchange method names must be accompanied by a reference to a standards-track or Informational RFC which describes this method.

| Method name | Reference |
|----------------------------|---|
| ----- | ----- |
| diffie-hellman-group1-sha1 | [SSH-TRANS, Section 4.5] |

[4. Assigned Algorithm Names](#)

The following identifiers (names) MUST be printable US-ASCII strings, and MUST NOT contain the characters at-sign ('@'), comma (','), or whitespace or control characters (ASCII codes 32 or less). Names are case-sensitive, and MUST NOT be longer than 64 characters.

Requests for assignment of new algorithm names must be accompanied by a reference to a standards-track or Informational RFC or a reference to published cryptographic literature which describes the algorithm.

[4.1 Encryption Algorithm Names](#)

| Cipher name | Reference |
|----------------|---|
| ----- | ----- |
| 3des-cbc | [SSH-TRANS, Section 4.3] |
| blowfish-cbc | [SSH-TRANS, Section 4.3] |
| twofish256-cbc | [SSH-TRANS, Section 4.3] |
| twofish-cbc | [SSH-TRANS, Section 4.3] |
| twofish192-cbc | [SSH-TRANS, Section 4.3] |
| twofish128-cbc | [SSH-TRANS, Section 4.3] |
| aes256-cbc | [SSH-TRANS, Section 4.3] |
| aes192-cbc | [SSH-TRANS, Section 4.3] |
| aes128-cbc | [SSH-TRANS, Section 4.3] |
| serpent256-cbc | [SSH-TRANS, Section 4.3] |
| serpent192-cbc | [SSH-TRANS, Section 4.3] |
| serpent128-cbc | [SSH-TRANS, Section 4.3] |
| arcfour | [SSH-TRANS, Section 4.3] |
| idea-cbc | [SSH-TRANS, Section 4.3] |
| cast128-cbc | [SSH-TRANS, Section 4.3] |
| none | [SSH-TRANS, Section 4.3] |

des-cbc

[[FIPS-46-3](#)] HISTORIC; See page 4 of [[FIPS 46-3](#)]

[4.2](#) MAC Algorithm Names

| MAC name ----- | Reference ----- |
|-------------------|---|
| hmac-sha1 | [SSH-TRANS, Section 4.4] |
| hmac-sha1-96 | [SSH-TRANS, Section 4.4] |
| hmac-md5 | [SSH-TRANS, Section 4.4] |
| hmac-md5-96 | [SSH-TRANS, Section 4.4] |
| none | [SSH-TRANS, Section 4.4] |

[4.3](#) Public Key Algorithm Names

| Algorithm name ----- | Reference ----- |
|-------------------------|---|
| ssh-dss | [SSH-TRANS, Section 4.6] |
| ssh-rsa | [SSH-TRANS, Section 4.6] |
| x509v3-sign-rsa | [SSH-TRANS, Section 4.6] |
| x509v3-sign-dss | [SSH-TRANS, Section 4.6] |
| spki-sign-rsa | [SSH-TRANS, Section 4.6] |
| spki-sign-dss | [SSH-TRANS, Section 4.6] |
| pgp-sign-rsa | [SSH-TRANS, Section 4.6] |
| pgp-sign-dss | [SSH-TRANS, Section 4.6] |

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Encryption Standard (DES)", October 1999.

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