

Secure Shell Working Group  
Internet-Draft  
Expires: September 18, 2005

J. Galbraith  
VanDyke Software  
R. Thayer  
The Tillerman Group  
March 17, 2005

**SSH Public Key File Format**  
**draft-ietf-secsh-publickeyfile-06.txt**

Status of this Memo

This document is an Internet-Draft and is subject to all provisions of [Section 3 of RFC 3667](#). By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she become aware will be disclosed, in accordance with [RFC 3668](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/1id-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on September 18, 2005.

Copyright Notice

Copyright (C) The Internet Society (2005).

Abstract

This document formally documents the existing public key file format in use for exchanging public keys between different SSH implementations.

## Table of Contents

<a href="#">1.</a>	Conventions used in this document . . . . .	<a href="#">3</a>
<a href="#">2.</a>	Introduction . . . . .	<a href="#">4</a>
<a href="#">3.</a>	Key File Format . . . . .	<a href="#">5</a>
<a href="#">3.1</a>	Line termination Characters . . . . .	<a href="#">5</a>
<a href="#">3.2</a>	Begin and end markers . . . . .	<a href="#">5</a>
<a href="#">3.3</a>	Key File Header . . . . .	<a href="#">5</a>
<a href="#">3.3.1</a>	Subject Header . . . . .	<a href="#">6</a>
<a href="#">3.3.2</a>	Comment Header . . . . .	<a href="#">6</a>
<a href="#">3.4</a>	Public Key File Body . . . . .	<a href="#">6</a>
<a href="#">3.5</a>	Examples . . . . .	<a href="#">7</a>
<a href="#">4.</a>	IANA Considerations . . . . .	<a href="#">8</a>
<a href="#">5.</a>	Security Considerations . . . . .	<a href="#">9</a>
<a href="#">6.</a>	Normative References . . . . .	<a href="#">9</a>
	Authors' Addresses . . . . .	<a href="#">10</a>
	Intellectual Property and Copyright Statements . . . . .	<a href="#">11</a>



## **1. Conventions used in this document**

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

## **2. Introduction**

In order to use public key authentication, public keys must be exchanged between client and server. This document formally describes the existing public key file format, with few exceptions.

Where this document departs from current practice, it also suggests a mechanism for backwards compatibility.

### **3. Key File Format**

SSH implementations must share public key files between the client and the server in order to interoperate.

A key file is a text file, containing a sequence of lines. Each line in the file MUST NOT be longer than 72 bytes.

#### **3.1 Line termination Characters**

In order to achieve the goal of being able to exchange public key files between servers, implementations are REQUIRED to read files using any of the common line termination sequence, <CR>, <LF> or <CR><LF>.

Implementations may generate files using which ever line termination convention is most convenient

#### **3.2 Begin and end markers**

The first line of a conforming key file MUST be a begin marker, which is the literal text:

```
---- BEGIN SSH2 PUBLIC KEY ----
```

The last line of a conforming key file MUST be a end marker, which is the literal text:

```
---- END SSH2 PUBLIC KEY ----
```

#### **3.3 Key File Header**

The key file header section consists of multiple [RFC822](#) - style header fields. Each field is a line of the following format:

```
Header-tag ':' ' ' Header-value
```

The Header-tag MUST NOT be more than 64 bytes. The Header-value MUST NOT be more than 1024 bytes. Each line in the header MUST NOT be more than 72 bytes.

A line is continued if the last character in the line is a '\\'. If the last character of a line is a '\\', then the logical contents of the line is formed by removing the '\\' and appending the contents of the next line.

The Header-tag MUST be US-ASCII. The Header-value MUST be encoded in UTF-8. [[RFC2044](#)]



A line that is not a continuation line that has no ':' in it is assumed to be the first line of the base 64 encoded body ([Section 8](#))

Compliant implementations MUST ignore unrecognized header fields. Implementations SHOULD preserve unrecognized header fields when manipulating the key file.

Existing implementations may not correctly handle unrecognized fields. During a transition period, implementations SHOULD generate key file headers that contain only a Subject field followed by a Comment field.

### **[3.3.1](#) Subject Header**

This field currently is used to store the login-name that the key was generated under. For example:

Subject: user

### **[3.3.2](#) Comment Header**

Contain a user specified comment which will be displayed when using the key.

It is suggested that this field default to user@hostname for the user and machine used to generate the key. For example:

Comment: user@mycompany.com

Currently, common practice is to quote the Header-value of the Comment, and some existing implementations fail if these quotes are omitted.

Compliant implementations MUST function correctly if the quotes are omitted.

During an interim period implementations MAY include the quotes. If the first and last characters of the Header-value are matching quotes, implementations SHOULD remove them before using the value.

## **[3.4](#) Public Key File Body**

The body of a public key file consists of the public key blob as described in the SSH transport draft [[I-D.ietf-secsh-transport](#)], section 4.6, "Public Key Algorithms", encoded in base 64 as specified in [RFC-2045, section 6.8](#), "Base64 Content-Transfer-Encoding". [[RFC2045](#)]





As with all other lines, each line in the body MUST NOT be longer than 72 characters.

### 3.5 Examples

The following are some example public key files that are compliant:

```
---- BEGIN SSH2 PUBLIC KEY ----
```

```
Comment: "1024-bit RSA, converted from OpenSSH by galb@test1"
```

```
AAAAB3NzaC1yc2EAAAABIwAAAIEA1on8gxCGJJWSRT4uOrR13mUaUk0hRf4RzxSZ1zRb  
YYFw8pfGesIFoEuVth4HKyF8k1y4mRUNYHP1XNMNMJl1JcEArc2asV8sHf6zSPVffozZ  
5TT4SfsUu/iKy9lUcCfXzwre4WWZSXXcPff+EhtWshahu3WzBdnGxm5Xoi89zcE=
```

```
---- END SSH2 PUBLIC KEY ----
```

```
---- BEGIN SSH2 PUBLIC KEY ----
```

```
Comment: DSA Public Key for use with MyIsp
```

```
AAAAB3NzaC1kc3MAAACBAPY8Z0HY2yFSJA6XYC9HRwNHxaehvx5w0J0rzZdzoS0XxbET  
W6ToHv8D1UJ/z+zHo9Fiko5XybZnDIaBDHtb1Q+Yp7StxyltHnXF1YLfKD1G4T6JYrdH  
YI140m1eg9e4NnCRleaQoZPF3UGfZia6bXrGTQf3gJq2e7Yisk/gF+1VAAAAFQDb8D5c  
vwHWTZDPfX0D2s9Rd7NBvQAAAIEA1N92+Bb7D4KLYk3IwRbXblwXdkPggA4pfdtW9vGf  
J0/RHd+NjB4eo1D+0dix6tXwYGN7PKS5R/FXPNwxHPapcj9uL1Jn2AWQ2dsknf+i/FAA  
vioUPkmdMc0zuWoSOEsSNhVDtX3WdvVcGcBq9cetzrt0KW0ocJmJ80qadxTRHtUAAACB  
AN7CY+KKv1gHpRzFwdQm7HK9bb1LAo2KwaoXnadFgeptNBQeSXG1v0+JsvphVMBJc9HS  
n24VYtYtsMu74qXviYjziVucWKjjKEb11juqnF0GD1B3VVmxHLmxnAz643WK42Z7dLM5  
sY29ouezv4Xz2PuMch5VGPP+CDqzCM41oWgV
```

```
---- END SSH2 PUBLIC KEY ----
```

```
---- BEGIN SSH2 PUBLIC KEY ----
```

```
Subject: galb
```

```
Comment: 1024-bit rsa, created by galb@shimi Mon Jan 15 08:31:24 2001
```

```
AAAAB3NzaC1yc2EAAAABJQAAAIEAiPwx6WM4lhHNedGfBpPJNPpZ7yKu+dnn1SJejgt4  
596k6YjzGGphH2TuxwKzxcKDKKezkwkpfnxPkSMkuEspGRt/aZZ9wa++0i7Qkr8prgHc4  
soW6NUlfdZpvZK2H5E7eQaSeP3SAwGmQKUFHCddNaP0L+hM7zhFNzjFvpaMgJw0=
```

```
---- END SSH2 PUBLIC KEY ----
```



#### **4. IANA Considerations**

There are non IANA registries or other considerations associated with this document.

## 5. Security Considerations

The file format described by this document provides no mechanism to verify the integrity or otherwise detect tampering with the data stored in such files. Given the potential of an adversarial tampering with this data, system-specific measures (e.g. Access Control Lists, UNIX permissions, other Discretionary and/or Mandatory Access Controls) SHOULD be used to protect these files. Also, if the contents of these files are transferred it SHOULD be done over a trusted channel.

The header data allowed by this file format could contain an unlimited range of information. While in many environments the information conveyed by this header data may be considered innocuous public information, it may constitute a channel through which information about a user, a key or its use may be disclosed intentionally or otherwise (e.g "Comment: Mary E. Jones, 123 Main St, Home Phone:..."). The presence and use of this header data SHOULD be reviewed by sites that deploy this file format.

## 6. Normative References

- [I-D.ietf-secsh-transport]  
Rinne, T., Ylonen, T., Kivinen, T., Saarinen, M. and S. Lehtinen, "SSH Protocol Transport Protocol", September 2002.
- [RFC2044] Yergeau, F., "UTF-8, a Transformation Format of Unicode and ISO 10646", October 1996.
- [RFC2026] Bradner, S., "The Internet Standards Process -- Revision 3", October 1996.
- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", March 1997.
- [RFC2045] Freed and Borenstein, "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies", November 1996.



#### Authors' Addresses

Joseph Galbraith  
VanDyke Software  
4848 Tramway Ridge Blvd  
Suite 101  
Albuquerque, NM 87111  
US

Phone: +1 505 332 5700  
Email: galb-list@vandyke.com

Rodney Thayer  
The Tillerman Group  
370 Altair Way, PMB 321  
Sunnyvale, CA 94086

Phone: +1 408 757 9693  
Email: rodney@tillerman.to

#### Trademark notice

"ssh" is a registered trademark in the United States and/or other countries.





## Intellectual Property Statement

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the procedures with respect to rights in RFC documents can be found in [BCP 78](#) and [BCP 79](#).

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository at <http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at [ietf-ipr@ietf.org](mailto:ietf-ipr@ietf.org).

## Disclaimer of Validity

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

## Copyright Statement

Copyright (C) The Internet Society (2005). This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

## Acknowledgment

Funding for the RFC Editor function is currently provided by the Internet Society.

