# Introduced in version 2.5.0

## Major code re-factoring

* Reception of an SSH\_MSG\_UNIMPLEMENTED response to a SSH\_MSG\_GLOBAL\_REQUEST is translated internally into same code flow as if an SSH\_MSH\_REQUEST\_FAILURE has been received - see [SSHD-968](https://issues.apache.org/jira/browse/SSHD-968).
* Server SFTP subsystem internal code dealing with the local files has been delegated to the SftpFileSystemAccessor in order to allow easier hooking into the SFTP subsystem.
  + Resolving a local file path for an SFTP remote one
  + Reading/Writing a file's attribute(s)
  + Creating files links
  + Copying / Renaming / Deleting files
* SftpVersionSelector is now consulted when client sends initial command (as well as when session is re-negotiated)
* ScpCommandFactory is also a ShellFactory that can be used to provide a minimalistic shell that is good enough for *WinSCP*.

## Minor code helpers

* Handling of debug/ignore/unimplemented messages has been split into handleXXX and doInvokeXXXMsgHandler methods where the former validate the messages and deal with the idle timeout, and the latter execute the actual invcation.
* Added overloaded methods that accept a java.time.Duration specifier for timeout value.
* The argument representing the SFTP subsystem in invocations to SftpFileSystemAccessor has been enhanced to expose as much of the available functionality as possible.

## Behavioral changes and enhancements

* [SSHD-964](https://issues.apache.org/jira/browse/SSHD-964) - Send SSH\_MSG\_CHANNEL\_EOF when tunnel channel being closed.
* [SSHD-967](https://issues.apache.org/jira/browse/SSHD-967) - Extra bytes written when SftpRemotePathChannel#transferTo is used.
* [SSHD-968](https://issues.apache.org/jira/browse/SSHD-968) - Interpret SSH\_MSG\_UNIMPLEMENTED response to a heartbeat request as a liveness indicator
* [SSHD-970](https://issues.apache.org/jira/browse/SSHD-970) - transferTo function of SftpRemotePathChannel will loop if count parameter is greater than file size
* [SSHD-972](https://issues.apache.org/jira/browse/SSHD-972) - Add support for peers using OpenSSH "security key" key types
* [SSHD-977](https://issues.apache.org/jira/browse/SSHD-977) - Apply consistent logging policy to caught exceptions
* [SSHD-660](https://issues.apache.org/jira/browse/SSHD-660) - Added support for server-side signed certificate keys
* [SSHD-984](https://issues.apache.org/jira/browse/SSHD-984) - Utility method to export KeyPair in OpenSSH format
* [SSHD-992](https://issues.apache.org/jira/browse/SSHD-984) - Provide more hooks into the SFTP server subsystem via SftpFileSystemAccessor
* [SSHD-997](https://issues.apache.org/jira/browse/SSHD-997) - Fixed OpenSSH private key decoders for RSA and Ed25519
* [SSHD-998](https://issues.apache.org/jira/browse/SSHD-998) - Take into account SFTP version preference when establishing initial channel
* [SSHD-989](https://issues.apache.org/jira/browse/SSHD-989) - Read correctly ECDSA key pair from PKCS8 encoded data
* [SSHD-1009](https://issues.apache.org/jira/browse/SSHD-1009) - Provide a minimalistic shell for supporting *WinSCP* SCP mode.