



XMPP

XEP-0423: XMPP Compliance Suites 2020

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This document defines XMPP application categories for different use cases (Core, Web, IM, and Mobile), and specifies the required XEPs that client and server software needs to implement for compliance with the use cases.

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1 Introduction

There is a growing number of XMPP Extension Protocols (XEPs) that provide different building blocks for XMPP-based applications. XMPP software developers are confronted with the challenge of finding the right combination of XEPs for a given application profile. Users need a way to compare applications without resorting to comparing for individual XEP numbers.

This document defines XMPP application **Categories** based on typical use cases (Core, Web, IM, Mobile) and **Levels** (Core, Advanced) based on functionality in the respective category. For each combination of those, the required XEPs are referenced. As the protocol landscape changes over time, this document is updated roughly once a year.

For developers, this document provides guidance on which specifications they need to consider when implementing an application of a certain kind. By completing a compliance test or performing a self-assessment, they can advertise their implementation as compliant with a given Category and Level.

For users, this provides an easy way to compare implementations based on their respective advertised compliance levels and year.

Unless explicitly noted, support for the listed specifications is REQUIRED for compliance purposes. A feature is considered supported if all comma separated feature providers listed in the "Providers" column are implemented (unless otherwise noted).

1.1 Changes since 2019

The following changes were made to the Compliance Suites since [XMPP Compliance Suites 2019 \(XEP-0412\)](#)¹:

- IM Category:
 - Core Client: added [The /me Command \(XEP-0245\)](#)²
 - Core Client and Server: added [HTTP File Upload \(XEP-0363\)](#)³
 - Advanced Client: added [Jingle File Transfer \(XEP-0234\)](#)⁴, [Jingle In-Band Bytestreams Transport Method \(XEP-0261\)](#)⁵
 - Advanced Client and Server: added [Bookmarks Conversion \(XEP-0411\)](#)⁶
 - Specifications of note: added [In-Band Registration \(XEP-0077\)](#)⁷ and [Contact Addresses for XMPP Services \(XEP-0157\)](#)⁸, [Consistent Color Generation \(XEP-0392\)](#)⁹,

¹XEP-0412: XMPP Compliance Suites 2019 <<https://xmpp.org/extensions/xep-0412.html>>.

²XEP-0245: The /me Command <<https://xmpp.org/extensions/xep-0245.html>>.

³XEP-0363: HTTP File Upload <<https://xmpp.org/extensions/xep-0363.html>>.

⁴XEP-0234: Jingle File Transfer <<https://xmpp.org/extensions/xep-0234.html>>.

⁵XEP-0261: Jingle In-Band Bytestreams Transport Method <<https://xmpp.org/extensions/xep-0261.html>>.

⁶XEP-0411: Bookmarks Conversion <<https://xmpp.org/extensions/xep-0411.html>>.

⁷XEP-0077: In-Band Registration <<https://xmpp.org/extensions/xep-0077.html>>.

⁸XEP-0157: Contact Addresses for XMPP Services <<https://xmpp.org/extensions/xep-0157.html>>.

⁹XEP-0392: Consistent Color Generation <<https://xmpp.org/extensions/xep-0392.html>>.

Out-of-Band Data (XEP-0066)¹⁰ and Stateless Inline Media Sharing (XEP-0385)¹¹

- Mobile Category:
 - Specifications of note: added [Mobile Considerations on LTE Networks \(XEP-0286\)](#)¹²
- Web Category:
 - Advanced Web: added [Discovering Alternative XMPP Connection Methods \(XEP-0156\)](#)¹³

2 Compliance Categories

2.1 Core Compliance Suite

¹⁰XEP-0066: Out of Band Data <<https://xmpp.org/extensions/xep-0066.html>>.

¹¹XEP-0385: Stateless Inline Media Sharing (SIMS) <<https://xmpp.org/extensions/xep-0385.html>>.

¹²XEP-0286: Mobile Considerations on LTE Networks <<https://xmpp.org/extensions/xep-0286.html>>.

¹³XEP-0156: Discovering Alternative XMPP Connection Methods <<https://xmpp.org/extensions/xep-0156.html>>.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Core features	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RFC 6120 RFC 6120: Extensible Messag- ing and Presence Protocol (XMPP): Core < http://tools.ietf.org/html/rfc6120 > RFC 7622 RFC 7622: Extensible Messag- ing and Presence Protocol (XMPP): Address Format < http://tools.ietf.org/html/rfc7622 > is not listed due to the unclear interop- erability impact of using PRECIS and Stringprep in the same ecosystem.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
TLS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RFC 7590 RFC 7590: Use of Transport Layer Security (TLS) in the Extensible Messag- ing and Presence Proto- col (XMPP) < http://tools.ietf.org/html/rfc7590 >
Direct TLS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Server support of XEP-0368 means having the ability to accept direct TLS connections.	<input type="checkbox"/>	SRV records for XMPP over TLS (XEP-0368) XEP-0368: SRV records for XMPP over TLS < https://xmpp.org/extensions/xep-0368.html >
Feature discovery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Service Discovery (XEP-0030) XEP-0030: Service Discovery < https://xmpp.org/extensions/xep-0030.html >
Feature broadcasts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Entity Capabilities (XEP-0115) XEP-0115: Entity Capabilities < https://xmpp.org/extensions/xep-0115.html >

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Server Extensibility	<input type="checkbox"/>	N/A	<input type="checkbox"/>	N/A	Jabber Component Protocol (XEP-0114) XEP-0114: Jabber Component Protocol < https://xmpp.org/extensions/x0114.html >.
Event publishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> While 'Personal Eventing Protocol' does not require all the features of 'Publish-Subscribe' to be available on the users' JIDs, and nor does this suite, it is desirable for this to be the case and it is expected that this will a requirement of future Compliance Suites.	<input type="checkbox"/>	Personal Eventing Protocol (XEP-0163) XEP-0163: Personal Eventing Protocol < https://xmpp.org/extensions/x0163.html >.

2.2 Web Compliance Suite

To be considered XMPP web compliant, all features from the core compliance category must be met, as well as all features in this suite.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Web Connection Mechanisms	<input type="checkbox"/> Support can be enabled via an external component or an internal server module/plugin. If claiming compliance using such an addition, the necessary components/modules/plugins MUST be detailed.	<input type="checkbox"/> Only one of the recommended providers must be implemented for compliance.	<input type="checkbox"/> Support can be enabled via an external component or an internal server module/plugin. If claiming compliance using such an addition, the necessary components/modules/plugins MUST be detailed.	<input type="checkbox"/> Only one of the recommended providers must be implemented for compliance.	RFC 7395 RFC 7395: An Extensible Messaging and Presence Protocol (XMPP) Subprotocol for WebSocket http://tools.ietf.org/html/rfc7395 Over BOSH (XEP-0206) XEP-0206: XMPP Over BOSH https://xmpp.org/extensions/0206.html . (See also: BOSH (XEP-0124) XEP-0124: Bidirectional-streams Over Synchronous HTTP https://xmpp.org/extensions/0124.html .)

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Connection Mechanism Discovery	<input type="checkbox"/>	<input type="checkbox"/>	N/A	<input type="checkbox"/>	Discovering Alternative XMPP Connection Methods (XEP-0156) XEP-0156: Discovering Alternative XMPP Connection Methods < https://xmpp.org/extensions/0156.html >.

2.3 IM Compliance Suite

To be considered XMPP IM compliant, all features from the core compliance category must be met, as well as all features in this suite.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Core features	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RFC 6121 RFC 6121: Ex-ten- sible Mes- sag- ing and Pres- ence Pro- to-col (XMPP): In- stant Mes- sag- ing and Pres- ence < http://tools.ietf.org/html/
The /me Command	N/A	<input type="checkbox"/>	N/A	<input type="checkbox"/>	The /me Com- mand (XEP- 0245) XEP- 0245: The /me Com- mand < https://xmpp.org/extensions/0245.html >.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
User Avatars	N/A	<input type="checkbox"/>	N/A	<input type="checkbox"/> Not required for command line or terminal based interfaces.	User Avatar (XEP-0084) XEP-0084: User Avatar < https://xmpp.org/extensions/0084.html >.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
User Avatar Compatibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Not required for command line or terminal based interfaces.	User Avatar to vCard-Based Avatars Conversion (XEP-0398) XEP-0398: User Avatar to vCard-Based Avatars Conversion < https://xmpp.org/extensions/0398.html >., vCard-Based Avatars (XEP-0153) XEP-0153: vCard-Based Avatars < https://xmpp.org/extensions/0153.html >.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
vcard-temp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	vcard-temp (XEP-0054) XEP-0054: vcard-temp < https://xmpp.org/extensions/0054.html >.
Outbound Message Synchronization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Carbons (XEP-0280) XEP-0280: Message Carbons < https://xmpp.org/extensions/0280.html >.
User Blocking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Blocking Command (XEP-0191) XEP-0191: Blocking Command < https://xmpp.org/extensions/0191.html >.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Group Chat	Support can be enabled via an external component or an internal server module/plugin. If claiming compliance using such an addition, the necessary components/mod-ules/plugins MUST be detailed.	Support for the Entity Use Cases and Occu-pant Use Cases is RE-QUIRED; support for the main-ing use cases is RE-COMMENDED	Support can be enabled via an external component or an internal server module/plugin. If claiming compliance using such an addition, the necessary components/mod-ules/plugins MUST be detailed.	Support for the Entity Use Cases and Occu-pant Use Cases is RE-QUIRED; support for the main-ing use cases is RE-COMMENDED	Multi-User Chat (XEP-0045) XEP-0045: Multi-User Chat < https://xmpp.org/extensions/0045.html >.Implementation should take note that future versions of these compliance suites may rely on Mediated Information Exchange (MIX) (XEP-0369) XEP-0369: Mediated Information Exchange (MIX) < https://xmpp.org/extensions/0369.html >. Instead, Direct MUC

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Advanced Group Chat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bookmark Storage (XEP-0048) XEP-0048: Bookmark Storage or an internal server module/-plugin. If claiming compliance using such an addition, the necessary components/mod-ules/-plu-gins MUST be de-tailed. <https://xmpp.org/extensions/0048.html>., Mes-sage Archive Man-agement (XEP-0313) XEP-0313: Mes-sage Archive Man-agement <https://xmpp.org/extensions/0313.html>.Support for re-quest-ing his-tory from a MUC archive as op-posed to from the user's ac-count., MUC Self-Ping (Schrödinger's Chat) (XEP-0410)

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Persistent Storage of Private Data via PubSub	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Best Practices for Persistent Storage of Private Data via Publish-Subscribe (XEP-0223) XEP-0223: Best Practices for Persistent Storage of Private Data via Publish-Subscribe < https://xmpp.org/extensions/0223.html >.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Private XML Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Private XML Storage (XEP-0049) XEP-0049: Private XML Storage < https://xmpp.org/extensions/0049.html >. (only recommended for legacy bookmarks support) In addition, the necessary components/modules/plugins MUST be detailed.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Stream Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Stream Management (XEP-0198) XEP-0198: Stream Management < https://xmpp.org/extensions/0198.html >.
Message Acknowledgements	N/A	<input type="checkbox"/>	N/A	<input type="checkbox"/>	Message Delivery Receipts (XEP-0184) XEP-0184: Message Delivery Receipts < https://xmpp.org/extensions/0184.html >.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
History Storage / Retrieval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Message Archive Management (XEP-0313) XEP-0313: Message Archive Management < https://xmpp.org/extensions/0313.html >.
Chat States	N/A	<input type="checkbox"/>	N/A	<input type="checkbox"/>	Chat State Notifications (XEP-0085) XEP-0085: Chat State Notifications < https://xmpp.org/extensions/0085.html >.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Message Correction	N/A	<input type="checkbox"/>	N/A	<input type="checkbox"/>	Last Message Correction (XEP-0308) XEP-0308: Last Message Correction https://xmpp.org/extensions/0308.html .

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
File Upload	<input type="checkbox"/> Support	<input type="checkbox"/>	<input type="checkbox"/> Support	<input type="checkbox"/>	HTTP File Upload (XEP-0363) XEP-0363: HTTP File Upload < https://xmpp.org/extensions/0363.html >.
	can be enabled via an external component or an internal server module/plugin. If claiming compliance using such an addition, the necessary components/modules/plugins MUST be detailed.		can be enabled via an external component or an internal server module/plugin. If claiming compliance using such an addition, the necessary components/modules/plugins MUST be detailed.		

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Direct File Transfer	N/A	<input type="checkbox"/>	N/A	<input type="checkbox"/>	Jingle File Transfer (XEP-0234) XEP-0234: Jingle File Transfer < https://xmpp.org/extensions/0234.html >., Jingle In-Band Bytestreams Transport Method (XEP-0261) XEP-0261: Jingle In-Band Bytestreams Transport Method < https://xmpp.org/extensions/0261.html >.

Further specifications of note, which are not required for compliance:

- For public IM networks: [In-Band Registration \(XEP-0077\)](#) ¹⁴ (should be supported, but not enabled in default server configurations) and [Contact Addresses for XMPP Services](#)

¹⁴XEP-0077: In-Band Registration <<https://xmpp.org/extensions/xep-0077.html>>.

(XEP-0157)¹⁵

- File uploads should be indicated using [Out-of-Band Data \(XEP-0066\)](#)¹⁶, optionally also using [Stateless Inline Media Sharing \(XEP-0385\)](#)¹⁷
- [Consistent Color Generation \(XEP-0392\)](#)¹⁸ for cross-client consistency of user names

2.4 Mobile Compliance Suite

To be considered XMPP mobile compliant, all features from the core compliance category must be met, as well as all features in this suite.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Stream Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Stream Management (XEP-0198) XEP-0198: Stream Management < https://xmpp.org/extensions/0198.html >.
Client State Indication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Client State Indication (XEP-0352) XEP-0352: Client State Indication < https://xmpp.org/extensions/0352.html >.

¹⁵XEP-0157: Contact Addresses for XMPP Services <<https://xmpp.org/extensions/xep-0157.html>>.

¹⁶XEP-0066: Out of Band Data <<https://xmpp.org/extensions/xep-0066.html>>.

¹⁷XEP-0385: Stateless Inline Media Sharing (SIMS) <<https://xmpp.org/extensions/xep-0385.html>>.

¹⁸XEP-0392: Consistent Color Generation <<https://xmpp.org/extensions/xep-0392.html>>.

Feature	Core Server	Core Client	Advanced Server	Advanced Client	Providers
Third Party Push Notifications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Support can be enabled via an external component or an internal server module/plugin. If claiming compliance using such an addition, the necessary components/modules/plugins MUST be detailed.	<input type="checkbox"/> Only on platforms that disallow long-lasting background connections.	Push Notifications (XEP-0357) XEP-0357: Push Notifications < https://xmpp.org/extensions/0357.html >.

Further specifications of note, which are not required for compliance:

- [Mobile Considerations on LTE Networks \(XEP-0286\)](#) ¹⁹

3 Future Development

This section outlines the protocol specifications that are relevant for developers, but are not ready yet to be required for Compliance. Developers are encouraged to implement those and to share their experience and feedback.

¹⁹XEP-0286: Mobile Considerations on LTE Networks <<https://xmpp.org/extensions/xep-0286.html>>.

- Client connection optimizations: [Bind 2.0 \(XEP-0386\)](#)²⁰ and [IM Routing-NG \(XEP-0409\)](#)²¹, maybe also [Instant Stream Resumption \(XEP-0397\)](#)²²
- [Chat Markers \(XEP-0333\)](#)²³
- [Mediated Information eXchange \(MIX\) \(XEP-0369\)](#)²⁴
- End-to-End Encryption (E2EE): [Explicit Message Encryption \(XEP-0380\)](#)²⁵ for tagging encrypted messages, [Stanza Content Encryption \(XEP-0420\)](#)²⁶ to protect all payloads; and also one or multiple of the following for actual encryption:
 - [OMEMO Encryption \(XEP-0384\)](#)²⁷ and [Jingle Encrypted Transports - OMEMO \(XEP-0396\)](#)²⁸
 - [OpenPGP for XMPP Instant Messaging \(XEP-0374\)](#)²⁹
- [PEP Native Bookmarks \(XEP-0402\)](#)³⁰ to phase out [Bookmark Storage \(XEP-0048\)](#)³¹, [Private XML Storage \(XEP-0049\)](#)³², and [Bookmarks Conversion \(XEP-0411\)](#)³³
- [Component Connections \(XEP-0225\)](#)³⁴ to phase out [Jabber Component Protocol \(XEP-0114\)](#)³⁵
- [Entity Capabilities 2.0 \(XEP-0390\)](#)³⁶ to phase out [Entity Capabilities \(XEP-0115\)](#)³⁷

4 Implementation Notes

Some of the protocol specifications referenced herein have their own dependencies; developers need to consult the relevant specifications for further information.

²⁰XEP-0386: Bind 2.0 <<https://xmpp.org/extensions/xep-0386.html>>.

²¹XEP-0409: IM Routing-NG <<https://xmpp.org/extensions/xep-0409.html>>.

²²XEP-0397: Instant Stream Resumption <<https://xmpp.org/extensions/xep-0397.html>>.

²³XEP-0333: Chat Markers <<https://xmpp.org/extensions/xep-0333.html>>.

²⁴XEP-0369: Mediated Information eXchange (MIX) <<https://xmpp.org/extensions/xep-0369.html>>.

²⁵XEP-0380: Explicit Message Encryption <<https://xmpp.org/extensions/xep-0380.html>>.

²⁶XEP-0420: Stanza Content Encryption <<https://xmpp.org/extensions/xep-0420.html>>.

²⁷XEP-0384: OMEMO Encryption <<https://xmpp.org/extensions/xep-0384.html>>.

²⁸XEP-0396: Jingle Encrypted Transports - OMEMO <<https://xmpp.org/extensions/xep-0396.html>>.

²⁹XEP-0374: OpenPGP for XMPP Instant Messaging <<https://xmpp.org/extensions/xep-0374.html>>.

³⁰XEP-0402: PEP Native Bookmarks <<https://xmpp.org/extensions/xep-0402.html>>.

³¹XEP-0048: Bookmark Storage <<https://xmpp.org/extensions/xep-0048.html>>.

³²XEP-0049: Private XML Storage <<https://xmpp.org/extensions/xep-0049.html>>.

³³XEP-0411: Bookmarks Conversion <<https://xmpp.org/extensions/xep-0411.html>>.

³⁴XEP-0225: Component Connections <<https://xmpp.org/extensions/xep-0225.html>>.

³⁵XEP-0114: Jabber Component Protocol <<https://xmpp.org/extensions/xep-0114.html>>.

³⁶XEP-0390: Entity Capabilities 2.0 <<https://xmpp.org/extensions/xep-0390.html>>.

³⁷XEP-0115: Entity Capabilities <<https://xmpp.org/extensions/xep-0115.html>>.

5 Security Considerations

This document introduces no additional security considerations above and beyond those defined in the documents on which it depends.

6 IANA Considerations

This document requires no interaction with the [Internet Assigned Numbers Authority \(IANA\)](#)³⁸.

7 XMPP Registrar Considerations

This document requires no interaction with the [XMPP Registrar](#)³⁹.

8 Acknowledgements

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³⁸The Internet Assigned Numbers Authority (IANA) is the central coordinator for the assignment of unique parameter values for Internet protocols, such as port numbers and URI schemes. For further information, see <http://www.iana.org/>.

³⁹The XMPP Registrar maintains a list of reserved protocol namespaces as well as registries of parameters used in the context of XMPP extension protocols approved by the XMPP Standards Foundation. For further information, see <https://xmpp.org/registrar/>.