

# USGv6 Test Selection Tables

## IPv6 IPsec Requirements (IPsec, IKEv2)

**F11-Conformance:** Security Requirements R1v1.1

**Applicable Profile:** NIST SP 500-267B Revision 1 USGv6 Profile – November 2020.

**Test Specification Id:**

- [\[IPsec Conformance\]](#) IPv6 Ready Test Specification IPsec and IKEv2, [editor: [IPv6 Ready Logo](#)].

IPsec Capability			
Reference	Test Specification Id	Test Number	Device Type
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.1.1: IKE_SA_INIT Request Format	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.1.2: IKE_SA_INIT Retransmission (A)(B)	End-Node
[RFC 8247]	IPsec-Conformance	IPsec.Conf.1.1.1.3: IKE_SA_INIT Cryptographic Algorithm Negotiation (A) AES128/SHA256/DH14 (B) AES256	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.1.4: IKE_SA_INIT Exchange with N(COOKIE)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.1.7: IKE_SA_INIT inconsistent response proposal	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.1.8: IKE_SA_INIT Forward Compatibility (A)(B)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.1: IKE_AUTH Request Format	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.2: IKE_AUTH Exchange Succeeds	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.3: IKE_AUTH Retransmission (A)(B)(C)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.4: State Synchronization (A)(B)	End-Node
[RFC 8221]	IPsec-Conformance	IPsec.Conf.1.1.2.5: IKE_AUTH Cryptographic Algorithm Negotiation (A) AES128/SHA256 (B) AES256/SHA256 (D) AESGCM (F) NULL	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.6: IKE_AUTH N(NO_PROPOSAL_CHOSEN)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.7: IKE_AUTH Inconsistent response proposal	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.8: Traffic Selector Negotiation	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.9: Peer Identification (A)(B)(C)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.10: Authentication via RSA Digital Signature	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.11: Authentication via PSK (A)(B)(C)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.12: IKE_AUTH Forward Compatibility	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.2.13: IKE_AUTH Unrecognized Error (A)(B)	End-Node

[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.3.1: IKE_AUTH Request Format in Tunnel Mode	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.3.2: IKE_AUTH Exchange Succeeds in Tunnel Mode	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.5.1: IKE_SA Deletion	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.1.5.2: CHILD_SA Deletion	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.1.1: IKE_SA_INIT Response Format	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.1.2: IKE_SA_INIT Retransmission	End-Node
[RFC 8247]	IPsec-Conformance	IPsec.Conf.1.2.1.3: IKE_SA_INIT Cryptographic Algorithm Negotiation (A) AES128/SHA256/DH14 (B) AES256	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.1.4: IKE_SA_INIT Version Number (A)(B)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.1.5: IKE_SA_INIT Multiple Transforms (A)(B)(C)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.1.6: IKE_SA_INIT Multiple Proposals	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.1.7: IKE_SA_INIT Exchange with INVALID_KEY_PAYLOAD	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.1.8: IKE_SA_INIT Forward Compatibility (A)(B)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.1.9: IKE_SA_INIT Invalid	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.1: IKE_AUTH Response Format	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.2: IKE_AUTH Exchange Succeeds	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.3: IKE_AUTH Retransmission	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.4: State Synchronization (A)(B)	End-Node
[RFC 8221]	IPsec-Conformance	IPsec.Conf.1.2.2.5: IKE_AUTH Cryptographic Algorithm Negotiation (A) AES128/SHA256 (B) AES256/SHA256 (D) AESGCM (F) NULL	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.6: IKE_AUTH Multiple Transforms (A)(B)(C)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.7: IKE_AUTH Multiple Proposals	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.8: IKE_AUTH N(NO_PROPOSAL_CHOSEN)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.9: Traffic Selector Negotiation (A)(B)(C)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.10: Peer Identification (A)(B)(C)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.11: Authentication via RSA Digital Signature	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.12: Authentication via PSK (A)(B)(C)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.13: IKE_AUTH Forward Compatibility	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.2.14: Unrecognized Notify Type (A)(B)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.3.1: IKE_AUTH Response Format in Tunnel Mode	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.3.2: IKE_AUTH Exchange Succeeds in Tunnel Mode	End-Node

[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.5.1: INFORMATIONAL Exchange (A)(B)(C)	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.5.2: IKE_SA Deletion	End-Node
[RFC 7296]	IPsec-Conformance	IPsec.Conf.1.2.5.3: CHILD_SA Deletion	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.1.1. Select SPD	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.1.2. Select SPD (Next Layer Protocol Selectors) (A)(B)	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.1.3. Sequence Number Increment	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.1.4. Packet Too Big Reception	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.1.5. Receipt of No Next Header (A)	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.1.6. Bypass Policy	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.1.7. Discard Policy	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.1.8. Transport Mode Padding (A)(B)	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.1.9. Invalid SPI	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.1.10. Invalid ICV	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.1. Tunnel Mode with SGW	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.2. Tunnel Mode Select SPD	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.3. Tunnel Mode Sequence Number Increment	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.4. Tunnel Mode Packet Too Big Reception	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.5. Tunnel Mode Receipt of No Next Header (A)	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.6. Tunnel Mode Bypass Policy	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.7. Tunnel Mode Discard Policy	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.8. Tunnel Mode Padding (A)(B)	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.9. Tunnel Mode Invalid SPI	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.10. Tunnel Mode Invalid ICV	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.11. Tunnel Mode Encrypted PTB Message	End-Node
[RFC 4301]	IPsec-Conformance	IPsec.Conf.2.2.12. Tunnel Mode with End-Node	End-Node
[RFC 8221]	IPsec-Conformance	IPsec.Conf.4.1.1. End-Node ESP Algorithms (Transport Mode) (A) AES128 / SHA256 (B) AES256 / SHA256 (D) NULL / SHA256 (G) AESGCM128 / N/A (H) AESGCM256 / N/A (I) AESGMAC128 / N/A (J) AESGMAC256 / N/A	End-Node
[RFC 8221]	IPsec-Conformance	IPsec.Conf.4.1.2. End-Node ESP Algorithms (Tunnel Mode) (A) AES128 / SHA256 (B) AES256 / SHA256 (D) NULL / SHA256 (G) AESGCM128 / N/A (H) AESGCM256 / N/A (I) AESGMAC128 / N/A (J) AESGMAC256 / N/A	End-Node

**References:**

- [RFC7296] Kaufman, C., Hoffman, P., Nir, Y., Eronen, P., and T. Kivinen, "Internet Key Exchange Protocol Version 2 (IKEv2)", STD 79, RFC 7296, DOI 10.17487/RFC7296, October 2014. Online at: <https://tools.ietf.org/html/rfc7296>
- [RFC8221] Wouters, P., Migault, D., Mattsson, J., Nir, Y., and T. Kivinen, "Cryptographic Algorithm Implementation Requirements and Usage Guidance for Encapsulating Security Payload (ESP) and Authentication Header (AH)", RFC 8221, DOI 10.17487/RFC8221, October 2017, <https://www.rfc-editor.org/info/rfc8221>.
- [RFC8247] Nir, Y., Kivinen, T., Wouters, P., and D. Migault, "Algorithm Implementation Requirements and Usage Guidance for the Internet Key Exchange Protocol Version 2 (IKEv2)", RFC 8247, DOI 10.17487/RFC8247, September 2017. Online at: <https://tools.ietf.org/html/rfc8247>
- [RFC4301] Kent, S. and K. Seo, "Security Architecture for the Internet Protocol", RFC 4301, DOI 10.17487/RFC4301, December 2005, <https://www.rfc-editor.org/info/rfc4301>.

The objective of this test selection sheet is to provide a reference for available test specifications that identifies tests applicable to the USGv6 Profile.