

Guidelines and Frequently Asked Questions (FAQ)

Version 1.22

This document outlines Visa's guidelines for L3 testing and provides frequently asked questions (FAQ). It is intended for acquirers, processors, merchants, or their agents.

L3 testing helps ensure that chip terminals that have been configured for deployment by acquirers are correctly integrated into the Visa payment acceptance environment and do not unduly contribute to interoperability problems. This improves acceptance of Visa-branded products.

L3 testing applies to a wide range of contact and contactless chip terminals (e.g., POS, mPOS, ATM, transit (contactless only), Tap to Phone (contactless only), Fleet 2.0, etc.) and encompasses global and regional requirements (including regulatory requirements, as applicable).

Important Information:

- **Build-022** is the current build. Refer to [Acquirer Requirements](#) section for details.
- Visa will allow Build-021 until **8 February 2026**. After that time, only Build-022 can be used.

Note: While an acquirer must successfully complete L3 testing, it is understood that another party (e.g., a merchant, Value-Added Reseller (VAR), Independent Software Vendor (ISV), Independent Service Organization (ISO), Gateway, etc.) may be performing L3 testing based on the acquirer/processor's process and requirements.

Summary

EMVCo has defined an L3 testing framework that each participant system may use to provide their L3 testing requirements to test tool vendors. Visa supports the [EMV-compliant framework](#) for L3 testing.

Effective since 16 July 2022, the Visa EMV-compliant Global L3 Test Set Files must be used when performing any new L3 testing in all regions. The following legacy toolkits can no longer be used for any new L3 testing activities:

- Acquirer Device Validation Testing Toolkit (ADVT) (contact testing)
- Contactless Device Evaluation Toolkit (CDET) (contactless testing)
- Visa payWave Terminal Testing (VpTT) (contactless testing, Europe region only)
- U.S. Quick Chip and Minimum Terminal Configuration ADVT/CDET Use Cases (U.S. region only)

Important: With the transition to the Visa EMV-compliant Global L3 Test Set Files, the Visa Mobile Card Personalizer (VMCP) app and Mobile CDET (mCDET) can no longer be used to support L3 testing activities. VMCP, however, is still available for use in host system testing and mCDET can be used for troubleshooting purposes.

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The chip acceptance device testing requirements in the Visa Rules (as of the April 2022 publication) have been updated to support these changes.

Benefits

Anticipated key benefits of the new L3 process include:

- **Standardization** – Allows participant systems to use the EMV L3 testing framework which reduces L3 testing overhead and complexity for all parties involved.
- **Streamlined Testing** – Provides acquirers with a single, digitized, and self-administered process for their Visa L3 testing needs.
- **Faster Response Time** – Makes it easier and faster to provide new or updated L3 test cases, when needed, to support the marketplace.

How Does the New L3 Process Work?

1. The tester uses an L3 test tool that has been qualified by EMVCo and confirmed by Visa to perform L3 testing.
2. The tester completes the L3 test tool questionnaire based on terminal/reader capabilities and acquirer requirements. The answers to the questionnaire will be used to generate the applicable test cases.
3. Once testing has been successfully completed, the tester creates a report from the test tool.
4. The acquirer logs in to Visa Access and submits the report to the Visa Chip Compliance Reporting Tool (CCRT).¹

At this point, L3 testing is completed from Visa’s perspective.

Acquirer Requirements

Acquirers must ensure that they:

- Select a test tool² that has been qualified by EMVCo and confirmed by Visa that conforms to the following:

| Component | Document | Visa Test Set File Requirements |
|-----------|---|---|
| L3-CS | <ul style="list-style-type: none">• EMV L3 Testing Framework Implementation Guidelines (FIG), v1.0 or higher• EMV Level 3 Testing Pseudo Functions, v1.0 or higher | <ul style="list-style-type: none">• Build 022 |
| L3-TT | <ul style="list-style-type: none">• EMV L3 Testing Framework Implementation Guidelines (FIG), v1.1 and Specification Bulletin 251 or higher | |
| L3-TSE | | |

Refer to [EMVCo–Qualified and Visa-Confirmed L3 Test Tools](#) for a list of confirmed L3 test tools.

¹ In the U.S. and LAC regions: Not required for acquirers participating in the Chip Acquirer Self Accreditation program.

² The test tool is comprised of three components: L3 Card Simulator (L3-CS), L3 Test Tool (L3-TT), and L3 Test Selection Engine (L3-TSE).

- Prepare their environment for testing.
 - The terminal needs to be connected to an acquirer and through to the VisaNet Certification Management Service (VCMS) or a Visa-confirmed L3 host simulator.³ For more information on Visa confirmed host simulators, refer to [EMVCo-Qualified and Visa-Confirmed L3 Test Tools](#).
- Ensure their device is ready for L3 testing. Refer to [FAQ #3.3](#) in this document.

Frequently Asked Questions (FAQ)

This section provides a list of Frequently Asked Questions (FAQ):

| 1.0 General | |
|-------------|---|
| 1.1 | <p>What is L3 Testing?</p> <p>L3 testing is a phase of terminal testing that helps ensure that chip terminals that have been configured for deployment by acquirers are correctly integrated into the Visa payment acceptance environment and do not unduly contribute to interoperability problems. It improves acceptance of Visa-branded products. It is performed on the terminal in an environment which is as near as possible to the live one and where the connectivity to the acquirer host mirrors production.</p> |
| 1.2 | <p>Who performs L3 testing?</p> <p>The acquirer, processor, or their agent performs L3 testing. An agent may be a merchant, VAR, ISV, ISO, Gateway, etc.</p> |
| 1.3 | <p>Does L3 testing include both global and regional L3 requirements?</p> <p>Yes. Visa L3 testing encompasses both global and regional requirements and, where applicable, regulatory requirements.</p> |
| 1.4 | <p>Does the entity performing L3 testing need to schedule L3 testing with Visa?</p> <p>No. Visa L3 testing is considered self-service testing and does not require scheduling with Visa.⁴ You can perform the testing at your convenience. However, new acquirers need to ensure chip parameters are set up in Visa’s test environment.</p> |
| 1.5 | <p>Can I submit L3 test results without using the Chip Compliance Reporting Tool (CCRT)?</p> <p>No. CCRT must be used to submit test results.¹</p> |
| 1.6 | <p>Does Visa provide me with a Letter of Approval (LOA) when I complete L3 testing?</p> <p>No. Visa does not provide an LOA for L3 testing. CCRT will provide you with a confirmation email letting you know that your test results have been received and this email signifies that testing has been completed from Visa’s perspective.</p> |
| 1.7 | <p>What do I do if I fail a test?</p> <p>When a test tool indicates a test case failure, it is anticipated that the acquirer will work with their technical support team and the terminal vendor or integrator (and Visa, if necessary) to correct the problem. The acquirer will continue to perform the test until the problem is resolved.</p> |

³ For information on Online Message Logs (OML) and NET pass criteria, see [Section 5.0](#) of the FAQ.

⁴ For transit testing in the U.S. region, refer to *U.S. Visa Contactless Transit Terminal Testing*.

| 1.0 General | |
|---|--|
| 1.8 | <p>Who should I contact if I need help with L3 testing?</p> <p>Merchant, ISVs, VARs, ISOs, etc. should contact their acquirer with any questions regarding their process and requirements to perform L3 testing.</p> <p>Specific questions around L3 test tools should be handled between the client and their test tool vendor.</p> <p>For specific questions related to Visa L3 test cases and/or CCRT, acquirers/processors can contact itest@visa.com or use the Visa Support Hub (VSH) on Visa Access.</p> <p>For more information regarding Visa’s process and requirements for L3 testing, contact your Visa representative.</p> |
| 1.9 | <p>Are magnetic-stripe transactions in scope of L3 testing?</p> <p>No. L3 testing focuses on contact and contactless chip-based transactions. Magnetic-stripe transactions are not in scope.</p> |
| 1.10 | <p>Can I use the Visa Test System (VTS) as my host simulator for L3 testing?</p> <p>No. During L3 testing, the acquirer environment must be connected to the VisaNet Certification Management Service (VCMS) or a Visa confirmed host simulator. VTS cannot be used. For a list of Visa confirmed host simulators, refer to EMVCo-Qualified and Visa-Confirmed L3 Test Tools.</p> |
| 2.0 Chip Acquirer Self-Accreditation Program and Chip Vendor Enabled Service (CVES) | |
| 2.1 | <p>What is the Chip Acquirer Self-Accreditation Program?</p> <p>The program provides acquirers and their processors with a framework to streamline Level 3 acceptance testing processes and empowers them to perform testing autonomously.</p> <p>For more information, refer to the Global Chip Acquirer Self-Accreditation Program.</p> |
| 2.2 | <p>What is the Chip Vendor Enabled Service (CVES)?</p> <p>To support acquirer L3 testing activities, Visa has a program called the Chip Vendor Enabled Service (CVES). CVES engages third-party chip tool vendors and other entities with EMV knowledge to execute Visa L3 testing on behalf of acquirers and processors, analyze the results, and optionally submit reports to Visa using CCRT. For more information, refer to the Visa Confirmed Chip Vendor Enabled Service (CVES) Providers.</p> |
| 3.0 Terminals | |
| 3.1 | <p>What types of devices are covered under L3 testing?</p> <p>Visa L3 testing covers all devices accepting contact and contactless chip including POS, mPOS, ATM, transit, Tap to Phone, Fleet 2.0, etc.</p> |
| 3.2 | <p>How do I know what tests apply to my terminal?</p> <p>In the beginning of your testing session, you will complete a questionnaire and the answers to your questionnaire will automatically be used by your L3 test tool to determine which test cases apply to your terminal.</p> |

| 3.0 Terminals | |
|---|---|
| 3.3 | <p>How do I set up my terminal for L3 testing?</p> <p>Prior to beginning L3 testing, the terminal needs to be configured with all applicable parameters required for deployment based on Visa global and regional requirements. This includes the following:</p> <ul style="list-style-type: none"> • The terminal has been Level 1 and Level 2 certified with associated Letters of Approval (LOAs)⁵ • The terminal has been configured for deployment and the following are set correctly: <ul style="list-style-type: none"> – Applicable Visa Application Identifiers (AIDs) – Country codes and currency codes – VSDC Certificate Authority (CA) Test Public Keys (for devices that support Offline Data Authentication) (see the <i>Visa Smart Debit/Credit (VSDC) Certificate Authority Public Keys</i>)⁶ – Terminal Transaction Qualifiers (TTQs) (contactless) – Terminal Capabilities settings (contact) – Terminal Action Codes (TACs) (contact) (See the <i>Transaction Acceptance Device Requirements (TADR)</i>) <p>For more details, see the Visa Rules and the <i>Transaction Acceptance Device Guide (TADG)</i>.</p> |
| 3.4 | <p>I am deploying a terminal where the L1 and/or L2 approval has expired. Can I deploy this terminal?</p> <p>Visa supports L3 testing to be performed on an expired L1 and/or L2 approved product for 2 years from the expiration of the approved product. Refer to the table in this document for more information.</p> |
| 3.5 | <p>In addition to dispensing cash, my ATM sells products/services. What does this mean for L3 testing?</p> <p>For this configuration, you must perform two L3 testing sessions:</p> <ul style="list-style-type: none"> • One for general ATM services (select “ATM” as your deployment type) • One for selling products/services (select “POS” as your deployment type) |
| 3.6 | <p>Which transaction types are in scope for L3 testing at ATMs?</p> <p>Visa L3 testing at ATMs focuses on cash withdrawals. Non-financial operations carried out at ATMs (such as balance inquiries, account transfers, and PIN management) are not tested.</p> |
| 3.7 | <p>Are in-branch devices that support cash advance/cash withdrawal in scope of L3 testing?</p> <p>No. These devices are not in scope of L3 testing.</p> |
| 4.0 PINs and BINs for L3 Testing | |
| 4.1 | <p>What PINs and which issuing BINs are used for the L3 test card images?</p> <p>Test cards use a Personal Identification Number (PIN) of 1234 unless otherwise noted in the test case. The following issuing BINs are used for the L3 test card images:</p> <ul style="list-style-type: none"> • Global Contact: 476173, 442780 • Global Contactless: 476173, 417666 • U.S. Contact and Contactless: 476173 • Strong Customer Authentication (SCA): 417666 • Fleet: 448558 |
| 5.0 Online Message Logs (OML) and NET Pass Criteria | |
| 5.1 | <p>What are Online Message Logs (OML) and NET pass criteria?</p> <ul style="list-style-type: none"> • OML are host logs of L3 test transactions (e.g., 0100/0110 and 0200/0210) provided by Visa (for clients connected to VCMS) or provided by a Visa confirmed L3 host simulator (for clients connected to a host simulator). • Network (NET) pass criteria are automated pass criteria that check OML for the presence of fields and/or field values in 0100/0110 and 0200/0210 messages. |

⁵ There may be exceptions for certain types of devices such as Tap to Phone. For Tap to Phone requirements, see the *Visa Ready Tap to Phone Solution Requirements* on [Visa Access](#).

⁶ Prior to deployment, the VSDC CA Test Public Keys must be removed from the device and replaced with VSDC CA Production Public Keys.

| 5.0 Online Message Logs (OML) and NET Pass Criteria (continued) | |
|---|---|
| 5.2 | <p>My tool automatically obtains the OML. Is there anything I need to do?</p> <p>These solutions already automatically obtain the OML. Please contact your preferred L3 test tool vendor for further information.</p> |
| 5.3 | <p>My tool does not automatically obtain the OML. What do I need to do?</p> <p>If your L3 test tool does not automatically obtain the OML, you will need to obtain the OML from one of the following and upload it into your L3 test tool:</p> <ul style="list-style-type: none"> • Clients connected to VCMS during L3 testing will need to download the OML from the Chip Compliance Reporting Tool (CCRT) (use the "Search L3-OML" tab on CCRT) on Visa Access using the Authorization Request Cryptogram (ARQC) value from each test transaction • Clients connected to a third-party host simulator during L3 testing will need to obtain the OML from their host simulator <p>Please contact your L3 test tool vendor and, for clients using a host simulator, your host simulator vendor for further information.</p> |
| 6.0 Documentation | |
| 6.1 | <p>Are there separate User Guides for L3 testing?</p> <p>There are no separate user guides. With the new L3 process, documentation for each test case is built into the L3 test tool and the test tool contains all the information on the test case including the objective, the applicability, the pass criteria, and help information.</p> |

Testing and Re-Testing Requirements

An acquirer must successfully complete Visa Global Level 3 (L3) Testing using the Visa Global L3 Test Set Files before deploying a new chip-reading device, after a significant change to a chip-reading device, or to address an interoperability issue, as required by Visa.

The following table outlines Visa’s L3 testing/retesting requirements.

Important: Tap to Phone has separate testing/retesting requirements. Refer to the *Visa Ready Tap to Phone Solutions Requirements* for details.

| | Item | Required | Not Required |
|----|--|----------|--------------|
| 1. | Payment application changes that affect chip processing or EMV kernel | ✓ | |
| 2. | EMV kernel changes defined as "major" by EMVCo | ✓ | |
| 3. | New terminal hardware model that is not part of a "terminal family" ⁷ | ✓ | |
| 4. | Deploying multiple terminals from different vendors ⁸ | ✓ | |

⁷ If the broad functionality, payment application, EMV kernel, and chip transaction flow are the same in each individual POS model, then this would be considered a "terminal family" and can be tested once. Please consult with your terminal vendor to ensure that the terminal falls within a "terminal family."

⁸ Each terminal from each vendor (or each terminal in a "terminal family") requires testing.

| | Item | Required | Not Required |
|-----|--|---|----------------|
| 5. | Merchant/acquirer network architecture changes (e.g., merchant changes to a new acquirer, new platform, or new network switch even though terminal remains the same) | <p>Depends.</p> <p>As long as there are no changes between the terminal and VisaNet that affect the completion and validation of all transactions, then Visa L3 retesting is not required.</p> <p>Note: If the change between the terminal and VisaNet does affect the completion and validation of transactions (e.g., changing an acquirer/processor message format requires L3 retesting), then Visa could allow one formal L3 retesting per acquirer/processor message format, if and only if, the terminal is configured to support a superset of functionalities (i.e., catering for all the functionalities supported between the terminal and acquirer/processor).</p> | |
| 6. | Terminal-to-host protocol changes | | |
| 7. | "Off-the-shelf" terminal that already has EMV approvals | ✓ | |
| 8. | Same ATM software run on several different manufacturer platforms | ✓ | |
| 9. | New or upgraded peripheral (e.g., PIN pad) that affects EMV kernel | ✓ | |
| 10. | Cash-back functionality added to device | ✓ | |
| 11. | Deploying same terminal in multiple regions or countries. Note: If deploying same terminal solution on same acquirer host platform in multiple regions or countries (that is, the only change is the currency code and/or country code), then additional L3 testing is not required from Visa. | | ✓ ⁹ |
| 12. | Dynamic Currency Conversion (DCC) added to device | | ✓ ⁹ |
| 13. | New or upgraded peripheral (e.g., printer, bar code reader, ATM cash dispenser) that does not affect EMV kernel | | ✓ ⁹ |
| 14. | A new terminal in a "terminal family" ⁷ which has already been tested | | ✓ ⁹ |
| 15. | New non-payment application (e.g., loyalty) added to device | | ✓ ⁹ |
| 16. | New language supported or changes to language functionality | | ✓ ⁹ |
| 17. | Same stand-alone device deployed at multiple merchant locations | | ✓ ⁹ |
| 18. | EMV Level 1 hardware change which does not impact the EMV chip processing in the payment application or the EMV kernel | | ✓ ⁹ |
| 19. | EMV Level 1 or Level 2 approval expired | | ✓ ⁹ |

⁹ Although L3 testing is not required, regression testing is always advised.

| | Item | Required | Not Required |
|-----|---|---|-----------------|
| 20. | Magnetic-stripe payment application changes ¹⁰ | | ✓ ⁹ |
| 21. | Non-payment changes to integrated POS (e.g., stock control or other "till" functions) | | ✓ ⁹ |
| 22. | ATM upgraded to new version of Windows (providing that no recompilation of the payment application is required) | | ✓ ⁹ |
| 23. | Testing for each terminal supported communication protocol (Bluetooth, General Packet Radio Service (GPRS), internet) | | ✓ ⁹ |
| 24. | Device that was repaired and replaced (but no software changes that affect EMV processing) | | ✓ ⁹ |
| 25. | Operating system changes | <p>Depends.</p> <p>If this is the only change and there are no changes to the payment application impacting EMV chip processing or the EMV kernel, then Visa L3 retesting is not required. However, if a new EMV kernel is required to support the new operating system, then Visa L3 retesting is required.</p> | |
| 26. | Disabling a CVM on a previously tested device by updating the configuration settings Note: Updated contact chip CVM settings must conform with one of the Terminal Capabilities listed in the contact EMV L2 LOA. | | ✓ ¹¹ |

¹⁰ It is recommended that you test your terminal's fallback functionality after magnetic-stripe payment application changes.

¹¹ Although L3 testing is not required, regression testing is always advised; submission to CCRT (if feasible) of the regression testing results is also recommended.



Level 1 (L1) and Level 2 (L2) Letter of Approval (LOA)/Letter of Compliance (LOC) Information

This section outlines information about L1 and L2 LOAs and LOCs and whether a waiver is needed during L3 testing when the L1 or L2 has expired.

VCPS: Visa Contactless Payment Specification

VCTKS: Visa Contactless Transit Kernel Specification

VOQOS: Visa ODA for qVSDC Online Specification

| Type of LOA/LOC | Entity Providing the LOA/LOC | Period Supported by Visa to Perform L3 Testing | Do I need a Visa Waiver prior to completing L3 testing when I have an expired L1 and/or L2? |
|--------------------------------|--|---|---|
| L1 LOA Contact and Contactless | EMVCo only. | 4 years (LOA validity) + 2 years from the expiration of the approved product. | If the L1 or L2 is not eligible for renewal, and the expiry date provided in the LOA is exceeded by 2 years or more, then Visa would require the acquirer to submit ¹³ a waiver. |
| L2 LOA Contact | | Note: If eligible, then the L1 and L2 may be renewed or restricted renewed ¹² for 4 years by EMVCo. | |
| L2 LOA Contactless | Visa Approval Services only. Note: Visa provides the LOA for L2 kernel products submitted to VCPS, VCTKS or VOQOS. | 4 years (LOA validity) + 2 years from the expiration of the approved product. Note: If eligible, then the L2 may be renewed for 4 years by Visa. | |
| | EMVCo only. Note: EMV provides the L2 LOA (contactless product LOA) for kernels submitted to Contactless C-3 specs. | 4 years (LOA validity) + 2 years from the expiration of the approved product. Note: If eligible, then the L2 may be renewed or restricted renewed ¹² for 4 years by EMVCo. | |
| L2 LOC Contactless | Visa Approval Services only. Note: Visa provides the LOC for L2 kernel products submitted to Visa Ready Tap to Phone Kernel Specification. | 3 years (LOC validity) + 2 years from the expiration of the compliant product. | If the L2 expiry date provided in the LOC is exceeded by 2 years or more, then Visa would require the acquirer to submit ¹³ a waiver. |

¹² Restricted means it is acceptable to renew once for the full 4 years, but cannot be renewed again after that. Standard renewal means the product is renewed for the full 4 years and can be renewed again after that, assuming it still meets the requirements.

¹³ If Acquirer/processor is part of the Visa Global Chip Acquirer Self-Accreditation program, then they can manage this on their own for deployments in the US and/or LAC regions (no need to contact Visa).

References

This section provides a list of EMVCo references available on the EMVCo website:

- *EMV Level 3 Testing Framework Implementation Guidelines (FIG)*, v1.1 or higher
- *EMV Level 3 Terminal Pseudo Functions*, v1.5 or higher

This section provides a list of Visa references:

- *EMVCo Qualified and Visa Confirmed L3 Test Tools and Components**
- *Chip Compliance Reporting Tool (CCRT) User Guide*
- *Global Chip Acquirer Self Accreditation Program*
- *Terminal Implementation Guide for Visa Europe Region (TIG)*
- *Transaction Acceptance Device Guide (TADG)*
- *Transaction Acceptance Device Requirements (TADR)*
- *Visa-Accredited Chip Vendor Enabled Service (CVES) Providers**
- *Visa Fleet Card 2.0 Implementation Guide for U.S. Merchants, Acquirers, and Issuers*
- *Visa Fleet Chip Enhancements*
- *Visa Minimum U.S. Online Only Terminal Configuration*
- *Visa Ready Tap to Phone Solution Requirements*
- *Visa Smart Debit/Credit Certificate Authority Public Keys**
- *Visa Smart Debit/Credit Contact and Contactless Global Acquirer Implementation Guide*
- *Visa Smart Debit/Credit Contact and Contactless U.S. Acquirer Implementation Guide*
- *Visa U.S. Merchant Contactless Chip Deployment Quick Reference Guide*

Note: Documentation is available for Visa clients on [Visa Access](#). Merchants are advised to contact their acquirer for any documentation that is not on the [Visa Chip website](#) or the [Visa Digital Partner Services website](#).

* Vendors may access these documents on the [Visa Digital Partner Services website](#).