Visa developed the Acquirer Device Validation Toolkit (ADVT) and Contactless Device Evaluation Toolkit (CDET) to provide separate sets of test cards and test cases to be used on contact and contactless terminals interfaces (POS and ATM) prior to deployment.

These test cards help to ensure correct terminal configuration, assist with integration testing and meeting Visa’s terminal requirements for both EMV contact chip and contactless chip devices.

In addition, the quick Visa Smart Debit Credit Device Module (qVSDC DM) was developed to address specific product approval self-testing requirements for Visa payWave qVSDC readers, deploying as stand-alone contactless readers compliant with the Visa Contactless Payment Specification (VCPS).

The test results for ADVT, CDET, and qVSDC DM are submitted to Visa via the Chip Compliance Reporting Tool (CCRT). The following is an outline of the requirements for each toolkit.

**Acquirer Device Validation Toolkit**

Visa mandates that acquirers use the ADVT before initial deployment of their EMV contact chip terminals to help ensure that the terminal has been configured correctly and is capable of processing various use cases. In addition Visa strongly recommends that acquirers use the ADVT toolkit on previously deployed terminals when debugging acceptance issues.

The ADVT must be used if there are major changes to an EMV-approved terminal impacting the payment application, kernel, interface modules (IFMs), or network infrastructure. Visa also requires the use of ADVT when Dynamic Currency Conversion or cash-back is introduced to the EMV POS environment.

To encourage deployment of modern kernels and IFMs that are less susceptible to interoperability issues, acquirers must not submit ADVT test results for kernels and IFMs that have an expired EMV Letter of Approval (LoA). This requirement does not affect the deployment of terminals already approved against ADVT. However, it will help prevent the deployment of new and updated terminal configurations that use expired IFM hardware or kernel software. To reduce terminal testing requirements, as well as to minimize the impact when necessary updates / changes to existing terminals are deployed in the market, Visa recommends acquirers and merchants become familiar with the IFM revisions and kernel versions being supported in their terminals to assist in proper EMV kernel management. Kernel management promotes terminal vendor communication and standardizing solutions. Refer to Visa’s kernel management guidelines for more details.

Visa may ask the acquirer to undertake specific post-deployment ADVT testing whenever it seems likely a terminal is causing acceptance or interoperability problems in the field.

Acquirers can also use a subset of the ADVT test cards in the toolkit to conduct online transactions through a connection to the VisaNet Certification Management Service (VCMS) or a Visa-confirmed third party supplied host simulator.

The ADVT test results are provided to Visa by submitting the results into the CCRT, server-based online solution for the systematic reporting. Acquirers, their processor or a vendor enabled for the Visa Chip Vendor Enabled Service (CVES) are required to use the CCRT to submit their terminal test results.

More information regarding ADVT can be found in the *Acquirer Device Validation Toolkit User Guide*, which is included in the toolkit release package.
Contactless Device Evaluation Toolkit

Similar to ADVT, the CDET is a set of test cards and an accompanying user guide that allows acquirers to validate the correct configuration and operation of their contactless readers.

The toolkit is a self-administered solution similar to ADVT. Each test card corresponds to a test case that must be performed. For new reader deployments, the acquirer executes each applicable CDET test to confirm that the expected outcome is achieved, and final results are submitted to Visa.

If Visa or the acquirer suspects a problem at a contactless reader that has already been deployed, it is recommended that the acquirer perform all applicable CDET tests to assist with the analysis and debugging of the suspected issue.

If changes are made to the configuration of a previously deployed contactless reader it is required that all applicable CDET test cases are reperformed and results submitted to Visa.

As contactless acceptance increases in the U.S. for mobile payments, it is important that merchants, acquirers and vendors remain committed to interoperability and processing integrity for all form factors without compromising cardholder convenience. All contactless readers being deployed must undergo CDET testing regardless of the contactless path supported (i.e., MSD and qVSDC). Stand-alone Visa payWave readers that support contactless EMV chip (i.e., qVSDC), also require qVSDC DM testing for the conditions defined above.

CDET testing is also required for existing contactless chip-reading terminals that have undergone a significant hardware or software upgrade impacting the kernel or payment application for chip processing. These requirements also apply to contactless chip terminals supporting only MSD contactless.

CDET does not specifically test the performance of the contactless antennae. It focuses on the integration of the payment application to the Level 2 kernel. While there may be variances of Level 1 & Level 2 letters of approval for a terminal family, the Level 2 kernel is often identical within that family. When a deployment supports a Visa payWave terminal family that also shares the same level 2 kernel, a single Visa payWave reader can be CDET tested to cover the entire terminal family. Consult with your terminal vendor to ensure a terminal falls within a terminal family. This approach allows a general reduction in the number of test iterations without negligible impact to the integrity of the testing process.

The CDET test results are provided to Visa by submitting the results into the CCRT, server-based solution for the systematic reporting. Acquirers, their processor or a vendor enabled for the Visa Chip Vendor Enabled Service (CVES) are required to use the CCRT to submit their terminal test results.

Further information regarding the use of CDET can be found in the Visa Contactless Device Evaluation Toolkit User Guide, which is included in the toolkit release package.

qVSDC Device Module

Visa developed the qVSDC DM to address specific product approval self-testing requirements for Visa payWave acquirers deploying stand-alone contactless readers compliant with the Visa Contactless Payment Specification (VCPS) and supporting qVSDC. Before activation and deployment of stand-alone contactless readers, Visa payWave acquirers must use the qVSDC DM and validate successful results as part of the overall contactless reader approval process. The testing is optional for fully integrated readers being deployed in the U.S. that support both contact and contactless.

Use of the qVSDC DM is governed by the same rules and policies that exist for the ADVT & CDET, i.e., use of this toolkit is mandatory before deploying a new stand-alone device and also when an acquirer has modified software on an existing device to support Visa payWave acceptance. In the specific case of a Visa payWave acquirer deploying a new qVSDC stand-alone reader into its existing acceptance environment, the qVSDC DM is required in order to complete the self-testing component of the device approval process, and is a Visa requirement that must be met before deployment of such readers.

Use of qVSDC DM is limited to contactless stand-alone readers supporting qVSDC. It does not apply to readers supporting only MSD contactless.

For further information regarding the use of qVSDC DM, acquirers should refer to the qVSDC Device Module Test Cases document.
Additional Toolkit Requirements

Acquirers must use the ADVT, CDET and qVSDC DM (conditional) toolkits before initial terminal deployment (including all variations of hardware, software, and parameter settings) to help ensure that the terminal is fully operational, having been set up and configured correctly. It is expected that acquirers will run every applicable test to gain the full benefit of the toolkit. When the acquirer’s test results do not match the expected outcome of the test, the acquirer should work with its terminal vendor (and Visa, if necessary) to correct the problem. The acquirer will continue to perform the test until the problem is resolved and the acquirer’s test result matches the expected outcome. An acquirer that fails to use the ADVT, CDET and qVSDC DM (conditional) on a device that causes interoperability issues may be subject to fines as defined in the Visa Chip Interoperability Compliance Program.

In addition, it is strongly recommended that acquirers use these toolkits on deployed EMV contact chip and Visa payWave accepting contactless terminals in order to analyze and debug any potential acceptance issues.

Use of the ADVT and the CDET is intended to ensure basic EMV contact chip and contactless functionality is not compromised during application integration, that all Visa requirements are satisfied, and to identify common interoperability issues. Use of the toolkits does not imply or guarantee that a terminal is fully compliant with EMV specifications or Visa requirements.

The ADVT and the CDET can be obtained through Visa’s third party fulfillment service, Merrill Corporation. Similar tools are also available from Visa-confirmed third party vendors. For a list of Visa-confirmed tool vendors, see Products and Toolkits at https://technologypartner.visa.com.

Chip Compliance Reporting Tool

Visa developed the CCRT as a centralized, server-based online solution for the systematic reporting of ADVT, CDET, and qVSDC DM (if applicable) test results. The CCRT facilitates an efficient submission and management process of compliance reporting for acquirers by:

• Providing Visa acquiring clients with an appropriate level of security and confidentiality in managing their terminal test results, and allows the CCRT service to be consolidated with other services currently provided to Visa clients. CCRT is available on Visa Online, Visa’s online solution for providing secure access to Visa content and services for our clients globally.
• Reducing potential errors in manual entry by guiding users to choose from applicable options and providing mandatory information. A user can reuse existing reports as a starting point for new reporting or leverage import functionality generated by Visa-confirmed third party vendors, reducing time spent completing the reports.

Acquirers or their processor are required to use the CCRT to submit their terminal test results. Results for each region must be submitted separately. The CCRT is the only method under which Visa will accept the test results for ADVT, CDET and qVSDC. Acquirers should discuss enrollment requirements and use of CCRT with their Visa representative. In order for processors or CVE5 enabled vendors to submit terminal test results on behalf of their acquirers, an Acquirer Acknowledgement Form is required.

CCRT allows users to:
• Submit new compliance reports
• Review and update draft reports
• Allow online status review and obtain automated management of reports submitted to Visa
• Track approved and submitted reports
The following table provides an overview of steps to submit a report into CCRT.

<table>
<thead>
<tr>
<th>STEP</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client information</td>
<td>Requests information about the client, including contact details and Visa related licensing information used for testing.</td>
</tr>
<tr>
<td>ADVT/CDET Test information</td>
<td>Complete all mandatory information on the Compliance Test Information, Payment Application and EMV, Terminal Resident Data Objects, Terminal Details screens.</td>
</tr>
<tr>
<td>qVSDC DM Test information</td>
<td>Complete all mandatory information on the Reader Details and Reader Configuration Detail screens, if applicable.</td>
</tr>
<tr>
<td>Entering Data</td>
<td>The tool offers free form entry fields and pull-down menus for selecting pre-populated lists or a new feature providing the ability to use a Visa-confirmed vendor card simulator and the import function, eliminating the need to manually populate CCRT screens. Log files are not required for online tests.</td>
</tr>
<tr>
<td>Test Results</td>
<td>Complete all required data for test results before submitting to Visa. An option is provided to “Select All: Pass or Fail,” which can be used to save data entry time for these columns. In some cases, this may be all that is required. You will be notified of test result errors, if any, that must be corrected when you select ‘Next’ from this screen. If no errors are found, you will be taken to the confirm screen.</td>
</tr>
<tr>
<td>Confirm</td>
<td>The final stage is to ‘Confirm’ your entries and submit the Compliance Report to Visa for validation. Provided all mandatory fields were completed on previous pages, you will be given the option to ‘Submit’ your report. If any mandatory fields are missing, they will be summarized on the ‘Confirm’ page. By clicking on any of the listed items, you will be returned to the correct location to complete the values for these fields, before submitting your report.</td>
</tr>
<tr>
<td>Review</td>
<td>The submitted reports remain in a “Pending” status until they have been reviewed and validated for a 1st time submission by an acquirer. The status of the submitted report will change to ‘Accepted’ or ‘Declined’ depending on the outcome of Visa’s review. For an acquirer that already has completed a successful review by Visa, the status of the submitted report will change to an ‘Accepted’ status. Reports can be reviewed by using the ‘Search’ capability. Statistical reporting feature is available for previously submitted reports.</td>
</tr>
</tbody>
</table>

CCRT enhancements for the U.S. include:

- A streamlined review process by automatically accepting reports when all results “pass” for subsequent submissions.
  - After the first accepted report is reviewed by Visa, a review of updates is not required. The requirement to submit terminal test results remains, but does not include a Visa review. The review is optional after the initial submission in CCRT. Refer to the two flows below for examples:

**CCRT Process Flow New Acquirer**

![CCRT Process Flow Diagram]

Note: ADVT Testing includes qVSDC DM Testing and is conditional.
Improved processor capabilities to support multiple acquirers in one submission.

- Submission of terminal test results for each acquirer on the same processing platform is not required as long as the terminal or kernel/IFM configuration is the same. The acquirer processor must link all applicable acquirers that will be deploying the terminal on that platform. If any changes to the terminal impacting chip processing are necessary, a separate submission is required. The Acquirer Acknowledgment Form is required.

- Test results may be submitted by acquirer processors for their own Visa licensed entities.

- qVSDC DM test results are no longer required in CCRT when a dual-interface integrated terminal is selected. The qVSDC DM testing is still required for a stand-alone contactless only device.

- Report submission import capability is expanded to include CDET and dual reporting generated by third-party card simulator test tools confirmed by Visa.

- Visa Chip Vendor Enabled Service (CVES) launched in October 2013, helps streamline the testing and reporting requirements for the deployment of ATM and point-of-sale chip-acceptance devices in the U.S. CVES engages third-party chip tool vendors to execute mandatory ADVT and CDET testing on behalf of acquirers and processors, analyze the results and submit reports to Visa using the CCRT.

Until the CCRT is updated to include the requirement for merchant name, clients must include the name of the merchant in the CCRT Report Title in all CCRT report submissions for large merchants. For small to mid-size merchants, the report title requirement is "stand-alone solution." This will allow for analysis and troubleshooting in the interim.

Further information regarding the use of CCRT can be found in the Chip Compliance Reporting Tool User Guide for Chip Acquirers.

For More Information

Visa clients can access Visa documentation on Visa Online. Visa-confirmed tool vendors can access documentation at https://technologypartner.visa.com.

Reference of Visa Documentation:

- Acquirer Device Validation Toolkit (ADVT) User Guide
- Contactless Device Evaluation Toolkit (CDET) User Guide
- qVSDC Device Module Test Cases (VCPS 2.1.1)
- Chip Compliance Report Tool (CCRT) User Guide
- Chip Compliance Report Tool (CCRT) Quick User Guide
- Visa Smart Debit/Credit and Visa payWave U.S. Acquirer Implementation Guide
- Visa Smart Debit/Credit ATM U.S. Acquirer Implementation Guide
- CVES Benefits
- Visa Chip Bytes
- Kernel Management Guidelines VBN release 4/30

Acquirers should consult with their Visa representative for more details.