

RESO Certification Data Dictionary Testing Tool

Instruction Manual

Table of Contents

1 Introduction	3
1 Introduction	3
2.1 Supplemental Application Information (SAI)	3
2.2 Supported RESO Transport Standards	
3 Using the Data Dictionary Testing Tool (DDTT)	
3.1 Anonymous User	
3.2 Guest User (Creating an Account)	
4 Creating Data Dictionary Tests	
4.1 Creating an MLS	
4.2 Creating a Test	
4.2.1 Submitting RETS Server Credentials	11
4.2.2 Metadata XML / JSON Uploading	12
4.3 Select the Testing Resources	13
5 Understanding Data Dictionary Test Results	14
5.1 Report Summary Information	14
6 Help and Support	19
6.1 Help & Support (Submitting New Ticket)	19
6.2 Requesting Feedback (From Compliance Report)	20
6.3 Returning to the Help and Support Tickets	20
7 Important Links	21

1 Introduction

The Real Estate Standards Organization is pleased to provide the RESO Certification Data Dictionary Testing Tool (DDTT) to the entire Real Estate community.

This document provides instructions to help organizations use the same tool used by the RESO Certification Department. This will allow any organization to self-test their systems prior to submitting certification applications.

The DDTT is found at http://ddcert.reso.org/

2 Before Certification

One objective of the DDTT is to allow users to know the results of certification testing before submitting a certification application. A full description of the Certification process is provided in the "Data Dictionary Certification Overview" documentation (available on reso.org).

Each version of the Data Dictionary has its own set of testing rules. These rules are incorporated within the testing tool to determine the appropriate certification level. Please review the testing rules (available on reso.org) for the appropriate Data Dictionary.

Any questions that cannot be answered through the available documentation may be directed to RESO Staff at certification@reso.org.

2.1 Supplemental Application Information (SAI)

The Supplemental Application Information (SAI) provides details to address issues discovered during the testing process. Some Data Dictionary testing rules cannot be implemented within the DDTT. The SAI assists RESO Staff to grant manual exceptions or corrections to DDTT results.

A common example of an error that must be resolved using an SAI is the "externally enumerated field." For example, the Data Dictionary field "City" must be enumerated but it is not required to have all possible City values within the RETS Metadata. To pass certification, the SAI must contain the enumerated values used by the system but are not in the RETS Metadata.

The information for the SAI may include but not limited to:

- A list of Data Dictionary fields that are mapped by the applicant but may not be fully compliant;
- A list of all known Compliance Warnings and Compliance Notices (e.g. problems that the applicant might know prior to submission) as defined in the detailed compliance rules, including a time frame on when these warnings will be corrected;
- A list of Data Dictionary lookup values that are NOT located in the current Data Dictionary defined field;
- A list of Data Dictionary lookups values that appear more than once in the applicant's implementation. This only applies to those lookups with the same definition. Similarly named lookups with different definitions, based on locational context, do not need to be listed; or
- Any other information that the applicant would like to provide to RESO for evaluation.

2.2 Supported RESO Transport Standards

The RESO Data Dictionary is independent of data transport methods. The DDTT will support multiple RESO Transport standards. New transport standards and updated versions of existing standards will be added when approved for use.

Current Standards & Versions: RETS (1.7.2, 1.8)

Future Standards & Versions: RESO Web API (1.0.2)

NOTE: Please contact RESO Staff (certification@reso.org) to explore options on how to certify systems NOT build on RESO transport standards. Accommodations may be available but not guaranteed.

3 Using the Data Dictionary Testing Tool (DDTT)

The Data Dictionary Testing Tool (DDTT) is available for anyone to use. Those interested may use it anonymously or register as a guest.

Anonymous Users are able to submit servers for analysis and view the summary reports. Tests and server credentials submitted by and result summaries received for anonymous users are not saved.

Guest Users are those who create a profile (username, password, contact information, etc.). With this profile, guests are able to save their server credentials, view detailed results, forward the results to RESO Staff, and view all of these in later sessions.

Other roles exist for administrative purposes.

3.1 Anonymous User

All users are shown the login screen when visiting the DDTT. Those wishing to submit an anonymous test begins by clicking "Free Trials" (see below).

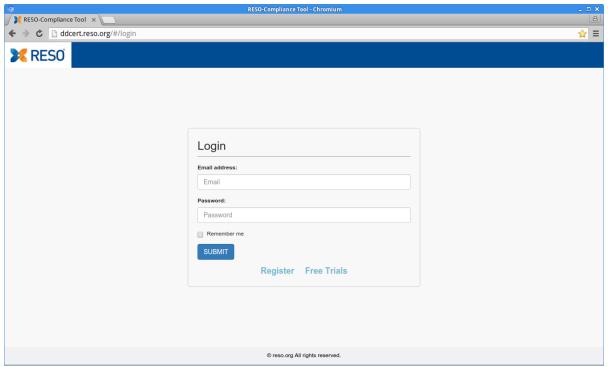


Figure 1: DDTT Login Screen

Anonymous users are then asked to select the type of the test to be performed. The functionality of the three options on this screen is consistent for all users, regardless of their role or login status.

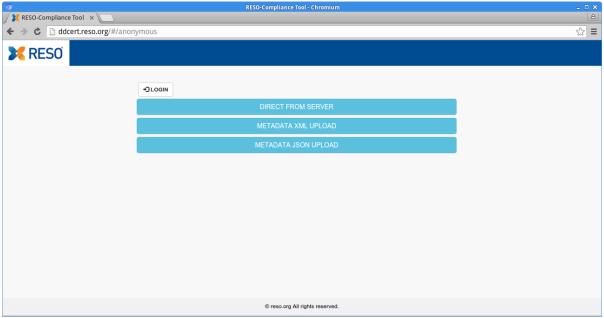


Figure 2: Select Test Type

Additional information on the next steps are in the "Creating Data Dictionary Tests" section below.

3.2 Guest User (Creating an Account)

All users are shown the login screen when visiting the DDTT. Those wishing to create a guest account begins by clicking "Register" (see below).

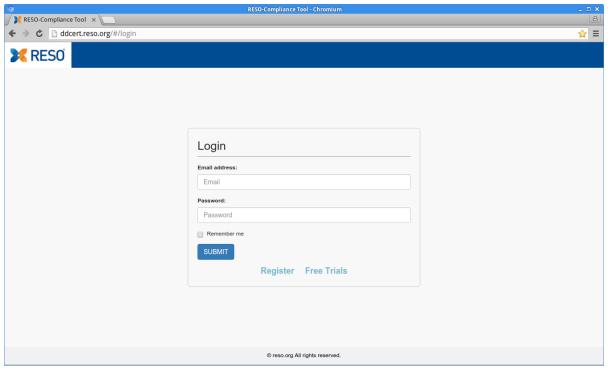


Figure 3: DDTT Login Screen

All Guest Users are required to provide all of the information requested on the screen (see below).

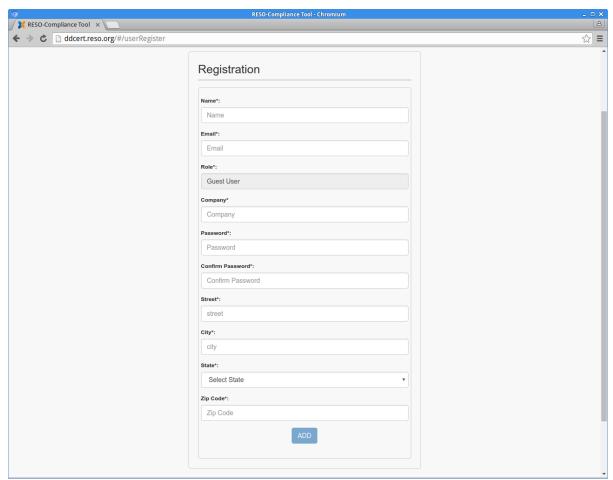


Figure 4: Registration Screen for Guest Accounts

A confirmation link will be sent in an email to the address provided in the form. **The link must be clicked before logging into the DDTT.** The login credentials will not work until the account has been confirmed.

4 Creating Data Dictionary Tests

4.1 Creating an MLS

After registration and logging in, a new guest user will be taken to an empty "MLS List." The "MLS List" is where server credentials used by the Guest are saved. Click "Add MLS" to create an MLS that will be saved. (Any number of MLS may be added by a Guest.)

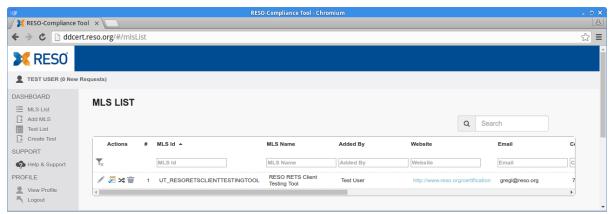


Figure 5: MLS List (with Sample MLS)

Icons are available on each MLS entry (far left) to edit (pencil), create a new test (checked paper), merge with other entries (crossed arrows), and delete (trash).

NOTE: For the DDTT, the term "MLS" is meant to be a generic term for any organization interested in submitting a Data Dictionary application.

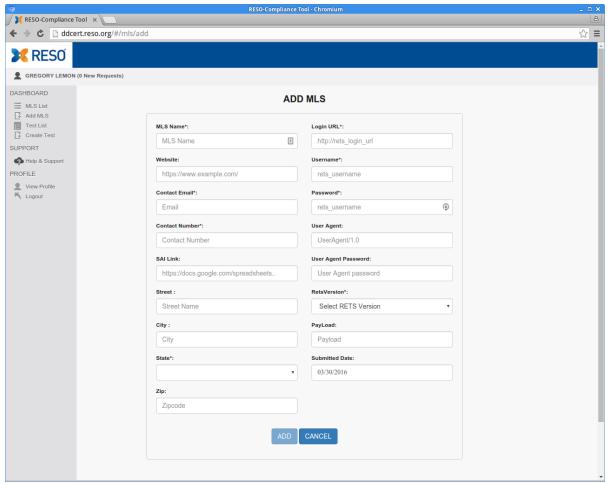


Figure 6: Add MLS (RETS 1.x Server Credentials)

Each "MLS" created and saved within the DDTT should have a valid set of RETS Server Credentials. Tests created with this MLS will use these credentials to pull the metadata required for analysis. Guest users may place non-functioning RETS Server Credentials if they intent to upload data structures without using a server.

NOTE: Data Dictionary Certification is awarded for Production Servers ONLY. (Production refers to a server that is able to and used by the applicant's users.) Official Certification tests traditionally pull the RETS Metadata from a production server using valid RETS Server Credentials.

Additional non-production servers may be added for development pre-testing purposes. It's recommended that you put TEST, DEV, or another text flag in the "MLS Name" field to help keep the different accounts separated.

4.2 Creating a Test

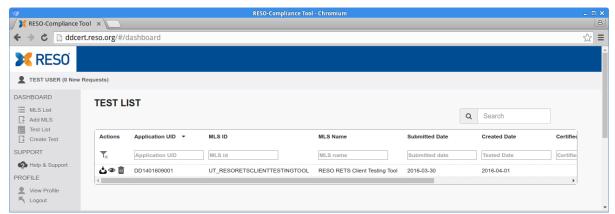


Figure 7: Test List (with Sample Test)

The Test List Screen displays all current test created with the current account. Icons are available on each Test entry (far left) to archive (out box), view (eyeball), and delete (trash).

Guest users have all of their tests saved within the "Test List" and may review them at any time. The tests may be re-tested after the source data structure (server's metadata has been changed.)

Multiple methods are available to start a new test:

- 1. Click "Create Test" in the side dashboard.
- 2. Click the "Create Test" icon on an MLS entry on the "MLS List" Screen.

The "Data Transport Selection" screen will be displayed after either of these actions.

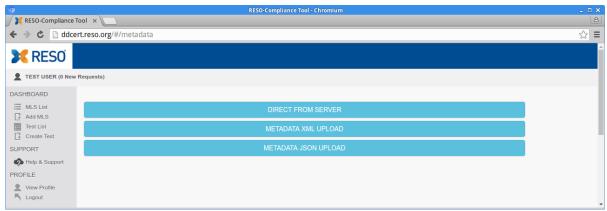


Figure 8: Data Transport Selection

Clicking any of the blue headers will display forms to collect server information or allow for the uploading of data structure files.

4.2.1 Submitting RETS Server Credentials

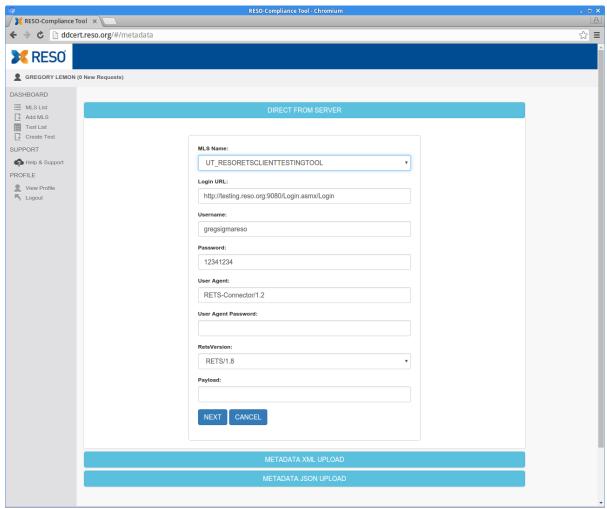
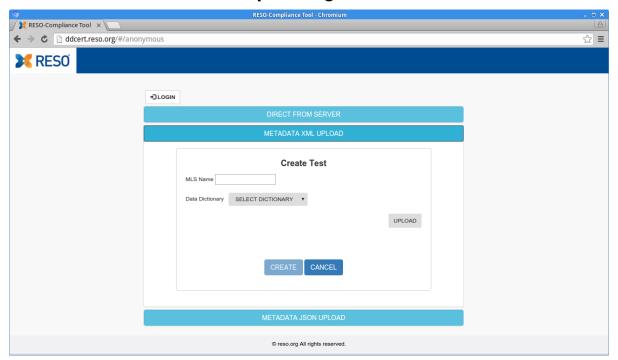


Figure 9: Direct From Server (RETS 1.x Credentials)

The "MLS Name" dropdown will be populated with the RETS 1.x Credentials from the MLS that was already setup. Review and click "Next" when ready.

4.2.2 Metadata XML / JSON Uploading

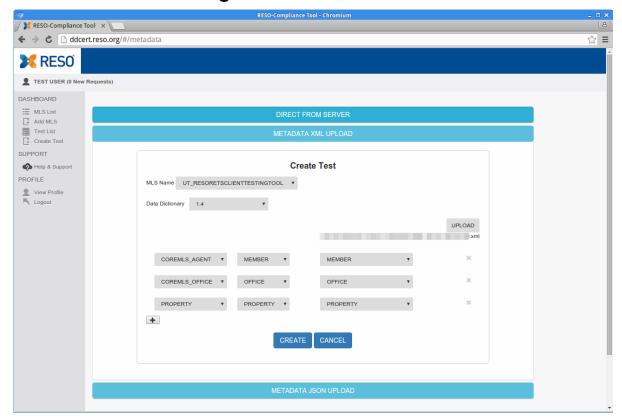


Each test needs to be associated with an MLS, even if the data structure being analyzed is being uploaded from the applicant's computer.

The "Data Dictionary" dropdown will allow the applicant to determine which set of testing rules will be applied during the testing process.

Click "Create" to continue with the process.

4.3 Select the Testing Resources



The Data Dictionary testing rules do not mandate what names should be used for resources used within data structures. This step of the testing process allows users to match their resources with those defined in the Data Dictionary. The tool attempts to match the resources but may require users to provide corrections.

The "Create" Test button will remain disabled until:

- 1. A Data Dictionary version has been selected, and
- All resources have been assigned to a Data Dictionary resource. "RESO RESOURCE" will be displayed for those resources that could not be matched automatically.

Users may also delete resources from this list to prevent them from being tested. This is appropriate for those additional resources that do not have a Data Dictionary match.



Figure 10: Test Results Screen (Before Test)

Each Compliance Report is assigned a unique test number. This number is included at the top of the report. Please include this number when asking RESO Staff questions about the certification results.

Click "Start the Test" to begin the testing procedures.

5 Understanding Data Dictionary Test Results

A completed Data Dictionary Test Results screen provides the initial testing certification results. The following is a breakdown of all of the report sections.

5.1 Report Summary Information



Figure 11: Test Results Part 1 (Summary)

The top section provides generic information about the compliance report:

- MLS Name: The MLS (RETS Credentials) used to generate the report.
- Created Date: The original date of the test being created.
- Tested Date: The date of the most recent "RETEST"

- Data Dictionary: The version of the Data Dictionary and Testing Rules being applied to the data structure.
- Field Count: The number of fields being analyzed.
- **MLS Certification**: The resulting certification status. Those that pass will receive a "Platinum", "Gold", "Silver", "Bronze", or "Core". A "--" signifies that a certificate level has not been earned.
- Source: Describes how the data structure was received by the DDTT.
- View Metadata: A link to view the data structure being analyzed by the DDTT. It is helpful to make sure that the data structure being analyzed is the same as the one expected.

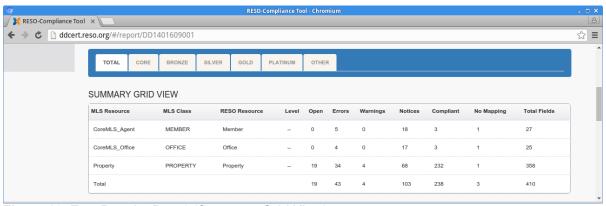


Figure 12: Test Results Part 2 (Summary Grid View)

The blue bar above the "Summary Grid View" contains tabs that will change the summary view to display the results for those fields within each classification. The default "Total" shows results for all fields. "Core" limits the Summary Grid to only "Core" fields.

- MLS Resource: The name of the resource as described in the data structure.
- MLS Class: The name of the class as described in the data structure.
- **RESO Resource:** The name of the RESO Data Dictionary resource used to analyze the individual resource.
- Level: The certification results for the individual resource.
- Open: The number of fields with "OPEN" results. This means the DDTT was unable
 to determine what type of results should be awarded to this field. Additional
 information or a manual review by RESO Staff may be required. This must be
 resolved before certification can be awarded.
- **Errors:** The number of fields with "ERROR" results. This means at least one of the sub-tests performed resulted in an error.
- Warnings: The number of fields with "WARNING" results. This means at least one of the sub-tests performed resulted in a warning but no errors were found.
- **Notices:** The number of fields with "NOTICES" results. This means as least one of the sub-tests performed resulted in a notice but no errors or warnings were found.
- **Compliant:** The number of fields with "COMPLIANT" results. This means all subtests performed came back as compliant. No errors, warnings, or notices were found. Some sub-tests may be "ignored" based on testing rules.
- **No Mapping:** The number of fields that were not mapped to a corresponding Data Dictionary field and was not tested.
- Total Fields: A count of all of the fields in the resource.

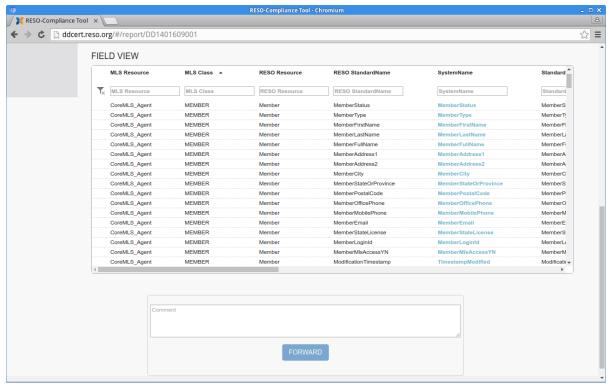


Figure 13: Test Results Part 3 (Field View)

The Field View provides a summary of all fields analyzed. Text boxes at the top of each column will filter the results. There is a "Cancel Filter" icon to the far left of the fields to clear all filters in one click.

Clicking the column heading will change the sort order. Clicking the blue SystemName will cause that field's Detailed Report to be displayed.

Column Definitions

- MLS Resource: The name of the resource as described in the data structure.
- MLS Class: The name of the class as described in the data structure.
- RESO Resource: The name of the RESO Data Dictionary resource used to analyze the individual resource.
- RESO StandardName: The name of the RESO Data Dictionary field used in the analysis comparisons.
- SystemName: The field's SystemName extracted from the tested data structure.
- StandardName: The field's StandardName extracted from the tested data structure.
- Certification Level: The field's Data Dictionary Certification level assignment.
- Result Combined: The field's combined certification result summarizing the subtests listed in the Detailed Report.
- **Remarks Combined:** The field's combined certification result summarizing the subtests listed in the Detailed Report.
- Enum Count: The number of enumerations in the field.
- Feedback: Notes from the manual review of the field result.

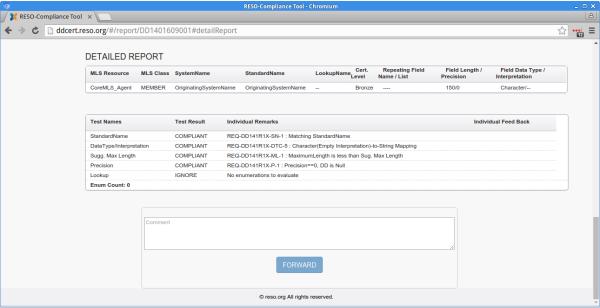


Figure 14: Test Results Part 4 (Detailed Report - Standard Field)

The Detailed Report for non-enumerated contains two sections. The first contains the field details. The second contains the results of the five compliance sub-tests.

The columns for the first section are:

- MLS Resource: The name of the resource as described in the data structure.
- MLS Class: The name of the class as described in the data structure.
- **SystemName:** The field's SystemName extracted from the tested data structure.
- StandardName: The field's StandardName extracted from the tested data structure.
- **LookupName:** The field's LookupName extracted from the tested data structure. This should be empty for non-enumerated fields.
- Certification Level: The field's Data Dictionary Certification level assignment.
- Repeating Field Name / List: The Data Dictionary defines some fields with repeating elements. This is the repeating field name that the testing tool identified for this field. (Additional information on Repeating Elements found within the Data Dictionary.)
- **Field Length / Precision:** The field's field length and precision extracted from the tested data structure.
- **Field Data Type / Interpretation:** The field's data type and interpretation extracted from the tested data structure.

The columns for the second section are:

- Test Names: Each field is evaluated in five different areas. The results for each of these tests are contained in each row. Explanations for each test is found in the Data Dictionary Testing Rules.
- Test Result: Each test is one of the following results: COMPLIANT, NOTICE, WARNING, ERROR, or OPEN. Explanations for each result is found in the Data Dictionary Testing Rules. OPEN is reserved for inconclusive testing results that must be reviewed prior to awarding/receiving certification.
- Individual Remarks: The automated test results provided by the DDTT.

 Individual Feed Back: The manual test results provided by RESO Certification Staff based on Supplemental Application Information or resolving OPEN issues.

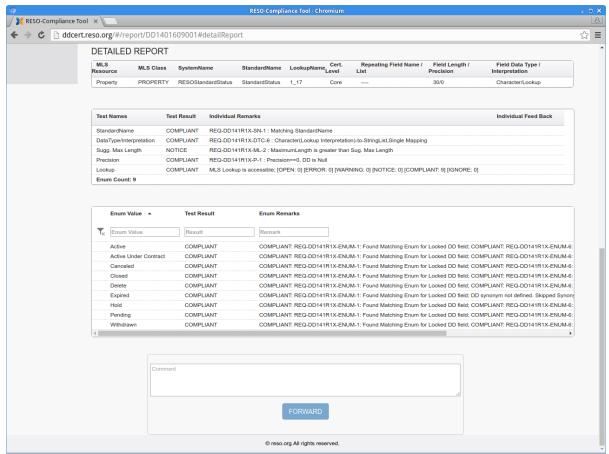


Figure 15: Test Results Part 5 (Detailed Report - Enumerated Field)

The Detailed Report for enumerated contains three sections. The first contains the field details. The second contains the results of the five compliance sub-tests. The third contains the results for each of the enumerations found within the data structure.

The first and second sections are defined on the previous page. The third section displays the enumerated values. The text boxes at the top of each column will filter the enumerated values. There is a "Cancel Filter" icon to the far left of the fields to clear all filters in one click.

The columns for the third section are:

- **Enum Value:** The field's enumeration value extracted from the tested data structure. For RETS 1.x, this matches the enumerations "LongValue". The "ShortValue" and "Value" enumerations are not evaluated for certification purposes.
- Test Result: The result of the enumerated value.
- Enum Remarks: Detailed information from the testing of each of the enumerations.
- Enum Feed Back: Notes from the manual review of the field result.

6 Help and Support

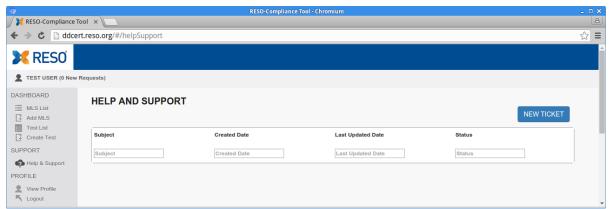


Figure 16: Help and Support Page (Empty Queue)

Guests have access to the "Help & Support" section where questions may be submitted using Tickets.

6.1 Help & Support (Submitting New Ticket)

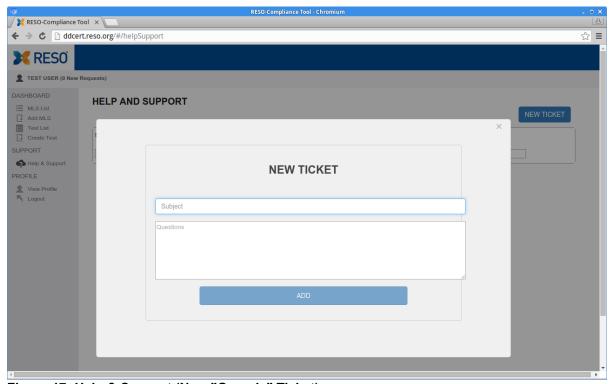


Figure 17: Help & Support (New "Generic" Ticket)

Any generic question may be submitted through the DDTT using the "New Ticket" button on the "Help and Support" screen. Questions may also be submitted via email to certification@reso.org.

6.2 Requesting Feedback (From Compliance Report)

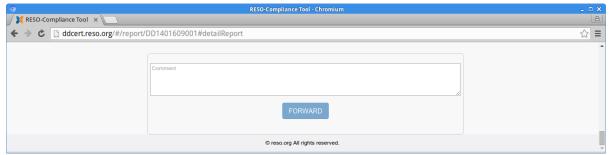


Figure 18: Requesting Feedback on Compliance Report

Questions about the Compliance Report may be entered at the bottom of the report. Pressing "Forward" after entering the question will submit a ticket to be reviewed by RESO Staff.

NOTE: This is the preferred approach for submitting questions. By using this form, a link will be embedded within the ticket to quickly link back to the originating Compliance Report.

6.3 Returning to the Help and Support Tickets

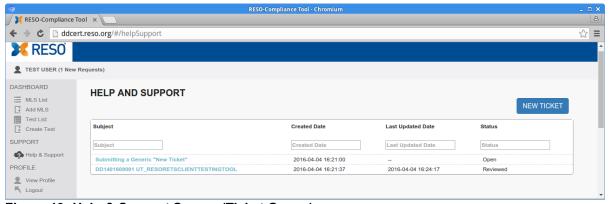


Figure 19: Help & Support Screen (Ticket Queue)

All of the tickets submitted by a Guest can be viewed on the "Help and Support" screen. A Guests are able to see their own tickets.

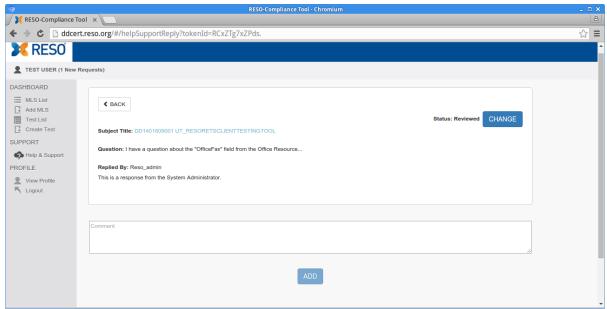


Figure 20: Ticket Details

A ticket generated from a Compliance Report will have the link back to the report at the top of the screen. The conversation at the may continue through the form at the bottom.

The "Status" of the ticket may be changed by those participating in the ticket.

7 Important Links

RESO Certification Central: http://www.reso.org/certification/

RESO Data Dictionary Testing Tool: http://ddcert.reso.org/

RESO Certification Support Email: certification@reso.org