

October 2021



User Documentation

Validatar Release 2021.4
Improving Trust in Data

PREPARED BY
Validatar



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Using the Validatar Documentation

Documentation Overview

Welcome to the Validatar Documentation site where we hope you can find answers to your questions and problems and enhance your journey toward improved data quality with Validatar.

If this is your first time here let us give you a quick tour so you can make the most of the features available to you. After you read through this page we would recommend the [Validatar Quick Start Guide](#) as your next stop.

Navigation

On the left-hand side of the screen, you will find the main navigation. It is organized for you to easily find what you are looking for.

Inside of each article, you will also find helpful navigation. On the right-hand side of your screen, you will find the article's table of contents that will let you quickly and easily jump to any section in the article. Below the table of contents, you will find links to related articles in the documentation.

Search

At the top of your screen, you will find the Search bar. This will give you the fastest way to find what you are looking for across the entire site.

Knowledge Base Assistant In Validatar

You may not know it, but starting in Validatar 2021.2 this documentation is available directly inside of the Validatar interface through the Knowledge Base Assistant. It will provide you context-based access to documentation that is relevant to the page you are on in Validatar.

Types of Documentation

On this site, we have several types of documentation to help you on your Data Quality journey.



- **Getting Started With Validatar** - These articles are designed to help you ramp up as quickly as possible so you can begin using Validatar effectively to improve your organization's data quality.
- **Feature Documentation** - These articles provide comprehensive documentation about a specific feature, function, or page in Validatar.
- **How-To Articles** - These articles walk you through tasks that may have several complex steps involved.
- **Concept Guides** - These articles are designed to step back from specific features and provide guidance for how you could approach a particular problem or implement a solution related to Data Quality.
- **Release Notes** - If you are looking to find out what is new in each version of Validatar this area will get you up to speed.
- **EULA** - In case you have questions about our End User License Agreement we have made it easy to access here.

Interactivity and Feedback

At the bottom of each article, you will find options for providing feedback on how helpful you found the article. We appreciate your feedback so we can continually improve the value this documentation is providing you.



Getting Support

Getting support for Validatar issues you are having is straightforward.

Contacting Support


We have created a couple of options for you to contact us for support with Validatar.

1. Please submit a ticket via our Customer Portal
2. Please send us an email at support@validatar.com

Using the Customer Portal

When using the [Customer Portal](#) to submit tickets, you will be required to create an account. If this is your first time, click the [Sign-Up](#) link.

Log in to Validatar Customer Portal



Next

[Need an account? Sign up](#)

Once you have logged in, you will have the option to select what kind of support request you have. You may submit the following types of tickets:

- Technical Support
- Licensing and Billing Questions
- Product Trial Questions
- Test Pack Related Questions
- Report a Bug
- Suggest a New Feature
- Suggest an Improvement
- Other Questions

Working with Support

There are times when you will need to work with our support team to get them information about what is happening in your Validatar environment. This may require us to review logs. A Validatar Global Admin can download recent logs from the server by navigating to [Global Settings > Configuration > Logs](#) if this is required.



Validatar Configuration

SMTP

Authentication

Scheduling

Default Values

Data Environments

Result Storage

Reporting

Logs >

Server Configuration - Logs

 Download Logs

Logs to Download required

Enter number of days day(s)

i This process will download via the browser the most recent log files from the Validatar Server so that these can be shared with support to troubleshoot errors on the server. The following items are included in the zip file:

- Server Settings and Configuration Information
- Web Server Logs
- Service Layer Logs

No Customer Sensitive Data will be included in the Settings or Log files that are downloaded.



Validatar Quick Start Guide

What is Validatar?

Validatar is a Data Quality Management and Automation platform that enables organizations to improve data quality & increase trust in data by automating the discovery, profiling, testing, and monitoring of its data assets.

Who Can Use Validatar and Why?

- Business Leaders will gain confidence that the data they are using is trustworthy.
- Data Stewards are given the tools they need to monitor and govern data assets.
- Data Developers can deliver accurate and trusted data faster using automated data testing.
- Data Consumers are given the visibility to know and trust the data assets available to them.

Common Use Cases

- Data Warehouse ETL Dev QA
- Data Governance
- Cloud Migration
- Data Quality Monitoring

10 Steps to Getting Started

Getting started in Validatar is simple, but we've created a list of ten tasks to complete before running your first test to make it even easier.

1	Install the Validatar application on the appropriate server.
2	Create a Global Admin user.
3	Apply License information.
4	Configure SMTP settings.
5	Add additional Validatar users.
6	Give your Validatar project a name.
7	Create a data source with both primary and profiling connections configured.
8	Ingest the data source's metadata.
9	Run a full profile on your data. Try a small table first.
10	Start running tests!



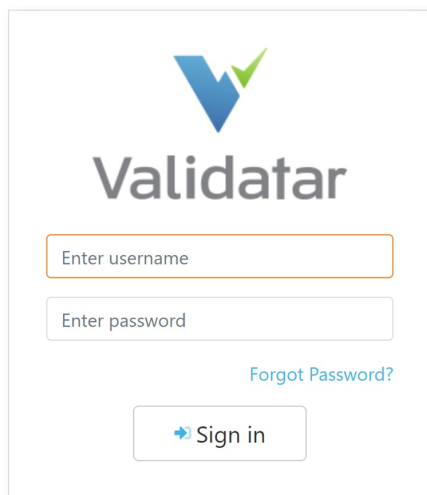


Accessing Validatar

Logging In

To login to Validatar:

1. Navigate to your instance of Validatar via the provided URL.
2. Enter your username and password.



The image shows the Validatar login interface. At the top is the Validatar logo, a stylized 'V' with a green checkmark. Below the logo is the word 'Validatar' in a large, bold, sans-serif font. Underneath are two input fields: 'Enter username' and 'Enter password'. To the right of the password field is a blue link that says 'Forgot Password?'. At the bottom is a button with a right-pointing arrow and the text 'Sign in'.

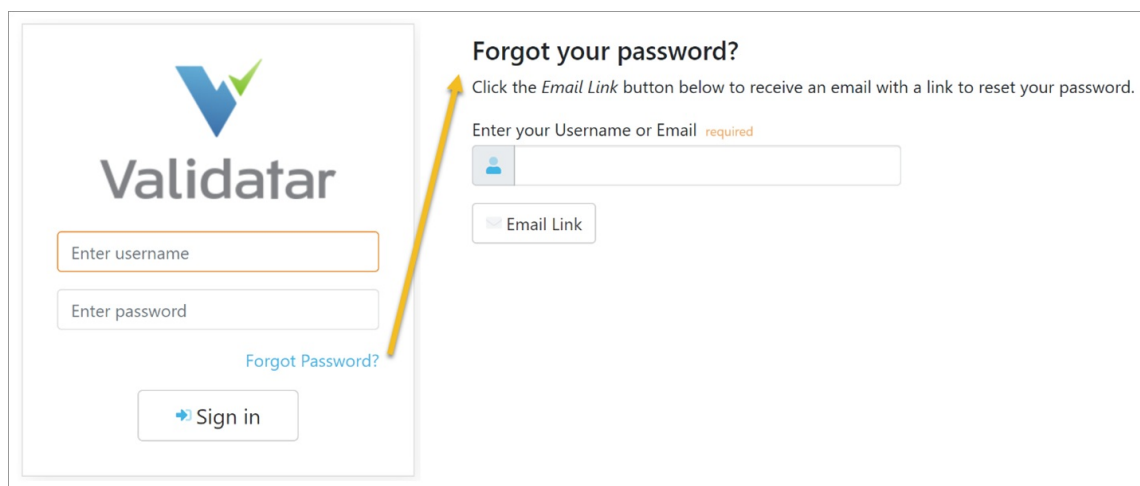
Forgot Password?

If you've forgotten your password:

- Navigate to the Login Screen and click on the **Forgot Password?** link. You will be prompted to provide your **username** or **email** and receive a link to reset your password.

If you've forgotten your username:

- Go through the reset password procedure described above using your email. This will allow you to log in and then view your username.



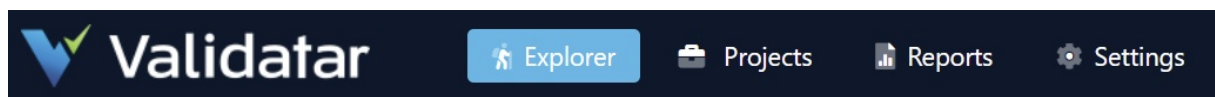
The image shows the 'Forgot your password?' form. On the left is a smaller version of the login form from the previous image. A yellow arrow points from the 'Forgot Password?' link in the login form to the 'Forgot your password?' form on the right. The 'Forgot your password?' form has the title 'Forgot your password?' and the instruction 'Click the *Email Link* button below to receive an email with a link to reset your password.' Below this is an input field with the placeholder text 'Enter your Username or Email' and a red 'required' label. To the left of the input field is a blue user icon. Below the input field is a button with a right-pointing arrow and the text 'Email Link'.



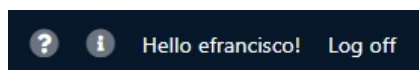
Navigating Validatar

The Toolbar

The main toolbar bar contains four main areas of Validatar: Explorer, Projects, Reports, and Settings.



1. **Explorer** - Brings you to a list of data sources that you have browse permissions for and changes the navigation tree to the explorer tree. If Validatar has ingested the data source's metadata, the latest ingestion date as well as statistical information about the data source will be shown.
2. **Projects** - Brings you to a list of every project that you have access to inside of Validatar and changes the navigation tree to the project tree. Browse the repository of existing tests, jobs, and results and create new test cases under Projects.
3. **Reports** - View standard reports like test and job history or create new custom reports by connecting Validatar to a business analytics tool like Tableau. Clicking Reports changes the navigation tree to the reports tree.
4. **Settings** - Global administrators can configure their Validatar server to support the needs of their organization. Add new data source connections, database engines, and custom profiles for enhanced monitoring and data quality testing. Clicking Settings changes the navigation tree to the settings tree.



1. **Help** - Clicking the help icon displays Validatar's knowledge base. You can also find links to Validatar's website and support portal.
2. **About Validatar** - Here you can find information about Validatar such as the version you're currently on.
3. **User Information** - Clicking your username brings you to your account profile.
4. **Log Off**

Understanding the Navigation Tree

Clicking a main Validatar area in the tool bar changes the navigation tree on the left side to display objects in that area of Validatar.

Explorer Tree

Browse a data source by expanding it's schemas, tables, and columns. You can also use the search bar to find an object. Clicking on an object in the data source tree brings you to that object's data profile.



Data Source	Group	Metadata Updated	Schemas	Tables	Columns	Tests
Adventure Works: WWDVC Hands-On (Migrated)		8/25/2021 8:02:20 AM	1	13	129	20
Data Vault: WWDVC Hands-On (Migrated)		4/28/2021 12:14:51 PM	4	50	566	9
Snowflake: Permissions Testing (Migrated)	Permissions Testing DS Group	4/28/2021 12:09:42 PM	7	87	1,112	5

Project Tree

Navigate between different Validatar projects using the project tree. Under each project you'll find the tests and job repositories, results, schedules, and project settings.

Validatar 2021.3 >

This project does not contain a description yet.

Tests	15	Data Sources	
Jobs	1	Users	2

Reports Tree

Any reports you create or have public access to will be listed in the reports tree. Click on the report name to view it.

Test History Reports

View historical test executions across all Validatar projects.

Job History Reports

View historical job executions across all Validatar projects.

Settings Tree

Manage projects, users, data sources, and more using the Validatar settings tree.



Validatar Explorer Projects Reports Settings ? i Hello doc_user! Log off

Settings

- Projects
- User Groups
- Users
- User Tokens
- Activity
- Data Sources
- Data Source Groups
- Data Profiles
- Database Engines
- Licenses
- Configuration

Home / Settings

Global Settings

Click a link below for more information.

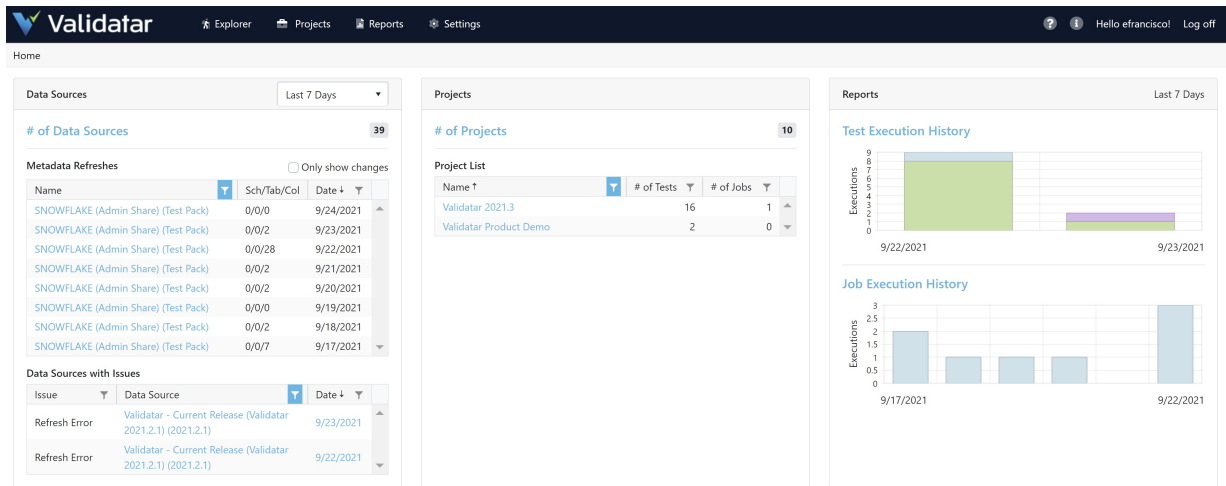
Projects	13
User Groups	9
Users	31
Data Sources	40
Data Source Groups	2
Data Profiles	43
Database Engines	15
Licenses	1



Home Page Dashboard

Overview

The Validator Home page provides a quick look into your environment. Discover any changes or issues with your data sources, view your test and job execution history over the past seven days, and get quick access to your projects.



Click around to discover something new!



Security and Permissions Overview

Overview

Validatar has various security permissions at the global, project, and data source levels. Users are added globally and then given the appropriate level of access to projects and data sources by either a global administrator or project administrator. Permissions and roles determine how a user interacts with different objects and pages in Validatar. Learn more about Administrator, Creator, and Viewer roles below.

Global Level Security

A user must be added under **Global Settings** before they can access any Validatar project. Each user requires a

- First Name
- Last Name
- Valid Email Address
- Username
- Password

You can also add the user's Active Directory account if you want to authenticate a Validatar job's execution outside of the Validatar using the Command Line Interface (CLI). Learn more about external job execution [here](#).

The **Enable User** checkbox should be checked if the user is active and unchecked if the user is not.

Optional Roles and Access

A user can become a global admin, licensed test author, and project admin at the global level.

Role	Description
Global Admin	<p>A global admin has the ability to create, configure, and manage settings for a Validatar instance. A full global admin inherits the following roles:</p> <ul style="list-style-type: none">• Configuration Admin: Can only see configuration settings.• Custom Metadata Admin: Can create and manage catalog and project custom fields.• Data Source Admin: Can only manage data sources and view Validatar server logs.• Lineage Metadata Admin: Can create and manage lineage sources.• Security Admin: Can only manage projects, users, and user groups and view Validatar server logs. <p>A user can have a combination of these roles without being a full global admin. There is not a limit on the number of global admins a Validatar instance can have.</p>



Role	Description
Licensed	<p>There are two types of Validator users:</p> <ul style="list-style-type: none">• Creator: Can create new Validator tests.• Viewer: Can view tests and test results for projects they have access to. All Validator users are viewers. <p>There is a maximum limit of users who can be test authors at one time based on the edition of Validator that was purchased. Once that limit is reached, a user will have to lose the test author role for another user to gain it. Find your volume limits under your activated license key or in your Validator Startup Guide emailed to you from the Validator Customer Success team.</p>
Project Admin Access	<p>A project admin has the ability to configure and manage settings for individual projects in Validator. This includes creating data sources, running data profiles, and using Validator's Import and Export functionality to move objects between projects. Check all of the projects the user should have project admin access to in the list provided on the user's page.</p>

Project Level Security

Depending on the purpose of each project, you'll want to grant the appropriate users access to the project. A user must be a project admin to view or grant access to other users. Double-click on their username to modify a user's access permissions and check or uncheck the box related to the appropriate role.

Granting Access

To add a user to a project:

1. Navigate to **Project Settings > Project Users**.
2. Select **Grant Access**.
3. Select the username from the **Choose Username** dropdown.
4. Select the appropriate roles for the user.
5. Select **Save**.

Removing Access

To remove a user from a project:

1. Select the user from the list.
2. Select **Remove Access**.
3. Select **Remove** in the validation pop-up.

Note

You can immediately restore a user's access after you've removed them from a project as long as you do so before navigating away from the **Project User Permissions** page. Once you navigate away, you will have to go through the full process of granting a user access to a project to re-add them.

Project Roles

The following is the list of available project roles and details of what they allow the user to do.



Role	Description
Create Jobs	The user can create jobs.
Create and Edit Labels	The user can create and modify labels to attach to tests, template tests, and jobs.
Import	The user can import objects into a project using an XML file.
Export	The user can export objects out of a project to an XML file.
Project Admin	The user has project admin access to the current project. You cannot remove your own project admin access from a project on this page.
Project Access	The user has read-only access to a project. In addition, the user can create and edit tests only if they are a global Test Author.

Data Source Level Security

The data source level is the final level of security you will have to configure in Validatar. Validatar allows each data source to have its own independent set of permissions to prevent users from having unintentional access to data. You can add individual users or a user group to a data source by creating a **New Rule**.

The user who creates the data source automatically becomes the **data source owner** and has all permissions enabled. You can identify the owner by being the first username on the list and the image of a crown beside their username. The owner can be changed by double-clicking on the owner's username and selecting another user from the dropdown then selecting **Save**.

Data Source Access Recommendation

We recommend that users are added to a user group and then the user group is assigned to a data source. This standardizes access rules and makes user permissions easier to manage.

Data Source Permissions

There are four types of data source users:

- Global and data source admins
- Owner (the data source creator)
- User
- User Groups

The following is the list of available permissions available to configure for a data source.

Permission	Description
Browse Metadata & Data Profiling	The user can view the data source's data profile and metadata in the Explorer area. If the user does not have this permission, the data source will not appear on the Explorer page list.
View Test Results	The user can view test results where this particular data source is selected as the test or target data source.
Create & Edit Tests	The user can create new tests and modify existing tests.
Run Tests	The user can execute a test either from the test configuration page or the test home page.
Run Profile Sets	The user can execute profile sets that have been created under Project Settings > Data Sources > Profile Sets .



Permission	Description
Manage Connections & Schema Metadata	The user can configure and modify a primary connection, metadata connection, and profile connection. The user can also configure metadata ingestion SQL, refresh a data source's metadata, and put the metadata refresh on a schedule.
Manage Data Profiling	The user can create new profile sets and modify existing profile sets. The user also has permission to rename and delete profile sets and the record of their subsequent executions.
Manage Permissions	The user can create new rules to add users and user groups to a data source. The user can also add and remove user permissions for the data source.



Using and Structuring Projects

Overview

Projects can be configured in various ways depending on the intended use of Validator.

Types of Projects

A single project can host any of the following testing scenarios plus more!

- Validating data warehouse developing
- Data governance monitoring controls
- Validating cloud migrations

Organizing Your Project

Here are some ways Validator users organize their projects:

- By Environment
- By Project Team
- By Task
- One all-inclusive project

Common Folder Structure

- Source to Target Process
- Data Quality Metrics (CUVCAT)
 - Completeness, Uniqueness, Validity, Consistency, Accuracy, Timeliness
- Business-Related Processes



Install Guide

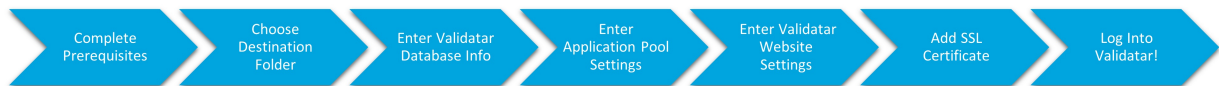
Overview

Installing Validatar consists of two steps:

- Download the installer at <https://licensing.teknionusa.com/downloads/Validatar>
- Complete prerequisites relating to the web server and the database server

Completing Installation

Est. Time to Complete: ~ 1 hour



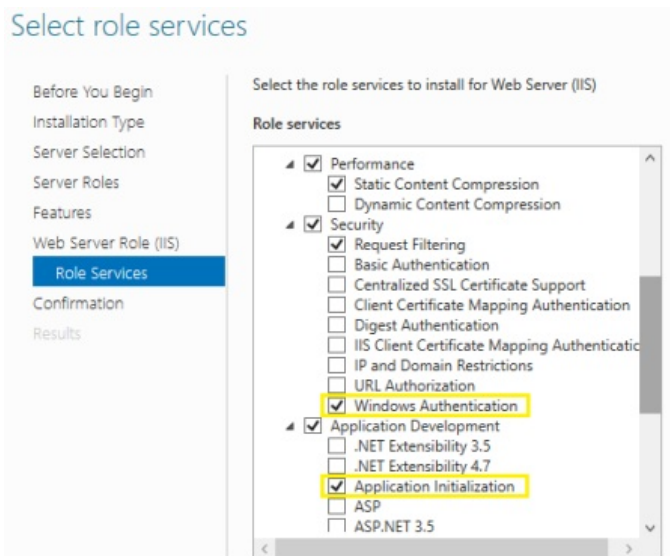
Prerequisites

1. Access Needed to Complete Install

- Admin access to the operating system to run the installer
- Admin access to the web server
- Admin access to the database Validatar will use on the back end

2. Web server. We recommend a range of 4 - 16 GB of memory. 2- 8 cores.

- The server must have Internet Information Services installed, including the following highlighted options:



To add and configure IIS:



1. Type **Server Manager** in the Windows search bar
 2. Click **Add Roles & Features**
 - o Also found under **Manage** in the top-right corner
 3. Click **Next** for every page until you reach the **Server Roles** section
 4. In Server Roles check **Web Server (IIS)** then **Add Features**
 5. Click **Next**
 6. In the **Role Services** section
 - o Scroll down the web services list, expand **Security**, check **Windows Authentication**
 - o Expand **Application Development**, check **Application Initialization**
 - o Click **Next**, then **Install**
- The web server must have Microsoft .NET Framework 4.5.2 or higher installed: [.Net Framework here](#)
 - The web server must have the **Hosting Bundle** installed for ASP.NET Core Runtime 3.1.x: [.Net Core here](#)

Build apps - SDK

SDK 3.1.411

OS	Installers	Binaries
Linux	Package manager instructions	Arm32 Arm64 x64 x64 Alpine
macOS	x64	x64
Windows	x64 x86	Arm32 x64 x86
All	dotnet-install scripts	

Visual Studio support
Visual Studio 2019 (v16.7)
Visual Studio 2019 for Mac (v8.10)

Included in
Visual Studio 16.7.17

Included runtimes
.NET Runtime 3.1.17
ASP.NET Core Runtime 3.1.17
.NET Desktop Runtime 3.1.17

Language support
C# 8.0
F# 4.7

Run apps - Runtime

ASP.NET Core Runtime 3.1.17

The ASP.NET Core Runtime enables you to run existing web/server applications. **On Windows, we recommend installing the Hosting Bundle, which includes the .NET Runtime and IIS support.**

IIS runtime support (ASP.NET Core Module v2)
13.1.21169.17

OS	Installers	Binaries
Linux	Package manager instructions	Arm32 Arm64 Arm64 Alpine x64 x64 Alpine
macOS		x64
Windows	Hosting Bundle x64 x86	Arm32 x64 x86

.NET Desktop Runtime 3.1.17

The .NET Desktop Runtime enables you to run existing Windows desktop applications. **This release includes the .NET Runtime, you do not need to install it separately.**

OS	Installers	Binaries
Windows	x64 x86	

Be sure to select the **Hosting Bundle** option.

- Create a DNS record for the Validator User Interface website so that Validator can be accessed using something other than the web server name or IP Address (optional)



3. Database server(SQL Server)

- Recommended versions
 - SQL Server 2012 Express or later (Recommended for proof of concepts or trials)
 - SQL Server 2012 or later (Recommended for licensed versions of Validatar)
 - SQL Server admin credentials – used during the installation to create the Validatar database
 - Minimum security permissions for the Validatar Service Account
 - At least db_owner database role
 - Suppose you want to use Windows Authentication instead of SQL Server authentication for connections created in Validatar to the databases you're testing. In that case, your IT will need to create an Active Directory service account and provide the account credentials, and Validatar will then be set up to run using that service account.
4. **SMTP credentials** – used for password reset and other notification emails. If the SMTP settings are not known, check with your IT administrator or Network administrator for this information.
5. **SSL Certificate** - We encourage obtaining an SSL certificate from a certificate authority. Install the certificate on the web server to encrypt network traffic. After installing Validatar, use IIS to assign the certificate to the Validatar site. Find the steps to assign the certificate below.

Installation

1. Download the installer from <https://licensing.teknionusa.com/downloads/Validatar>
2. Run the installer. If the user does not have the operating system administrator role, they will need to Run as Administrator.
3. Select the components to install
4. Verify that the directory to place the components is the C drive (C:)
5. Enter Validatar metadata database location and the credentials to use for the application server
 - If the database does not already exist, a second step will be shown to enter admin credentials so that the installation can create the new database
6. Enter IIS application pool identity information – this will be the account that Validatar runs under. This must be a domain account if database connections use Windows authentication instead of SQL Server Authentication.
7. Enter IIS website information for the User Interface and Service Component websites. The port number is up to you.
 - **Validatar - UI:** Port 80 is commonly used
 - **Validatar - Service:** 8081 is commonly used
8. Finish install.
9. In IIS, verify that the default site has stopped and both the Validatar-UI and Validatar-Services sites are running.

Are you running into issues? View common installation issues at the bottom of the page.



Assigning an SSL Certificate

Complete the following steps to assign an SSL certificate to the Validatar site to secure network traffic.

1. Open IIS.
2. In the **Connections** tree, expand the server, then expand **Sites**.
3. Select the **Validatar-UI** site.
4. In the **Actions** pane on the right, under **Edit Site**, select **Bindings...**
5. In the **Site Bindings** window, select the **https** binding, then click **Edit**.
6. In the SSL certificate drop-down, select your newly installed SSL certificate.
7. Select **OK**.

Configuration

1. For New Installations

1. In a web browser, navigate to the web application URL
2. Enter the information for the system administrator user
3. Enter the name of the initial project
4. Click the “Complete Setup” button
5. Login using the credentials of the administrator user you just created

2. Activate the license

1. Navigate to **Global Settings > Licenses**
2. Select “Activate License”
3. Read the Validatar End-User License Agreement and select “I Agree”
4. Fill out the license information form.
5. Select “Activate”

The screenshot shows the Validatar web application interface. The top navigation bar includes 'Explorer', 'Projects', 'Reports', and 'Settings'. The left sidebar contains a menu with 'Settings' expanded, showing options like 'Projects', 'User Groups', 'Users', 'User Tokens', 'Activity', 'Data Sources', 'Data Source Groups', 'Data Profiles', 'Database Engines', 'Licenses', and 'Configuration'. The main content area displays the 'License: Activate' page. It features a breadcrumb trail 'Home / Settings / Licenses / Activate' and an 'Activate' button. Below the button, there is a prompt: 'Enter the following information to activate your license.' followed by four required input fields: 'First Name', 'Last Name', 'Email', and 'License Key'. To the right of the form is the 'End-User License Agreement ("Agreement")' section, which includes the text: 'Last updated: August 1, 2019', 'Please read this End-User License Agreement ("Agreement") carefully before clicking the "I Agree" button, downloading or using Validatar ("Application").', 'By clicking the "I Agree" button, downloading or using the Application, you are agreeing to be bound by the terms and conditions of this Agreement.', and 'This Agreement is a legal agreement between you (either an individual or a single entity) and Teknion Data Solutions and it governs your use of the Application made available to you by Teknion Data Solutions.' At the bottom of the agreement section is a checkbox labeled 'I agree to the Validatar End-User License Agreement'.

3. Configure SMTP

1. Navigate to **Global Settings > Configuration > SMTP**
2. Enter SMTP settings as needed.



The screenshot shows the Validatar web interface. The top navigation bar includes 'Explorer', 'Projects', 'Reports', and 'Settings'. The left sidebar lists various configuration categories like 'Projects', 'User Groups', 'Users', etc. The main content area is titled 'Server Configuration - SMTP' and contains several input fields and checkboxes for configuring the SMTP server.

Common Installation Issues

Issue	Possible Solution
Installer rolls back and fails	<p>Run the installer via command-line and produce a log file using the following steps:</p> <ol style="list-style-type: none"> 1. Open the Command Prompt 2. Execute the following command, replacing "C:\tmp" to reflect where the installer is saved: <pre> C++ Copy msiexec /i "C:\tmp\TeknionValidatarSetup.msi" /L*V "C:\tmp\ValidatarSetup.log" </pre> <ol style="list-style-type: none"> 3. If the install is unsuccessful, send the log file created in C:\tmp\ValidatarSetup.log to support@validatar.com.
Installer ended prematurely	<ol style="list-style-type: none"> 1. Verify the installer is run either by a web server admin or Run As Administrator. 2. In IIS, verify that the default site is stopped and the Validatar-UI site is started.
The installer won't move past the database configuration screen	Verify the installer is run either by a web server admin or Run As Administrator
Error 404 appears when attempting to navigate to the Validatar server address in a browser, or the user is brought to IIS when navigating to the Validatar server address in a browser	In IIS, verify that the default site is stopped and the Validatar-UI site is started.
An error appears when entering localhost as the server name	If multiple SQL Servers are installed on a computer, use ".\server_name" instead of "." for localhost.
Error 500.19 appears when attempting to navigate to the Validatar server address in a browser	<ol style="list-style-type: none"> 1. Verify that the Hosting Bundle for ASP .Net Core was installed instead of the Windows x64 bit version. 2. Stop and restart application pools in IIS.



Issue	Possible Solution
Validatar Service is unavailable	<p>If port 443 is used for the Validatar-UI site and an SSL certificate was applied to the server:</p> <ol style="list-style-type: none"><li data-bbox="767 315 1369 405">1. In the File Explorer, navigate to the appsettings files in both the Web-UI and Web-Services folders<li data-bbox="767 412 1369 472">2. Change http to https in the webapibaseurl and uibaseurl sections<li data-bbox="767 479 1369 539">3. Confirm that the URL for the service layer matches the certificate that's installed
After logging into Validatar, the user only sees Project Data Sources and Tools under Project Settings	Verify that the license key is activated.



Upgrading to New Versions

Overview

Upgrading Validatar is a super easy process! Use the following steps to complete the upgrade.

Instructions

1. Backup the Validatar SQL Server metadata database.
2. In Microsoft IIS, record the prior host and port settings so that the same settings can be entered during the new install.
3. Go to C:\inetpub\ and create a copy of the Teknion Validatar folder just in case you need to roll back to the previous version.
4. Download the installer from <https://licensing.teknionusa.com/downloads/Validatar>
5. Select the components to install.
6. Verify the directory to place the components is the C drive (C:)
7. Enter Validatar metadata database location and the credentials to use for the application server.
8. Enter IIS application pool identity information – this will be the account that Validatar runs under. This must be a domain account if database connections will use Windows authentication instead of SQL Server Authentication.
9. Enter the IIS website information for the User Interface and Service Component websites that you recorded in step 2.
10. Complete the upgrade and log in to Validatar.



TVAdmin CLI Setup

The tvadmin command-line application allows jobs to be executed from an external scheduler. The domain account running the tvadmin application will be used to authenticate the user into Validatar, so the command line does not require any credentials. The following steps can be used to install tvadmin on an application server – this assumes that Validatar has already been installed on a separate web server.

Remember

The user who is launching the job must have access to the application server in order to execute the job via command line.

Configuration

1. Make sure .NET Runtime 3.1.x has been installed on the application server. It can be downloaded from here if necessary: <https://dotnet.microsoft.com/download/dotnet/3.1>. **NOTE:** On that page, scroll past the ASP.NET Core Runtime and .NET Desktop Runtime sections to the .NET Runtime section and download the appropriate .NET Runtime installer.
2. On the web server, verify that the “Teknion Validatar – Services” website has “Windows Authentication” enabled.

Name	Status	Response Type
Anonymous Authentication	Enabled	
ASP.NET Impersonation	Disabled	
Basic Authentication	Disabled	HTTP 401 Challenge
Forms Authentication	Disabled	HTTP 302 Login/Redirect
Windows Authentication	Enabled	HTTP 401 Challenge

3. Copy the C:\inetpub\Teknion Validatar\Utilities folder from the web server and paste it to the application server.
4. On the application server, open the appsettings.json file using a text editor and update the WebApiBaseUrl property if necessary. That property should be set to the binding used for the “Teknion Validatar – Services” website on the web server and will typically look something like the following: `http://[web-server-name]:8081`
5. Ensure that the domain account that will be used for authentication has been added to a Validatar user profile.

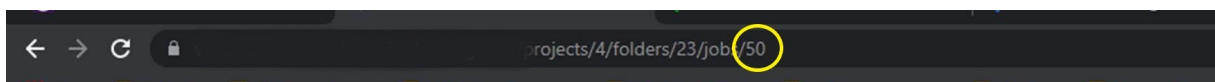
Testing The Command Line

Additional Help

Refer to the screenshot at the bottom of this section for additional assistance.



1. In Validatar, under **Global Settings > Users**, add the Windows AD or domain account to the user's profile who will execute the job if it hasn't been added already.
2. Navigate to the job you want to execute.
3. Grab the job ID which is the last number in the URL.



4. Using the application server that you want to externally run the job on, open up a command prompt.
5. Navigate to the Utilities folder that you saved in step 3 of the configuration. You may have to change directories using the `cd` command. We're using the `Z:\` drive in the example below.
6. After navigating down to the Utilities folder type `tvadmin`
7. Press Enter.
8. The Validatar commands should appear on the next two lines.
9. Next type `tvadmin -j [insert job ID]`. Be sure to include a space between `-j` and the job ID.
10. Press Enter. The job will now execute.
11. The exit code that appears refers to the result of the job.
12. Navigate back to Validatar, under Results, to be sure the job executed correctly and displayed the proper exit code in the command prompt.

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.18363.1621]
(c) 2019 Microsoft Corporation. All rights reserved.

F:\>Z:

Z:\>cd Utilities

Z:\Utilities>tvadmin
Provides commands to execute Validatar functions

-j [job_id]      Execute a job
-s [url]        Override the URL of the Validatar service web application

Exit codes when executing a job:
0 = the job executed and all tests passed
1 = unauthorized to run job
3 = the job executed with at least one test failure
4 = the job executed with at least one error
2 = the job failed

Z:\Utilities>tvadmin -j 79
```

Integrating Validatar with an External Tool

After you confirm that you're able to execute jobs via command line, you can include this into your external scheduler workflow. You can either kick off a Validatar job externally or based on the result of the Validatar job, kick off an external job.

A way to do this is to create a Powershell host script to call the Validatar CLI. If you want to kick off an external job based on the result of the Validatar job, you can configure your script to release the appropriate external job based on the return code of the CLI. You may need to refer to the external tool's documentation to get the syntax for a job-release.



When building out the process, it's highly recommended to use parameters or extended properties as much as possible. That will make the process more flexible and easier to change.



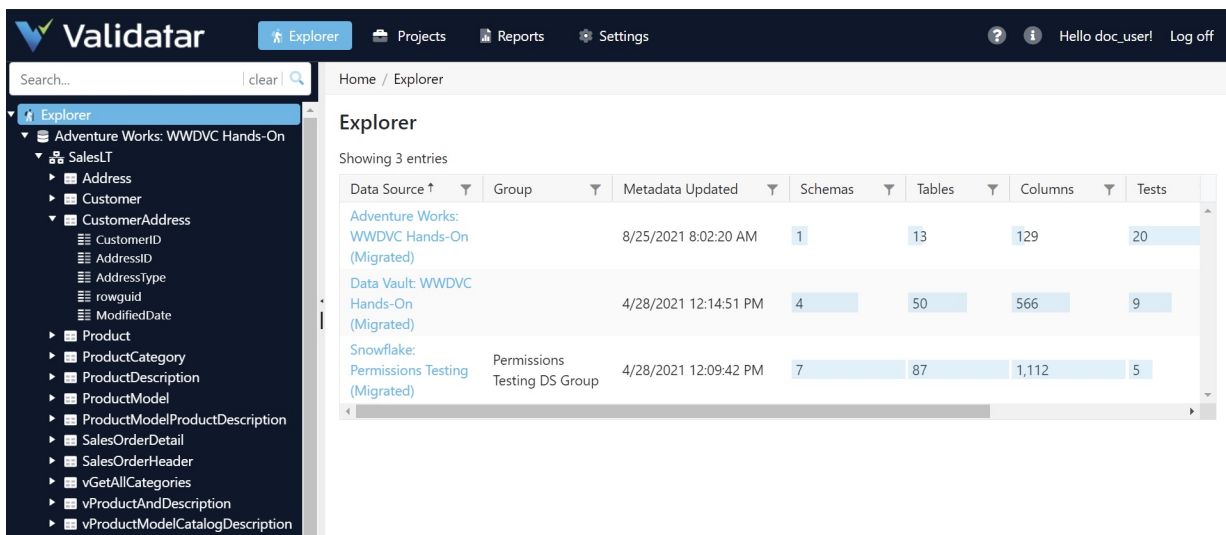
Explorer Overview

Overview

The Explorer area is where you can dive into the profile of each of your data sources making data discovery easy!

- You'll be able to see an overview of your metadata as well as drill into column-level profiles.
- You can easily see test coverage and identify any gaps in testing.
- You can also search for objects of interest and see their data quality.

Displayed Information



What's in the Table?

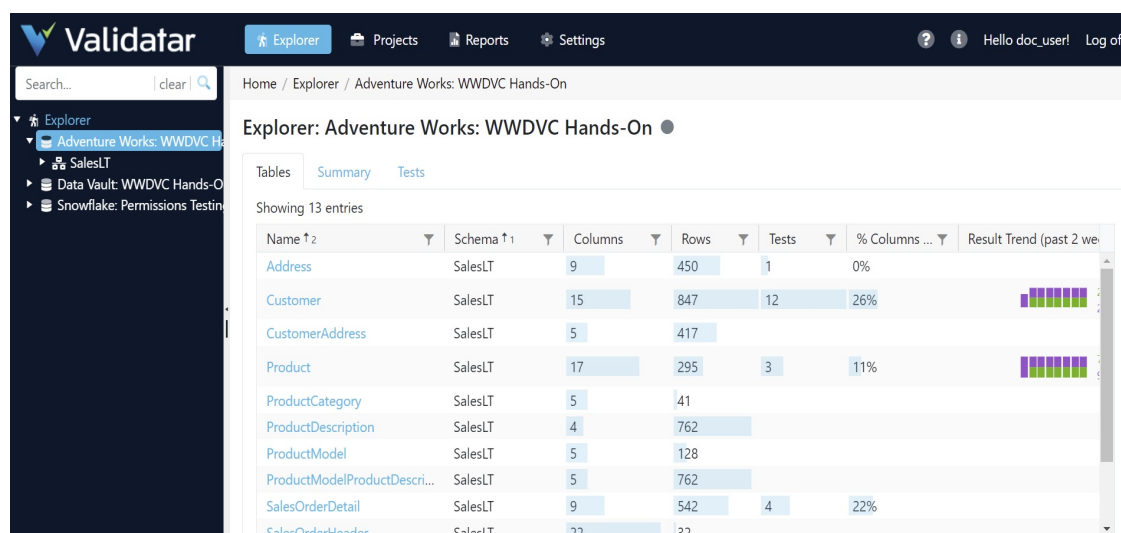
Column Name	Description
Data Source	The data source name.
Group	The data source group.
Metadata Updated	The date and time the metadata was last refreshed.
Schemas	The count of schemas in the data source
Tables	The count of tables and views in the data source.
Columns	The count of columns in a data source.
Tests	The number of tests that has a metadata link to that the data source.
% Tables with Tests	The coverage of tables in the data source that have a test associated with it.
% Columns with Tests	The coverage of coverage in the data source that have a test associated with it.



Navigating the Explorer

Overview

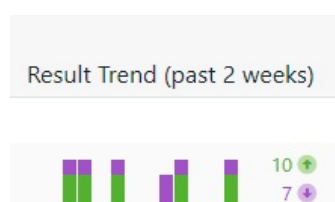
Viewing the profile of your data source is simple! Once you've selected your data source you can drill down until you reach the level of detail you want.



- **Data Source level:** An overview of the number of schemas, tables, and columns in your data source as well as a look into Validatar's test coverage of the data source. The greater the test coverage, the more accurate and acceptable your data quality is.
- **Table level:** The table view shows a list of all of the tables and views in a data source as well as an overview of the metadata connected to each table. The Result Trend column shows how many tests linked to that table have passed, failed, or executed with an error within the past two weeks. Learn more about the Result Trend below.
- **Column level:** The column list shows all the same data as the table list. Click on the column name to view the full profile details.

Result Trend

The result trend column shows a graphical representation of how many tests related to a table or a column have passed, failed, or executed with an error in the past two weeks. Viewing the trend of results lets you know how consistent your data quality is. Hover over the graphic to view test results for each day.



- Green bars represent passed tests. Purple bars represent failed tests. Orange bars represent tests executed with an error.
- A high deviation may indicate data that's constantly changing or being updated.
- A low deviation may indicate data that's consistent and has not been changed.



The result trend lets you know how consistent your data is but whether the result is passed or failed is another important aspect. As testing continues over time, you should see more passed test results. If you do not, it's good to revisit your written test and check that any changes to your database or source system have been implemented. Consistently failed tests may indicate that necessary changes to either the database or data structure have not been implemented in a timely manner.

Note

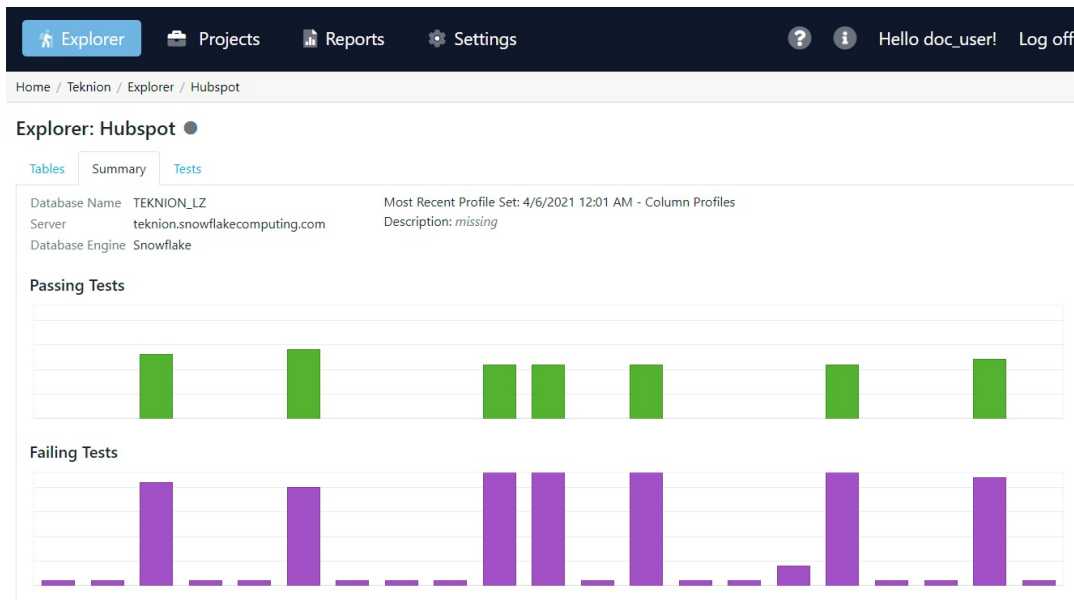
The result trend does not reflect test executions that have been run to the screen. All results are pulled from what has been saved to the test repository.

Summary

There is a Summary tab at both the data source and column level. At the data source level, you can see the result trend over the last two weeks of the number of passed and failed tests across the data source. To get the most accurate summary, make sure that all of your tests have a table linked to them.

At the column level, the view is the same except the result trend is shown amongst all columns in the table. Ensure that the column is linked to each of your test cases to see the most accurate result trend.

Hover over each bar to view the number of passed and failed tests on each day.



Tests

The Tests tab is also at both the data source and column level. This area shows a list of all tests that have either a table or column metadata link related to a data source. Clicking on the test name takes you directly to the test's configuration screen. You can also see where the test is located within Validatar as well as the pass or fail result trend over the last two weeks.



Explorer: Hubspot

Tables Summary Tests

Showing 44 entries

Test Name ↑	Test Location	# Jobs	Last Run	Last Result	Result Trend (past 2 weeks)
Comparison Test - Source to Target	Demo Tests	1	4/1/2021 1:56:10 PM	Failed	1 ↓
Comparison Test Multiple Columns - Source to Target	Demo Tests	1	4/1/2021 1:56:30 PM	Failed	1 ↓
Data Monitoring Test	Tests				No recent test executions
Monitor Contact Creation	Tests				No recent test executions
Multi-Value SQL	Test Type Scenarios				No recent test executions
new Test	Demo Tests		4/1/2021 2:48:28 PM	Failed	1 ↓
Profile Result to Numeric Range 1: Success	Profile Result to Numeric Range	1	4/5/2021 3:01:25 PM	Passed	5 ↑
Profile Result to Numeric Range 2: Failure	Profile Result to Numeric Range	1	4/5/2021 3:01:25 PM	Failed	5 ↓
Profile Result to Numeric Value 2: Numeric tolerance (Success)	Profile Result to Numeric Value	1	4/5/2021 3:01:25 PM	Failed	5 ↓
Profile Result to Numeric Value 3: Percent tolerance (Success)	Profile Result to Numeric Value	1	4/5/2021 3:01:25 PM	Passed	5 ↑
Profile Result to Previous Profile Result 1: No	Profile Result to Previous		4/5/2021		5 ↓

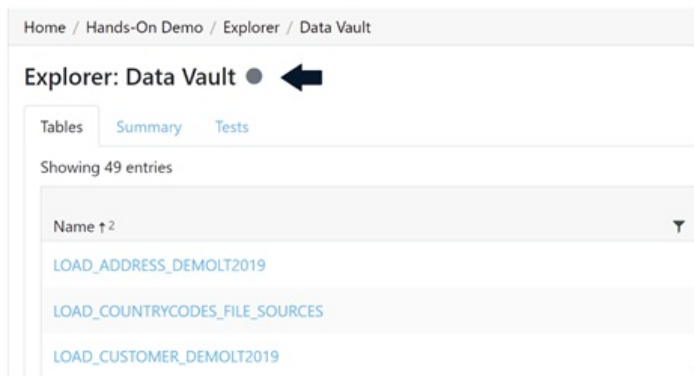


Understanding the Data Profile

Overview

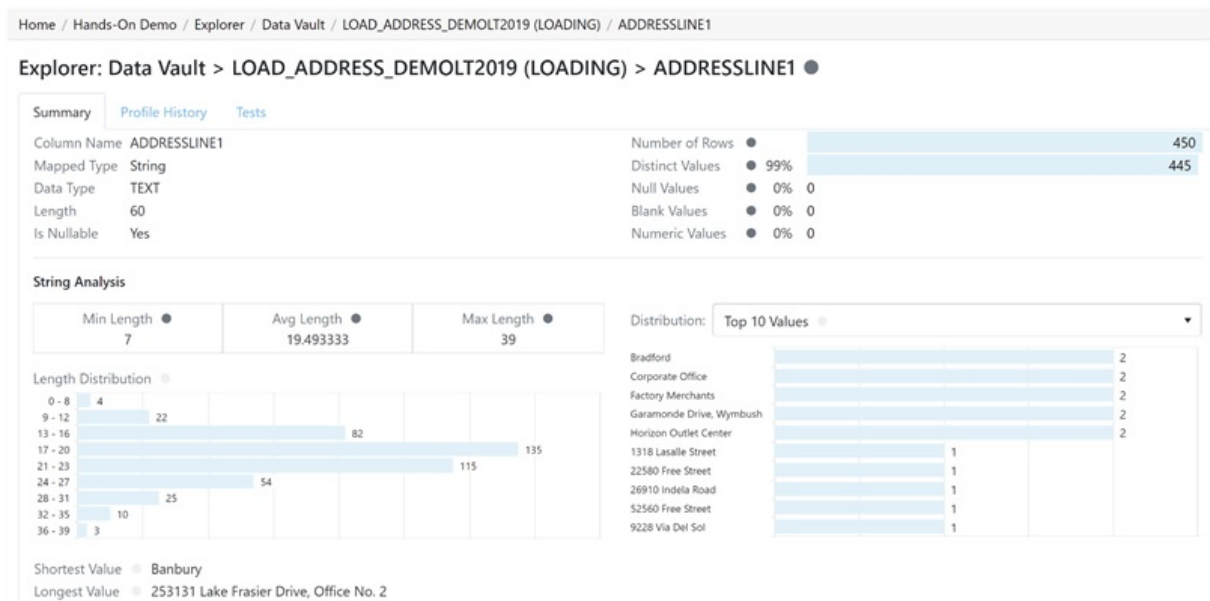
Depending on the data type of the column that was profiled, the returned statistics may vary. At the top of the profile, you'll always see technical metadata. Technical metadata includes the column name, data type, number of rows, length (for strings), and more.

The data profile is populated by running profile sets on a data source. For this reason, each data profile can be updated at different times depending on the content of a profile set. To view the recency of a profile statistic, hover over the gray circle next to the name. The color of the gray circle represents how recent the metadata is. The darker the circle, the more recent.



The profile only shows the results of profile sets that were executed. If you're missing profile information, go back into the Data Source and create a profile set containing the chosen data profile(s) on the appropriate objects.

String Profiles

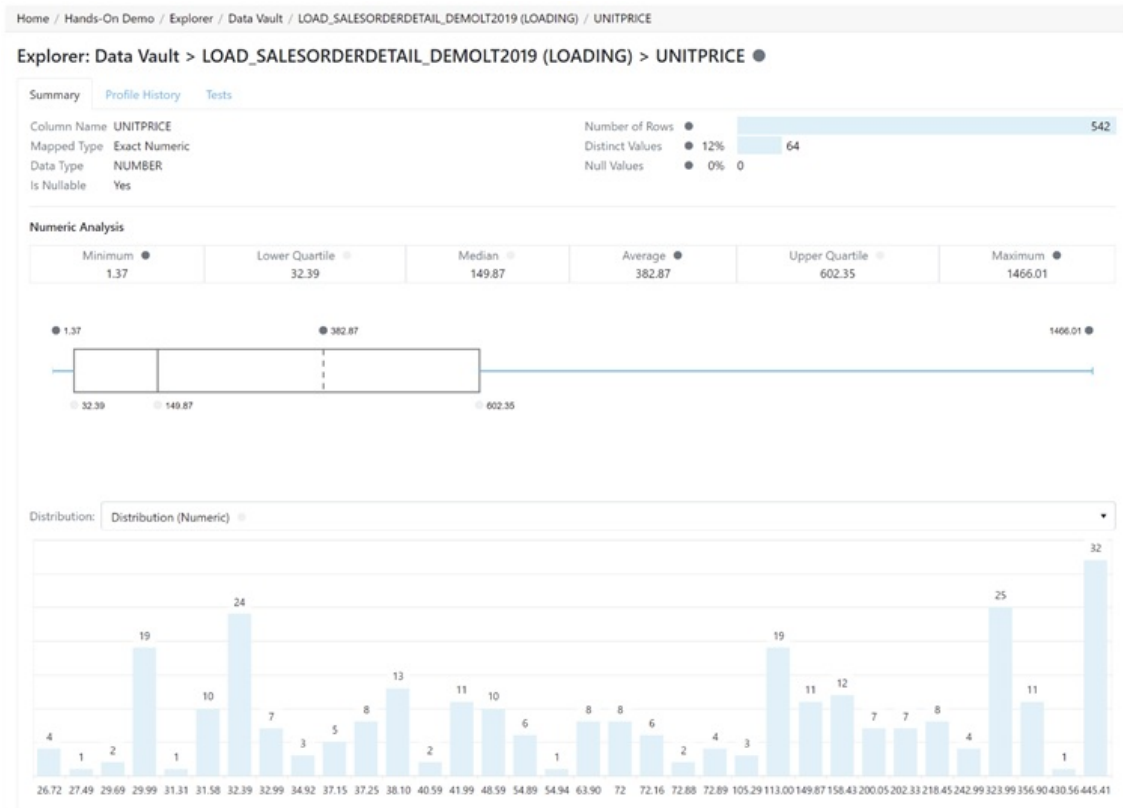


String profiles show the following information.



Profile Type	Data Profile
Profile Type	Data Profile
Summary	<ul style="list-style-type: none"> Length Is Nullable Number of Rows Number, Percent of Distinct Values Number, Percent of Null Values Number, Percent of Blank Values Number, Percent of Numeric Values
Analysis	<ul style="list-style-type: none"> Minimum Length Average Length Maximum Length
Distribution	<ul style="list-style-type: none"> Length Distribution Top 10 Values Bottom 10 Values
Length	<ul style="list-style-type: none"> Shortest Value Longest Value

Numeric Profiles



Numeric profiles show the following information.

Profile Type	Data Profile
--------------	--------------



Profile Type	Data Profile
Summary	<ul style="list-style-type: none">• Is Nullable• Number of Rows• Number, Percent of Distinct Values• Number, Percent of Null Values
Analysis	<ul style="list-style-type: none">• Minimum• Maximum• Average• Lower Quartile• Upper Quartile• Median
Distribution	<ul style="list-style-type: none">• Numeric Distribution• Top 10 Values• Bottom 10 Values

Date/Time Profiles

Date/Time profiles show the following information.

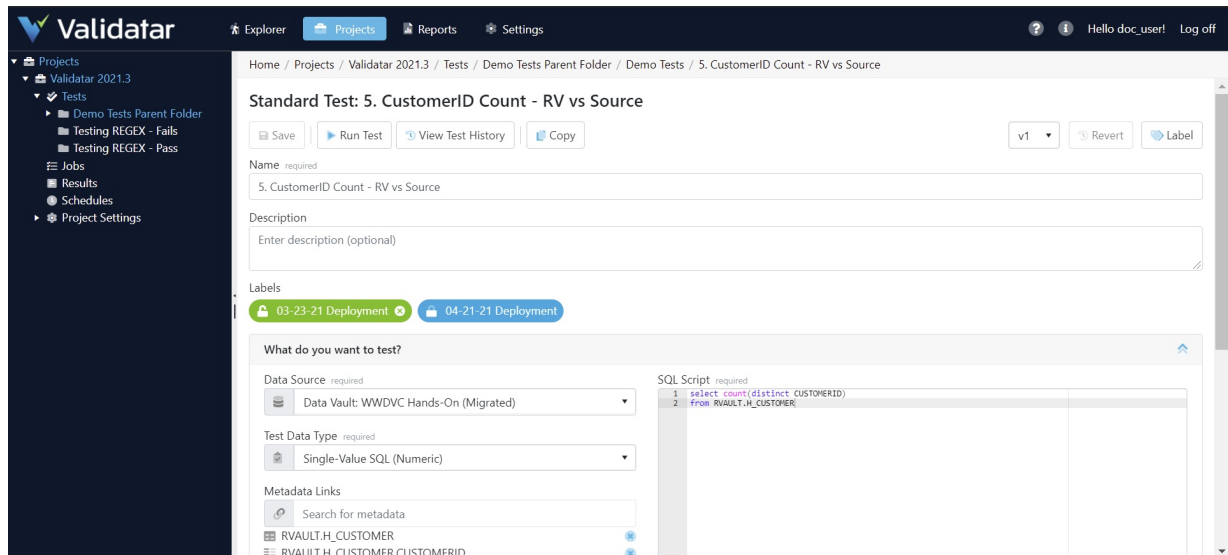
Profile Type	Data Profile
Summary	<ul style="list-style-type: none">• Is Nullable• Number of Rows• Number, Percent of Distinct Values• Number, Percent of Null Values
Analysis	<ul style="list-style-type: none">• Minimum Date• Maximum Date
Distribution	<ul style="list-style-type: none">• Top 10 Values• Year Distribution• Year Month Distribution



Configuring a Test

Overview

Configuring a Validatar test is simple. Here's what you need to know:



There are two types of test creation methods in Validatar:

- Standard Tests
- Template Tests

In this article, you'll learn about creating a standard test that is ideal for ad-hoc, one-time use cases. View the related articles to learn more about Template Tests.

When to Use a Standard Test

Here are a few examples of when you would choose to create a standard test.

- For ad hoc test scenarios
- Business rules only apply to one or a few tables
- All object names are known and/or won't change

Data Sources

A user must have Create & Edit Tests permissions enabled in Data Source Permissions to select a data source. You will only see the list of Data Sources you have access to.

Test Data Types

A test data type is exactly as it sounds: you are choosing the type of data you want to test. The options are:



Single Value SQL (String or Numeric)	<p>Write a SQL statement that returns a single string or numeric value. For example,</p> <table border="1" data-bbox="405 255 1374 383"> <tr> <td data-bbox="405 255 1294 286">PL/SQL</td> <td data-bbox="1294 255 1374 286">Copy</td> </tr> <tr> <td colspan="2" data-bbox="405 286 1374 383"> <pre>select count(*) from dbo.Customers;</pre> </td> </tr> </table>	PL/SQL	Copy	<pre>select count(*) from dbo.Customers;</pre>	
PL/SQL	Copy				
<pre>select count(*) from dbo.Customers;</pre>					
Key-Value List SQL (String or Numeric)	<p>Write a SQL statement that returns two columns. The first column is a key and the second column can either be a string or numeric value. A Key-Value List SQL script usually includes a Group By clause when the second column returned is an aggregate.</p> <table border="1" data-bbox="405 539 1374 707"> <tr> <td data-bbox="405 539 1294 571">PL/SQL</td> <td data-bbox="1294 539 1374 571">Copy</td> </tr> <tr> <td colspan="2" data-bbox="405 571 1374 707"> <pre>select CustomerID, count(*) from dbo.Customers group by CustomerID;</pre> </td> </tr> </table>	PL/SQL	Copy	<pre>select CustomerID, count(*) from dbo.Customers group by CustomerID;</pre>	
PL/SQL	Copy				
<pre>select CustomerID, count(*) from dbo.Customers group by CustomerID;</pre>					
Profile Result	<p>If you've executed a profile set against a table or column, you can use that profile result in a Validatar test. You have to link the appropriate table or column to the test using the Metadata Links section before you can select a profile result.</p> <p>If Create a link to the metadata that contains profile data remains after you've linked table or column, go to Profile Set Executions and verify that a profile was run against the appropriate table or column.</p>				

Target Data Type

Target Data Type is where you choose the type of data you want to compare the previously selected data to. The options include Single Value SQL, Key-Value List SQL, and Profile Result as well as a few new options:

Numeric Value	<p>Compare your data to a single numeric value without having to write a SQL statement. You would choose this option when you expect a specific number in your data and don't plan to change it.</p>
Numeric Range	<p>See if your data lies between a range of numbers. The range is inclusive.</p>
String Value	<p>Compare your data to a single string value. To search for patterns, check the Regular Expressions checkbox. Learn more about Regular Expressions syntax here.</p>
Previous Profile Result	<p>Compare your data to a previous profile result. You have to link the appropriate table or column to the test using the Metadata Links section before you can select a previous profile result.</p> <p>You can compare to either the average, minimum, or maximum of previous results for a selective amount of days, weeks, or executions.</p> <p>If Create a link to the metadata that contains profile data remains after you've linked table or column, go to Profile Set Executions and verify that a profile was run against the appropriate table or column.</p>

The available options in the Target Data Type field depends on what is selected in the Test Data Type above.

Test Data Type	Available Target Data Types
Single Value SQL (string)	Single Value SQL (string), Profile Result, Previous Profile Result, String Value
Single Value SQL (numeric)	Single Value SQL (numeric), Profile Result, Previous Profile Result, Numeric Value, Numeric Range



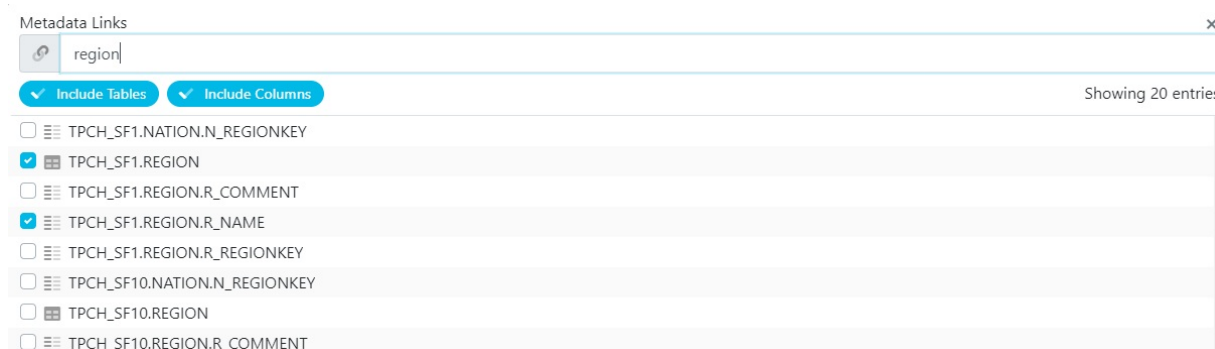
Test Data Type	Available Target Data Types
Key-Value List SQL (string)	Key-Value List SQL (string), Single Value SQL (string), String Value
Key-Value List SQL (numeric)	Key-Value List SQL (numeric), Single Value SQL (numeric), Numeric Value, Numeric Range
Profile Result	Profile Result, Previous Profile Result, Numeric Value, Numeric Range, Single Value SQL (numeric)

Test Data Type Notes

Starting in Validator 2021.3, the **Multi-Value SQL** test data type is now referred to as **Key-Value List SQL**.

Metadata Links

Metadata Links allows profile results that have been run against a table or column to be used in a Validator test. By monitoring your data profile over time, you can easily identify and correct deviations. You can also see all the tests that are related to a Data Source in the Explorer area as long as the test has a metadata link in place. You can link your metadata to the test regardless of what test or target data type you choose. Start typing the name of a table or column to search for the object and select it. You can add multiple metadata links to a test.



Result Configuration

The Result Configuration section is used to tell Validator what it should consider as a failed test. You can also select options to increase execution efficiency when running the test. The contents of the result configuration section depend on the combination of test and target data types selected in the previous sections.



Result Configuration	
Configuration Setting	Value
Value Success Criteria	<input checked="" type="radio"/> Numeric Tolerance <input type="radio"/> Percent Tolerance <input type="text" value="0"/>
Overall Success Criteria	<input checked="" type="radio"/> Max Failure <input type="radio"/> Percent Failure <input type="text" value="0"/>
Only Keep Failures	<input checked="" type="radio"/> No <input type="radio"/> Yes
Abort Processing After Failures	<input checked="" type="radio"/> No <input type="radio"/> Yes, after <input type="text" value="1000"/> failures
Abort Processing After Rows	<input checked="" type="radio"/> No <input type="radio"/> Yes, after <input type="text" value="1000"/> rows
Scripts Include Order By	<input checked="" type="radio"/> No <input type="radio"/> Yes
Purge Results After Days	<input checked="" type="radio"/> No <input type="radio"/> Yes, after <input type="text" value="180"/> days

Created by Sample User on 8/20/2021 at 2:17 PM

Modified by Sample User on 8/20/2021 at 2:17 PM

Value Success Criteria	<p>Compares the two pieces of data from the test together and calculates the difference.</p> <ul style="list-style-type: none">• For string tests: Choose if the test should pass or fail based on how the source value compares to the target value. When a regular expression is used, the only comparison option is for the source value to match the target value.• For numeric tests: If the difference is greater than the absolute value of the tolerance in place, the comparison fails. You can choose either to use a numeric tolerance or a percent tolerance. Numeric and percent tolerance entries must be greater than or equal to 0, with no more than 19 digits before the decimal and 8 digits after the decimal.
Overall Success Criteria	Appears when Key-Value List SQL is selected as a data type. Since Key-Value List SQL results return multiple records that have been compared, the overall success criteria option allows the user to decide how many failed records account for a failed test.
Only Keep Failures	Choose Yes if you only want to return failed records. This keeps your results repository from being overloaded.
Abort Processing After Failures	Allows Validatar to abort the execution of a test after a certain number of record failures.
Abort Processing After Rows	Allows Validatar to abort the execution of a test after a certain number of rows have been returned.
Scripts Include Order By	Choose Yes if your SQL script includes an order by clause. This lets Validatar know that it does not have to sort your data, optimizing execution time.
Purge Results After Days	Allows Validatar to clear the results of this test from the Validatar database after a certain number of days. Configuring this option overrides the default purge settings set at the global level.

Access

1. Click on Tests in the navigation pane or from the project home page.
2. Select the New button.



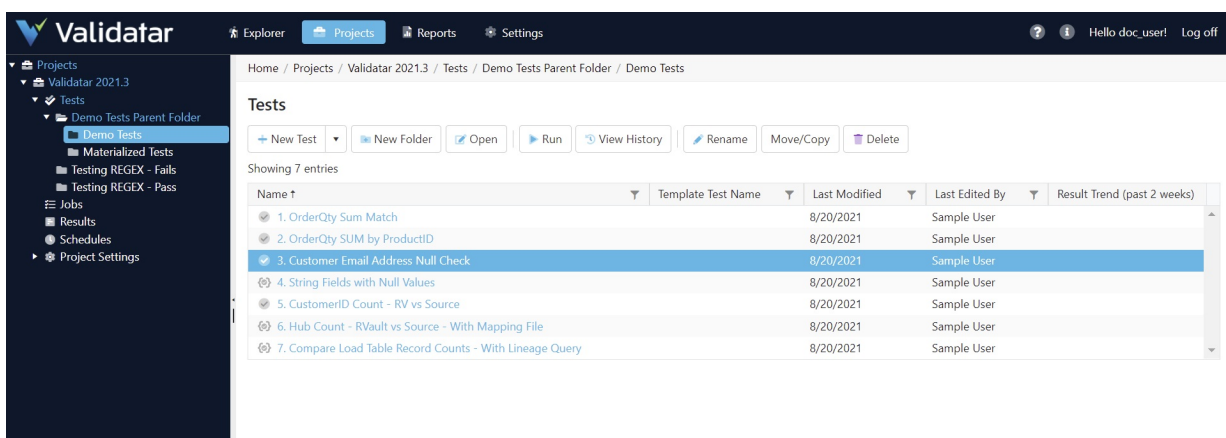
Test Repository

Overview

The Test Repository page provides access to all tests and access to various actions described below.

Each Project has its own Test repository. Tests in the test repository are organized in an easy-to-use folder structure that allows teams to organize their tests in whatever structure best fits their needs.

Displayed Information



Action Buttons

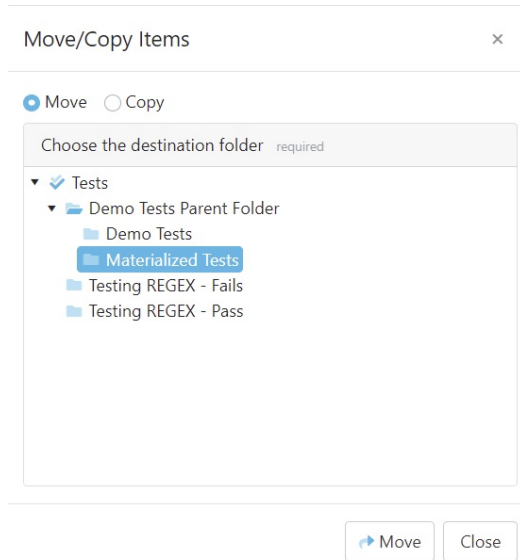
New	Click on the dropdown to create a new standard test or new template test.
New Folder	Creates a new folder in the current view. There is no hierarchical limit. As many folders and sub-folders can be created as desired.
Open	Open the Test Configuration page for an existing test.
Run	Run a test. See information about the Run Test page.
View History	Navigate to a page displaying the historical pass/fail results for a selected test. See information about the View Test History page.
Rename	Rename a selected test or folder.
Move/Copy	Move or copy one or more selected tests or folders to another folder.
Delete	Delete one or more selected tests or folders.

What's in the Table?

Column Name	Description
Name	The name of the test or test folder.
Template Test Name	The parent template the child test was created from. Click the template test name to edit the template.
Last Modified	Last modified date.
Last Edited By	The user who made the last edit.
Result Trend (past 2 weeks)	The result trend column shows a graphical representation of how many tests related to a table or a column has passed, failed, or executed with an error in the past two weeks. No bar chart means that no test has been executed and saved to the repository in the past two weeks.



Using Move/Copy



To move or copy tests or folders in a project,

1. Highlight the intended test or folder
2. Select the Move/Copy button in the toolbar
3. Choose the Move or Copy radio button according to which function you want to use
4. Find and select the new destination in the folder tree
5. Select either Move or Copy at the bottom of the window

Move/Copy Note

The destination folder must be different than the current folder when moving items.

Access

1. On the navigation pane in the appropriate project, click **Tests**.



Template Tests

Overview

The common challenge of data quality testing is efficiently testing a large volume of data. QA testers tend to thoroughly test critical objects and processes while leaving less critical objects untouched. To help increase test coverage, Validatar can create multiple tests at one time by creating a test from a template. Just choose your target object type and how you want to select the database objects to populate the template.

When to Use a Template Test

When you run into some of these scenarios, try generating tests from a template to cut down on test creation time:

- You have to validate that a common business rule transformation has occurred across multiple tables.
- You have an Excel file with a list of known objects you want to test against.
- Your test cases requires the use of dynamic SQL script configuration because objects may be deleted or updated.
- You've spent over 20 hours creating test scripts and want to cut down on test creation time.

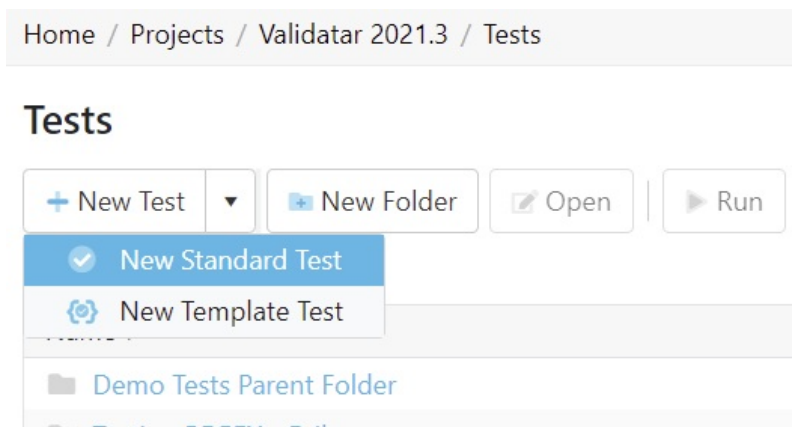
How to Get Started

There are a few concepts to familiarize yourself with before you can start creating tests from a template. These concepts include:

- Understanding metadata references
- Learning about child tests and how to materialize them
- Learning how to import metadata and test requirements via a flat file

View some of the related articles to get started.

Access



To access Template Tests,



1. On the **Test Repository** page, select the **New Test** dropdown.
2. Select **New Template Test**.

Permissions Note

A user must have **Create & Edit Test** permissions to create a **Template Test**.



Configuring a Template Test

Overview

Configuring a template test is made up of six easy steps:

1. Select the target object type and metadata object selection and definition.
2. Build out the test.
3. Define how each child test is to be named and in which folder they should be saved.
4. Configure the metadata object selection.
5. Materialize the child tests.
6. Run the test.

To configure a template test, you must first select a target object type. The target object type defines how the Template Test will generate each child test. A child test is a standard test that was created, or materialized, from a template instead of by the typical new test creation process.

Target Object Type	Definition
Table	For table-level comparisons. This test generates one child test per table. For example, each child test compares the record counts of two tables to each other.
Column	For column-level comparisons. This test generates one child test per column. For example, each child test compares the max value of two columns to each other.

The second option you'll have to configure is how you want Validatar to select the metadata objects that will populate the template when it's time to materialize the child tests.

Object Selection Options	Definition
Metadata Driven	This option uses the metadata that Validatar has ingested from the data source and allows the user to exclude any unwanted objects.
Metadata Query	This option allows a user to write a SQL query that will pull the intended metadata from the data source.
Import File	This option allows a flat file that has each object and its intended test definition settings to be imported into the template. Used to map source and target metadata objects.

Learn more about each of the object selection options in later sections.

Test Definition

The Test Definition tab is similar to the standard test configuration page. Test Variables and References are sections that have been added and they help to make template tests dynamic.

Test Variables

Test Variables are custom references you can make to your data source. Each variable requires a reference key, variable type, and default value.



Reference Key	The name Validator will use to refer to the object.
Variable Type	The type of object you're referencing. Options are: <ul style="list-style-type: none"> • Schema • Table • Column • Numeric • Boolean • Other
Default Value	The default value Validator will substitute for the variable. This is optional.

References

Use reference tags for metadata objects and profile objects to dynamically plug desired objects in throughout your template without having to hard code anything!

The available reference tags are determined by which target object type is selected for the template and what test variables have been created.

Chosen Target Object Type	Available Metadata References	Available Profile References
Table	<ul style="list-style-type: none"> • {{meta.database_name}} • {{meta.schema_name}} • {{meta.table_name}} 	<ul style="list-style-type: none"> • {{profile.record_count}} • {{profile.total_data_mb}}
Column	<ul style="list-style-type: none"> • {{meta.database_name}} • {{meta.schema_name}} • {{meta.table_name}} • {{meta.column_name}} • {{meta.column_data_type}} • {{meta.column_mapped_type}} • {{meta.column_string_max_length}} • {{meta.column_is_nullable}} • {{meta.numeric_precision}} • {{meta.numeric_scale}} 	<ul style="list-style-type: none"> • {{profile.record_count}} • {{profile.total_data_mb}} • {{profile.stddev_large}} • {{profile.distinct_count}}, {{profile.distinct_percent}} • {{profile.most_common_count}} • {{profile.min_numeric}}, {{profile.max_numeric}}, {{profile.mean_numeric}}, {{profile.median_numeric}} • {{profile.lower_quartile}}, {{profile.upper_quartile}} • {{profile.standard_deviation}} • {{profile.max_length}}, {{profile.min_length}}, {{profile.mean_length}} • {{profile.null_count}}, {{profile.null_percent}} • {{profile.blank_count}}, {{profile.blank_percent}} • {{profile.numeric_count}}, {{profile.numeric_percent}} • {{profile.zero_count}}, {{profile.zero_percent}} • {{profile.negative_count}}, {{profile.negative_percent}}



How to Use References

Anywhere you want to place a metadata object or data profile in your template, you can use a reference tag. The reference tag acts as a placeholder that detects and swaps out the reference for the intended object name. For example, if you want Validatar to grab a fully qualified table name, you would type:

PL/SQL	Copy
<code>{{meta.database_name}}.{{meta.schema_name}}.{{meta.table_name}}</code>	

After materialization, the standard tests may replace the reference tags with something like:

PL/SQL	Copy
<code>CRM.dbo.Customer</code>	

To use references, enclose the metadata object or data profile in double curly braces `{{ }}`. We recommend copying and pasting the reference tags into the view to ensure that the proper format is used.

Reference Note

Reference tags are case-sensitive. Verify that each reference tag uses all lowercase characters before saving.

View how metadata references are used in the SQL queries, Metadata Links, and Child Test Name field in the picture below.



Test Definitions Tab

What do you want to test? ⬆

Data Source required

Test Data Type required

Metadata Links ?
 +
 ✖

SQL Script required ?

```
1 select count(distinct {{meta.column_name}})
2 from {{meta.schema_name}}.{{meta.table_name}}
```

Compare to... ⬆

Target Data Type required

Data Source required ? From File

Metadata Links ?
 +
 ✖

SQL Script required ?

```
1 select count(distinct {{var.source_column_name}})
2 from {{var.source_schema_name}}.{{var.source_table_name}}
```

Child Test Configuration Tab

Test Definition File Selection **Child Test Configuration**

Child Test Name required

Child Test Description

Folder Location for Save

Parent Folder required

Relative Path

Results Configuration

The Results configuration section is quite similar to the result evaluation section in a standard test. The evaluation options configured in the template will apply to all child tests when they are materialized but can be changed later.

The available result configuration options depend on the Test Data Types that were selected in the sections above. Learn more about these options on [Configuring a Test](#).



Metadata Selection

Using filters

By default, if the Metadata Driven object selection is selected, all objects in the data source will be used to populate the child tests. For a more focused set of objects, you can add filters to the metadata selections.



Filter Options

Field	Operator	Criteria
Schema Name	String Filters	Any string input
Table Name	String Filters	Any string input
Table Record Count	Numeric Filters	Any numeric input
Table Type	Equals, Not Equals	Table or View
Column Name	String Filters	Any string input
Column Data Type	String Filters	Any string input
Column Mapped Type	Equals, Not Equals	Validatar data types
Column Nullable	Equals, Not Equals	Yes or No
Column Identity	Equals, Not Equals	Yes or No
Column Primary Key	Equals, Not Equals	Yes or No
Column Max Length	Numeric Filters	Any numeric input

Metadata Query

Using a metadata query is a second way to decide which objects will populate the template. This option allows you to pull metadata directly from the data source using a SQL script with the proper table joins or filter, if necessary. After you select your data sources on the Test Definition tab, you can select which data source you want to pull metadata from on the Metadata Query tab.

The Metadata Query must return certain columns based on what references were used on the Test Definition tab. You will see which columns are required under **Required Metadata Columns**. They do not have to be returned in the order they are listed but they must be named correctly.

To ensure the proper column aliases are used, copy a template of the accepted SQL query by clicking the **Copy Template Query** button on the right-hand side of the screen.

To ensure that the correct metadata is included click the **Preview and Validate Metadata Query**.

View what a metadata query object selection may look like in the image below.



Data Source required

Adventure Works ▼

Copy Template Query

Metadata Query required

```

1 select
2     'loading' as "meta.schema_name",
3     lt_table_name as "meta.table_name",
4     lt_source_schema as "var.source_schema_name",
5     lt_source_table as "var.source_table_name"
6 from ws_load_tab
7 join ws_dbc_connect on lt_connect_key = dc_obj_key
8 where dc_name = 'DEMOLT2019'
9
10

```

i The **Metadata Query** must return the following columns based on the Template Test definition. They do not have to be returned in this order but must be named correctly.

Required Metadata Columns:

- meta.schema_name
- meta.table_name
- var.source_schema_name
- var.source_table_name

File Selection

The third way to choose which objects will populate the template is via importing a flat file.

The table contains a record for each object in the database that is to be used to replace the reference tags in the template. Each record represents one child test that will be created during materialization, therefore each record also includes results evaluation criteria that should be used for each test.

Below is a sample import file for a column-level template test.

meta.schema_name	meta.table_name	meta.column_name	Value Success Criteria	Value Success Tolerance	Only Keep Failures	Abort Processing After Failures	Scripts Include Order By
RVAULT	H_ADDRESS	ADDRESSID	Numeric Tolerance	0	Yes	1000	Yes
RVAULT	H_CUSTOMER	CUSTOMERID	Percent Tolerance	0.5	Yes	1000	Yes
RVAULT	H_PRODUCT	PRODUCTID	Numeric Tolerance	0	Yes	1000	Yes
RVAULT	H_PRODUCTCATEGORY	PRODUCTCATEGORYID	Numeric Tolerance	0	No	1000	Yes
RVAULT	H_PRODUCTDESCRIPTION	PRODUCTDESCRIPTIONID	Numeric Tolerance	0	Yes	1000	Yes
RVAULT	H_PRODUCTMODEL	PRODUCTMODELID	Numeric Tolerance	0	Yes	1000	Yes
RVAULT	H_SALESORDERHEADER	SALESORDERID	Numeric Tolerance	0	Yes	1000	No

Generating an Import File

To get the proper column headers in the import file the file should be generated from Validator. The column headers depend on which reference tags are used in either the SQL script text box or Metadata Links box, or any field that has *Import From File* checked on the Test Definition tab. The file also includes any references used on the Child Test Configuration tab.

Generate Import File ✕

Select a method to generate the import file.

Headers Only
 Previous Version
 Pre-Populate Metadata

Download File
Cancel

There are 3 options when choosing to generate the import file:



Headers Only	This option downloads a blank Excel file with column headers only.
Previous Version	This option lists the previous files that were imported into the Template test. This file includes column headers as well as metadata and results evaluation content from the previous file.
Pre-Populate Metadata	Coming soon.

Uploading an Import File

Once the import file has been configured to include the appropriate metadata objects and test settings, it's time to upload the file. Just select the **Upload Import File** button on the File Selection tab to do so.

If column headers are references that aren't being used anywhere on the Test Definition or Child Test Configuration tabs

View Version History

Another option for templates that have been saved with different versions of the import file is viewing the version history. Learn who has previously imported a file and when it was uploaded.

Child Test Configuration

Child tests are simply standard tests that have been created from a template. The Child Test Configuration tab lets Validatar know how you want to name each child test and where should they be saved in the test repository.

Similar to the Test Definition tab, you can use metadata reference tags in the Name and Description fields. Just type out the reference you want to use and when the child tests are materialized, the appropriate object will be plugged in its place.

Folder Location for Save

Parent Folder

The parent folder is the parent directory for where all of the child tests will be saved. The parent folder can be chosen from a tree of existing folders using the folder dropdown.

Relative Path

The relative path is the path of folders that will be created where each child test will be nested when the test is materialized. This field is optional.

Use text or reference tags separated by a backslash (\) to create the relative path of folders.

For an example of how to use the Child Test Configuration tab, view the image below.



Test Definition

Metadata Selection

Child Test Configuration

Child Test Name required

String Column Null Check for {{meta.schema_name}}.{{meta.table_name}}.{{meta.column_name}}

Child Test Description

Enter description (optional)

Folder Location for Save

Parent Folder required

Materialized Tests

Relative Path

\Null Checks



Materializing Child Tests

Overview

Materializing child tests create one test per table or column, depending on the selected target object type, for each metadata object that's been selected. Think of materialization as the creation of each test that will run for your designed test scenario. Each time your template is modified, it is recommended to re-materialize child tests to reflect the updated changes. For example, if you modify the metadata object filters to reflect tables that were deleted from your database, re-materialize the child tests so that the old tables won't be included in the scope of the test anymore. You may also want to re-materialize tests before any jobs using those child tests are run.

When tests are materialized each child test will be saved by the name and location that was established on the Child Tests Configuration Tab.

First-Time Materialization

Before you can materialize a test, the template must be saved. The first time a test is materialized, you will see a statistics box with the number of tests to be created as well as the folder location information.

Materialize Child Tests

Folder Location for Save

Parent Folder

Metadata Driven Testing

Relative Path

Statistics

Tests to be created 12

Materialize Cancel

Once the materialization is complete, a message will read that the materialization has been completed successfully.

Materialization Progress

Child test materialization has completed successfully

Subsequent Materializations

After initial materialization, as the template test or child tests are edited the Test Summary box on the template screen will update with statistics that reflect any changes.

Once you choose to materialize the child tests again, the pop-up will include configuration options for previously materialized tests.



- Delete all child tests for objects no longer selected in metadata
- Delete empty child folders
- Update all unmodified child tests - updates all previously materialized child tests to the current template version if they haven't been modified since creation.
- Overwrite all modified child tests - overwrites all previously materialized child tests to the current template version if they have been modified since creation.

Any changes to the Child Test Configuration tab are also reflected on the pop-up screen.

Materialize Child Tests ×

Folder Location for Save

Parent Folder

Metadata Driven Testing

Relative Path

Statistics	
Tests to be created	74
Tests to be deleted	12
Modified tests	0
Unmodified tests	0

For Previously Materialized Tests:

- Delete all child tests for objects no longer selected in metadata
- Delete empty child folders
- Update all unmodified child tests [?](#)
- Overwrite all modified child tests [?](#)

Materialize Cancel

Deleting Child Tests

To delete all child tests that were created from the template, use the Delete Child Tests button. To delete only the objects that are no longer selected in the metadata, use the Materialize Child Tests button and then select that configuration option.

Delete Materialized Tests ×

You are about to delete 12 tests that were created from this template test.

Note: Deleting tests does not delete test execution history.

Are you sure you want to delete these 12 tests?

Delete All 12 Tests Cancel



Executing Child Tests

Overview

After materialization, you can think of child tests as a standard Validatar test that was created from a template. Because of this, child tests can be run from the template test configuration screen, the test repository after materialization, or as part of a job just like a standard test.

From the Template Test Screen

1. When running child tests from the template test screen there are a few configuration options to choose from. You can either choose to run a single child test, which is recommended to validate that your test was created and runs as expected, or you can run all child tests at once. If you choose to run a single child test you have the option to choose which test runs.
2. Next, choose where to send the test results. Similar to a standard test, results can be sent to the screen for one-time viewership or be saved in the test repository. Note that if you choose to run all child tests instead of a single child test, you can only send results to the test repository.

Advanced Configuration

There is also an option to configure how many tests will run in parallel. This option allows multiple tests to run simultaneously which helps with optimization. The default setting is 10.

Run Test: Metadata Driven Testing - Column

What would you like to run?

Single Child Test

All 3 Child Tests

Send Results To

Screen

Test Repository

Results from multiple tests cannot be sent to the screen

Advanced Configuration

How many tests would you like to run in parallel? required

10

Run Close

If the template has been modified since the last time child tests were materialized, you will be prompted to materialize child tests before you run the tests.

From the Test Repository

Template tests can also be run from the test repository screen by selecting the template test record and clicking the Run button on the toolbar. This process will display the same Run Test pop-up configuration window that appears on the template test screen.



Home / Permissions Testing / Tests / Validate Import File Test / Metadata Driven Testing

Tests

+ New Test | New Folder | Open | Run | View History | Rename | Move | Delete

Showing 4 entries

1 1	Name 1 2	Template Test Name	Last Modified	Last Edited By	Result Trend (past 2 weeks)
	Metadata Driven Testing - Column	Metadata Driven Testing - Column	5/20/2021	Sample User	
	REGION_R_COMMENT Distinct and Null Compare (1)	Metadata Driven Testing - Column	5/20/2021	Sample User	
	REGION_R_NAME Distinct and Null Compare (1)	Metadata Driven Testing - Column	5/20/2021	Sample User	
	REGION_R_REGIONKEY Distinct and Null Compare (1)	Metadata Driven Testing - Column	5/20/2021	Sample User	

Not only can you run all child tests from the template itself, but you can also run each test as a standard test. Select the appropriate test standard test, which is identified by the checkmark icon next to it, and either select the Run button on the toolbar or drill into the test interface and run the test from there.

Within a Job

Another option to execute child tests is to add the template test or multiple child tests to a job. Adding the template test itself ensures that no child test is accidentally excluded from the job resulting in total test coverage for your metadata objects.



1. Just select the template test on the left-hand side and move it over to the Job Steps on the right.

Home / Permissions Testing / Jobs / Run Materialized Tests

Job: Run Materialized Tests

[Save](#) | [View Job History](#)

Name required
Run Materialized Tests

Description
Enter description (optional)

Steps - 1 Schedules

Tests (By Folders)

- Tests
 - Group 1 of Tests
 - Import File Tests
 - Materialize Testing
 - Metadata Driven Testing
 - Metadata Query
 - Test Tolerance Type Changes
 - TPCDS_SF100TCL
 - Validate Import File Test
 - Metadata Driven Testing
 - Metadata Driven Testing - Column
 - REGION_R_COMMENT Distinct and Null Compare (1)
 - REGION_R_NAME Distinct and Null Compare (1)
 - REGION_R_REGIONKEY Distinct and Null Compare (1)
 - Import File Materialization
 - Region.Market_ID.MAX
 - Region.Region.MAX
 - Cheyenne's Snowflake Test
 - Compare Record Count - Segment Table

Job Steps

#	Name
1	Metadata Driven Testing - Column

2. Once the template is added to the job step list, select the materialize icon to the right of the template name to choose if you want to materialize the child tests before execution. If you do, you will be given a list of materialization settings to choose from.

Configure Step: Metadata Driven Testing - Column

Materialize child tests before execution

Delete all child tests for objects no longer selected in metadata

Delete empty child folders

Update all unmodified child tests

Overwrite all modified child tests

How many tests would you like to run in parallel? required

10

[Update](#) [Close](#)

3. Update the configuration, save the job, then navigate back to the Job Repository screen to run the job or add a schedule to the job for it to run automatically.

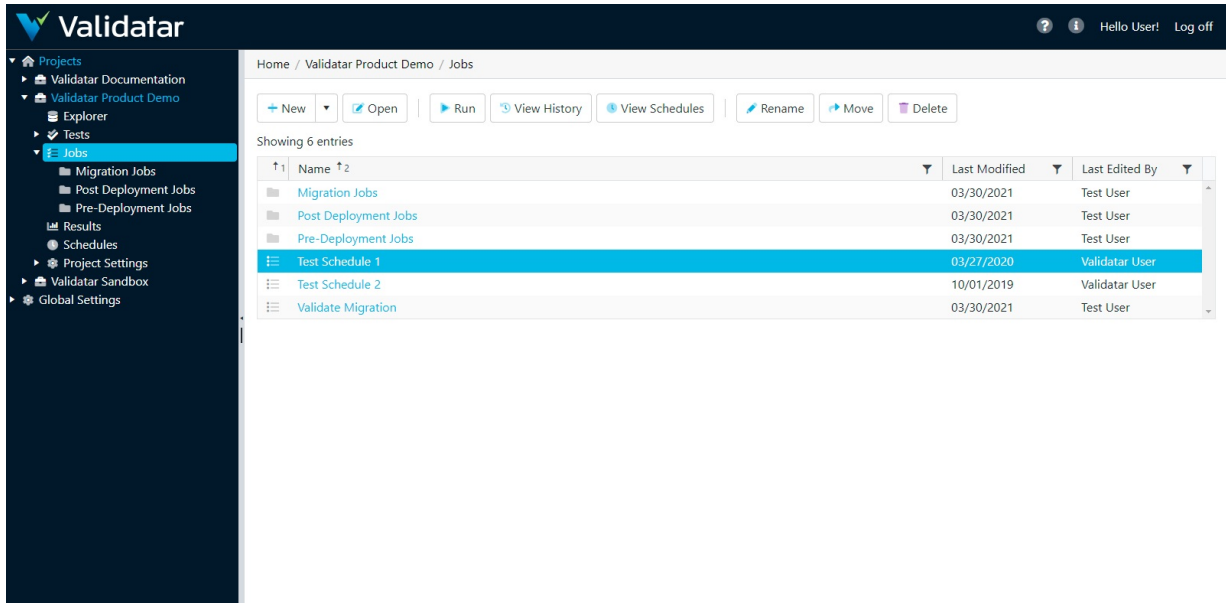


Job Repository

Overview

The Job Repository contains all of the jobs that have been created in a Project.

Displayed Information



Displayed information can be sorted by clicking on column headers or filtered by clicking on the filter icons also located on the column headers.

Action Buttons

New	Click on the dropdown to create a new job or job folder. There is no hierarchical limit. As many folder s and sub-folders can be created as desired.
Open	Opens the Job Configuration page for an existing job.
Run	Runs the selected job.
View History	Navigates to a page displaying the historical pass/fail results for a selected job. More on Job History page.
View Schedules	Navigates to a page displaying schedule(s) assigned to a job. More on Schedules page.
Rename	Renames a selected job.
Move	Move one or more selected jobs.
Delete	Delete one ore more selected jobs.

Table Headers

Job/Job Folder	Job and Job Folders are represented by icons in the first column as shown in the screenshot below.
Name	The name of the job or job folder.
Last Modified Date	The date the job or job folder was last modified.
Last Edited By	The user who last modified the job or job folder.



Access

1. Click the dropdown associated with a given project.
2. Click Jobs.
3. Select the desired job.



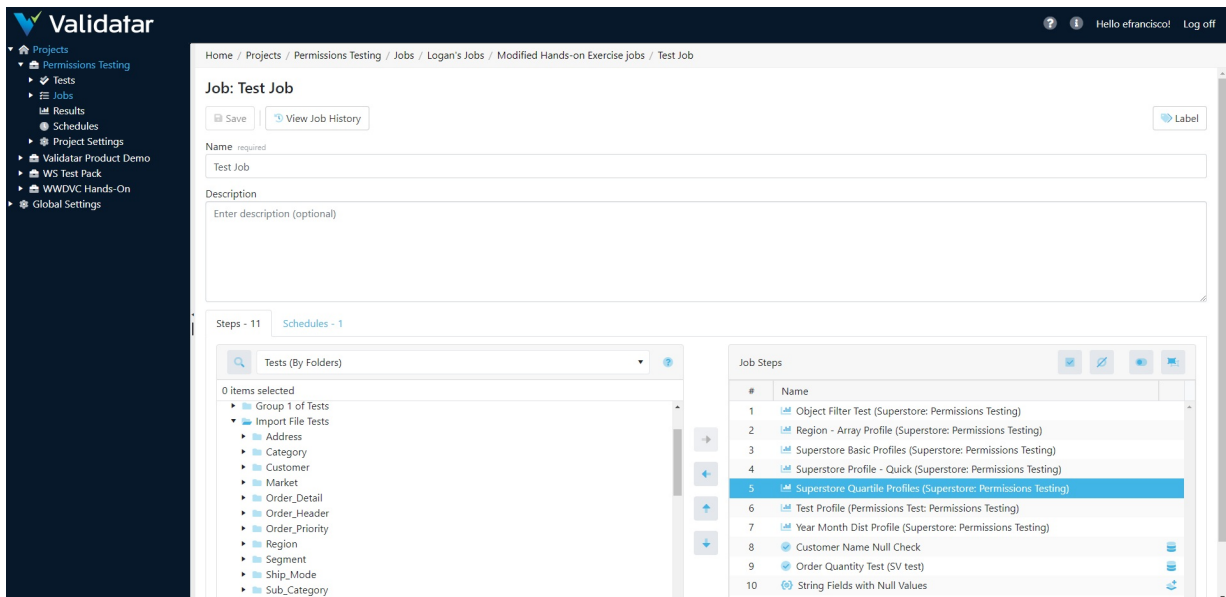
Configuring a Job

Overview

Jobs provide your data testing and profiling efforts the opportunity to tell a more complete story of what's happening in your environment. By executing tests and profiles together, your test coverage increases which improves the measure of your data quality.

Displayed Information

The Job Configuration page provides an interface for choosing the objects to be included in a job, when to run the job, and defining email notifications to send upon job completion.

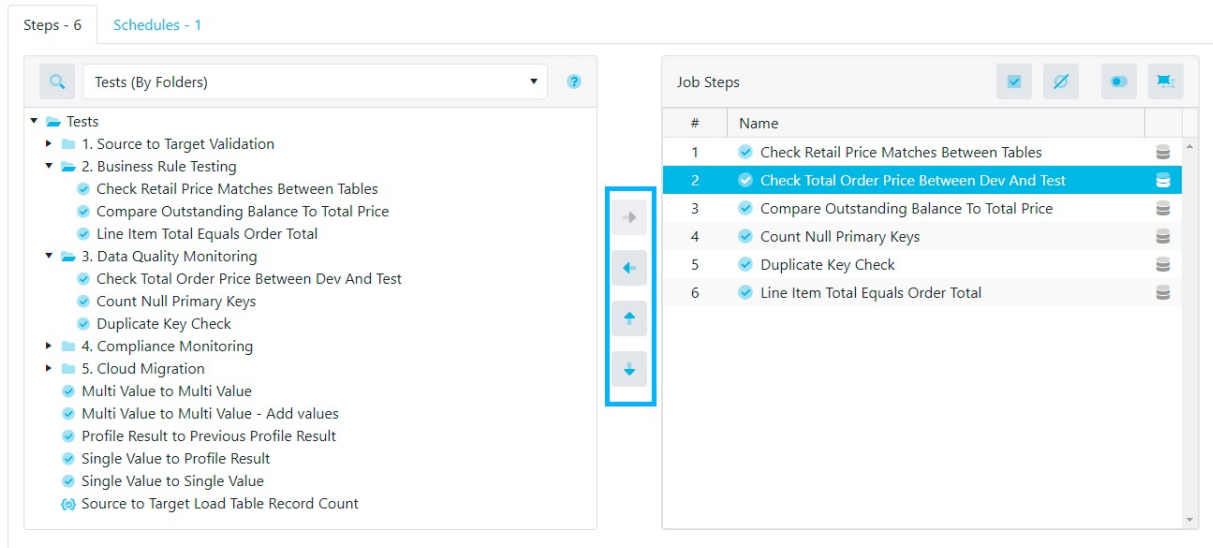


Action Buttons

Save	Saves the job.
View History	Navigates to the Job History page which displays historical pass/fail results for the job.

Job Steps

The Steps section of the Job Configuration page consists of a list of available tests and jobs on the left-hand portion of the screen and a list of selected job steps on the right-hand portion of the screen tagged as Job Steps.



There are four types of objects that can be added to a job:

1. Standard Tests
2. Template Tests
3. Jobs
4. Profile Sets

Available objects can be found using the Tests (By Folders) dropdown or by toggling to the search view using the search icon to the left of the dropdown.

Job Step Buttons

Arrow buttons (<i>highlighted in above image</i>)	Allow a user to : <ul style="list-style-type: none">• Add an object to a job• Remove an object from a job• Move an object up on the job step list• Move an object down the job step list Note: Adding the same object to the Job Step list produces a warning icon about the duplicate job step.
Select All	Selects all items on the job steps list.
Deselect All	Deselects all items on the job steps list.
Disable Job Step	Disables the selected job step from executing when running the job.
Group / Ungroup Job Steps	Group job steps together to run them in parallel. Ungroup job steps to run them sequentially. Grouped steps share the same step number. Ctrl + click on multiple tests within Job Steps and then click on the Group button to create a group of tests.

Job Configuration Note

Clicking the database icon in Job Steps allows the user to choose source and target connections that differ from the default for standard tests. If a different connection is chosen, the database icon will turn blue. Similarly for runtime configuration of Template Tests, clicking the materialize icon allows the user to enable child test materialization before running the job. If this option is enabled, the materialize icon will turn blue.



Job History

Overview

The Job History page displays an overview of results from past job runs and provides links to the individual test results within each job run. Viewing job history is a great way to see how your data quality changes over time.

Displayed Information

Job History: Test Schedule 1

Showing 28 entries

Run Date	Status	Result	Runtime Context	Run By	Duration
10/7/2019 10:00:02 AM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:09
10/6/2019 10:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:08
10/6/2019 6:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:07
10/6/2019 2:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:07
10/6/2019 10:00:02 AM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:06
10/5/2019 10:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:07
10/5/2019 6:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:06
10/5/2019 2:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:06
10/5/2019 10:00:03 AM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:08
10/4/2019 10:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:08
10/4/2019 6:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:08
10/4/2019 2:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:07
10/4/2019 10:00:02 AM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:22
10/3/2019 10:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:06
10/3/2019 6:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:10
10/3/2019 2:00:02 PM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:07
10/3/2019 10:00:02 AM	Completed	0 tests	Test Schedule 1	Scheduler	00:00:11

Action Buttons

View Tests	Click the View Tests button to navigate to the Job Result page and view detailed results for tests associated with a job. Note that clicking on the Run Date will also navigate to the Job Results page.
-------------------	--

Table Headers

Run Date	The date and time the the job was executed.
Status	Status options: <ul style="list-style-type: none"> ● Completed ● Running ● Aborting ● Aborted ● Abandoned
Result	Details whether the job passed or failed. If the job contains profile sets only, the result will read <i>0 tests</i> .
Runtime Context	Detail the context the job was run under.
Run By	The user who ran the job.
Duration	How length of the job execution.



Note

Learn more about table header filters [here](#).

Access

The Job History page can be accessed at the individual job level or via the Job Repository page. Both access methods are detailed below.

1. In the navigation pane, click the dropdown associated with a given project.
2. Click Jobs.
3. To open a job via the Job Repository page:
 - Highlight the desired job.
 - Click View History located at the top of the Job Repository page.
4. To open job history at the individual job level:
 - Click the link associated with the desired job in the information window.
 - In the resulting page, click the View Job History button.



Scheduling a Job

Overview

Scheduling a Job allows users to receive the results of their test and profile executions without having to be inside of Validatar. This feature is ideal for sending reports to higher level managers, informing data warehouse developers of issues as they arise, and providing peace of mind that your data is constantly being monitored.

The Job Schedule Configuration screen allows the user to define job scheduling and email notification.

A job schedule can be configured in many ways. Some examples include:

- A daily configuration that recurs every day at 5:00 AM after source system data has been updated.
- A weekly configuration that recurs every Monday to monitor changes in the data warehouse.
- A monthly configuration that recurs on the 2nd Friday of each month in preparation for sending status updates to higher level managers.

Displayed Information

Edit Job Schedule x

Execute job Monthly Schedule is enabled

Frequency Pattern

Day of every month(s)

The first Sunday of every month(s)

Duration

Start date: required

End date:

Daily Frequency

Occurs once at

Occurs every Minutes starting at and ending at

Send Email Notification

Send email when: required

any test fails

any test errors

the job doesn't complete

all tests pass

Email Recipients required

Email Subject

When scheduling a job, email notifications can be configured with the following options:

- Choose to send an email when a job is completed with a failure or error, when the job doesn't complete at all, or when a job is completed successfully with no failures or errors.
- Enter recipients emails using a comma or semi-colon delimited list.
- Provide an email subject line.

**Note**

It's easy to overlook whether a schedule is enabled or disabled. Verify that the schedule is enabled if you intend for it to run.

Access

Existing Job Schedules can be accessed by clicking Schedules within the navigation pane. New Job Schedules can be created via the following steps:

1. Click the dropdown associated with a given project.
2. In the navigation pane click Jobs.
3. Click on the desired job.
4. Click the Schedules tab.
5. Click New.



Reports Home Page

Overview

Reports are standard and custom views about your data. You can view execution history about tests and jobs across multiple Validatar projects using standard reports. Filter standard reports and save the view, which you or a team member can revisit later! You can also embed Tableau Server dashboards in Validatar by creating a custom report.

Standard Reports

Validatar delivers two standard reports:

- Test Execution History
- Job Execution History

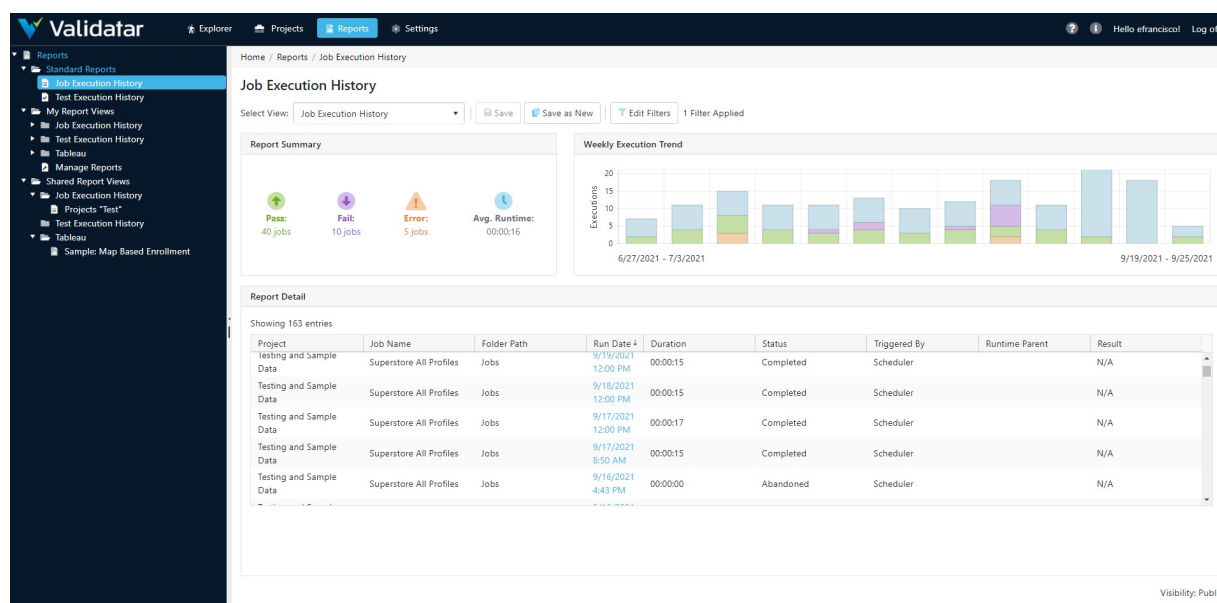
Both reports show execution history across all Validatar projects. Click on the name to view the report.



Standard Reports

Overview

Standard reports come built into Validatar. In this article, we'll talk about each standard report and what's included in them.



Test and Job History Report

There are two separate reports to show test and job execution history. These reports allow you to evaluate historical execution data across multiple Validatar projects in one place. You can view the summary of passes and failures, how often a test or job is run, and more.

Why View This Report?

Here's why you should use test and job history reports:

- It's a quick look into how many tests pass, fail, or error within a project.
- You can view changes in test results over time.
- You can view gaps in test execution.
- You can compare result history across projects.
- You can save views of relevant execution history to quickly refer back to.

Report Summary

The Report Summary provides KPI's that display the number of pass, fail, and error results in the current view. It also shows the average runtime of the results. As you add or remove filters to the report, the report summary will update.

Execution History Chart



The stacked bar chart shows the full time frame that the test or job history report is filtered to. Every bar represents a date part which is determined by how many bars are in the view.

Results Table

The items shown in the results table depends on the filters applied to the report. The list of results in the table drive the KPI's in the Report Summary box and the execution history bar chart. As you added or remove filters to the report, the results table will update and change the dependent graphics.

Column Name	Description
Project	The Project where the test or job was executed.
Test or Job Name	The name of the test or job.
Folder Path	The folder path to where the test or job is stored.
Run Date	The date and time of the execution. Clicking on Run Date brings you to the execution details .
Duration	How long the execution lasted.
Status	There are five status options: Running, Aborting, Aborted, Completed, Abandoned.
Triggered By	Shows whether the execution was triggered by the Validatar scheduler or an individual user.
Runtime Parent(s)	Shows the parent objects involved in the execution.
Result	There are three result options: Pass, Fail, Error.

Applying Filters

Apply filters to create a targeted view of execution history.

Creating a Filter

1. Click **Edit Filters**.
2. In the pop up window, choose the filter you want to apply under **Field**.
3. Select the operator.
4. Enter the filter criteria.
5. Add as many filters as needed.
6. Click **Close**.

Note: Filters use "and logic", which means that only data that meets every criteria will be included.

Saving Views

Saving a report will save the filters and sort options selected in the view.

Report Visibility

The user that creates the view determines whether the view is Private, Public, or accessible by a User Group. Only the owner can change how the view can be shared.

Save As New

If you are not the owner, you cannot edit the saved view but you can choose to Save As.



Managing Reports

Overview

You can create a new Test or Job Execution History report by expanding the **My Report Views** folder on the Reports tree and selecting **Manage Reports**.

You can also embed Tableau Server dashboards in Validatar in the **Manage Reports** section. To create a Tableau report, you must have the Tableau **Workbook Name** and the **View Name**.

Creating a Job or Test Execution History Report

From the Reports tree, click **Manage Reports**.

2. Click **New Report**.
4. Enter the report name.
5. Choose **Job Execution History** or **Test Execution History** as the report type.
6. Enter a description. (optional)
7. Choose the report visibility.
8. Click **Save**.

Creating a New Tableau Report

Prerequisite Required

Before you create a new report, ensure that a global admin has connected your organization's Tableau Server to Validatar. This setting is found under **Settings > Configuration > Reporting**. Learn more about this setup [here](#).

Any Validatar user can create a new report.

1. From the Reports tree, click **Manage Reports**.
2. Click **New Report**.
3. Enter the report name.
4. Choose **Tableau** as the report type.
5. Enter a description. (optional)
6. Choose the report visibility.
7. Enter the Tableau report path in the following format:
 - o [Workbook Name]/[View Name]
8. Click **Save**.

Managing Reports

1. From the Reports tree, click **Manage Reports**.
2. Select either the white space next to the name and click **Open** or click the configuration icon next to the name to view the report details.
3. Make any necessary changes, then click **Save**.
4. To delete a report, select the white space next to the name and click **Delete**.

**Delete Note**

You can restore a report immediately after deleting it. Once you navigate away from the reports page, you cannot restore the report.



Connecting Tableau to Validatar

Overview

Connecting to Tableau requires a **Tableau Server** account and user accounts with access to the intended workbooks and views.

Server Configuration

Prerequisite Required

To set up the Tableau Server connection, the user must be a **Configuration Admin** or a **Global Admin**.

1. Click **Settings** on the main menu bar.
2. On the navigation tree, select **Configuration**.
3. On the Validatar Configuration list, click **Reporting**.
4. Enter the server configuration settings.
 - **Tableau Server URL:** The URL to your Tableau Server account. Example (https://tableau.xyzcorp.com)
 - **Tableau Site (optional):** Specifies a site on a Tableau Server instance. Sites are used to separate groups of users and content on the same Tableau Server instance.
 - **Identity Store:** This is chosen when Tableau Server is installed.
 - **Local Store:** All user and group information is stored and managed in the Tableau Server repository.
 - **External Store (AD or LDAP):** An external directory service stores and manages user and group information.
5. Click **Save**.

How Users Access Workbooks

To view the embedded dashboards, a user must:

1. Have a Tableau server user account with permissions to view the workbook.
2. Have their Tableau server username added to Validatar.

Adding Tableau Account to Validatar

To add a user's Tableau Server account to Validatar:

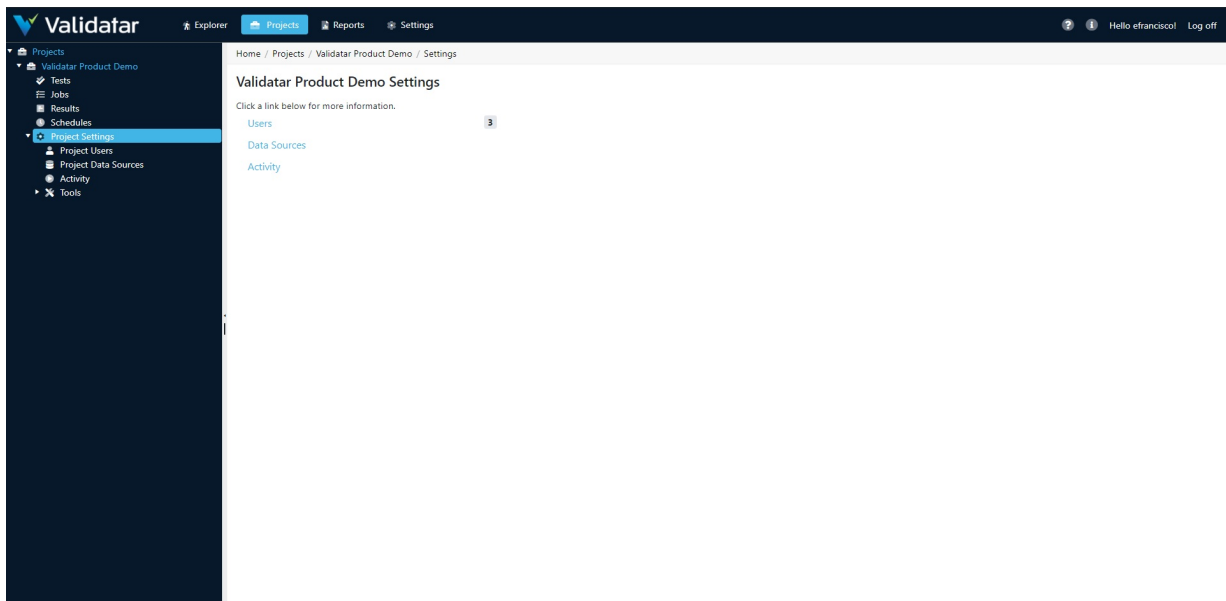
1. A **Security Admin** or a **Global Admin** must navigate to **Settings > Users > User Details**.
2. Enter their **Tableau Username** in the provided field.
3. Click **Save**.



Project Settings

Overview

The **Project Settings** page reflects the same choices available within the navigation pane under the Project Settings dropdown; that is, access to settings for Data Sources, Users, Groups, Activity, and Tools. As the name implies, Project Settings are limited to a given project, whereas **Global Settings** are application-wide.



Included in Project Settings are:

- Project Users
- Project Data Sources
- Activity
- Tools
 - Labels
 - Import
 - Export

For information on Project Data Sources, see the Data Sources section.

Access

1. The Project Settings page may be directly accessed by expanding a project and clicking on Project Settings in the navigation pane.



Project Users

Overview

The **Project Settings Users** page lists Validatar users with access to the selected project.

Home / Validatar Product Demo / Settings / Users

Project User Permissions

[+ Grant Access](#) [Remove Access](#)

Create Roles

- Create Data Sources
- Create Jobs
- Create and Edit Labels

Import/Export Roles

- Import
- Export

Project Roles

- Project Admin
- Project Access

Showing 3 entries

Username ↑	Test Author	Create			Import/Export		Project	
anguyen	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
dbaldwin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
efrancisco	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Granting Access

The **Grant User Access** page provides a list of users that do not have access to the project. The process for granting a user project access is as follows:

1. Within **Project Settings**, click **Users** and then click **Grant Access**.
2. Type the user's name to select them from the dropdown list.
3. Add the permissions by checking the appropriate boxes for each role.

Removing Access

1. Select the user from the list.
2. Click **Remove Access**.

You can restore a user's access immediately after removing it by clicking the **Restore Access** button. If you navigate away from the page, you will have to click the **Grant Access** button to re-add the user.

Roles

Create Roles	Import/Export Roles	Project Roles
<ul style="list-style-type: none"> • Create Jobs - the user can create Validatar jobs. • Create and Edit Labels - the user can create and manage labels found under Project Tools. 	<ul style="list-style-type: none"> • Import - the user can import an XML file of Validatar objects into the project. • Export - the user can export Validatar objects out of a project to an XML file. 	<ul style="list-style-type: none"> • Project Admin - the user is a project administrator. • Project Access - the user has read-access to the project.



Project Data Sources

Data Sources are managed and assigned to a project globally, but a project admin can also enable the use of a data source in project settings.

The Project Data Sources page shows a list of all available data sources. Check or uncheck the data sources you want to use in your project.

The screenshot shows the Validatar interface with the 'Project Data Sources' page open. The page title is 'Hands-On Demo: Data Sources'. A 'Save' button is visible above the table. The table displays 5 entries (filtered from 7) with 2 entries selected. The columns are: Name, Environment, Database, Server, and Database Engine.

<input type="checkbox"/>	Name ↑ ↓	Environment	Database	Server	Database Engine
<input checked="" type="checkbox"/>	Adventure Works	Prod Source Systems	DemoLT2019	...	SQL Server
<input checked="" type="checkbox"/>	Data Vault Demo	Prod Data Warehouse	WWDVC_DEMO_DV	...	Snowflake
<input type="checkbox"/>	Snowflake Sample Data	Demo Data Sources	SNOWFLAKE_SAMPLE_DATA	...	Snowflake
<input type="checkbox"/>	TEKNION_LZ	Dev Data Warehouse	TEKNION_LZ	...	Snowflake
<input type="checkbox"/>	WhereScape Repository	Prod Data Warehouse	WslWarehouse861	...	SQL Server



Import

Overview

The Import feature allows an XML file that contains the contents of a project to be imported into another project. Importing is a three-step process:

- Step 1: Select a file
- Step 2: Map the data sources and choose the target import folder
- Step 3: Review the changes

Import: Step 1

Select an XML file containing exported Validatar objects. Invalid file types and XML files incorrectly structured will not be accepted. To ensure you have the correct file to import, export objects from Validatar first for reference.

Home / WWDVC Hands-On / Settings / Tools / Import

Import - Step 1 of 3

Choose a file containing exported Validatar information.

Select file...

Drop files here to upload

Import: Step 2

Mapping Data Sources

If a data source in the project you're importing into has the same name and connection string as a data source found in the imported XML file, the data sources will automatically be mapped to each other. This default mapping can be changed if necessary.

For data sources where an identical name and connection string is not found, you will have to choose the respective data source.



Import - Step 2 of 3

"Hands On Export.xml" was uploaded successfully. To complete the import:

- Map each source data source below to the corresponding target data source
- Choose the target folder to import tests into
- Choose the target folder to import jobs into
- Click the Review Changes button below to review the changes that will be made to the project

Data Sources Included in File <small>required</small>	
Adventure Works	<input type="text" value="Adventure Works"/>
Data Vault	<input type="text" value="Data Vault"/>
WhereScape Repository	<input type="text" value="Choose Data Source"/>

Choosing the Target Folder

All the tests and jobs included in the file will appear on the left pane. Choose a single folder on the test and job levels to import every object included in the file. After the selection is made, click **Review Changes**.

The screenshot displays the 'Import' interface with four main panes:

- Tests Included in File:** A tree view showing 'Tests' (expanded) with sub-items: 'Demo Tests' (expanded) containing 7 numbered items, and 'Materialized Tests' containing 'Load Counts', 'Null Checks', and 'Source Counts'.
- Project Test Folders - Choose Import Target required:** A tree view showing 'Tests' (expanded) with sub-items: 'Demo Tests', 'Materialized Tests' (expanded) containing 'Load Counts', 'Null Checks', and 'Source Counts'.
- Jobs Included in File:** A tree view showing 'Jobs' (expanded) with a sub-item: 'Demo Job'.
- Project Job Folders - Choose Import Target required:** A tree view showing 'Jobs' (expanded) with a sub-item: 'Jobs'.

At the bottom left is a 'Review Changes' button, and at the bottom right is a 'Restart' button.

Import: Step 3

The final step of the import is to review the objects that will be added to the project. Each object is highlighted based on whether the object currently exists in the project or will be added.



- **Identical** - The object already exists in the current project. This requires the user to either overwrite or rename the object.
- **Add** - The object does not exist in the current project and will be added.
- **Overwrite** - If the object already exists, replace it with the new object by overwriting it.
- **Rename** - If the object already exists, duplicate the object and rename it.

To toggle between overwrite and rename, click the icon next to the object.

Home / WWDVVC Hands-On / Settings / Tools / Import

Import - Step 3 of 3

The following trees show the objects from the import file merged with the existing objects in the project. You can switch between the Overwrite and Rename actions on individual objects in the tree by clicking the or to the right of the object. You can also click a link in the "Update All Objects" section to affect all relevant objects in the trees.

Legend: None Identical Add Overwrite Rename

Update All Objects: Overwrite Rename

Tests: 0 7 0 0 0
Jobs: 0 1 0 0 0
Custom Profiles: 0 1 0 0 0
Profile Sets: 0 0 0 2 2

Tests Merged With Project

- ▼ Demo Tests
 - 1. OrderQty Sum Match
 - 2. OrderQty SUM by ProductID
 - 3. Customer Email Address Null Check
 - 5. CustomerID Count - RV vs Source
 - 4. String Fields with Null Values
 - 6. Hub Count - RVault vs Source - With Mapping File
 - 7. Compare Load Table Record Counts - With Lineage Query
- ▼ Materialized Tests
 - Load Counts
 - Null Checks
 - Source Counts

Jobs Merged With Project

- ▼ Demo Job

Data Sources Merged With Project

- ▼ Adventure Works
 - Profile Sets
 - Quick Profiles
- ▼ Data Vault
 - Custom Profiles
 - New Records - Yesterday
 - Profile Sets
 - Quick Profiles

Finalizing the Import

Once you review all changes to be made to the project, select **Import**. Navigate back to the Tests and Jobs area to confirm the import was successful.

Access

1. Navigate to **Tools** found under **Project Settings**.
2. Select **Import**.



Export

Overview

The export feature allows selected tests, template tests, profile sets, and jobs in a particular project to be exported to an XML file. The XML file can then be used to import the contents into another project.

A user may want to export Validator objects to:

- Create a backup of a Validator project
- Make mass changes to the contents of a test or job
- Duplicate tests or jobs for use in a different development environment (e.g. Running the same set of tests configured against the DEV environment to the TEST environment).

There are two ways to export Validator objects

- via Folder path selection
- via Label selection (requires the project to have at least one locked label)

Exporting via Folder Path Selection

Exporting via folder path selection allows you to select available objects based on their hierarchical location in Validator. Expand and collapse tests, jobs, and folders to show or hide certain objects.

Home / WWDVC Hands-On / Settings / Tools / Export

Export

Available Objects for Export

- WWDVC Hands-On
 - Tests
 - Demo Tests
 - 1. OrderQty Sum Match
 - 2. OrderQty SUM by ProductID
 - 3. Customer Email Address Null Check
 - 4. String Fields with Null Values
 - 5. CustomerID Count - RV vs Source
 - 6. Hub Count - RVault vs Source - With Mapping File include file
 - 7. Compare Load Table Record Counts - With Lineage Query
 - Materialized Tests 3 references
 - Missing Business Keys
 - Record Count Comparison
 - Record Count Profile
 - Jobs
 - Demo Job

Selection Options

The tree to the left contains every test and job in the project. All checked objects will be included in the exported file.

When an item is checked/unchecked:
 Also check/uncheck descendants
 Also check/uncheck ancestors

When a job is checked/unchecked:
 Also check/uncheck dependent objects

When a template test is checked:
 Automatically include meta-object file

2 selected test folders
7 selected tests

[Previous](#) [Continue](#)

Selection Options



Every object that is checked on the Available Objects for Export list will be included in the exported XML file. You can configure how the object selection should work using the section called **Selection Options**.

When an item is checked and unchecked choose to:

- **Check and uncheck descendants.** This allows all the children objects inside of folders to be selected or deselected for export.
- **Check and uncheck ancestors.** This allows all the parent objects of the item to be selected or deselected for export.

When a job is checked and unchecked choose to:

- **Check and uncheck dependent objects.** This allows the objects within a job to be selected or deselected for export. Learn more about dependent job configuration in the next section.

When a template test is checked choose to:

- **Automatically include the meta-object file.** Checking this option ensures the import file is included with the template test if the template test is driven by an import file.

Job Configuration

When **Also check/uncheck dependent objects for a job** is selected, each job that is selected in the folder tree will have a configuration icon appear next to the job name so the user can choose which dependent objects of the job should be included in the export. Selecting the configuration icon opens the following window.

If you choose to remove an item from the item list one of two things may happen when it's time to import the file:

- If an item name with the same hierarchy of the removed item name is found in the target project, the job step will be linked to that item.
- If an item name is not found, the job step will be removed from the job upon import.

Learn more about the last export step in the Finalizing the Export section below.

Exporting via Label Selection

Exporting via label selection allows you to select all objects related to locked labels associated with tests, template tests, or jobs. Only locked labels will show up on the export list and multiple labels can be selected for export at once.

To view the configuration of the locked label, select the external view icon to the right of the label name.



Home / WWDVC Hands-On / Settings / Tools / Export

Export

Available Objects for Export

Label Name	# Tests	# Jobs	Date Locked
<input checked="" type="checkbox"/> 05-25-21 Deployment	1	0	6/24/2021
<input checked="" type="checkbox"/> 04-21-21 Deployment	1	0	6/24/2021
<input checked="" type="checkbox"/> 03-23-21 Deployment	2	1	6/24/2021
<input type="checkbox"/> 01-26-21 Deployment	2	1	6/24/2021
<input type="checkbox"/> 02-23-21 Deployment	1	1	6/24/2021

Selection Options

Include meta-object files for template tests

3 selected tests
1 selected job

One or more objects were referenced by multiple labels and will only be included once in the export. Multiple selections of the same test or template test will result in only the latest selected version being used.

[Previous](#) [Continue](#)

Selection Options

The selection options include an aggregate of how many tests and jobs will be included in the export as the labels are selected on the available objects pane.

If a test, template test, or job is referenced by multiple selected labels, the object will only be included in the export once. If multiple versions of the same test or template test are selected, only the latest selected version will be used.

When checked, the **Include meta-object files for template tests** option includes the import file that drives the respective template test.

Finalizing the Export

The final step of the export includes adding a name and description (optional) to the exported XML file. You will also see a folder tree of all of the objects that will be included in the export file. This includes tests, folders, template tests, jobs, profile sets, and data sources.

Upon export, the file will be automatically downloaded and can be found in your Downloads folder. The destination of the export file cannot be changed.

Home / WWDVC Hands-On / Settings / Tools / Export

Export

Objects to Export

- Tests
 - Demo Tests
 - 1. OrderQty Sum Match
 - 2. OrderQty SUM by ProductID
 - 3. Customer Email Address Null Check
 - 5. CustomerID Count - RV vs Source
 - 4. String Fields with Null Values
 - 6. Hub Count - RVault vs Source - With Mapping File
 - 7. Compare Load Table Record Counts - With Lineage Query
 - Materialized Tests
- Data Sources
 - Adventure Works
 - Data Vault
 - WhereScape RED Repository

Name required

Sample Export

Description

Enter description (optional)

NOTE: The name entered above will be used as the XML filename.

Encrypt exported file

Choose the feature(s) that will be required at import time.

Command Line Custom Profiles Jobs Template Tests

[Previous](#) [Export to File](#)

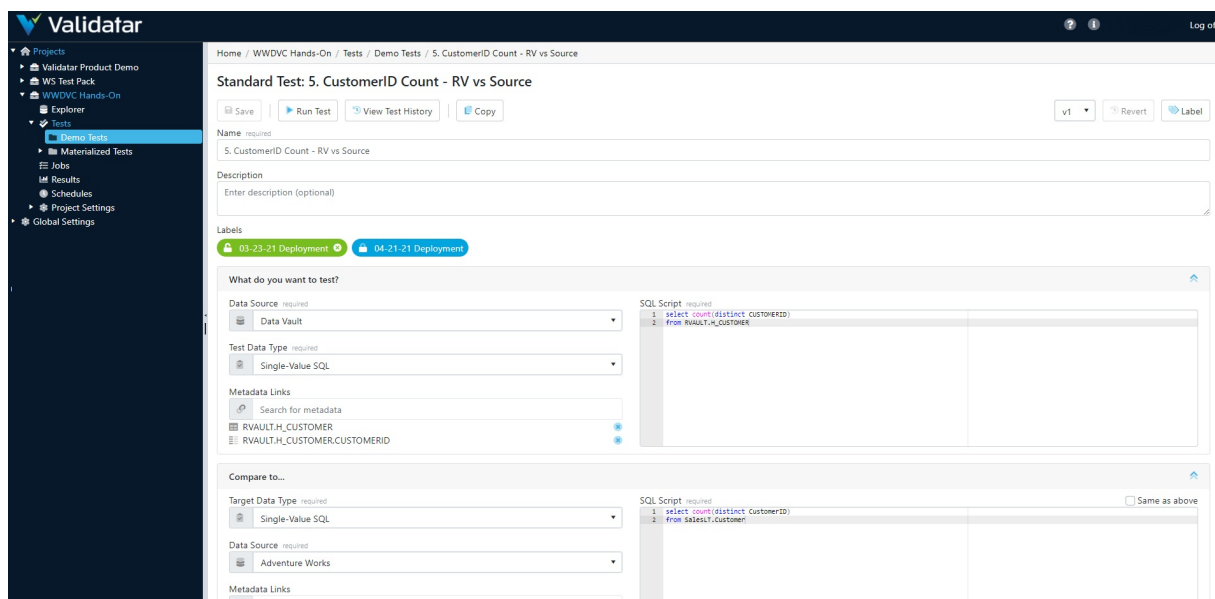




Labels Overview

Overview

Labels are a way to group Validatar objects. As items in your development environment change, new deployments happen, and test cases must be updated, labels can be used to identify objects that are a part of the same deployment.



When to Use Labels

There are many reasons why you would choose to use labels. The main two being:

1. The ability to identify a version of a set of tests.
 - o Let's say you have a sprint release where a large number of changes will be delivered. Creating a label for each sprint will allow you to go back in time to refer to every test, template test, and job involved in that sprint.
 - o To distinguish your labels, your label name might include versioning information such as the version number, delivery date, the development ticket number.
2. The ability to move a set of tests from one Validatar environment to another.
 - o The simplest example here is if you've finished testing in your Validatar QA environment and you're ready to deploy your code to Production, having a label for that deployment makes it easier to move the QA tests you've completed to your Validatar Production environment to be executed.

Export Note

When exporting Validatar objects by label selection, you can not exclude any objects during the import. Be sure to include only what you plan to import in your XML document.



Label Management

Permissions

To manage labels, a user must have the **Create and Edit Labels** role found in Project User Permissions. Other users can view the label details in read-only mode by having Project Access permissions.

On the Label list screen you can:

- Create a new label
- Modify an existing unlocked label
- Lock or Unlock a label
- Archive or Restore a label

Creating a Label

Creating a new label is easy:

1. Select **New Label**.
2. Enter the label name and optional description and additional notes.
3. Click **Save**.

Home / WWDVC Hands-On / Settings / Tools / Labels

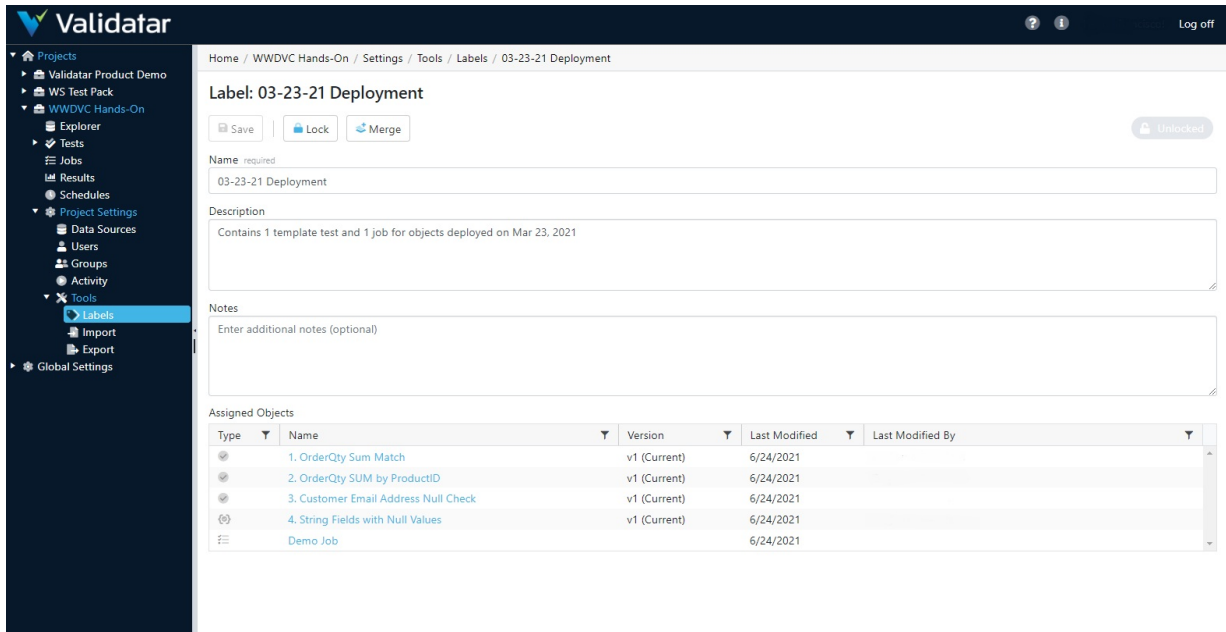
WWDVC Hands-On: Labels

+ New Label | Open Label | Unlock | Archive

Showing 5 entries Include archived

Label Name ↑	Description	Date Created	Last Modified	Date Locked	Status
01-26-21 Deployment	Contains 2 tests and 1 job for objects deployed on Jan 26, 2021	6/24/2021	6/25/2021	6/25/2021	Locked
02-23-21 Deployment	Contains 2 tests and 1 job for objects deployed on Feb 23, 2021	6/24/2021	6/25/2021	6/25/2021	Locked
03-23-21 Deployment	Contains 1 template test and 1 job for objects deployed on Mar 23, 2021	6/24/2021	6/25/2021	6/25/2021	Locked
04-21-21 Deployment	Contains 1 test for objects deployed on April 21, 2021	6/24/2021	6/25/2021		Unlocked
05-25-21 Deployment	Contains 1 template test for objects deployed on May 25, 2021	6/24/2021	6/25/2021		Unlocked

Once a label is created and is assigned to objects, you can view all the associated objects on the label details page.



Unlocked vs. Locked Labels

New labels are automatically unlocked meaning they can be modified and assigned to Validator objects such as tests, templates, jobs, and profile sets. Locked labels cannot be modified. If a label is locked after it is assigned to an object, the association to the object will remain and cannot be removed unless the label is again unlocked.

There are two ways to lock or unlock a label:

- By selecting the label and clicking the **Unlock** or **Lock** button on the label list screen.
- By opening a label and clicking the **Unlock** or **Lock** button.

The current status of a label is shown on the label list screen and in the top-right corner of the label's detail page.

Archiving a Label

You can archive labels that you no longer want to use by selecting the **Archive** button on the label list screen. Archived labels can be viewed by checking the **Include archived** checkbox in the top-right hand corner of the screen.

To restore an archived label, select the label and click the **Restore** button.

Merging Unlocked Labels

You can copy the contents and object assignments of one or more unlocked labels to a single label by merging the labels.



Merge Labels

×

Select merge options:

Archive selected labels Merge Descriptions Merge Notes Log merge data to Notes

Search for unlocked labels...

Label Name ↑

04-21-21 Deployment

05-25-21 Deployment

 Merge

To merge labels:

1. Create a new label or select an existing label that will be the current label.
2. On the label detail screen select **Merge**.
3. Search for and select the label(s) you want to copy the label contents of to the current label.
4. Select **Merge**.

You can merge labels that have the same objects assigned to them (e.g. both labels are associated with the same test). If you try to merge in a label that contains a different version of the object than the current label, the latest version of the object will be referenced.




Using Labels

Adding Labels to an Object

No matter if you're adding a label to a standard test, template test, or job, there's a label button in the upper-right corner of the configuration screen that will open a pop-up window to add the label(s).


Select an Unlocked Label ×

Associated Labels

 01-26-21 Deployment

Search for unlocked labels...

Label Name ↑
02-23-21 Deployment
03-23-21 Deployment
04-21-21 Deployment
05-25-21 Deployment



Once you click the Label button, the project's unlocked labels will appear in a list. Next, you can choose to add one or more labels to that object by selecting the row. Any label already associated with the object will be pinned at the top of the window and not appear in the list. After selecting the relevant labels, click the **Label Test** button.

After adding a label, a **Labels** area will appear under the Description box and list the associated labels. Click on a label to view the label details.



Standard Test: 2. OrderQty SUM by ProductID

Save | Run Test | View Test History | Copy

Name required

2. OrderQty SUM by ProductID

Description

Enter description (optional)

Labels

01-26-21 Deployment 02-23-21 Deployment

What do you want to test?

Data Source required
Data Vault

Test Data Type required
Multi-Value SQL

SQL Script required

```
1 select H_PRODUCT
2 from RVAULT.S_S/
3 join RVAULT.L_S/
4 join RVAULT.H_PF
5 GROUP BY H_PROD
```

All unlocked labels are highlighted in green. If a label is locked after being added to an object, the label highlight becomes blue.

Removing Labels

To remove a label from the object, navigate to the object detail page and click the x on the label. Note that only unlocked labels can be removed.

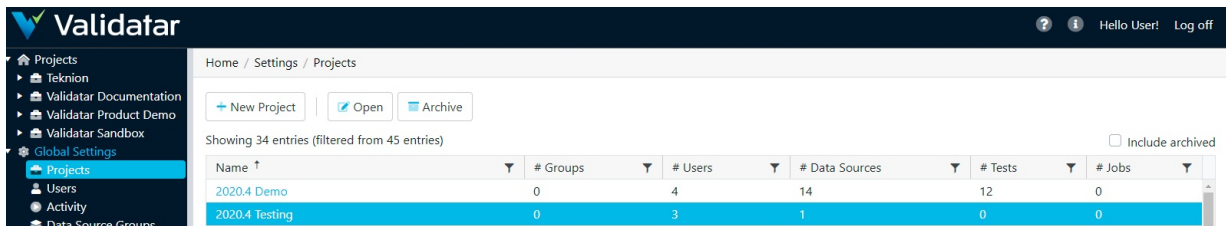
Learn about exporting Validatar objects by a label on the [Export](#) page.



Projects

Overview

Projects house tests, jobs, and project settings. The Global Settings Projects page is where you manage all of your projects in Validator.



Action Buttons

New Project	Click to navigate to the New Project page.
Open Project	Open the currently highlighted project.
Archive	Validator projects are not deleted. Rather, they are archived. Clicking the Archive button will archive the selected project. Archived projects can be restored.

Table Headers

Header	Description
Name	The name of the project.
# Users	The number of users associated with the project.
# Data Sources	The number of data sources assigned to the project.
# Tests	The number of tests associated with the project.
# Jobs	The number of jobs associated with the project.

Access

1. The Projects page is accessed under **Settings** in the navigation pane.



User Groups

Upgrading to 2021.3

User groups were previously found in **Projects** but have moved to **Global Settings**. After upgrading, the user group list will show the user group's name followed by the name of the project to identify where the particular user group migrated from. You can now **Merge** user groups from multiple projects into one single group to avoid redundancy. You can also rename any migrated user groups to improve clarity.

Overview

Groups are used to organize users. We recommend using User Groups to assign permissions instead of individual users for easier and consistent management.

Creating Groups

Home / Validator Documentation / Settings / Groups / New Example Group

Group is enabled

Name required

1. To create a new user group, select **New Group** in the toolbar.
2. To add users to a group, select the checkbox next to their username. Deselect the checkbox to remove users from a group.
3. Click **Save**.

Merging User Groups

Home / Settings / User Groups / Documentation

User Group: Documentation

Name required

Follow these steps to merge user groups:



1. Open the user group you want to survive.
2. Click on **Merge** in the toolbar.
3. Choose to either save or delete the user groups that you're merging into the current group.
4. Select one or more user groups from the list. (Hold down Ctrl to multi-select)
5. Click **Merge**.

Note: You cannot restore a user group after it is deleted during the merge.

Deleting User Groups

User Groups



Showing 9 entries

Name ↑
Documentation
Documentation: Testing and Sample Data
Profiling_TestGroup: Permissions-Testing
Snowflake_All: Testing and Sample Data
Superstore Test Group: Permissions Testing

Follow these steps to delete user groups:

1. Click the whitespace next to the user group name to select the row.
2. Click **Delete**.

Note: You can restore the user group after it is deleted if you don't navigate away from the page. **Once you leave the User Groups page, the user group cannot be restored.**

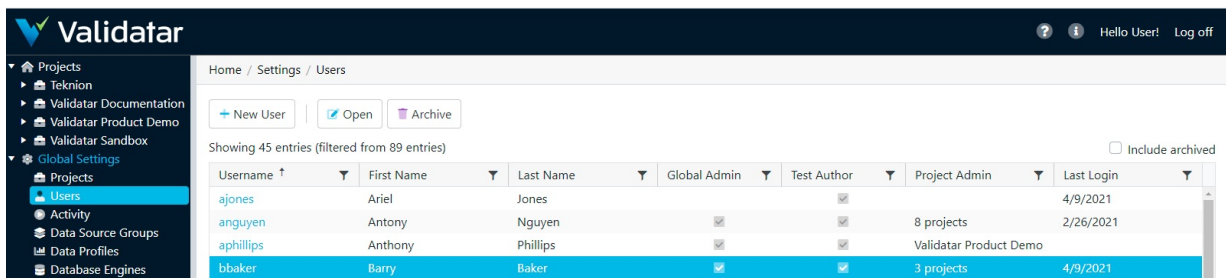


Users

Overview

As the name implies, the Global Settings **Users** page is where you can manage every Validator user across all projects.

Displayed Information



Action Buttons

Buttons	Description
New User	Navigate to the Global: User Details page to create a new user.
Open	Open the selected user's Global: User Details page.
Archive	Validator users are not deleted. Rather, they are archived. Clicking the Archive button will archive the selected user. Archived users can be restored.

Table Headers

Header	Description
Include archived (checkbox)	Validator users are not deleted, rather they are archived. Clicking the Include archived checkbox will cause those users to display.
Username	The username.
First Name	The user's first name.
Last Name	The user's last name.
Global Admin	Displays a checkmark if the user has the Global Admin role.
Test Author	Displays a checkmark if the user has the Test Author role.
Project Admin	Displays the project name where the user has the Project Admin role. If the user has Project Admin privileges for more than one project, the number of projects will display instead.
Last Login	The date the user last logged in.

Adding a New User

To add a new user, click the **New User** button on the User list page and enter all required user information.

Displayed Information



Save

First Name required

Email required

Password NOT RATED ?

AD Account

Last Name required

Username required

Confirm Password

Global Roles

- Global Admin
- Test Author

Project Admin Access

- Ieknon Data Warehouse
- Test Import
- Testing Sandbox
- Validatar Documentation
- Validatar Product Demo
- Validatar Sandbox
- WhereScape RED Metadata Test Pack

Enable user

Save	Saves the new user.
First Name	The user's first name.
Last Name	The user's last name.
Email	The user's email address.
Username	The username.
Password; Confirm Password	<p>Validatar requires a strong password. A strong password is defined by default as one that is at least 7 characters long and contains three of the following:</p> <ul style="list-style-type: none"> • Upper-case characters (A-Z) • Lower-case characters (a-z) • Digits (0-9) <p>Note: Password settings can be changed under Global Settings > Configuration.</p>
AD Account	The AD textbox can be used to link Validatar with Active Directory.
Global Admin Roles	<p>A global admin has the ability to create, configure, and manage settings for a Validatar instance. A full global admin inherits the following roles:</p> <ul style="list-style-type: none"> • Configuration Admin: Can only see configuration settings. • Data Source Admin: Can only manage data sources and view Validatar server logs. • Security Admin: Can only manage users and user groups and view Validatar server logs. <p>A user can have a combination of these roles without being a full global admin. There is not a limit on the number of global admins a Validatar instance can have.</p>
Licensed Roles	<p>There are two types of Validatar users:</p> <ul style="list-style-type: none"> • Test Author: Can create new Validatar tests. • Viewer: Can view tests and test results for projects they have access to. All Validatar users are viewers. <p>There is a maximum limit of users who can be test authors at one time based on the edition of Validatar that was purchased. Once that limit is reached, a user will have to lose the test author role for another user to gain it. Find your volume limits under your activated license key or in your Validatar Startup Guide emailed to you from the Validatar Customer Success team.</p>
Project Admin Access	All active projects display under Project Admin Access . Selecting any project will grant the user admin access to that project. Admin access can also be granted via Project > User Details .

Access



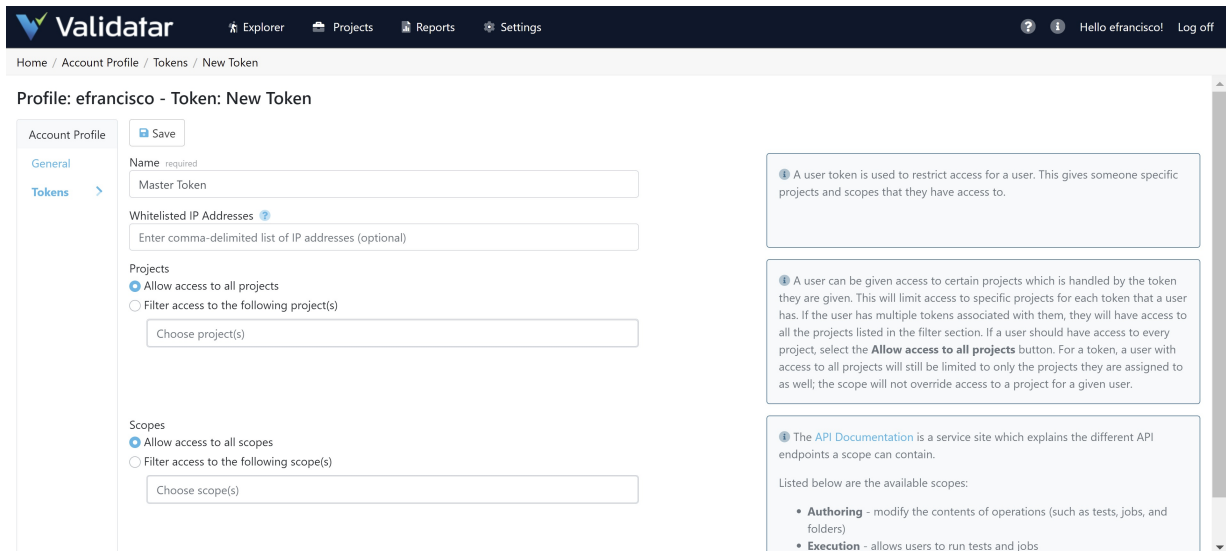
1. Navigate to **Settings** on the main menu bar.
2. Click **Users**.



User Tokens

Overview

User tokens make API requests on behalf of a user. By creating a new user token, the user will be able to access specified projects and scopes. The token will encapsulate encrypted user security information.



Creating User Tokens

Each token is always associated with a specific user account and will inherit the permissions of that user.

1. After logging into Validatar, click your username in the upper right-hand corner.
2. On the left pane, select **Tokens**.
3. Select **New Token**.
4. Enter a token name.
5. Enter a comma-delimited list of IP addresses where this token can have API access. (optional)
6. Specify the Projects this token can access.
 - o Allow access to all projects
 - o Filter access to the following project(s)
7. Specify the Scopes that are allowed.
 - o Allow access to all scopes
 - o Allow access to the following scope(s)
 - **Execution** - Allows users to run tests and jobs
 - **Security Admin** - Allows users to create and remove users
 - **Authoring** - Allows users to modify the contents of operations (such as tests, jobs, and folders)
8. Click **Save**.

A masked API key will be generated after saving a user token. The API key can be unmasked, which is what you will need to connect to the API.



Managing User Tokens

A Validatar Security or Global admin can manage user tokens by navigating to **Settings > User Tokens**.

Managing user tokens uses the same interface as creating a new user token. An admin has the following abilities:

- To modify, disable, and delete tokens
- To view which projects the token has access to
- To view which scopes the token has access to
- Viewing the last accessed date
- View the age of the token

An admin cannot unmask a user token's API key. Only the user account the token is associated with can unmask the key.

Using Tokens to Access API

You can learn more about the API scopes using [Validatar's API documentation](#) on the user token configuration page.

The documentation includes information about the REST API endpoints each scope contains and examples of API responses.



Activity

Overview

The Activity page lists all the jobs and tests that are currently running. There are two Activity areas in Validatar:

- Global Activity - shows activity amongst all projects in Validatar.
- Project Activity - shows activity in the project the user is currently in.

The purpose of the Activity page is to provide a comprehensive view of all activity that has taken place within Validatar. The list can be refreshed and filtered on any of the information elements to easily find activity for a particular project, user, destination, etc.

If a test or job is hung up, you can abort the execution of the test or job from the Activity page.

The screenshot shows the Validatar web interface. The top navigation bar includes the Validatar logo, a user profile icon, and the text "Hello User! Log off". The left sidebar contains a navigation menu with items like "Projects", "Teknion", "Validatar Documentation", "Validatar Product Demo", "Explorer", "Tests", "Jobs", "Results", "Schedules", "Project Settings", "Data Sources", "Users", "Groups", "Activity", and "Tools". The main content area shows the breadcrumb "Home / Validatar Product Demo / Results / Test Schedule 1". Below the breadcrumb are "Abort" and "Refresh" buttons. A table displays the activity, with the following data:

Type	Name	Progress	Start Date	Destination	Run By	Status
Job	Test Schedule 1	1 of 3	4/9/2021 9:28:20 AM	Repository	Test User	Executing



Configuring Lineage Metadata

Overview

Data lineage gives visibility into where data comes from and where it goes. As a data pro, having access to lineage allows for quicker root cause analysis and better visualization of your data process. Understanding data lineage is valuable for multiple reasons:

- Understanding the origin of data
- Quickly identifying sources of error
- Providing audit trails for better track data assets
- Improving business performance by improving business analysis
- Managing data governance compliance and much more!

Validatar provides a way to view a data source's table and column-level lineage in the Explorer. To view lineage, you must create a lineage ingestion process for a data source. Choose between File or SQL Query ingestion.

Consider where you plan to get the lineage data from when choosing an ingestion process. Use a SQL query if your lineage data is coming from one source, stored in a database. Use File ingestion if your data is coming from multiple sources or is not stored in a database.

Before creating and executing a lineage ingestion process, make sure you ingest schema metadata for the data source.

File Process

The File Ingestion process consists of 4 steps:

1. Create a New File Process
2. Generate the Import File
3. Fill out the spreadsheet
4. Upload the Import File

Create a New File Process

To create a new file process:

1. Navigate to **Settings > Lineage Metadata**.
2. Click the **New Process** drop-down, and select **New File Process**.
3. Enter the process name and optional description.
4. Click **Save**.

Generating a File

The lineage file holds the source to target mapping information for your data process. Generating the import file from Validatar provides all the column headers needed to ingest lineage. Existing file processes can create the import file from previous ingestion. This option is disabled for new file processes.



To generate the import file:

1. In the new file process, click **Generate Import File**.
2. Select **Headers Only** and click **Download File**.

The generated import file has the following columns:

Source Information	Target Information	Lineage Notes
<ul style="list-style-type: none"> source.server_name source.database_name source.schema_name source.table_name source.column_name 	<ul style="list-style-type: none"> target.server_name target.database_name target.schema_name target.table_name target.column_name 	<ul style="list-style-type: none"> lineage_transformation* lineage_notes*

* not required

Each row represents a source to target data mapping in your data process down to the column level meaning each column in a table will have a record in the file. For table level mapping, you will leave the **source.column_name** and **target.column_name** fields blank.

Lineage_transformation will show the user what data transformation occurred on the target object. **Lineage_notes** will show any additional notes on the target object. Both can be viewed on the data object in the Explorer.

source.server_name	source.database_name	source.schema_name	source.table_name	source.column_name	target.server_name	target.database_name	target.schema_name	target.table_name	target.column_name	lineage_transformation	lineage_notes
10.0.1.237	SalesDemo	SalesLT	Address		server.snowflakecomp	Sales	LOADING	LOAD_ADDRESS_DEMOLT2019		select * from ADDRESS	<script>alert(0)</script>
10.0.1.237	SalesDemo	SalesLT	Address	AddressID	server.snowflakecomp	Sales	LOADING	LOAD_ADDRESS_DEMOLT2019	ADDRESSID	trim(ADDRESSID)	Cleaning up issues with e
10.0.1.237	SalesDemo	SalesLT	Address	AddressLine1	server.snowflakecomp	Sales	LOADING	LOAD_ADDRESS_DEMOLT2019	ADDRESSLINE1	trim(ADDRESSLINE1)	Cleaning up issues with e
10.0.1.237	SalesDemo	SalesLT	Address	AddressLine2	server.snowflakecomp	Sales	LOADING	LOAD_ADDRESS_DEMOLT2019	ADDRESSLINE2	trim(ADDRESSLINE2)	Cleaning up issues with e
10.0.1.237	SalesDemo	SalesLT	Address	City	server.snowflakecomp	Sales	LOADING	LOAD_ADDRESS_DEMOLT2019	CITY	trim(CITY)	Cleaning up issues with e
10.0.1.237	SalesDemo	SalesLT	Address	CountryRegion	server.snowflakecomp	Sales	LOADING	LOAD_ADDRESS_DEMOLT2019	COUNTRYREGION	trim(COUNTRYREGION)	Cleaning up issues with e
10.0.1.237	SalesDemo	SalesLT	Address	ModifiedDate	server.snowflakecomp	Sales	LOADING	LOAD_ADDRESS_DEMOLT2019	MODIFIEDDATE	trim(MODIFIEDDATE)	Cleaning up issues with e
10.0.1.237	SalesDemo	SalesLT	Address	PostalCode	server.snowflakecomp	Sales	LOADING	LOAD_ADDRESS_DEMOLT2019	POSTALCODE	trim(POSTALCODE)	Cleaning up issues with e
10.0.1.237	SalesDemo	SalesLT	Address	rowguid	server.snowflakecomp	Sales	LOADING	LOAD_ADDRESS_DEMOLT2019	ROWGUID	trim(ROWGUID)	Cleaning up issues with e
10.0.1.237	SalesDemo	SalesLT	Address	StateProvince	server.snowflakecomp	Sales	LOADING	LOAD_ADDRESS_DEMOLT2019	STATEPROVINCE	trim(STATEPROVINCE)	Cleaning up issues with e
10.0.1.237	SalesDemo	SalesLT	Customer		server.snowflakecomp	Sales	LOADING	LOAD_CUSTOMER_DEMOLT2019			
10.0.1.237	SalesDemo	SalesLT	CustomerAddress		server.snowflakecomp	Sales	LOADING	LOAD_CUSTOMERADDRESS_DEMOLT2019			
10.0.1.237	SalesDemo	SalesLT	Product		server.snowflakecomp	Sales	LOADING	LOAD_PRODUCT_DEMOLT2019			
10.0.1.237	SalesDemo	SalesLT	ProductCategory		server.snowflakecomp	Sales	LOADING	LOAD_PRODUCTCATEGORY_DEMOLT2019			
10.0.1.237	SalesDemo	SalesLT	ProductDescription		server.snowflakecomp	Sales	LOADING	LOAD_PRODUCTDESCRIPTION_DEMOLT2019			
10.0.1.237	SalesDemo	SalesLT	ProductModel		server.snowflakecomp	Sales	LOADING	LOAD_PRODUCTMODEL_DEMOLT2019			
10.0.1.237	SalesDemo	SalesLT	ProductModelProductDescription		server.snowflakecomp	Sales	LOADING	LOAD_PRODUCTMODELPRODUCTDESCRIPTION_DEMOLT2019			
10.0.1.237	SalesDemo	SalesLT	SalesOrderDetail		server.snowflakecomp	Sales	LOADING	LOAD_SALESORDERDETAIL_DEMOLT2019			
10.0.1.237	SalesDemo	SalesLT	SalesOrderHeader		server.snowflakecomp	Sales	LOADING	LOAD_SALESORDERHEADER_DEMOLT2019			

The above is an example of a source database named "SalesDemo" located on server 10.0.1.237 mapped to a cloud database named "Sales" located in Snowflake. Notice that the first record leaves **source.column_name** and **target.column_name** blank because it is table level mapping of the "Address" table to the "LOAD_ADDRESS_DEMOLT2019" table. The remaining Address records are column-level mappings. Once the mapping is complete, it's time to upload the file and execute the lineage process.

Uploading a File

To upload a file:

1. In the new file process, click **Upload Import File**.
2. Select the file.
3. Click **Import**.
4. Click **Save**.

Query Process



Create a New Query Process

To create a new query process:

1. Navigate to **Settings > Lineage Metadata**.
2. Click the **New Process** drop-down, and select **New Query Process**.
3. Enter the process name and optional description.
4. Add the **Lineage Metadata Connection**.
5. Configure the ingestion SQL.
6. Set the Refresh Schedule (optional).
7. Click **Save**.

Lineage Metadata Connection

The first step in configuring the query is to create the lineage metadata connection. You cannot use existing data source connections for this step. Instead, you will have to define the connection on the process configuration page.

For more help on configuring a connection, view [Creating a Data Source](#).

Configure Ingestion SQL

The SQL query references the same columns as the file process. Validatar requires that all columns in the query be aliased using Validatar's field names. Copy the following query template to assist with building the query.

PL/SQL	Copy
<pre>select [replace] as [source.server_name], [replace] as [source.database_name], [replace] as [source.schema_name], [replace] as [source.table_name], [replace] as [source.column_name], [replace] as [target.server_name], [replace] as [target.database_name], [replace] as [target.schema_name], [replace] as [target.table_name], [replace] as [target.column_name], [replace] as [lineage_transformation], [replace] as [lineage_notes] from [replace]</pre>	

Swap your column names for the [replace] tag, and remember to keep those columns aliased with Validatar's field names. You can also find this template by clicking **Copy Template Query** in the SQL ingestion pop-up window.



This is the simplest form of the ingestion query. In reality, your lineage data may come from multiple tables that need to be joined together. In this example, we'll look at a sample lineage query for a data warehouse built using WhereScape. This query will pull the lineage of Dimension tables using the WhereScape repository.

PL/SQL	Copy
<pre>SELECT distinct '10.0.1.237' as 'source.server_name', dc.dc_odbc_source as 'source.database_name', sdt.dt_schema as 'source.schema_name', dc_src_table AS 'source.table_name', '' as 'source.column_name', '10.0.1.237' as 'target.server_name', dc.dc_odbc_source as 'target.database_name', dt.dt_schema as 'target.schema_name', dt_table_name AS 'target.table_name', '' as 'target.column_name', '' as 'lineage_transformation', '' as 'lineage_notes' FROM dbo.ws_dim_tab d INNER JOIN ws_dim_col on dc_obj_key = dt_obj_key inner join ws_obj_object on oo_obj_key = dt_obj_key inner join ws_dbc_target dt on dt_target_key = oo_target_key or case when oo_target_key = 0 then 'dbo' else '' end = dt.dt_schema inner join ws_dbc_connect dc on dt.dt_connect_key = dc.dc_obj_key inner join ws_obj_object so on so.oo_name = dc_src_table inner join ws_dbc_target sdt on sdt.dt_target_key = so.oo_target_key or case when so.oo_target_key = 0 then 'dbo' else '' end = sdt.dt_schema inner join ws_dbc_connect sdc on sdt.dt_connect_key = dc.dc_obj_key WHERE COALESCE(LTRIM(RTRIM(dc_src_table)), '') <> ''</pre>	

This query finds the database, schema, and table names by joining the source and target objects on their respective object keys using WhereScape tables. Since this query is for table-level lineage, the `source.column_name` and `target.column_name` columns are left empty. You would union similar scripts to get the lineage for other object types.

Similar to the file ingestion, `lineage_transformation` and `lineage_notes` are not required in the ingestion query.

Set Refresh Schedule

Set a refresh schedule to ensure the most recent lineage data is in Validatar. Choose the frequency and duration of the schedule.



Refresh lineage metadata Daily Schedule is enabled

Frequency Pattern

Rekurs every day(s) required

Duration

Start date: required

End date:

Daily Frequency

Occurs once at required

Occurs every Minutes starting at and ending at

Possible Errors

The following errors may occur while trying to ingest lineage metadata.

Error	Description
Target object was not found	There was no matching table or column found in the target data source.
Source object was not found	There was no matching table or column found in the source data source.
Duplicate Mapping	The file or query contains a duplicate mapping. Make sure that a source to target mapping only appears once.
Invalid Column	The file or query contains an unknown column. Remove any invalid columns.



Data Source Groups

Removal of Data Source Groups

The Data Source Groups feature has been removed in Validatar 2021.4. All previously existing Data Source Groups have been migrated to a Catalog Custom Field called Data Source Groups. The custom field can then be added to the applicable data sources.



Data Profiles

What are Data Profiles?

Data Profiles are information about existing data that help to determine the accuracy, completeness, and quality of your data. Data profiling is typically used within the broader context of ELT, monitoring, and Data Governance. When done properly, data profiling can play a significant part in data cleansing, enriching, and maintaining quality data within an organization.

Some common data profiles that are useful in many cases are:

- Record count
- Distinct value count
- Nulls
- Range of values
- Average values

Validatar contains a standard set of 40 data profiles. They are listed on the **Data Profiles** page with filterable columns. Any data profile on the list can be deleted by clicking on the white space next to the Name and then clicking the Delete button at the top of the page.

Name	Reference Key	Profiled Object	Applies To	Result Format
Record Count	record_count	Table	N/A	Numeric Value
Total Data MB	total_data_mb	Table	N/A	Numeric Value
Distinct Count	distinct_count	Column	All Data Types	Numeric Value
Distinct Percent	distinct_percent	Column	All Data Types	Percent Value
Most Common Value	most_common_value	Column	All Data Types	String Value
Most Common Count	most_common_count	Column	All Data Types	Numeric Value

Creating a New Data Profile

When you create a new data profile, you're creating the existence of the profile. To configure the data profile definition, navigate to **Settings > Database Engines > Profiling > Choose the data profile**. This allows for different database engines to use the same data profile name, but to be configured differently.

1. Click **New Profile** on the Data Profiles page.
2. Configure the settings in Table 1.
3. This will bring up a new page with space to enter the Name (required), Reference Key (required), Description (optional), Profiled Object (required), and Results Format (required). Once the required fields are populated, the Save button will become clickable and you can save the new profile.

Table 1

Setting	Description
Name	The data profile name.
Reference Key	The data profile's unique key identifier.
Description (optional)	A description of the data profile.



Setting	Description
Profile Object	Choose a table or column-level profile. <ul style="list-style-type: none"> • Table level - Evaluates the entire table. • Column level - Evaluates one column.
Result Format	The data type and format the result should be in. Options are: <ul style="list-style-type: none"> • Date/Time Array • Date/Time Value • Numeric Array • Numeric Value • Percent Value • String Array • String Value
Restrict data types (checkbox)	When checked, the data profile is only valid for the selected data types. The data type options are: <ul style="list-style-type: none"> • Approximate Numeric • Boolean/Logical • Date/Time • Exact Numeric • Geospatial • GUID • String • Other

Data Profile List

The complete list of the standard profiles pre-written in Validatar is:

Record Count	Lower Quartile	Null Percent	Maximum (Date)
Total Data MB	Upper Quartile	Blank Count	Longest Value
Distinct Count	Minimum (String)	Blank Percent	Shortest Value
Distinct Percent	Maximum (String)	Numeric Count	Distribution (String)
Most Common Value	Standard Deviation	Numeric Percent	Distribution (Numeric)
Most Common Count	Max Length	Zero Count	Top 10 Values
Minimum (Numeric)	Min Length	Zero Percent	Bottom 10 Values
Maximum (Numeric)	Mean Length	Negative Count	Binned (Numeric)
Mean (Numeric)	Length Distribution	Negative Percent	Year Distribution
Median (Numeric)	Null Count	Minimum (Date)	Year Month Distribution

Data Profile Details

Each data profile name is clickable and when opened, displays a details page for that profile. The details include Name, Reference Key, Description, Profiled Object, and Results Format. There is also an optional Restrict Data Type checkbox and if checked, will display a list of options. Multiple options can be checked within the Data Type options list. The data profile details page can be updated and saved.



Database Engines

Overview

The Data Engines page is the place to create and manage all the various data engines that Validatar is connected to. Each data engine is listed on the main page, with the ability to add new engines through the **New Engine** button at the top of the page. The name of each engine is clickable and a detail page opens. The same detail page opens when you click the new engine button. Whether creating a new engine or editing an existing one, the detail page allows you to name or rename (required) and enter a version (optional).

Name ↑	Version	# Data Type Mappings	# Data Sources
Database Sample To Be Unchecked		0	0
Oracle		0	0
Sample Database 4 TO EXPORT		8	0
Sample Database 4 TO IMPORT		8	0
Sample DB 5		0	0
Snowflake		32	15
SQL Server		33	95
Test Engine 2	TDSVAL468	1	0
Test Engine to be Exported		7	0

Database Engine Settings

Unlike some of the other detail pages within the Global Settings sub-categories, this page has a left-pane list with three sub-pages of data engine settings to create or edit.

Name	Reference ...	Has Condi...	Prerequisites	Enab...	Status
Record Count	record_count	No		Yes	Valid
Total Data MB	total_data_mb	No		No	Valid
Distinct Count	distinct_count	No		Yes	Valid
Distinct Percent	distinct_percent	No	Distinct Count, Record Count	Yes	Valid
Most Common Value	most_common...	No		Yes	Valid
Most Common Count	most_common...	No		Yes	Valid
Minimum (Numeric)	min_numeric	No		Yes	Valid
Maximum (Numeric)	max_numeric	No		Yes	Valid
Mean (Numeric)	mean_numeric	No		Yes	Valid
Median (Numeric)	median_numeric	No		Yes	Valid
Upper Quartile	upper_quartile	No		Yes	Valid
Lower Quartile	lower_quartile	No		Yes	Valid
Minimum (String)	min_string	No		Yes	Valid
Maximum (String)	max_string	No		Yes	Valid
Standard Deviation	standard_devia...	No		Yes	Valid
Max Length	max_length	No		Yes	Valid



The **Data Types** sub-page allows the user to associate the Data Type with Mapped Type. The Mapped Type options are based on a dropdown menu of standard options, such as Boolean, Date/Time, and String. Mappings can be added and deleted on this page by using the appropriate buttons at the top of the page.

The **Metadata Ingestion** sub-page is the place for writing, storing, and managing SQL scripts for data engines. This page contains three separate tabs, Schema Script, Table Script, and Column Script. all of these scripts are required as part of the database engine information.

The third sub-page, **Profiling**, is to set the profile configuration. The Formula Type needs to be set to either Query or Calculation, from the dropdown menu in the Formula Type box. There is also an option to set the Grouping Key and Profile Condition. In addition, the Aggregate Formula and FROM statement (including optional WHERE clause) are defined on this page.



Configuring Custom Fields

Overview

Custom fields are user-defined fields that capture additional information about metadata. This can include information about the data element, privacy, sensitivity, data stewardship, compliance, and more.

Custom Fields apply to every metadata object and are displayed by object type. Learn more about the object types below.

Permissions

A user must be a **Custom Metadata Admin** to create and edit custom fields.

Custom Fields appear on the following Validatar Editions:

Edition	Custom Field Limits
Validatar Basic	Feature not available
Validatar Teams	Create up to 25
Validatar Enterprise	Unlimited

Catalog vs. Project Custom Fields

Catalog Custom Fields refers to additional information stored about your data source's metadata.

Catalog custom fields apply to the following object types:

- Data Source
- Schema
- Table
- Column

If the user has **Browse Metadata** and **Data Profiling** permissions for a data source, they can view catalog custom fields in the Explorer.

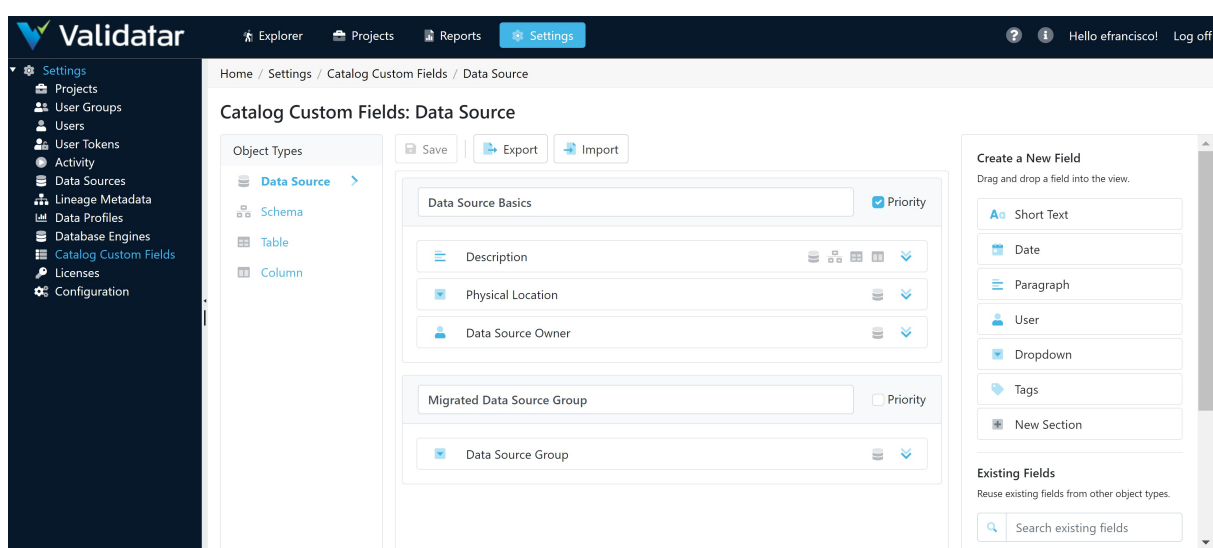
Why Use Custom Fields?

Custom Fields are a great way to enhance technical data by adding business-user knowledge to data testing. This comprehensive view of your data allows for more holistic testing and analytics to be performed. Use Validatar to get your developers, data testers, business analysts, and governance team on the same page.



Not only can you learn about the information custom fields add while exploring your data, but you can also create tests that call on those fields. For example, let's say you've added a table-level catalog custom field called *Time-Sensitive Table*. This field identifies tables that push real-time data to end-users which makes having accurate and timely data much more critical. If you have a test you want to run against all time-sensitive tables in your data source, simply create a metadata-driven template test and add a filter where the *Time-Sensitive Table* field equals *Yes*. This alleviates the tester from having to identify each table that is time-sensitive and having to create one test for each table. This is a relatively simple example of how custom fields make testing easier, but using any creative combination of catalog and project custom fields can tremendously cut down on test creation time.

Custom Field Configuration

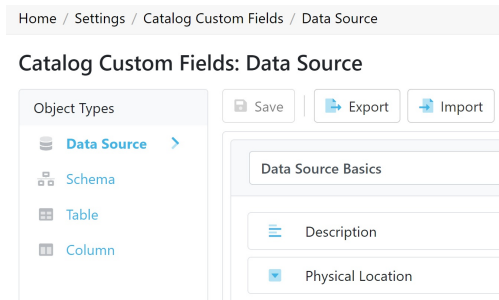


How it Works

1. Navigate to **Settings > Catalog Custom Fields**.
2. Use the Object Types pane to navigate to the object in which the custom field should be applied.
3. From the right pane, drag and drop a **New Section** into the view.
4. Review the field types and drag and drop the appropriate **New Field** into a section.
5. Populate the field information. Only the name and reference key are required.
6. Click **Save** before navigating to a new object type.

Learn more about each component of a custom field below.

Object Types



Object types are the metadata objects where custom fields can be applied. These objects are:

- Data Sources
- Schemas
- Tables
- Columns

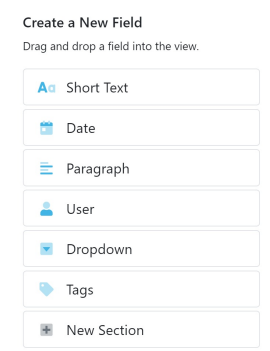
Custom Fields created in **Settings** will automatically be applied to every data source in Validatar and its respective metadata objects. The custom field can then be defined on each metadata object according to the organization's business rules.

Sections

A section is a logical grouping of custom fields. Each custom field must be placed in a group, and a group name cannot be duplicated. If there are any duplicates, you must rename the section before saving.

To create a section, drag and drop the **New Section** field into the view from the Create a New field pane on the right. Some sections will hold more important information than others. To identify those sections, select the **Priority** checkbox. Priority Sections will appear on the Summary tab of each metadata object in the Explorer.

Fields



Building a custom field starts with the field type. There are six types of custom fields:

Field Type	Definition
Short Text	Up to 300 characters of text
Date	A date in M/D/YYYY format
Paragraph	Up to 10,000 characters of text
User	One or more Validatar users or user groups
Dropdown	A single selection of defined options
Tags	One or more key terms assigned to information



Creating a New Field

Drag and drop the chosen field type into a section from the **Create a New Field** pane on the right to create a new field. Enter the name and description of the field. The reference key, used to identify custom fields in tests, is automatically populated from the field name, removing special characters and replacing spaces with underscores.

If you create a field that you want to remove, click **Delete** and the bottom of the field.

Create all of the necessary custom fields on an object type, then **Save**. You must save before you can move onto another object type.

Dropdown Fields

Dropdowns are the only field type that requires further configuration than name and description. You must provide a list of valid options that can be selected in the dropdown.

On the field card, click **Add Options** under Dropdown Options and enter each valid value. Drag and drop each option to reorder them. Click the x to remove an option.

View how to create a section and dropdown custom field below.

Using Existing Fields

Once a field is created and saved, it becomes an existing field and can be used on other object types. The name, reference key, and description are brought into the new object type. This keeps the user from having to create duplicate fields.

For example, if you created a custom field called **Technical Data Steward** on the schema object type, you can reuse that field on the data source, table, and/or column object types.

Identify which object types the custom field is used by the icons next to the name. For example, the **Description** field is found on the data source, schema, table, and column object types since all four icons are next to the name.



Archived Fields

Newly created fields, meaning they haven't been saved, can be deleted. You cannot delete an object after saving it, but you can archive it. Archived fields can be restored by checking the **Show archived fields** checkbox in the right pane and dragging and dropping the field back into the view.



Custom Field Import & Export

Overview

Import and Export is used to easily apply custom fields to other object types.

Export

To export custom fields,

1. Navigate to **Settings > Catalog Custom Fields**.
2. Click **Export** in the toolbar.
3. Choose which objects you want to export.
4. Click **Export**.

Import

To import custom fields,

1. Navigate to **Settings > Catalog Custom Fields**.
2. Click **Import** in the toolbar.
3. Select the exported file. Click **Next**.
4. In the **Import Custom Field** pane on the right, choose the object type from the dropdown that you want to import **OR** choose to **Import All** custom fields. Only object types included in the file will be included in the dropdown.
5. Drag and drop the field(s) into the view.
6. Switch between each object type, dropping the respective fields into view until completion..
7. Click **Complete**

During import, fields can be reordered and edited like standard custom fields. There cannot be duplicate fields on the same object type so a warning will be displayed on the card if this happens.

Imported fields can be deleted from the view before completing the import by clicking **Delete** at the bottom of the field card.



40 Standard Data Profiles

Overview

Validatar ships with 40 data profiles already configured. Each one can be modified at both the management level and definition level within a database engine.

1. Record Count

- Table profile
- Returns the record count of the table.
- Result Format: Numeric Value

2. Total Data MB

- Table profile
- Returns the total size of the table in megabytes.
- Result Format: Numeric Value

3. Distinct Count

- Column profile
- Returns the distinct number of records in the column.
- Result Format: Numeric Value

4. Distinct Percent

- Column profile
- Prerequisites: Distinct Count, Record Count
- Returns the distinct count divided by the total number of records.
- Result Format: Percent Value

5. Most Common Value

- Column profile
- Returns the most frequently used value.
- Result Format: String

6. Most Common Count

- Column profile
- Returns the most frequently used number.
- Result Format: Numeric Value

7. Minimum (Numeric)

- Column profile
- Returns the minimum value of a numeric column.
- Result Format: Numeric Value

8. Maximum (Numeric)

- Column profile
- Returns the maximum value of a numeric column.
- Result Format: Numeric Value



9. Mean (Numeric)

- Column profile
- Returns the average value of a numeric column.
- Result Format: Numeric Value

10. Median (Numeric)

- Column profile
- Returns the median value of a numeric column.
- Result Format: Numeric Value

11. Lower Quartile

- Column profile
- Returns the middle value between the lowest value and the median of the column.
- Result Format: Numeric Value

12. Upper Quartile

- Column profile
- Returns the middle value between the median and the highest value of the column.
- Result Format: Numeric Value

13. Minimum (String)

- Column profile
- Returns the minimum value of a string column.
- Result Format: String Value

14. Maximum (String)

- Column profile
- Returns the maximum value of a string column.
- Result Format: String Value

15. Standard Deviation

- Column profile
- Returns the measure of variance in a numeric column.
- Result Format: Numeric Value

16. Max Length

- Column profile
- Returns the maximum length of a value in a string column.
- Result Format: String Value

17. Min Length

- Column profile
- Returns the minimum length of a value in a string column.
- Result Format: String Value

18. Mean Length

- Column profile
- Returns the average length of a value in a string column.
- Result Format: String Value



19. Length Distribution

- Column profile
- Returns a list of lengths and their count of occurrences in a string column.
- Result Format: Numeric Array

20. Null Count

- Column profile
- Returns the count of null values in a column.
- Result Format: Numeric Value

21. Null Percent

- Column profile
- Returns the count of null values divided by the total record count in a column.
- Result Format: Percent Value

22. Blank Count

- Column profile
- Returns the count of blank values in a column.
- Result Format: Numeric Value

23. Blank Percent

- Column profile
- Returns the count of blank values divided by the total record count in a column.
- Result Format: Percent Value

24. Numeric Count

- Column profile
- Returns the count of numeric values in a string column.
- Result Format: Numeric Value

25. Numeric Percent

- Column profile
- Returns the count of numeric values divided by the total record count in a string column.
- Result Format: Percent Value

26. Zero Count

- Column profile
- Returns the count of values that equal 0 in a numeric column.
- Result Format: Numeric Value

27. Zero Percent

- Column profile
- Returns the count of values that equal 0 divided by the total record count in a numeric column.
- Result Format: Percent Value

28. Negative Count

- Column profile
- Returns the count of values less than 0 in a numeric column.
- Result Format: Numeric Value



29. Negative Percent

- Column profile
- Returns the count of values less than 0 divided by the total record count in a numeric column.
- Result Format: Percent Value

30. Minimum (Date)

- Column profile
- Returns the earliest date in a column.
- Result Format: Date/Time Value

31. Maximum (Date)

- Column profile
- Returns the most recent date in a column.
- Result Format: Date/Time Value

32. Longest Value

- Column profile
- Returns the value with the longest length in a string column.
- Result Format: String Value

33. Shortest Value

- Column profile
- Returns the value with the shortest length in a string column.
- Result Format: String Value

34. Distribution (String)

- Column profile
- Returns a list of values and their count of occurrences in a string column.
- Result Format: String Array

35. Distribution (Numeric)

- Column profile
- Returns a list of values and their count of occurrences in a numeric column.
- Result Format: Numeric Array

36. Top 10 Values

- Column profile
- Returns the 10 most common values in a column.
- Result Format: String Array

37. Bottom 10 Values

- Column profile
- Returns the 10 least common values in a column.
- Result Format: String Array

38. Binned (Numeric)

- Column profile
- Returns the grouping of values into bins for a numeric column.
- Result Format: Numeric Array



39. Year Distribution

- Column profile
- Returns a list of years and their count of occurrences in a Date/Time column.
- Result Format: String Array

40. Year Month Distribution

- Column profile
- Returns a list of years and months and their count of occurrences in a Date/Time column.
- Result Format: String Array



Licenses

Overview

A Validatar license contains information about the edition of Validatar being used, when the license expires, and the features included in the Validatar purchase.

License Key	Activation Date	First Name	Last Name	Email	Effective Date	Expiration Date
VP-TEK	12/2/2020				12/1/2020	12/31/2030

Activating a License

To activate a license:

1. Navigate to **Global Settings > Licenses**.
2. Select **Activate License**.
3. Read the **Validatar End-User License Agreement** and select **"I Agree"**.
4. Fill out the license information form. The Validatar Customer Success Team would have sent your license to you.
5. Select **Activate**.

End-User License Agreement ("Agreement")
Last updated: August 1, 2019

Please read this End-User License Agreement ("Agreement") carefully before clicking the "I Agree" button to activate your license.

By clicking the "I Agree" button, downloading or using the Application, you are agreeing to this Agreement.

This Agreement is a legal agreement between you (either an individual or a single entity) and your use of the Application made available to you by Teknion Data Solutions.

If you do not agree to the terms of this Agreement, do not click on the "I Agree" button and do not use the Application.

I agree to the Validatar End-User License Agreement required

Enter the following information to activate your license.

First Name required

Last Name required

Activating a License without Internet

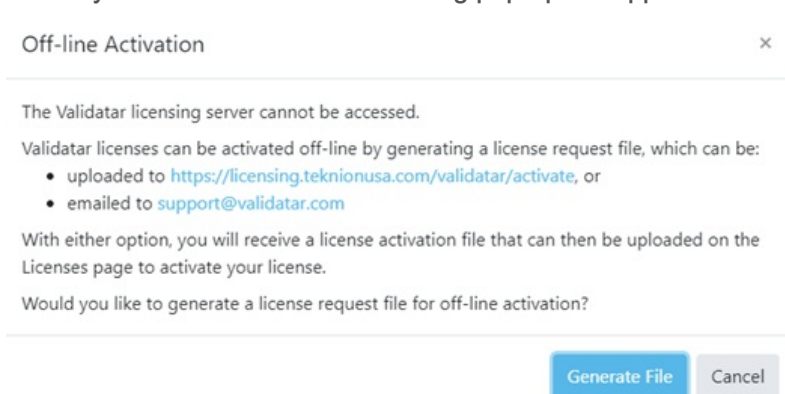


In instances where the server does not have internet connectivity, you can activate a license using the following steps:

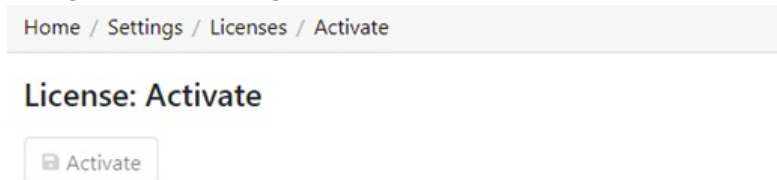
- Generating a license request file.
- Send the license request file back to the Validatar team who will provide you with a license activation file in return.
- Upload the license activation file to Validatar.

To generate and upload a license file:

1. Complete the **Activating a License** steps listed above.
2. When you click **Activate** the following pop-up will appear:



3. Click the **Generate File** button to start the offline activation process.
 - This will create and download a file named Validatar-license-request-yyyyMMdd-hhnnss.json (with the date/time components in the filename replaced) and the page will change to the following:



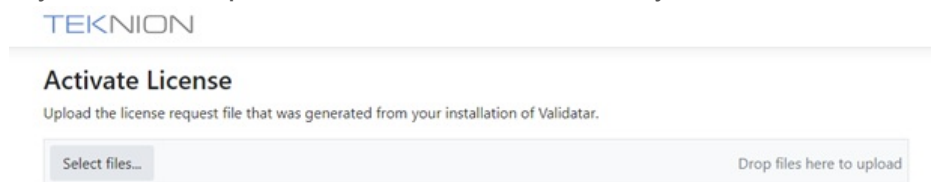
The license request file was generated successfully. This file should now be:

- uploaded to <https://licensing.teknionusa.com/validatar/activate>, or
 - emailed to support@validatar.com
- The generated JSON file contains the user information entered on the screen as well as a computed signature that guarantees the file was correctly generated from the client's instance of Validatar and was not modified after the file was created.



4. Upload the request file.

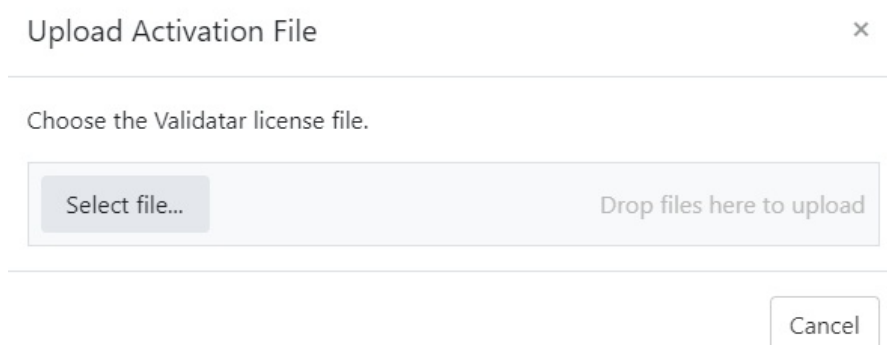
- If you choose to upload the file via the activation link, you will see the following page:



- Select the request file that was downloaded from Validatar.

- If you choose to send the Validatar team the request file directly, we will complete **Step 4** for you and send you the **activation file**.

5. Navigate to the **Licenses** page and click **Upload Activation File** that shows the following pop-up:



6. Select the activation file that was either downloaded to your computer or sent to you by the Validatar team.
7. You should then get a message that says "The license file was activated successfully".

Common Errors

When uploading the generated request file, you may receive one of the following errors:

- "The uploaded file contained an invalid key."
- "The uploaded file was not a valid license request."
- "The uploaded file did not contain a valid signature."
- "The license key in the uploaded file has already been activated."
- "The uploaded license request was not processed successfully."

When uploading the activation file, you may receive a message that says "The uploaded license file was not valid."

In both cases, contact the Validatar team for further support.

License Details

The **License Details** page displays specifics about a given license.



00000-12345			
First Name	Last Name	Email	
[Redacted]	[Redacted]	[Redacted]@teknionusa.com	
Activation Date	Effective Date	Expiration Date	Version Restriction
8/26/2020	9/1/2017	9/1/2030	0.1 - 2021.0
Included Features		Volume Limits	
Jobs		# of users	
Command Line		20	

- **Version Restriction** - The versions for which this license is applicable.
- **Included Features** - Included features may change depending on the release and license.
 - **Jobs**: Jobs and related features are included; for example, since jobs are available, this instance of Validatar supports scheduling.
 - **Command Line**: Command line access is available.
 - **Template Tests**: Users can create multiple dynamic tests at once using the Template Test functionality.
 - **Custom Profiles**: Users can create custom profiles to go along with the 40 standard profiles Validatar ships with.
- **Volume Limits**: The number of users that can be enabled at one time.

Access

1. Find all license keys by navigating to **Global Settings > Licenses** in the navigation pane.



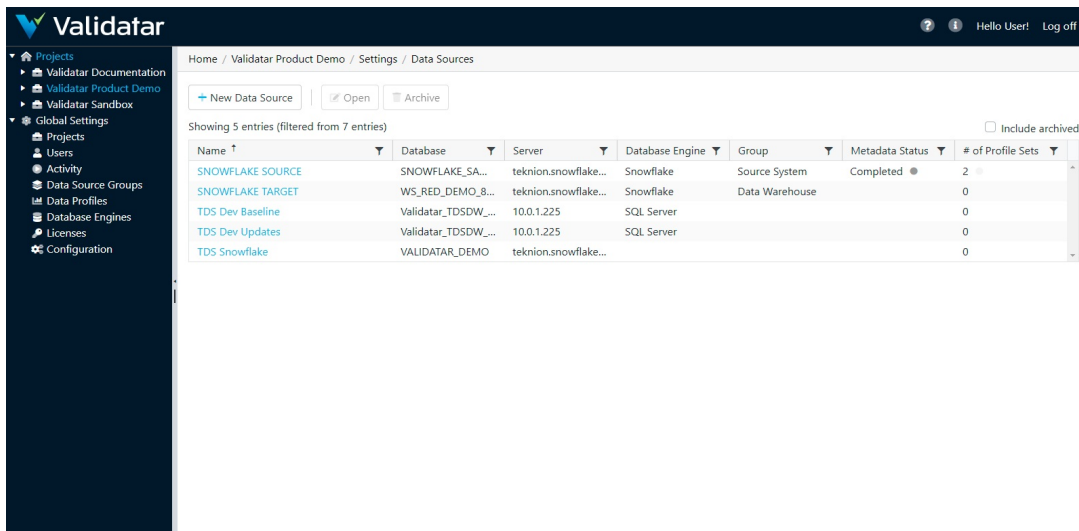
What Is a Data Source?

Overview

A data source is what you use to run Validatar tests and profiles against. A data source consists of:

- A primary database connection
- A metadata connection
- A data profiling connection
- Profile sets and executions
- Data Source permissions

Displayed Information



Action Buttons

New Data Source	Opens a new data source configuration page
Open	Opens an existing data source configuration page
Archive	Archives a data source
Restore	Restores a deleted data source
Include archived	Shows any archived data sources when checked

Table Headers

Name	The data source name
Database	The primary connection's database name
Server	The primary connection's server name
Database Engine	The primary connection's related database engine
Group	The data source group the primary connection belongs to
Metadata Status	Shows if metadata has been ingested for this data source
# of Profile Sets	Shows the number of profile sets created under this data source

Access



1. A user must have Project Admin rights
2. In the navigation pane, expand Project Settings
3. Click Data Sources



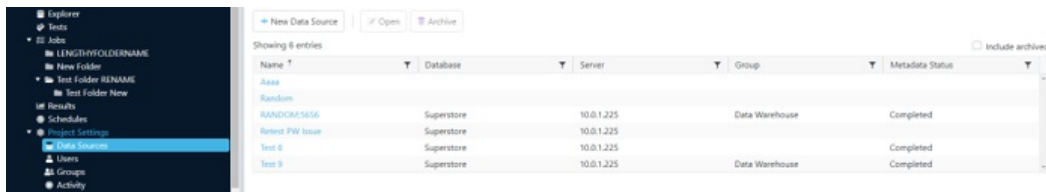
Data Source Settings

The Data Source Configuration Page

2021.3 Navigation Change

Data Sources have moved from Project Settings to Global Settings. To learn more about this move, visit [Moving Data Sources to Global Settings](#).

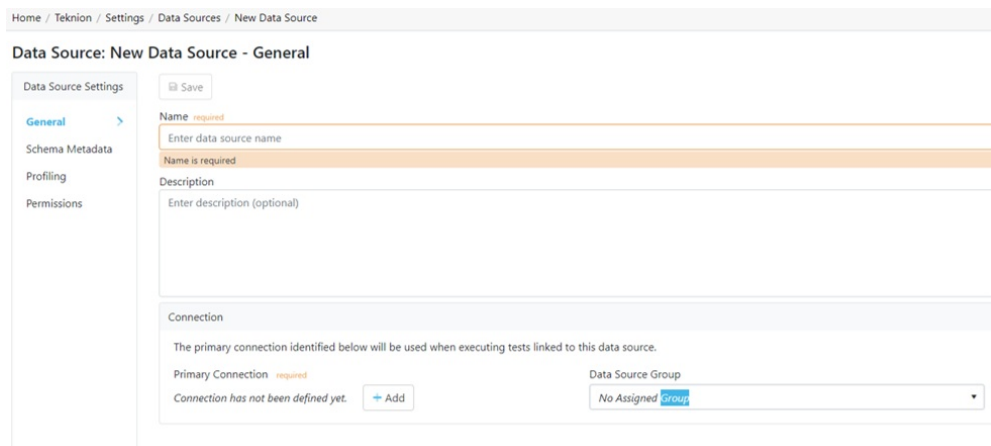
To create a new data source, simply select the **New Data Source** button on the toolbar.



This will open the **Data Source Configuration** page, which is divided into five sections, as indicated by the Data Source Settings menu on the left.

These sections are as follows:

Name	Description
General	Basic Data Source information, including name and Primary Connection.
Schema Metadata	Used to Configure Metadata Ingestion SQL and set Refresh Schedules. Can also be used to establish a Metadata Connection for the Data Source separate from the Primary Connection.
Profiling	Used to configure and run Profile Sets on specified tables or columns within the Data Source.
Projects	Shows the list of Validatar projects that can use this data source. Data Source Admins can add or remove data sources from a project.
Permissions	Used to specify what features related to the Data Source that individual users can view, create, and manage.





View the related articles to get information on the Schema Metadata, Profiling, and Permissions sections of data source settings.

Data Source Settings: General

When either creating a new Data Source or opening an existing one, the Data Source Configuration page displays the General section by default. For new Data Sources, the General section must be filled out and saved before the others can be accessed.

In addition to giving the Data Source a name and optional description, the user must set a Primary Connection for the Data Source before the page can be saved. To do so, click on the Add button in the connection field, which will open a popup window.

Note

Once connection information has been entered, the Add button will be renamed as Edit.

New Connection

Connection Type required
Choose Type

Database Engine
No Assigned Engine

Description
Enter description (optional)

Connection String required
Enter connection string

Use a placeholder of "[PASSWORD]" (no quotes) in the connection string if you wish to enter the password separately below.

Password
Enter password

Test Connection Create Connection Close

Within the popup window, use the Connection Type dropdown to select a connection type (such as SQL Server or ODBC) for the Data Source's Primary Connection. If desired, the connection can be assigned one of the Database Engines configured under Global Settings, as well as given a description. Next, enter the Connection String for the connection being established, as well as the appropriate password if one exists.

Once the required fields are filled out, the Create Connection button will become active. Selecting it will close the popup and allow the Data Source to be saved. However, it is recommended to use the Test Connection button on the left first in order to verify whether the connection information was entered correctly.

Lastly, the Connection field of the General section contains an optional dropdown that allows the Data Source being created to be assigned to an existing data source group.



Custom Metadata Import

Settings > Data Sources > Custom Metadata

Overview

Custom fields provide additional information about data sources. Custom fields are first created in Settings and are applied to every Validatar data source. You must navigate to Data Source settings to populate the values for these custom fields but a data steward, for example, can change these values directly in the Explorer.

To add this additional information to a Validatar data source, you must import the values via file or SQL ingestion. We recommend populating custom metadata using one of these methods initially over editing the metadata directly in the Explorer.

Accessing the Import

1. Navigate to **Settings > Data Sources**.
2. Open the respective data source.
3. On the Data Source Settings pane, click **Custom Metadata**.
4. You can then choose between a File Import or SQL Ingestion.

File Import

One way to import custom fields into a data source is via an Excel file.

Performing the Import

To import:

1. Click the **Generate Import File** button. Learn more about the file template in the [Generating an Import File](#) section below.
2. Select the object type you want to import metadata for.
3. Click **Download File**.
4. Open the downloaded file and begin to fill out the spreadsheet. Learn more about entering field values in the [Configuring the Import File](#) section below.
5. Save the Excel file.
6. In Validatar, go back to the File Import tab and click **Upload Import File**.
7. Select the file.
8. Click **Import**.
9. The file will be added to the Event History log.
10. Verify the custom metadata was imported by navigating to the Explorer. Open the respective data source and locate the data objects, or use the search bar to find the objects. The imported custom metadata can be found on the **All Metadata** tab.

Generating an Import File



Generate Import File

×

Select a template to generate the import file.

-  Data Source
-  Schema
-  Table
-  Column

i The template file contains a list of ingested metadata objects. You can assign custom field values for each object. Not every field requires a value. Removing extra custom field columns will not affect the import.

You can remove an object value by replacing the cell value with the text: **!DELETE!**

 Download File

Close

We recommend generating the file from Validatar because it has all of the required headers for a successful import. You can choose one of the following object types to import:

- Data Source
- Schema
- Table
- Column

The template file contains a list of all the ingested metadata objects in the data source based on the selected object type. There will also be one column for each global custom field in Validatar in the template file. You can then assign custom field values to each object.

Need a refresher on what custom fields are in Validatar? Navigate to **Settings > Custom Fields** to see the full list.

Configuring the Import File

	A	B	C	D	E	F	G
1	schema.name	table.name	description	end_user_consumable	table_type	business_data_steward	technical_data_steward
2	dbo	Address	This is a description on the Address table.	No	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
3	dbo	Category	The category of items can be furniture, technology, or office supplies.	No	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
4	dbo	Customer	Contains customer details such as name, contact information, and their sales rep.	Yes	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
5	dbo	Market	A list of international and domestic sales markets.	No	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
6	dbo	Order_Detail	A list of each product in each order along with more order information.	Yes	Fact	["paul_williams"]	["mike_johnson","adam_davis"]
7	dbo	Order_Header	A list of each order and related order information.	Yes	Fact	["paul_williams"]	["mike_johnson","adam_davis"]
8	dbo	Order_Priority	A list of valid order priorities: critical, high, low, medium.	Yes	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
9	dbo	Product	A list of sold product items.	Yes	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
10	dbo	Region	A list of regions and their markets.	Yes	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
11	dbo	Segment	There are three valid segments: consumer, corporate, home office.	Yes	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
12	dbo	Ship_Mode	There are four valid levels of shipping: first class, same day, second class, standard class	Yes	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
13	dbo	Sub_Category	The product subcategory.	Yes	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
14							

Custom field values must be entered in the proper format to be evaluated correctly. Use the following rules to fill in the custom field values:

Field Type	Configuration Rules
Short Text	Enter any text up to 300 characters.
Paragraph	Enter any text up to 10,000 characters.



Field Type	Configuration Rules
Date	Enter a date in one of the following formats: <ul style="list-style-type: none"> • MM/DD/YYYY • M/YYYY • YYYY-MM-DD • DD Month YYYY
User	Enter the person's Validatar username in square brackets [] wrapped in double quotation marks ". For multiple users, use a comma separator in between users. For example, ["jsmith"] or ["jsmith","ajacobs","bwilliams"]
Drop down	The dropdown options were defined when the custom fields were configured. Enter one of the dropdown options in the cell.
Tags	Enter the tag in square brackets [] wrapped in double quotation marks ". For multiple tags, use a comma as a separator. For example, ["Entity"] or ["Entity","Dimension"]

If you do not have a value to assign to an object, leave the cell blank. To remove an object value, replace the cell value with "!DELETE!", no quotation marks.

SQL Ingestion

The second way to import custom metadata into a data source is by writing a SQL ingestion script.

Configuring the Connection

Unlike using an import file, SQL ingestion requires a connection to a database. You can use the current connection by checking **Same As Primary** or you can configure a different data source connection. To configure a connection click **Add**. Learn more about how to configure a connection [here](#).

The database should contain a table with the required metadata object type and custom fields as column headers. Each row should represent one metadata object and the custom field values related to that object.

Here's an example of what Table-Level ingestion table would look like:

schema.name	table.name	description	table.type	business_data_steward	technical_data_steward
dbo	Category	The category of items can be furniture, technology, or office supplies.	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
dbo	Customer	Contains customer details such as name, contact information, and their sales rep.	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
dbo	Product	A list of products and their details.	Dimension	["paul_williams"]	["mike_johnson","adam_davis"]
dbo	SalesOrderDetail	A historical record of each product sold in a sales order.	Fact	["paul_williams"]	["mike_johnson","adam_davis"]

You must establish a database connection before you can configure the ingestion SQL.



Configuring the SQL Script

Each object type requires its own SQL ingestion statement. To configure the script, click **Configure Ingestion SQL** and navigate to the appropriate object type by using the tabs at the top of the pop-up window. Check the **Run Script** checkbox to begin writing your SQL statement. There will be a section that lists what fields are required in the query and another section that lists all of the available custom fields you can choose from. Drag and drop the fields into the view for easier script building.

Using the same Table-Level example from above, the structure of the SQL statement will be similar to:

PL/SQL	Copy
<pre>select meta_schema AS [schema.name], meta_table AS [table.name], [description], [table_type], [business_data_steward], [technical_data_steward] from dbo.CustomFieldValues;</pre>	

Things to Remember

- Schema-level SQL ingestion requires `[schema.name]` to be used in the query.
- Table-level SQL ingestion requires `[schema.name]` and `[table.name]` to be used in the query.
- Column-level SQL ingestion requires `[schema.name]`, `[table.name]`, and `[column.name]` to be used in the query.
- If the column names in the table don't match the required or custom field names, alias the column using the AS command.

Setting a Refresh Schedule

Setting a refresh schedule allows for custom metadata to be automatically updated. Only the metadata object types that are enabled to run will execute when the schedule kicks off.

Event History

The Event History log records each attempt to import custom metadata into Validator. Each record is for a single object type and shows whether the import was successful or not. To view the details of unsuccessful errors, click the error icon on the record.



Metadata Ingestion

Overview

To perform profile testing and ensure complete data testing coverage, Validatar has the ability to store a data source's metadata. We call this metadata ingestion.

Here's a few steps to complete in order to ensure your metadata is ingested and used as you would like:

1. Configure the ingestion SQL
2. Set up the metadata connection
3. Refresh the metadata
4. Set a metadata refresh schedule
5. Profile your data source
6. Link each test written in Validatar to it's metadata on the test configuration page

Displayed Information

Metadata Connection	The database connection used that contains the metadata intended for Validatar's ingestion. Check Same as primary if this connection is the same as the primary connection.
Refresh Schedule	This box shows the metadata refresh schedule once one has been set.
Metadata Statistics	This box shows the count of schemas, tables, views, and columns that are in a data source as of the latest ingestion time.
Ingestion History	This box shows the history of metadata ingestions. Each record includes <ul style="list-style-type: none"> • Date Started • Date Completed • Source: Can be manual or scheduled • Status • Schemas/Tables/Columns: The count of schemas, tables, and columns.



Action Buttons

Save	Saves the Schema Metadata.
Configure Ingestion SQL	Opens a configuration pop up to view and edit the metadata ingestion SQL scripts.
Refresh Now	Immediately refreshes the metadata manually.
Set Refresh Schedule	Opens a schedule configuration pop up used to configure, enable, and disable a metadata refresh schedule.

Access

1. Click on a data source name on the Data Source page in Project Settings.
2. Click on Schema Metadata



Profile Sets

Overview

A profile set is a collection of data profiles that are run together to provide specific information about a data source.

Displayed Information

The screenshot shows the Validatar interface. The top header includes the Validatar logo, user name 'Hello User!', and a 'Log off' button. The breadcrumb trail is 'Home / Validatar Product Demo / Settings / Data Sources / SNOWFLAKE SOURCE / Profiling / Profile Sets'. The main content area is titled 'Data Source: SNOWFLAKE SOURCE - Profile Sets' and contains a table with the following data:

Profile Set	# Tables Profiled	# Columns Profiled	# Queries	# Jobs	Last Run	Connection
Full Column Profile				0		Primary
Record Count Profile	7	45	8	0	3/11/2021 3:39:49 PM	Primary

Action Buttons

New	Creates a new profile set.
Open	Opens an existing profile set.
Run	Allows you to run a profile set.
Rename	Renames a profile set.
Delete	Deletes a profile set.
Restore	Restores a deleted profile set. After you've deleted a profile set, you cannot restore it once you navigate a way from the Profile Set screen.

Table Headers

Profile Set	The name of the profile set.
# Tables Profiled	The number of tables that the set profiles.
# Columns Profiled	The number of columns that the set profiles.
# Queries	The number of queries that will be executed when you run the profile set.
# Jobs	The number of jobs that include the profile set as a job step.
Last Run	The time and date of the last profile set execution.
Connection	Displays whether the profile set uses the primary connection or a specific profile connection.



Access

1. Click on a data source name on the Data Source page in Project Settings.
2. Click on Profile Sets.



Configuring a Profile Set

Overview

The Profile Set configuration screen is separated into three tabs:

1. Profile Selection
2. Object Selection
3. Profile Set Configuration

Profile Selection

The profile selection tab is where you select the data profile you want to include in a profile set out of a list of data profiles available for that respective data source to use. The list of available data profiles depends on which profiles are enabled for the respective database engine. See more in Global Settings – Database Engines.

Displayed Information

Default Profile Sets	<p>Validatar ships with three pre-configured profile sets:</p> <ul style="list-style-type: none"> • Table Profile: Selects all profiles that are run on a table level. E.g., table record count • Full Column Profile: Selects all profiles that are run on a column level. E.g., distinct count or null count • Basic Column Profile: Selects a smaller number of column-level profiles to run.
Custom Profile Set	To customize a profile set, check any box to the left of the profile name to add it to the set.



Prerequisites	<p>Prerequisites appear when you have added a profile to the profile set and that profile is dependent on another profile to be run first.</p> <p>For example, if you want to run a Distinct Count profile you must include the Record Count profile in the profile set. To know what the distinct count is, you must have the total record count for that table.</p> <p>Any missing prerequisites are highlighted in orange and can be added by simply selecting the <i>add plus sign screenshot</i> button.</p>
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Object Selection

Displayed Information

Profile Selection
Object Selection
Profile Set Configuration

+ Add Filter
Preview Objects

	Field	Operator	Criteria
	Table Record Count	Less Than	100000
	Schema Name	Ends With	100

Note

Add filters on your profile sets to limit the number of objects that will be profiled. View the Profile Set Statistics box as you add filters so you can see how extensive running the profile set will be on your database.

Filter Options

Field	Operator	Criteria
Schema Name	String Filters	Any string input
Table Name	String Filters	Any string input
Table Record Count	Numeric Filters	Any numeric input
Table Type	Equals, Not Equals	Table or View
Column Name	String Filters	Any string input
Column Data Type	String Filters	Any string input
Column Mapped Type	Equals, Not Equals	Validatar data types
Column Nullable	Equals, Not Equals	Yes or No
Column Identity	Equals, Not Equals	Yes or No
Column Primary Key	Equals, Not Equals	Yes or No
Column Max Length	Numeric Filters	Any numeric input

Action Buttons

Add Filter	Add an object filter on the data profile set.
Preview Objects	Preview the objects that will be run on the data profile set.



Table Headers

Field	The type of object filter.
Operator	The comparison operator used for the object filter.
Criteria	The criteria must be met by an object to be included in the filter.

Profile Set Configuration

The profile set configuration tab contains advanced configuration settings that affect how a profile set is executed.

Displayed Information

The screenshot shows the Validatar web interface. The breadcrumb trail is: Home / Validatar Product Demo / Settings / Data Sources / SNOWFLAKE SOURCE / Profiling / Profile Sets / Full Column Profile. The main content area is titled 'Data Source: SNOWFLAKE SOURCE - Profile Set: Full Column Profile'. It features a left sidebar with navigation options like 'Projects', 'Global Settings', 'Users', 'Activity', 'Data Source Groups', 'Data Profiles', 'Database Engines', 'Licenses', and 'Configuration'. The main panel has tabs for 'Profile Selection', 'Object Selection', and 'Profile Set Configuration' (which is active). Under 'Profile Set Configuration', there are fields for 'Name' (Full Column Profile), 'Description' (Enter description (optional)), 'Profile Connection' (Primary Connection), 'Max Concurrent Queries' (4), and 'Max Profiles Per Query' (500). A 'Profile Set Statistics' table is also visible, showing: Profiles (37), Tables (2), Columns (7), Profile Results (133), and Max Queries (48). A tooltip explains that these settings affect execution, with 'Max Concurrent Queries' determining the maximum number of SQL queries run concurrently (0 to 20) and 'Max Profiles Per Query' specifying the number of profiles grouped into one query.

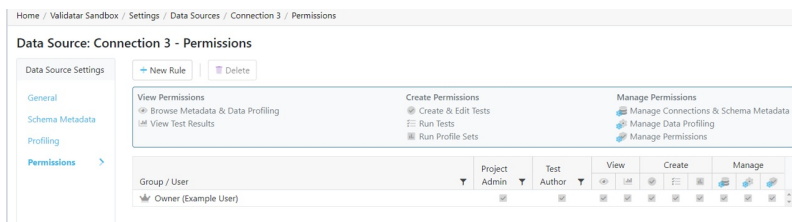
Profile Connection	Select from the dropdown whether to use the primary connection or the specified profile connection.
Max Concurrent Queries	Determines the maximum number of SQL queries that will be run concurrently when the profile set is executed. The value can range from 0 to 20.
Max Profiles Per Query	Specifies the number of separate profiles that can be grouped together into one query for a given object. A higher value reduces the total number of queries that are generated when this profile set is executed.
Purge Results After Days	Choose to purge profile results after a certain number of days.



Permissions

Overview

The Permissions section of the Data Source Configuration page consists of a grid listing each user with access to the Data Source, along with the Data Source permissions that he or she has been granted.

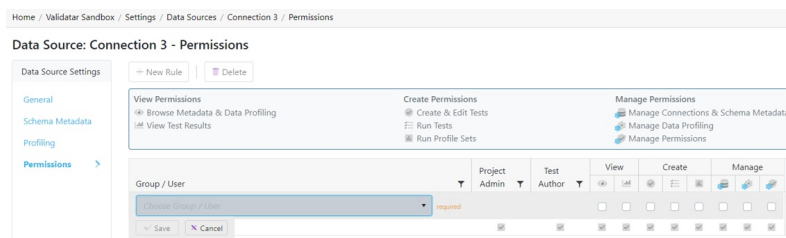


Types of Access

When a Data Source is first created, only the user who created it has access to it. This user is automatically given the role of being the Data Source Owner, ensuring that all permissions are always active. A Data Source can only have one owner at a time, though ownership can be changed by double-clicking on the owner's row in the grid and selecting a new name from the dropdown menu.

Permission rules for other users can be set by the owner via the New Rule button on the toolbar, which will add a row to the grid and allow a name and individual permissions to be set and saved.

Aside from the Data Source Owner, there is a row for global and data source admins. Global and data source admins automatically inherit manage permissions for created data sources. Permissions for global and data source admins cannot be changed.



To set individual permissions for a certain user, simply check or uncheck the corresponding boxes on the appropriate row in the grid. Note that this can only be done by users who themselves have the Manage Permissions enabled.

The Data Source permissions are identified by a legend above the grid and are as follows:

Category	Permission
----------	------------



Category	Permission
View	Browse Metadata & Data Profiling
View	View Test Results
Create	Create & Edit Tests
Create	Run Tests
Create	Run Profile Sets
Manage	Manage Connections & Schema Metadata
Manage	Manage Data Profiling
Manage	Manage Permissions

Users without certain permissions will be unable to perform the tasks associated with them within the context of the data source.



SMTP Settings

Overview

Simple Mail Transfer Protocol (SMTP) is a communication protocol used for email transmission. SMTP must be configured in order to receive job email notifications and to reset passwords. Contact your organization's IT or Network Administrator for SMTP details.

Home / Settings / Configuration / SMTP

Validatar Configuration

- SMTP**
- Authentication
- Scheduling
- Default Values
- Data Environments
- Result Storage
- Reporting
- Logs

Server Configuration - SMTP

|

Host required **Port** required

Use TLS? [?](#)
 Use Default Credentials [?](#)

Username **Password**

From Address required

The settings that must be configured are listed below.

Setting	Description
Save	Save any changes made to the SMTP configuration settings.
Send Test Email	Sends a test email to your user's email address to verify SMTP settings.
Host	The server name for the SMTP server.
Port	The port that the mail server expects communications to come through. The port should typically be set to one of the following values: <ul style="list-style-type: none">• 25: clear text SMTP port• 587: encrypted SMTP using TLS
User TLS?	Check this option to encrypt SMTP traffic using the Transport Layer Security (TLS) protocol.
Use Default Credentials	Check this option to authenticate using the service account Validatar runs under instead of entering specific credentials.
Username (optional)	SMTP username
Password (optional)	Changes SMTP password
From Address	The displayed sender's address.



Authentication

Overview

The **Authentication** section contains settings related to profile security, such as automatic logouts and account passwords.

User Session

User Session

Session Duration required

 minute(s)

- **Session Duration:** Determines how long, in minutes, a user can remain idle in Validator before they are automatically logged out.

Account Security & Recovery

Account Security & Recovery

Login Attempts Before Lockout required

Account Lockout Duration required

 minute(s)

Password Reset Window required

 day(s)

- **Login Attempts Before Lockout:** The number of incorrect password attempts allowed before locking a user account.
- **Account Lockout Duration:** How long, in minutes, an account is locked after the maximum number of failed login attempts is reached.
- **Password Reset Window:** The length of time, in days, a user has to click the Password Reset email link before it expires.



Password Complexity

Password Complexity

Minimum Password Length required

Required Character Groups required

- **Minimum Password Length:** The minimum character length of all passwords.
- **Required Character Groups:** The minimum number of character groups that are required for an acceptable password. Character groups are necessary to enforce password complexity.
 - Set to 1, then only upper-case characters are required.
 - Set to 2, then upper-case and lower-case characters are required.
 - Set to 3, then upper-case characters, lower-case characters, and digits are required.
 - Set to 4, then upper-case characters, lower-case characters, digits, and punctuation characters are required.



Scheduling

Overview

The Scheduling section allows the user to

- Choose to ignore past or skipped schedules when the Validatar site is restarted in IIS (Internet Information Services) and
- Choose to schedule a daily result purge. The result purge clears the Validatar database of test results but keeps the history of test executions.

If the Result Purge Schedule is set to yes, Validatar will purge the results of any tests or profile sets that have been stored longer than the defined number of days either on the individual test, profile set, or default setting at the specified time.

Home / Settings / Configuration / Scheduling

Validatar Configuration

- SMTP
- Authentication
- Scheduling** >
- Default Values
- Data Environments
- Result Storage
- Reporting
- Logs

Server Configuration - Scheduling

Restart Behavior

Ignore past/skipped schedules on Validatar restart?

No Yes

Result Purge Schedule

Schedule daily background execution result purge process

No Yes, at



Data Environments

Overview

Data Environments help to define a data source's usage relating to development and deployments.

Home / Settings / Configuration / Data Environments

Server Configuration - Data Environments

Environment Name	# Data Sources
Migrated	36
DEV	2
QA	2
PROD	1

Standard environment names include:

- Development or DEV
- Test or QA
- Production or PROD
- UAT

Usage of these environments helps separate architectures for deployments and are used in development. Adding an environment to your data source allows you to use the same name for different database connections but differentiate them by attaching the development environment.

Adding an Environment

1. Navigate to **Settings > Configuration > Data Environments**.
2. Click **Add Environment**.
3. Enter environment name.
4. Add as many environments as needed.
5. Click **Save**.

Removing an Environment

1. Navigate to **Settings > Configuration > Data Environments**.
2. Select the environment from the list.
3. Click **Remove Environment**.



Assigning an Environment to a Data Source

1. A **Data Source Admin** or **Global Admin** must navigate to **Settings > Data Sources > Select the Data Source**.
2. On the **General** tab, select an **Environment** from the dropdown.
3. Click **Save**.

You can find the total number of data sources assigned to an Environment on the **Data Environments** list page.

Migrated Environment

If you're upgrading from an older version to 2021.3, all data sources will inherit the **Migrated** environment automatically. You can change the name after the upgrade is complete.



Result Storage

Overview

During installation, a SQL Server database server is set up, which stores the results of test and profile set executions locally. If you are interested in storing results in the cloud, we offer the option to store result records in Snowflake.

Choosing a Location

- **Local Storage:** Test Results and Profile Results will be stored in the Validatar repository.
- **Snowflake:** Test Results and Profile Results will be stored in Snowflake. This option is not available until the Snowflake configuration has been completed and verified below.

Configuring Snowflake

Prerequisites

1. SnowSQL needs to be installed on the Validatar web server before changing the storage location to Snowflake.
2. A Snowflake admin must run the generated setup script in Snowflake to initialize the environment.

SnowSQL Note

Files are transferred to Snowflake using SnowSQL. SnowSQL version 1.2.16 or higher is required.

Setting up SnowSQL on Windows

Click [here](#) to view Snowflake's documentation on installing SnowSQL.

Note: The installer may fail to initialize log. If this occurs,

- Go to: `%USERPROFILE%\snowsql\`
- Update the config file by replacing this line: `log_file = ../snowsql_rt.log`
- With this line: `%USERPROFILE%\snowsql\log`

Configure the Connection

All parameters are required to configure the connection.

Connection Parameters	Description
Account Name	The account name is found in the URL used to log into Snowflake, excluding " <i>https://</i> " or " <i>.snowflakecomputing.com</i> ". The account name must include the region.
Database Name	The database that will store the results. The database does not have to exist beforehand.
Schema Name	The schema that will store the results. The schema does not have to exist beforehand.



Connection Parameters	Description
Role Name	The assigned user role used to. The role cannot be one of the following Snowflake system-defined roles: <ul style="list-style-type: none">• ACCOUNTADMIN• SECURITYADMIN• USERADMIN• SYSADMIN• PUBLIC
Username	
Warehouse Name	The warehouse that will store the results. The warehouse does not have to exist beforehand.
Temporary File Path	Temporary files will be created in this folder before being imported into Snowflake.

Running the Setup Scripts

Complete the following steps to configure Snowflake.

1. After configuring the Snowflake Connection in Step 2, click **Generate Setup Script**.
2. Copy the setup script to the clipboard.
3. Paste the setup script into an open Snowflake worksheet.
4. Setup a password for the user by substituting `[[REPLACE]]` in the setup script with the actual password.
5. Run the setup script in Snowflake.
6. In Validatar, generate the public/private keys that will authenticate SnowSQL.
7. Click View Public Key/Script and copy the script to the clipboard.
8. Paste the key script into an open Snowflake worksheet
9. Run the key script.

You're done with the Snowflake setup! Next is validating the connection.

Public/Private Key Note

You can regenerate the public/private keys as frequently as you want, but you will need to regenerate and rerun the script to assign the new public key to the Validatar user account in Snowflake.

Validate the Connection

The last step to set up Snowflake is validating the connection. Click **Validate Settings**, and Validatar will complete the following steps:

1. Verifying that the Snowflake account exists
2. Verifying that SnowSQL is installed
3. Verifying the Snowflake login
4. Verifying the database, role, and warehouse
5. Creating the schema, table, stages, and pipes
6. Verifying access to the temporary file path
7. Verifying that a sample file can be uploaded/imported to Snowflake



Reporting

Overview

You can embed Tableau Server dashboards in Validatar by configuring the **Reporting** section.

The screenshot shows the 'Reporting' configuration page in Validatar. The breadcrumb trail is 'Home / Settings / Configuration / Reporting'. On the left is a sidebar with 'Validatar Configuration' and sub-items: SMTP, Authentication, Scheduling, Default Values, Data Environments, Result Storage, Reporting (selected), and Logs. The main content area is titled 'Server Configuration - Reporting' and includes a 'Save' button. Under 'Tableau Settings', there are three fields: 'Tableau Server URL' (required) with the value 'https://tableau.xyzcorp.com', 'Tableau Site' with the value 'Demo', and 'Identity Store' with radio buttons for 'Local Store' (selected) and 'External Store (AD or LDAP)'.

Here's what you need to complete the setup:

- **Tableau Server URL:** The URL to your Tableau Server account. Example (<https://tableau.xyzcorp.com>)
- **Tableau Site (optional):** Specifies a site on a Tableau Server instance. Sites are used to separate groups of users and content on the same Tableau Server instance.
- **Identity Store:** This is chosen when Tableau Server is installed.
 - **Local Store:** All user and group information is stored and managed in the Tableau Server repository.
 - **External Store (AD or LDAP):** An external directory service stores and manages user and group information.



Logs

Overview

The **Logs** section allows the user to download recent log files that can be shared with support to troubleshoot errors on the server. Enter how far back (in days) you want the log file to go in the text box, then select Download Logs.

The following items are included in the zip file:

- Server Settings and Configuration Information
- Web Server Logs
- Service Layer Logs

No customer-sensitive data will be included in the settings or log files that are downloaded.

Home / Settings / Configuration / Logs

Validator Configuration

- SMTP
- Authentication
- Logs**
- Scheduling
- Default Values

Server Configuration - Logs

[Download Logs](#)

Logs to Download required

3 day(s)

i This process will download via the browser the most recent log files from the Validator Server so that these can be shared with support to troubleshoot errors on the server. The following items are included in the zip file:

- Server Settings and Configuration Information
- Web Server Logs
- Service Layer Logs

No Customer Sensitive Data will be included in the Settings or Log files that are downloaded.



Commonly Used Regex

Overview

Regular Expressions also referred to as Regex, are a sequence of characters that attempts to identify patterns. Regex is commonly used to perform validations such as email or phone number validation in a set of data.

Regex Rules

There are a few categories of characters, operators, or constructs that define regular expressions. Provided are the categories referenced in the .Net regex engine. Use the following categories to build your regular expression.

Character Classes

A character class matches any one of a set of characters.

Character Class	Description	Example Pattern	Matches
[<i>character_group</i>]	A case-sensitive match of any single character in <i>character_group</i> .	[ah]	"a" in "ball" "a", "h" in "watch"
[^ <i>character_group</i>]	Matches any single character that is not in <i>character_group</i> . Case-sensitive.	[^ba]	"o", "r", "d" in "board"
[<i>first - last</i>]	Matches any single character in the range from <i>first</i> to <i>last</i> .	[A-Z]	"A", "B" in "ABC123"
.	Wildcard that matches any single character except \n (new line). To match a literal period, escape the character (\.).	b.e	"bje" in "object" "ble" in "noble"
\p{name}	Matches any single character in the Unicode general category or named block specified by <i>name</i> .	\p{Lu}	"S", "A" in "Swiss Alps"
\P{name}	Matches any single character that is not in the Unicode general category or named block specified by <i>name</i> .	\P{Lu}	"l", "p", "s" in "Alps"
\w	Matches any word character.	\w	"A", "B", "C", "2", "5" in "ABC 2.5"
\W	Matches any non-word character.	\W	" ", "." in "ABC 2.5"
\s	Matches any white-space character.	\w\s	"C " in "ABC 2.5"
\S	Matches any non-white-space character.	\s\S	" 2" in "ABC 2.5"
\d	Matches any decimal digit.	\d	"3" in "3 toys"
\D	Matches any character other than a decimal digit.	\D	" ", "t", "o", "y", "s" in "3 toys"

Quantifiers

A quantifier specifies how many instances of a previous element (character, group, or character class) must be present in the string for a match.



Quantifier	Description	Example Pattern	Matches
*	Matches the previous element 0 or more times.	\d*\.\d	".0", "15.5", "415.5"
+	Matches the previous element 1 or more times.	"fe+"	"fe" in "fell" "fee" in "feel"
?	Matches the previous element 0 or 1 time.	"rai?n"	"ran", "rain"
{n}	Matches the previous element exactly n times.	",\d{3}"	",056" in "1,056.4" ",435", ",692", ",718" in "9,435,692,718.00"
{n,}	Matches the previous element at least n times.	"\d{2,}"	"29", "435", "2031"
{n,m}	Matches the previous element at least n times but no more than m times.	"\d{3,5}"	"789", "5347" "90875" in "908756"
?	Matches the previous element 0 or more times, but as few times as possible.	\d?\.\d	".0", "15.5", "415.5"
+?	Matches the previous element 1 or more times, but as few times as possible.	"\fe+?"	"fe" in "feel" "fe" in "fell"
??	Matches the previous element 0 or 1 time, but as few times as possible.	"rai??n"	"ran", "rain"
{n}?	Matches the previous element exactly n times.	",\d{3}?"	",056" in "1,056.4" ",435", ",692", ",718" in "9,435,692,718.00"
{n,}?	Matches the previous element at least n times, but as few times as possible.	"\d{2,}?"	"29", "435", "2031"
{n,m}?	Matches the previous element between n and m times, but as few times as possible.	"\d{3,5}?"	"435", "2031" "908", "756" in "908756"

Anchors

Anchors cause a match to pass or fail depending on the current position in the string.

Anchor	Description	Example Pattern	Matches
^	The match must start at the beginning of the string, or the beginning of the line.	^\d{3}	"913" in "913-333-"
\$	The match must occur at the end of the string or before the new line at the end of the string. Or it must occur before the end of the line or before the new line at the end of the line.	-\d{3}\$	"333" in "-913-333"
\A	The match must occur at the start of the string.	\A\d{3}	"913" in "913-333-"
\Z	The match must occur at the end of the string or before a new line at the end of the string.	-\d{3}\Z	"-333" in "-913-333"
\z	The match must occur at the end of the string.	-\d{3}\z	"-333" in "-913-333"
\G	The match must occur at the point where the previous match ended.	\G(\d)	"(1)", "(3)", "(5)" in "(1)(3)(5)[7](9)"
\b	The match must occur on a boundary between a \w (alphanumeric) and a \W (non-alphanumeric) character.	\bscheme\b	"scheme" in "That was a clever scheme"
\B	The match must not occur on a \b boundary.	\Bands\w*\b	"ands", "ander" in "and sands android lander"



Escaped Characters

Escaped Character	Description
\a	Matches a bell character
\t	Matches a tab
\r	Matches a carriage return
\v	Matches a vertical tab
\f	Matches a form feed
\n	Matches a new line
\e	Matches an escape
\	When followed by a character that's not an escaped character, '\' is the literal match of the character.

Alternation

Alternation modifies a regular expression to enable either/or matching.

Alternation	Description
<i>a b</i>	Matches either <i>a</i> or <i>b</i>
<i>(?(exp)yes no)</i>	<i>yes</i> if <i>exp</i> is matched; <i>no</i> if <i>exp</i> isn't matched
<i>(?(name)yes no)</i>	<i>yes</i> if <i>name</i> is matched; <i>no</i> if <i>name</i> isn't matched

9 Commonly Used Regex

Copy and paste the following regular expressions into Validatar to search for patterns in your data. Learn more about using regex with Validatar [here](#).

1. Digits

- **Whole Numbers:** `^\d+$`
- **Decimal Numbers:** `^\d*\.\d+$`
- **Whole + Decimal Numbers:** `^\[-+]?[0-9]*([\d+])?$`
- **Negative, Positive Whole + Decimal Numbers:** `^-?\d*(\.\d+)?$`
- **Whole + Decimal + Fractions:** `[-]?[0-9]+[.]?[0-9]*([V][0-9]+[.]?[0-9]*)*`

2. Alphanumeric Characters

- **Alphanumeric without space:** `^[a-zA-Z0-9]+$`
- **Alphanumeric with space:** `^[a-zA-Z0-9]*$`

3. Email

- **Common Email Address:** `^[a-zA-Z0-9._%~+@][a-zA-Z0-9.-]+\.[a-zA-Z]{2,6})*$`



4. Dates

- Format YYYY-MM-dd: `^(19|20)\d\d([- /.])(0[1-9]|1[012])\2(0[1-9]|[12][0-9]|3[01])$`
- Format MM-dd-YYYY: `^(0[1-9]|1[012])[- /.](0[1-9]|[12][0-9]|3[01])[- /.](19|20)\d\d$`
- Format dd-MM-YYYY: `^(0[1-9]|[12][0-9]|3[01])[- /.](0[1-9]|1[012])[- /.](19|20)\d\d$`

5. Time

- Format HH:MM 12-hour, optional leading 0: `^(0?[1-9]|1[0-2]):[0-5][0-9]$`
- Format HH:MM 12-hour, optional leading 0, AM/PM: `^((1[0-2]|0?[1-9]):([0-5][0-9]) ?([AaPp][Mm]))$`
- HH:MM 24-hour with leading 0: `^(0[0-9]|1[0-9]|2[0-3]):[0-5][0-9]$`
- HH:MM 24-hour, optional leading 0: `^(0[0-9]|0[0-9]|1[0-9]|2[0-3]):[0-5][0-9]$`
- HH:MM:SS 24-hour: `^(?:[01]\d|2[0123]):(?:[012345]\d):(?:[012345]\d)$`

6. Match Duplicates

- Search Duplicates: `(\b\w+\b)(?=.*\b\1\b)`

7. Phone Numbers

- US and International Phone Numbers with Separators: `^(+\d{1,2}\s)?(?:\d{3})?[\s-]\d{3}[\s-]\d{4}$`
- US Phone Numbers Only with Separators: `^(+0?1\s)?(?:\d{3}\s)?[\s-]\d{3}[\s-]\d{4}$`
- Unformatted Phone Numbers: `^(+\d{1,2}\s)?(?:\d{3})?[\s-]?d{3}[\s-]?d{4}$`

8. Identification

- Social Security Number with dashes: `^(?!219-09-9999|078-05-1120)(?!666|000|9\d{2})\d{3}-(?!00)\d{2}-(?!0{4})\d{4}$`
- Social Security Number without dashes: `^(?!2190999999|078051120)(?!666|000|9\d{2})\d{3}(?!00)\d{2}(?!0{4})\d{4}$`

9. Zip Codes

- US Postal Code: `^\d{5}([\d-]?\d{4})?$`



Connection Strings

Setup Note

The parameters of a connection string can change depending on the version of the database engine or driver. Reference your database provider's documentation for the correct connection string syntax if you do not see it listed here.

Overview

Connecting a data source to Validator is done using connection strings. It specifies information about the data source and the means of connecting to it.

The connection string you use depends on the database engine you're connecting to, the chosen Validator connection type, and whether or not you decide to use Windows Authentication.

Password Note

Always encrypt your password using the placeholder `[[PASSWORD]]` in the connection string and typing your password in the provided password box.

Validator uses three different connection types: SQL Server, ODBC, and OLE DB.

Connecting using SQL Server

Use the SQL Server connection type to connect to SQL Server and Azure SQL databases. **Note:** Windows comes with the SQL Server driver already installed.

To escape any special characters (semicolons, single-quote character, double-quote character):

- The value must be enclosed in double quotation marks.
- If the value contains both a semicolon and double-quote character, the value must be enclosed in single quotation marks.

SQL Server Authentication

SQL	Copy
<code>Server=myServerAddress;Database=myDatabase;User Id=myUsername;Password=[[PASSWORD]];</code>	

Windows Authentication

Integrated Security specifies that you are using Windows Authentication. User credentials are not required. When using Integrated Security, acceptable values are 'true', 'false', 'yes', or 'no'.

SQL	Copy
<code>Server=myServerAddress;Database=myDatabase;Integrated Security=yes;</code>	



Windows Authentication Note

Validatar uses the service (domain) account Validatar is running under for Windows Authentication not the current user's domain credentials. Check with your web server admin and database admin to verify that the Validatar service account has read-access to the databases you want to connect to via Windows Authentication.

Connecting to a SQL Server Instance

If there are multiple instances on the server, you must identify the instance name in the connection string.

SQL	Copy
<pre>Server=myServerName\myInstanceName;Database=myDatabase;User Id=myUsername;Password=[PASSWORD];</pre>	

Specifying a Port

You can specify the port number after the server name.

SQL	Copy
<pre>Server=myServerName,portNumber;Database=myDatabase;User Id=myUsername;Password=[PASSWORD];</pre>	

Synonyms

Some connection string keywords are interchangeable with other synonyms.

Keyword	Synonym(s)
Server	Data Source, Address, Addr, Network Address
Database	Initial Catalog
Integrated Security	Trusted_Connection
Password	PWD
User ID	UID

Connecting using ODBC

Prerequisite Required

The appropriate ODBC driver must be installed on the server before connecting to a data source. Be sure to use the correct driver name in the connection string.

Netezza

SQL	Copy
<pre>Driver={NetezzaSQL};Server=myServerAddress;port=myPortNumber;Database=myDataBase;username=myUser</pre>	



```
[[PASSWORD]];
```

Snowflake

SQL	Copy
<pre>Driver={SnowflakeDSIIDriver};Server=myServerAddress;Warehouse=myWarehouse;Database=myDatabase;U: [[PASSWORD]];</pre>	

Optional parameters

- Schema
- Role

Syntax Note

Make sure there are no spaces between the parameter value and semicolon in the connection string, or the connection will fail.

Oracle

The simplest way to connect to an Oracle database is to create a system DSN on the server. The user must have admin rights to create a system DSN.

- Open ODBC Data Sources 64-bit in Windows
- Click the System DSN tab
- Click Add
- Select the Oracle ODBC driver
- Fill out all relevant information
- Create the DSN

SQL	Copy
<pre>dsn=dsnName; Uid=myUserName; Pwd=[[PASSWORD]];</pre>	

PostgreSQL

SQL	Copy
<pre>Driver={PostgreSQL};Server=IP address;Port=5432;Database=myDataBase;Uid=myUsername;Pwd=[[PASSWORD]];</pre>	

Teradata



SQL	Copy
<pre>DRIVER={Teradata Database ODBC Driver 16.20};DBCName=156.43.66.95;UID=username;PWD=[[PASSWORD]];</pre>	

Connecting using OLE DB

Prerequisite Required

The appropriate OLE DB driver must be installed on the server before connecting to a data source.

Netezza

SQL	Copy
<pre>Provider=NZOLEDB;Password=[[PASSWORD]];User ID=myUsername;Data Source=myServerAddress;Initial Catalog=myDataBase;Port=PortNumber;</pre>	

Oracle

Oracle Provider

SQL	Copy
<pre>Provider=OraOLEDB;Data Source=MyOracleDB;User Id=myUsername;Password=[[PASSWORD]];</pre>	

Microsoft Provider

SQL	Copy
<pre>Provider=MSDAORA;Data Source=MyOracleDB;User Id=myUsername;Password=[[PASSWORD]];</pre>	

PostgreSQL

SQL	Copy
<pre>Provider=PostgreSQL OLE DB Provider;Data Source=myServerAddress;location=myDataBase;User ID=myUsername;password=[[PASSWORD]];</pre>	

Teradata

SQL	Copy
<pre>Provider=TDOLEDB;Data Source=myServerAddress;User ID=myUsername;Password=[[PASSWORD]];</pre>	

Troubleshooting Errors



Error	Possible Solutions
Invalid username or password	Verify the credentials by connecting to the database via DBMS or creating a DSN. If using Windows Authentication, check with your server admin and database admin that the service account Validatar is running under has permissions to the appropriate databases.
Could not connect to the database server	If the timeout takes a couple of seconds this is probably an access issue. If the timeout takes a few more seconds this probably is a networking or firewall issue. Check with your networking team to ensure Validatar can connect to the database server.
The connection string is incorrect	Verify that all required parameters for that database engine are included in the connection string. If you're connecting to Snowflake, be sure there are no spaces between the parameter value and semicolon as this will cause the connection to fail.



Data Source and Explorer Changes

Data Sources Changes

Data sources are now managed globally instead of under project settings. That's right, no more creating duplicate data sources for each project using a particular database. With this change you can:

- Create a data source once and use it across Validatar projects.
- Create and manage data environments for data sources. Go to **Settings > Configuration > Data Environments** to manage the environments. Assign the environment to a data source by navigating to the data source's settings.

Implications of Moving Data Sources

- The names of existing data sources have been concatenated to include the data source name and the project from where it was migrated.
- All data sources that existed before upgrading to 2021.3 are assigned to the **Migrated** environment.
- You can assign data sources to projects in the new **Projects** subsection found in **Data Source Settings**.
- We've added the ability to **merge duplicate data sources** together if they have an identical connection string. Validatar will preserve the connections to tests, profile sets, and execution history.

Explorer Changes

Explorer has also moved out of Project Settings. The new explorer area brings all of your data sources together, regardless of project, and allows you to discover their structure and full data profile. With this change you can:

- Perform a search to find database objects
- Have profile data about a data source stored in one place
 - This assumes that any duplicate data sources have been merged.

Implications of Moving the Explorer

- Quickly discover and navigate to objects in a data source by drilling into the data source on the Explorer's navigation tree. Click on the object to navigate to its data profile.

What You Need to Do

Now that you know what's changed and why the change happened, visit the following pages to learn how to clean up your environment following the upgrade:

- [Data Source Clean Up](#)
- [User Group Clean Up](#)



Data Source Clean Up

Overview

Validatar's 2021.3 release comes with changes around data sources, user groups, and much more. Here's a starter guide to cleaning up your environment after upgrading.

Since data sources have moved from Project to Global Settings, duplicate data sources may be in your Validatar environment. To de-duplicate your data sources, you will need to perform a data source merge.

Duplicate data sources have the same connection type, database engine, and connection string. The validation process includes a case-insensitive match on the connection string.

Why Merge?

- A merge allows for more consistent data profiling and test creation. Having more than one of the same data source can cause Validatar to have different metadata refresh schedules, effectively causing profiles and tests not to use the latest data if they're in other projects.
- Easier management of data sources. With data sources now managed in a central location, only one place needs monitoring.

Result of Merging Data Sources

- Anywhere the source data source appeared in standard and template tests will now use the target data source with the "Last Modified" date updating to reflect the change.
- Profile sets and custom profiles created in the source data source will now appear in the target data source.
- Profile set executions performed in the source data source will appear in the target data source.
- Test and Job history will be unaffected.

Are you ready to merge? The following section teaches you how!

Performing the Merge

Merge Warning

Data Source merging is irreversible. Confirm that you want to merge two data sources before you proceed.

Prerequisites



1. The user performing the merge must be either a Data Source Admin or Global Admin. Navigate to **Settings > Users > Click username** to adjust global role permissions.
2. The connection type, database engine, and connection string of both data sources must be the same, except for the user credentials.
3. Make sure the data source you want to keep has metadata ingested.

Merge Steps

The following steps allow you to merge two or more data sources:

1. Navigate to **Settings > Data Sources**.
2. Select the target data source, the one you want to keep, from the list. Open the data source.
3. In the toolbar, select **Merge**.
4. Select the source data source from the drop-down, the data source you're merging into the target. Only data sources with an identical definition are shown on the drop-down list.
5. Select **Validate Data Source For Merge**.
6. The number of tests, profile sets, custom profiles, and profile set executions merged into the target data source will be displayed. If there are any errors, please exit out of the pop-up window and correct them before merging again.
7. Select **Merge Data Sources**.
8. "**Data Sources have been merged successfully**" should appear in the upper right-hand corner.

After the Merge

After merging, when you return to the Data Source list, the source data source should no longer appear on the list.

Next, visit [User Group Clean Up](#) to learn how to merge any user groups.

Validation Errors

- **Source metadata was unable to refresh properly**
 - The connection string might have invalid user credentials. Go back into the connection configuration and test the connection.
- **Tables must match or Columns must match**



User Group Clean Up

Overview

After upgrading, all existing groups are managed in a central location. User Groups, previously known as Groups under Projects Settings, have moved to Global Settings. To identify which project the user group came from, the project name is appended to the end of the user group name.

There are two ways to manage user groups going forward:

1. Edit the name to better represent the user group.
2. Merge related or duplicate user groups then edit the name to better represent the user group.

Prerequisite Required

1. A user must either have the Security role or Global Admin role to manage user groups.

Editing User Group Names

Follow these steps to edit a user group name:

1. Navigate to **Settings > User Groups**.
2. Open the user group.
3. Edit the name.
4. Click **Save**.

Merging Users Groups

Follow these steps to merge user groups:

1. Open the user group you want to survive.
2. Click on Merge in the toolbar.
3. Choose to either save or delete the user groups that you're merging into the current group.
4. Select one or more user groups from the list. (Hold down Ctrl to multi-select)
5. Click Merge.

Note: You cannot restore a user group after it is deleted during the merge.



Hands-On Lab Appendix

Digital Guide

Find a digital copy of the Hands-On guide [here](#).

Exercise 1: Testing of Data Loads

What Do You Want to Test

SQL Script

SQL	Copy
<pre>SELECT COUNT(*) FROM {{SCHEMA.NAME}}.{{TABLE.NAME}}</pre>	

Compare To...

Metadata Links

SalesLT.{{table.cf.lineage_table}}

SQL Script

SQL	Copy
<pre>SELECT COUNT(*) FROM SALESLT.{{TABLE.CF.LINEAGE_TABLE}}</pre>	

Child Test Name

Test DW Load Matches - {{schema.name}}.{{table.name}}

Relative Path

\Materialized Tests\{{schema.name}}\String Null Checks

Exercise 2: Detect and Alert For Missing Data

Child Test Name

String NULL Check - {{schema.name}}.{{table.name}}.{{column.name}}



Relative Path

\{{schema.name}}\String Null Checks

Exercise 3: Validation of Data Format and Validity

What Do You Want To Test

SQL Script

SQL	Copy
<pre>select {{table.cf.business_key_column}}, {{column.name}} from {{schema.name}}.{{table.name}} where {{column.name}} != ''</pre>	

Compare To...

REGEX

^([a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,})*\$

Child Test Name

Email Format Check - {{schema.name}}.{{table.name}}.{{column.name}}

Relative Path

\{{schema.name}}\String Null Checks

Exercise 4: Compare Tables of Data

Test Variables

- SQL_PrimaryKeyList
- SQL_NonPKColumnList
- dv_table_name
- dv_schema_name
- SF_PrimaryKeyList
- SF_NonPKColumnList

What Do You Want To Test

SQL Script

SQL	Copy
<pre>select</pre>	



```
{{var.SQL_PrimaryKeyList}},
{{var.SQL_NonPKColumnList}}
from {{schema.name}}.{{table.name}}
order by 1
```

Compare To...

Metadata Links

```
{{var.dv_schema_name}}.{{var.dv_table_name}}
```

SQL Script

SQL	Copy
<pre>select {{var.SF_PrimaryKeyList}}, {{var.SF_NonPKColumnList}} from {{var.dv_schema_name}}.{{var.dv_table_name}} order by 1</pre>	

Metadata Query

SQL	Copy
<pre>-- This query uses information schema to build out dynamic SQL that concatenates column names -- and their values for both primary key columns and attribute column sets in order to compare -- the full data set. select t.TABLE_SCHEMA as 'schema.name', t.TABLE_NAME as 'table.name', 'LOADING' as 'var.dv_schema_name', 'LOAD_'+upper(t.TABLE_NAME)+'_DEMOLT2019' as 'var.dv_table_name', pk.SQL_PrimaryKeyList as 'var.SQL_PrimaryKeyList', nonpk.SQL_NonPKColumnList as 'var.SQL_NonPKColumnList', pk.SF_PrimaryKeyList as 'var.SF_PrimaryKeyList', nonpk.SF_NonPKColumnList as 'var.SF_NonPKColumnList' from INFORMATION_SCHEMA.TABLES t join (--This sub-query gets the business keys select tc .TABLE_CATALOG, tc .TABLE_SCHEMA, tc .TABLE_NAME, tc .CONSTRAINT_NAME, STRING_AGG (''+ccu.COLUMN_NAME+':' + isnull(cast('+ccu.COLUMN_NAME+' as nvarchar(max)),'NULL'),' + ' ' + ') as SQL_PrimaryKeyList, STRING_AGG (''+ccu.COLUMN_NAME+':' ifnull(cast('+ccu.COLUMN_NAME+' as string),'NULL'),' ' ' ') as SF_PrimaryKeyList</pre>	



```
from INFORMATION_SCHEMA.TABLE_CONSTRAINTS tc
join INFORMATION_SCHEMA.CONSTRAINT_COLUMN_USAGE ccu on ccu.CONSTRAINT_NAME =
tc.CONSTRAINT_NAME and ccu.CONSTRAINT_SCHEMA = tc.CONSTRAINT_SCHEMA
where tc.CONSTRAINT_TYPE = 'PRIMARY KEY'
group by tc.TABLE_CATALOG, tc.TABLE_SCHEMA, tc.TABLE_NAME, tc.CONSTRAINT_NAME) pk
on pk.TABLE_SCHEMA = t.TABLE_SCHEMA and pk.TABLE_NAME = t.TABLE_NAME

join (
  -- this sub-query gets the attributes
  select
  c .TABLE_SCHEMA,
  c .TABLE_NAME,
  STRING_AGG ( '''+c.COLUMN_NAME+':'' + isnull(cast('+c.COLUMN_NAME+' as
nvarchar(max)),'NULL'),' + ''||'' + ' ) within group ( order by c.ORDINAL_POSITION
ASC ) as SQL_NonPKColumnList,
  STRING_AGG ( '''+c.COLUMN_NAME+':'' || ifnull(cast('+c.COLUMN_NAME+' as
string),'NULL'),' || ''||'' || ' ) within group ( order by c.ORDINAL_POSITION ASC )
as SF_NonPKColumnList
  from INFORMATION_SCHEMA.COLUMNS c
  where
    --Eliminate Primary Keys
  c .TABLE_CATALOG+'.'+c.TABLE_NAME+'.'+c.COLUMN_NAME not in (
    select tc.TABLE_CATALOG+'.'+tc.TABLE_NAME+'.'+ccu.COLUMN_NAME
    from INFORMATION_SCHEMA.TABLE_CONSTRAINTS tc
    join INFORMATION_SCHEMA.CONSTRAINT_COLUMN_USAGE ccu on
ccu.CONSTRAINT_NAME = tc.CONSTRAINT_NAME and ccu.CONSTRAINT_SCHEMA =
tc.CONSTRAINT_SCHEMA
    where tc.CONSTRAINT_TYPE = 'PRIMARY KEY'
  )
    --Columns to Ignore
  and c.COLUMN_NAME not in ('ModifiedDate')
  and c.DATA_TYPE not in ('varbinary')

  group by c.TABLE_SCHEMA, c.TABLE_NAME) nonpk on nonpk.TABLE_SCHEMA =
t.TABLE_SCHEMA and nonpk.TABLE_NAME = t.TABLE_NAME

where t.TABLE_NAME in
  --List of Tables to Compare
  ('Address',
  'Customer',
  'CustomerAddress',
  'Product',
  'ProductCategory',
  'ProductDescription',
  'ProductModel',
  'ProductModelProductDescription',
  'SalesOrderDetail',
  'SalesOrderHeader'
  )
```

Child Test Name

Compare Full Table Source Data - {{var.dv_table_name}}



Relative Path

\\{{var.dv_schema_name}}\Source Data Compare

Bonus Exercise 1: Quantity by Product Comparison

What Do You Want To Test

Metadata Links

RVault.H_PRODUCT.PRODUCTID

RVault.S_SALESORDERDETAIL_TRANSACT.ORDERQTY

SQL Script

SQL	Copy
<pre>select H_PRODUCT.PRODUCTID, SUM(S_SALESORDERDETAIL_TRANSACT.ORDERQTY) from RVault.S_SALESORDERDETAIL_TRANSACT join RVault.L_SALESORDERDETAIL ON RVault.L_SALESORDERDETAIL.HK_L_SALESORDERDETAIL = RVault.S_SALESORDERDETAIL_TRANSACT.HK_L_SALESORDERDETAIL join RVault.H_PRODUCT ON RVault.H_PRODUCT.HK_H_PRODUCT = RVault.L_SALESORDERDETAIL.HK_H_PRODUCT GROUP BY H_PRODUCT.PRODUCTID</pre>	

Compare To...

Metadata Links

SalesLT.SalesOrderDetail.OrderQty

SalesLT.SalesOrderDetail.ProductID

SQL Script

SQL	Copy
<pre>select ProductID, sum(OrderQty) from saleslt.salesorderdetail group by ProductID</pre>	

Bonus Exercise 2: Compare Load Table Counts to Source

Compare To...

Metadata Links

LOADING.LOAD_{{table.name}}_DEMOLT2019

Child Test Name



Compare Load Table Counts to Source - LOAD_{{table.name}}_DEMOLT2019

Relative Path

\Data Vault\Load

Bonus Exercise 3

Compare To...

{{schema.name}}.{{table.name}}

Child Test Name

Detect Record Count Changes - {{schema.name}}.{{table.name}}

Relative Path

\Data Vault\Data Anomalies



Creating a Data Source

This article is a step-by-step guide that will teach you how to create a new data source.

Instructions

1. Navigate to Settings
2. Click on Data Sources
3. Click on the “New Data Source” button
4. Enter a name and description for the new data source
5. Click the “Edit” box in the Connection section of the page
6. Choose the Connection Type and Database Engine from the dropdown boxes
7. Enter the connection string
 - Sample SQL Server connection string: Server=;Database=;User Id=;Password= [[PASSWORD]];
 - Sample Snowflake connection string: Driver=SnowflakeDSIIDriver; Server=; Warehouse=; Database=; Uid=; Pwd=[[PASSWORD]]
 - Sample Oracle connection string: DSN=dsn_name; UID=username; PWD= [[PASSWORD]]
8. Enter the password
9. Click the “Create Connection” button
10. Click the “Save” button



Creating a New User Account

This article is a step-by-step guide that will teach you how to create a new user account.

Instructions

1. Navigate to Global Settings
2. Click on Users
3. Click on the “New User” button
4. Fill out the required fields (First Name, Last Name, Email, Username, Password)
5. Click the checkboxes on the right if this user is a Global Admin, Creator, or needs admin access to a specific project
6. Click the “Save Button”

Note

After a new user is created, they still need the appropriate access to projects and data sources before they are able to begin working.



Granting Users Project Access

This article is a step-by-step guide that will teach you how to grant a user access to a project and assign appropriate roles.

Prerequisite Required

User must be created at the global level.

Instructions

1. Click on the Project to which you want to grant the user access
2. Expand Project Settings on the navigation tree
3. Click Project Users
4. Click the “Grant Access” button
5. Select the user from the drop-down
6. Click the checkboxes next to the appropriate roles for this user
7. Click the “Save” under the record



Creating a New User Group

This article is a step-by-step guide that will teach you how to create a new user group.

Instructions

1. Navigate to Settings
2. Click on User Groups
3. Click the “New Group” button
4. Enter the group name
5. Click the checkbox to assign any existing users to this group
6. Click the “Save” button



Assigning a User to an Existing Group

This article is a step-by-step guide that will teach you how to assign a user to a user group.

Prerequisite Required

A user group must have already been created

Instructions

1. Navigate to Settings
2. Click User Groups
3. Open the respective user group
4. Click the checkbox to assign the user to the group
5. Click the "Save" button



Assigning Data Source Permissions to a User Group

This article is a step-by-step guide that will teach you how to assign data source permissions to a user group.

Prerequisites Required

You must have an existing data source and user group prior to walking through the steps listed below.

Instructions

1. Navigate to Settings
2. Click on Data Sources
3. Click on the name of the data source
4. Click on "Permissions"
5. Click on the "New Rule" button
6. Select the user group from the dropdown box
7. Check the checkbox for the permissions you wish to assign to the group
8. Click the "Save" button



Assigning Data Source Permissions to a User

This article is a step-by-step guide that will teach you how to assign data source permissions to a user group

Prerequisites Required

You must have an existing data source and user prior to walking through the steps listed below.

Instructions

1. Navigate to Settings
2. Click on Data Sources
3. Click on the name of the data source
4. Click on "Permissions"
5. Click on the "New Rule" button
6. Select the user from the dropdown box
7. Check the checkbox for the permissions you wish to assign to the group
8. Click the "Save" button



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Last updated: August 1, 2019

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Some states/jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Severability

If any provision of this Agreement is held to be unenforceable or invalid, such provision will be changed and interpreted to accomplish the objectives of such provision to the greatest extent possible under applicable law and the remaining provisions will continue in full force and effect.

Waiver

Except as provided herein, the failure to exercise a right or to require performance of an obligation under this Agreement shall not effect a party's ability to exercise such right or require such performance at any time thereafter nor shall be the waiver of a breach constitute waiver of any subsequent breach.

For U.S. Government End Users

The Application and related documentation are "Commercial Items", as that term is defined under 48 C.F.R. §2.101, consisting of "Commercial Computer Software" and "Commercial Computer Software Documentation", as such terms are used under 48 C.F.R. §12.212 or 48 C.F.R. §227.7202, as applicable. In accordance with 48 C.F.R. §12.212 or 48 C.F.R. §227.7202-1 through 227.7202-4, as applicable, the Commercial Computer Software and Commercial Computer Software Documentation are being licensed to U.S. Government end users (a) only as Commercial Items and (b) with only those rights as are granted to all other end users pursuant to the terms and conditions herein.

Export Compliance

You may not export or re-export the Application except as authorized by United States law and the laws of the jurisdiction in which the Application was obtained.

In particular, but without limitation, the Application may not be exported or re-exported (a) into or to a nation or a resident of any U.S. embargoed countries or (b) to anyone on the U.S. Treasury Department's list of Specially Designated Nationals or the U.S. Department of Commerce Denied Person's List or Entity List.

By installing or using any component of the Application, you represent and warrant that you are not located in, under control of, or a national or resident of any such country or on any such list.

Amendments to this Agreement



Teknion Data Solutions reserves the right, at its sole discretion, to modify or replace this Agreement at any time. If a revision is material we will provide at least 30 days' notice prior to any new terms taking effect. What constitutes a material change will be determined at our sole discretion.

By continuing to access or use our Application after any revisions become effective, you agree to be bound by the revised terms. If you do not agree to the new terms, you are no longer authorized to use the Application.

Governing Law

The laws of Texas, United States, excluding its conflicts of law rules, shall govern this Agreement and your use of the Application. Your use of the Application may also be subject to other local, state, national, or international laws.

This Agreement shall not be governed by the United Nations Convention on Contracts for the International Sale of Good.

Contact Information

If you have any questions about this Agreement, please contact us at www.teknionusa.com/about-teknion/contact.

Entire Agreement

The Agreement constitutes the entire agreement between you and Teknion Data Solutions regarding your use of the Application and supersedes all prior and contemporaneous written or oral agreements between you and Teknion Data Solutions.

You may be subject to additional terms and conditions that apply when you use or purchase other Teknion Data Solutions' services, which Teknion Data Solutions will provide to you at the time of such use or purchase.



2021.4 Product Changes

Validatar has a new release! From major updates to minor bug fixes, we're constantly working to improve your Validatar experience so you can continue to build trust in your data. Learn about what's new below.

Release Date

Validatar 2021.4 was released on **October 30, 2021**.

To sign up for our email notifications about releases, register [here](#).

Data Cataloging

Validatar is committed to enhancing transparency about data quality assets and issues with QA testers and developers but also business users and Data Stewards. That's why we've introduced new features to enhance metadata and data process awareness for Validatar Enterprise and Validatar Teams users!

- **Catalog Custom Fields** are user-defined fields that provide additional information about metadata objects. You can configure and apply them to each data source, view them in the Explorer, and use them to build template tests.
 - Populate custom fields for a data source via File or SQL Ingestion
- You can now find **Lineage** visualized in Validatar! View track-back and track-forward diagrams for tables and columns in the Explorer.
 - Provide lineage data via File or SQL Query
- You can also add Custom fields to Template tests
- To help you get started, we'll ship a group of default custom fields once you upgrade!
 - Validatar Enterprise users can create an unlimited number of custom fields.
 - Validatar Teams users can create a maximum of 20 custom fields.

Template Test Improvements

- We've renamed Reference Tags to reflect the diversity of Validatar objects better. Don't worry, your existing tests will automatically map to the new tags!
- You can now drag and drop reference tags into a Template test instead of copying and pasting. You can also drag and drop reference tags in custom profile definitions.
- We've added a Search box in the References pane to make objects more accessible. You can also filter by reference type: Variable, Technical Metadata, Custom Field, and Profile.
- The reference pane was reorganized by object type: Test Variables, Data Source, Schema, Table, Column, and Profile.
- You can use Custom fields in the template test configuration now.
- Fully-qualified reference tags were added to the references list.

Reports Enhancement



We introduced Reporting in 2021.3, and now we're offering more flexibility around what data you can report.

- Select the columns and rearrange their order in the view using the **Edit Columns** feature on the report page.
- We've added the ability to export the report to an Excel file.

User Improvements

- You can now add User groups to Project Permissions in addition to individual users.
- We've added default permission sets to Data Source and Project Permissions to streamline assigning permissions.
 - **Data Source**
 - Viewer
 - Tester
 - Contributor
 - Admin
 - **Project**
 - Viewer
 - Contributor
 - Power User
 - Admin

Other Improvements

- **Create a Data Source in a Project:** You can create a new data source from the Project Data Sources page.
- **Default Profile Sets:** Validatar automatically detects when you're creating a custom profile set.
- **Rearranged Columns on Home Page:** The date column is first, which links to the metadata refresh and data source issue execution.
- **Default Metadata Links:** The metadata link box is automatically populated with metadata reference tags when Template tests are created.

Highlighted Bug Fixes

- We've fixed a bug that **incorrectly displays numeric differences in test results sent to the test repository.**
- We've fixed a bug that kept **template tests materializing without profile references.**
- We've corrected a bug where **metadata links aren't displayed when viewing a test in read-only mode.**
- We've fixed a bug that **displays result trend values in the Explorer for projects the user does not have view access to.**



2021.3 Product Changes

Validatar has a new release! From major updates to minor bug fixes, we're constantly working to improve your Validatar experience so you can continue to build trust in your data. Learn about what's new below.

Release Date

Validatar 2021.3 was released on **September 27, 2021**.

To sign up for our email notifications about releases you can register [here](#).

New Look and Feel

The UI and navigation have changed to reflect the discovery and reporting nature of Validatar better, in addition to data quality testing.

- There's a **new home page!** Discover details about data sources, projects, and reports as soon as you log in.
- A **new toolbar** provides quick access to the Explorer, Projects, Reports, and Settings areas.
 - The navigation tree on the left changes depending on which areas mentioned above were selected in the toolbar.

API Integration

For organizations on the Enterprise Edition, API integration is now available!

- Use API endpoints to create Validatar objects, execute tests and jobs, and manage users.
- Get in touch with us to learn how to expose the API documentation on your local Validatar install.

Data Sources Changes

Manage data sources globally instead of under project settings. That's right, no more creating duplicate data sources for each project using a particular database.

- You can quickly discover and navigate to objects in a data source by drilling into the data source on the Explorer's navigation tree. Click on the object to navigate to its data profile.
- Create and manage data environments for data sources. Go to **Settings > Configuration > Data Environments** to manage the environments. Assign the environment to a data source by navigating to the data source's settings.

Implications of Moving Data Sources



- The names of existing data sources have been concatenated to include the data source name and the project from where it was migrated.
- All data sources that existed before upgrading to 2021.3 are assigned to the **Migrated** environment.
- You can assign data sources to projects in the new **Projects** subsection found in Data Source Settings.
- We've added the ability to **merge duplicate data sources** together if they have an identical connection string. Validatator will preserve the connections to tests, profile sets, and execution history.

Learn more about the migration of data sources at [Data Source and Explorer Changes](#)

Improved Testing

The long-awaited ability to **compare string values** in Validatator is finally here!

- Compare strings using the following test data types:
 - Key-Value List SQL (previously known as Multi-Value SQL)
 - Single-Value SQL
 - String Value
- Use **regular expressions** on the string value test type to detect patterns. Not a regex expert? No problem! Find out more about common regular expressions [here](#).
- Speaking of Key-Value List SQL, we've changed the name from Multi-Value SQL to explain better that this type of test expects a SQL script that returns only two columns: a key column and a value column.
 - With the addition of string testing, there are now test data type options for both string and numeric value testing.

What's New with Reporting

Everything! We're introducing the ability to connect Tableau dashboards to Validatator and view reports on previously executed tests and jobs.

- Connect to your Tableau Server account by navigating to **Settings > Configuration > Reporting**.
- You can also find reports for both Test and Job Execution History by clicking on **Reports** in the new navigation bar. Add filters to the report and save the view for easy access for your or your team.

Keep an eye out for other custom reports and views coming soon!

Storage Improvements

You can now save your test and profile results to Snowflake instead of using the local Validatator database.

- Why? A cloud database is more flexible, efficient, and can be scaled up-or-down quickly depending on its usage unlike locally stored databases.
- How? Have a global admin go to **Settings > Configuration > Result Storage**, set up and validate the connection to Snowflake, then switch the **Storage Location** to Snowflake.



Other Improvements

- **Modified Move/Copy button:** Move or copy tests and folders straight from the Test Repository page using the **Move/Copy** button.
- **Modified Global Admin role:** Global Admin has been split into three sub-roles: Configuration Admin, Data Source Admin, and Security Admin.
- **Deselect import objects:** We've added the ability to deselect objects you want to exclude during the Import process.
- **Migrated Groups:** We've moved User Groups, previously known as Groups, from Project Settings to Global Settings. This change comes with the ability to merge two or more user groups.
- **Long String Test Results:** If a test returns a string value longer than 500 characters, the entire string result will be evaluated but only the first 500 character will be saved.

Highlighted Bug Fixes

- We've fixed a bug that allowed the user to change the object selection setting in **Template tests unintentionally.**
- We've fixed a bug that required the **purge profile set results setting to be configured and enabled before executing a default profile set.**
- We've corrected a bug where **users could use a non-numeric profile result in a test.**
- We've corrected an issue in SMTP settings where **users received an error message when sending a test email if they left the username field blank and didn't use default credentials.**
- We've fixed a bug that was causing **scheduled jobs containing a profile set step to lock.**
- We've fixed a bug that **didn't filter custom profile references on Template Tests correctly.**
- We've corrected a bug where **non-global admin users couldn't upload Template Tests import files.**



2021.2.1 Product Changes

Validatar has a new release! From major updates to minor bug fixes, we're constantly working to improve your Validatar experience so you can continue to build trust in your data. Learn about what's new below.

Release Date

Validatar 2021.2.1 was released on June 25, 2021.

To sign up for our email notifications about releases you can register [here](#).

What's New in Version 2021.2.1

- We're introducing the ability to create and add **Labels** to Validatar objects. Do you need to keep track of which tests and jobs belong to a particular development build? Labels will help you group those objects and import them into another Validatar instance.
- We've added the ability to set **default configuration options** for tests and profile sets. Would you rather all newly created tests return failed results only? Have a global admin set the default under **Global Settings > Configuration > Default Values**.
- You can now **purge results** from the Validatar database on a server and individual test level. Set a purge schedule to keep your environment clean.

Highlighted Improvements

- We've added a Summary box to the Template Test configuration screen which shows stats about new and previously created child tests.
- Load times for the Data Source list in the Explorer have improved.
- You can now multi-select objects to add or remove them from a job by holding down the Ctrl key instead of a single select.
- You can now see who created and last modified a test, along with timestamps, at the bottom of every test.
- You can find the option to purge individual test results in the Result Configuration section of the test. To schedule a purge on the server level, a global admin can navigate to **Global Settings > Configuration > Scheduling**.
- For users whose Validatar server does not have internet connectivity, we've added an offline license activation mechanism inside of the tool.
- Hover over the metadata data link name on the test configuration page to see the full object name. This is especially helpful when you link multiple metadata objects that have the same schema and table name prefix.
- When reverting to a previous version of a Validatar object, you now have to confirm before the revert is complete.
- We've enhanced the test version dropdown to include more distinguishable information about the previous version.
- Validatar now disables scheduled tasks that are set to occur after a license expires.
- Minor improvements to the navigation pane when test folders are deleted.



Highlighted Bug Fixes

- We corrected a bug that left open the REST API endpoint to create a global admin after the initial Validatar install.
- We've fixed a bug where import files containing multiple profile sets caused an error during the import.
- When copying a test, some of the required result configuration fields would become null effectively invalidating the copied test. This issue has been fixed.
- For the following test scenarios, the test showed as passed when the test had an error. This issue has been fixed.
 - Execution errors
 - A SQL script with invalid SQL
 - Processing errors
 - A single-value SQL script that returns more than one row
 - A single-value SQL script that returns more than one column
 - A multi-value SQL script that doesn't return two columns
- We've corrected a bug where the Archive button was broken visually but still functioned correctly.



2021.2 Product Changes

Validatar has a new release! From major updates to minor bug fixes, we're constantly working to improve your Validatar experience so you can continue to build trust in your data. Learn about what's new below.

Release Date

Validatar 2021.2 was released on May 17, 2021.

To sign up for our email notifications about releases you can register [here](#).

What's New in Version 2021.2

- We're introducing Template Tests in our latest release! Tired of making a copy of a test for each target object? Now you can dynamically create multiple tests at one time using a template. The template will use object reference tags to automatically populate the test configuration options including SQL scripts.
- You can now get Validatar help and view documentation without having to leave Validatar using the help icon right next to your username!
- You can now view test version history on the test details page. Want to return to a previous version? Use the test version dropdown to select a previous version and click Revert!

Highlighted Improvements

- You can now add available objects to a Job by search in addition to using the folder tree. Just click the search icon to toggle to the search view.
- The results page has been enhanced to support viewing Template Test run executions.
- The Import and Export tools have been enhanced to support Template Tests.
- The Test Repository page has been updated to show if a standard test was created from a template.
- Minor UI improvements.

Highlighted Bug Fixes

- We corrected a bug for improper sorting on the Results detail page.
- The Aborted % in the step status column on the Profile Executions page is now showing an accurate percentage.
- Fixed a bug where single value tests incorrectly displayed result evaluation options that didn't apply to that test data type.



2021.1 Product Changes

Validatar has a new release! From major updates to minor bug fixes, we're constantly working to improve your Validatar experience so you can continue to build trust in your data. Learn about what's new below.

Release Date

Validatar 2021.1 was released on March 30, 2021.

To sign up for our email notifications about releases you can register [here](#).

What's New in Version 2021.1

- There's a new Scheduling area in **Global Settings > Configuration** that gives the option to ignore previous or skipped schedules when the Validatar server is restarted.

Highlighted Improvements

- The Validatar installer has been improved to reduce the number of manual steps to upgrade to a newer version.
- We've improved the Profile Execution pages to provide a clearer representation of profile set execution progress.
- We've added titles more consistently across the tool to provide clarity on what page you're currently viewing.
- We've updated the password reset email to look more distinctive and recognized as coming from Validatar.

Highlighted Bug Fixes

- The **Create database manually** option in the Validatar installer did not allow users to continue with the installation process so that bug has been corrected.