ReadyWorks Report Builder v7.6

2024H2

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I. Introduction

ReadyWorks Report Builder is a data analysis and workflow management tool integrated into the ReadyWorks platform. It is designed for creating, customizing, and managing reports to support IT operations and decision-making processes in large-scale environments.

Key Capabilities:

- Cross-asset reporting: Combines data from multiple asset types (e.g., computers, users, applications)
- Customizable views: Allows for the creation of both high-level and granular operational reports
- Interactive elements: Integrates with action buttons and forms for direct data manipulation and workflow triggering
- Flexible output options: Supports in-platform viewing, publishing, and automated distribution

In complex IT ecosystems, Report Builder addresses several operational challenges:

1) Data Consolidation: Aggregates information from various IT components, providing a unified view of the infrastructure.

2) Operational Oversight: Enables the creation of reports for:
   a) Windows servicing project tracking
   b) Asset refresh progress monitoring
   c) Compliance status across multiple endpoints
   d) Software deployment and update management

3) Workflow Integration: Transforms static data into actionable intelligence by:
   a) Identifying assets ready for updates or upgrades
   b) Flagging systems requiring immediate attention
   c) Initiating automated processes based on report data

4) Information Distribution: Ensures critical data reaches relevant teams through:
   a) Direct platform access
   b) Published reports for wider consumption
   c) Automated report generation and distribution

Technical Considerations:

- Data Sources: Primarily utilizes asset tables within the ReadyWorks database
- User Permissions: Report access and creation rights are managed through the platform's user management system
- Performance Impact: Complex reports may affect system performance; optimization techniques will be discussed in later sections

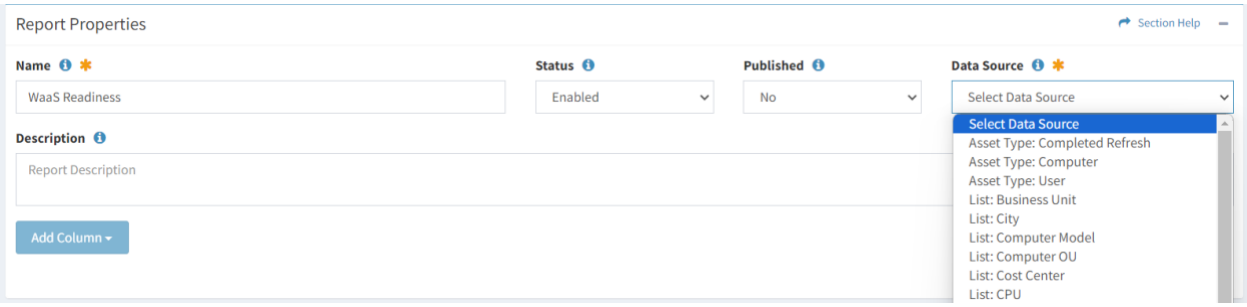
The following documentation provides detailed information on Report Builder's features, implementation steps, best practices, and troubleshooting guidelines. This information is intended to enable ReadyWorks operators to effectively leverage Report Builder for maintaining and optimizing IT operations within a large-scale financial services environment.

II. Key Features

ReadyWorks Report Builder offers a suite of powerful features designed to support operators in creating comprehensive, tailored reports for large-scale IT environments. These features work together to facilitate data analysis, automate information gathering, and integrate reporting with operational workflows. In this section, we'll explore each key feature in detail, beginning with Data Source Selection.

A. Data Source Selection

Data Source Selection is the cornerstone of report creation in ReadyWorks Report Builder. This critical first step determines the scope and structure of your report, serving as the foundation for all subsequent data analysis and presentation.



When initiating a new report, you'll be prompted to choose a primary data source from options such as:

- Computer
- User
- Application
- Network Device
- Custom asset types (if configured in your ReadyWorks instance)

Your selection defines the main entity around which your report will be built. For example, if you're overseeing a large-scale Windows servicing project, you'd likely choose 'Computer' as your primary data source. This allows you to report on:

- Computer-related attributes (OS versions, hardware specifications)
- Data from linked assets (users, installed applications)

The choice of primary data source influences which linked asset data you can include in your report. ReadyWorks uses a relational data model, meaning assets are interconnected. When you select 'Computer' as your primary source, you gain access to:

- All computer fields
- Fields from directly related assets (Users, Applications)

This linked asset access is powerful but requires careful consideration. While it enables rich, multidimensional reporting, it can impact report generation time and system load, especially with assets having large data volumes or complex relationships.

Consider a scenario where you need to report on software distribution across your environment. Choosing 'Application' as your primary data source would allow you to see:

- Which applications are installed across different computers
- Potential links with user information for a comprehensive view of software usage and distribution

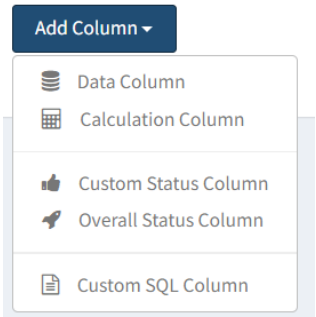
It's crucial to plan your data source selection carefully, as it cannot be changed once the report is created without starting over. Consider:

- The primary focus of your report
- Which data points are essential
- The relationships between different asset types in your environment

By thoughtfully selecting your data source, you lay the groundwork for creating efficient, insightful reports that directly support your operational needs. Remember, the goal is to strike a balance between comprehensive data inclusion and report performance, ensuring that your reports provide valuable insights without unnecessary complexity or system strain.

B. Column Customization

Column Customization is a key feature of ReadyWorks Report Builder that allows you to tailor the data displayed in your reports. This functionality enables you to select specific fields, create calculated columns, and implement custom statuses, ensuring your reports contain precisely the information needed for your operational tasks.



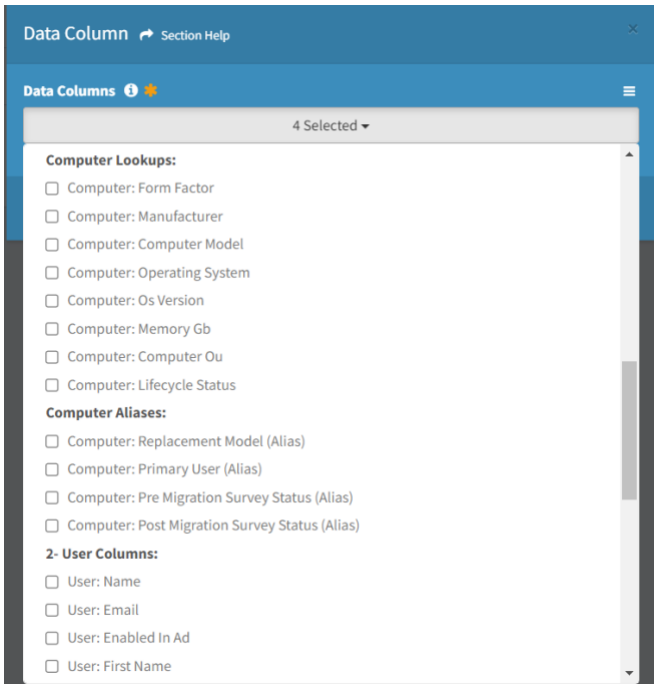
When customizing columns, you have several options:

- Data Columns
- Calculation Columns
- Custom Status Columns

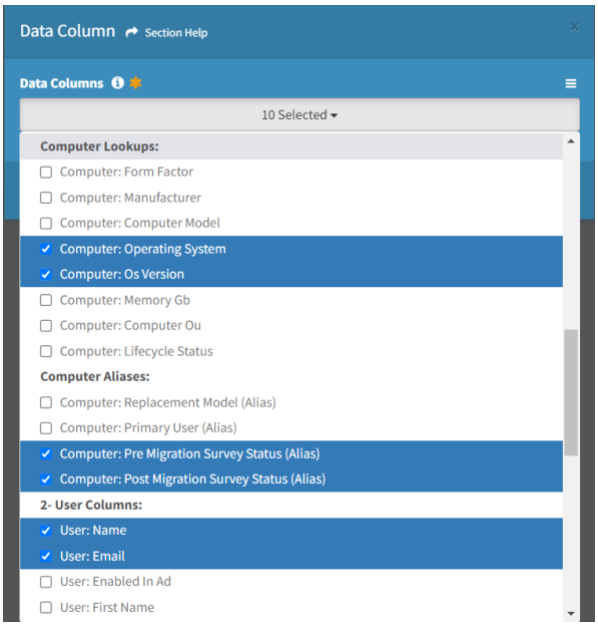
- Overall Status Columns

Data Columns are the most straightforward type. These represent direct fields from your chosen data source and linked assets. For instance, if your primary data source is 'Computer', you might add columns such as:

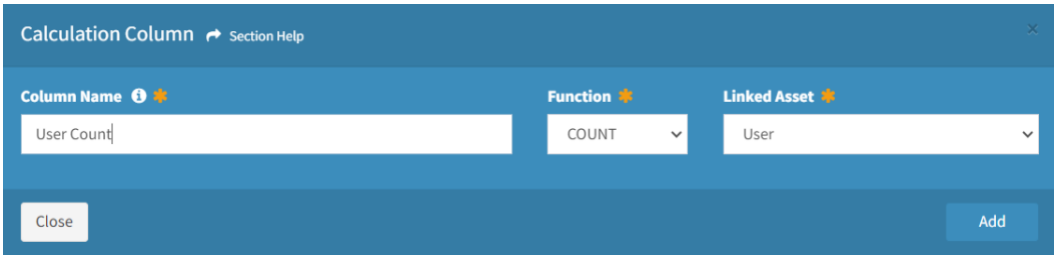
- Computer Name
- IP Address
- Operating System
- Last Login Date



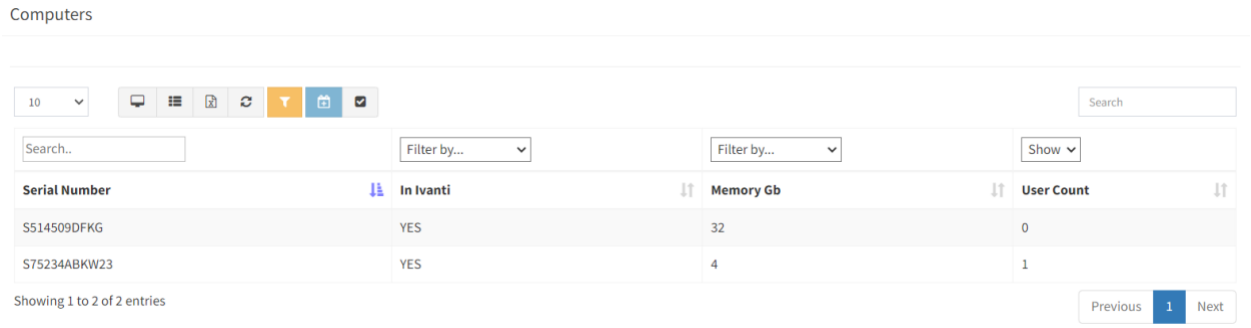
To add a data column, simply select it from the available fields list. Remember that the fields available depend on your primary data source selection and its linked assets.



Calculation Columns allow you to perform count related functions. A common use case is counting the number of applications installed on each computer. To create a calculation column:



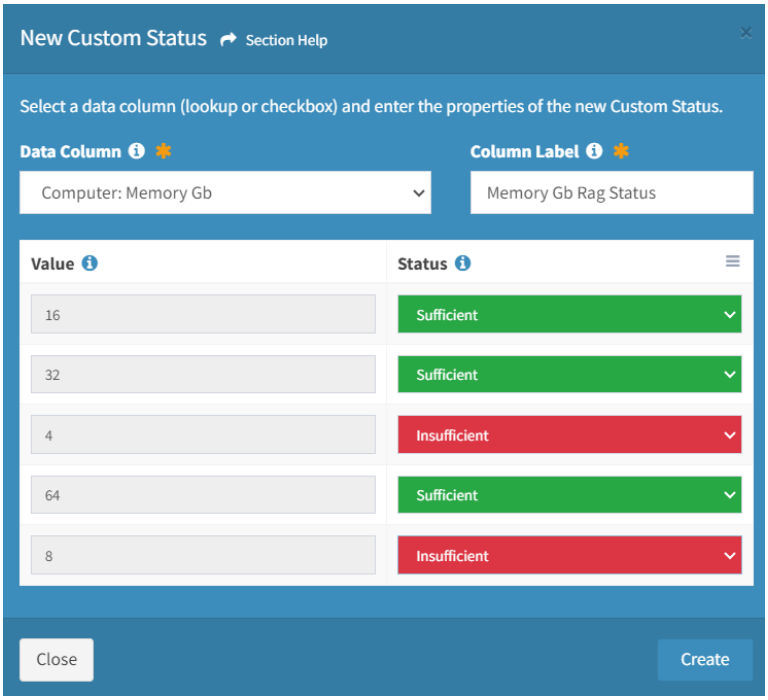
1) Select 'Add Column' and choose 'Calculation Column'
2) Name your column (e.g., "User Count")
3) Select the asset type to count (in this case, 'User')
4) Choose the calculation type (Sum)



Custom Status Columns are particularly useful for creating visual indicators of asset status or readiness. These often use a Red/Amber/Green (RAG) system to quickly convey

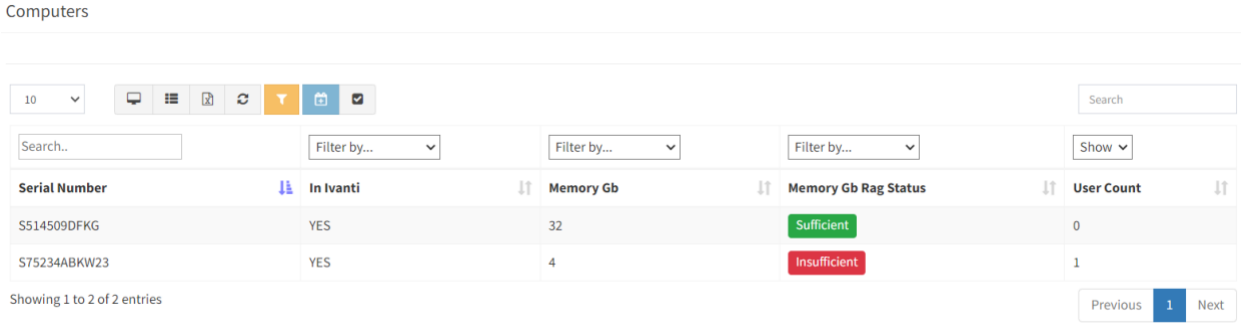
information. For example, you might create a custom status column for "Windows 11 Upgrade Readiness" with the following logic:

- Green: Meets all upgrade requirements
- Amber: Meets some requirements, needs further investigation
- Red: Does not meet upgrade requirements

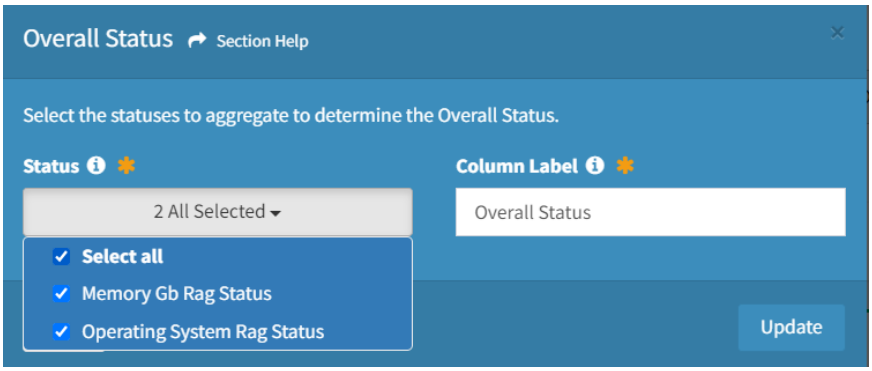


To create a custom status column, you'll need to:

1) Define the status options in the ReadyWorks configuration
2) Add a Custom Status Column to your report
3) Set up the logic that determines each status

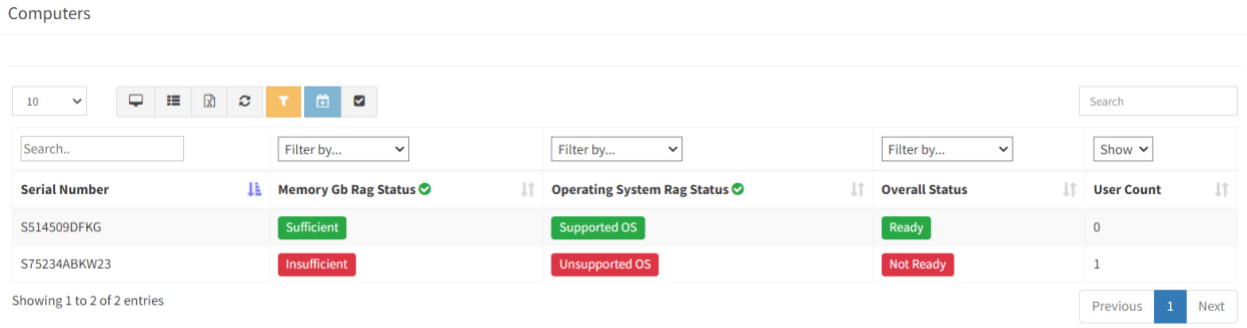


Overall Status Columns aggregate multiple custom statuses into a single column. This is valuable for providing a high-level view of asset readiness or health. The overall status typically reflects the "worst" status of its component columns. For instance, if an asset has multiple custom statuses and any one of them is Red, the overall status would be Red.



When customizing columns, consider the following best practices:

- Include only necessary columns to keep reports focused and performant
- Use meaningful names for calculated and custom columns
- Arrange columns in a logical order, typically with identifying information first
- Consider adding hyperlinks to key fields (like Computer Name) for easy navigation to asset details



Custom SQL Columns:

Custom SQL columns are a powerful tool in the Report Builder arsenal, designed for users who need to push beyond standard reporting capabilities. Here's what you need to know:

- Purpose and Access:
    a. Inject SQL directly into report queries for advanced customization
    b. Access by clicking "Custom SQL Column" when adding a new column

Let's dive into the key components:

- Essential Elements:
    a. SELECT statement (required): The core of your custom column
    b. Optional clauses: JOIN, WHERE, and GROUP BY for fine-tuning

These elements allow you to craft precise, tailored columns that fit your exact needs. But where does this feature truly shine?

- Strategic Applications:
    a. Bypass asset linking restrictions: Access data from indirectly linked assets
    b. Create complex calculated fields: Leverage full SQL function capabilities
    c. Derive new data points: Generate insights without modifying asset structure

Imagine calculating "Days Since Last Logon" or performing intricate date manipulations - all possible with custom SQL columns. However, with great power comes great responsibility:

- Best Practices:
    a. Avoid redundancy: Skip additional SELECT statements and reimporting fields
    b. Maintain efficiency: Don't rejoin already connected tables
    c. Optimize performance: Craft your SQL with report speed in mind

As you work with custom SQL columns, remember:

- Implementation Tips:
    a. Write SQL directly in the provided fields
    b. Use the "Report Query" button to view the full report SQL
    c. Start simple and build complexity as needed

While custom SQL columns offer unparalleled flexibility, they're not for the faint of heart:

- Considerations:
    a. Requires solid SQL knowledge
    b. Advanced feature - use judiciously
    c. Can impact report performance if not optimized

In essence, custom SQL columns bridge the gap between the user-friendly Report Builder interface and the raw power of SQL. They're your secret weapon for creating reports that deliver precisely the data you need, in exactly the format you want. Whether you're a data wizard or an ambitious analyst, mastering custom SQL columns can elevate your reporting game to new heights.

By effectively using Column Customization, you can create reports that provide clear, actionable insights tailored to your specific operational needs. Whether you're tracking upgrade readiness, monitoring compliance, or managing software deployments, thoughtful column selection and customization are key to generating valuable reports.

C. Filtering and Sorting

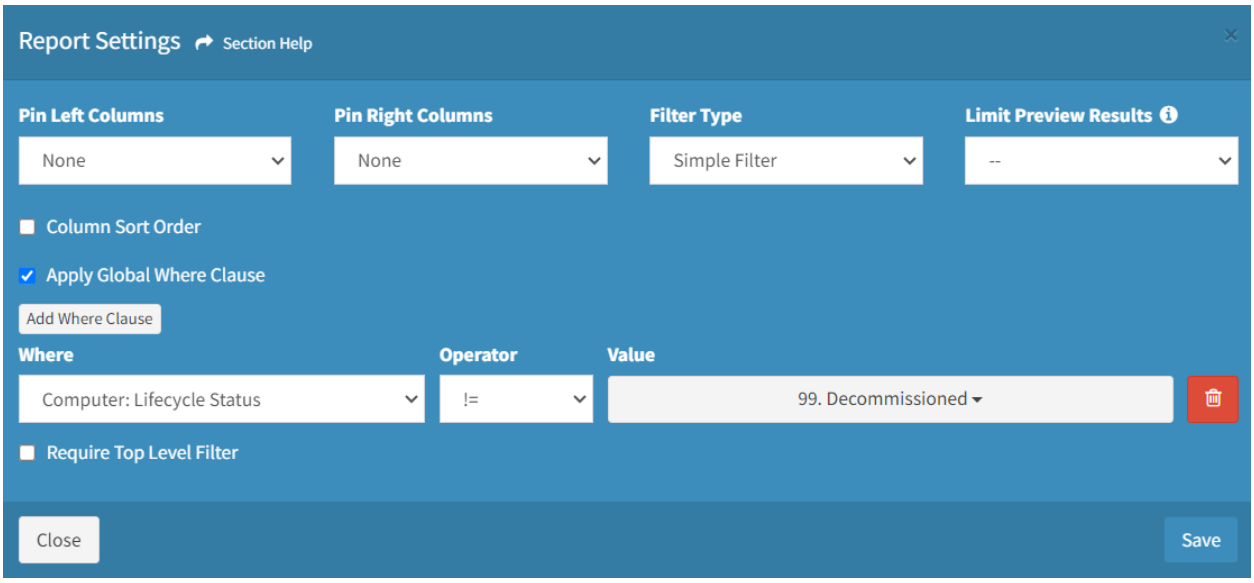
Filtering and Sorting are essential features in ReadyWorks Report Builder that allow you to refine and organize your data effectively. These tools help you focus on specific subsets of your data and arrange it in a meaningful order, making it easier to identify trends, locate specific information, and make informed decisions.

Filtering in Report Builder offers several levels of granularity:

- Global WHERE Clauses
- Top-Level Filters
- Column-Specific Filters

Global WHERE Clauses are applied to the entire report and act as a baseline filter. For example, you might want to exclude all decommissioned computers from your report. To set up a global WHERE clause:

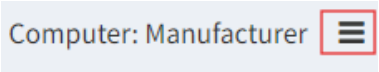
1) Navigate to the Report Settings
2) Select 'Apply Global WHERE Clause'
3) Choose the field (e.g., 'Lifecycle Status')
4) Set the condition (e.g., 'Does not equal')
5) Enter the value (e.g., 'Decommissioned')



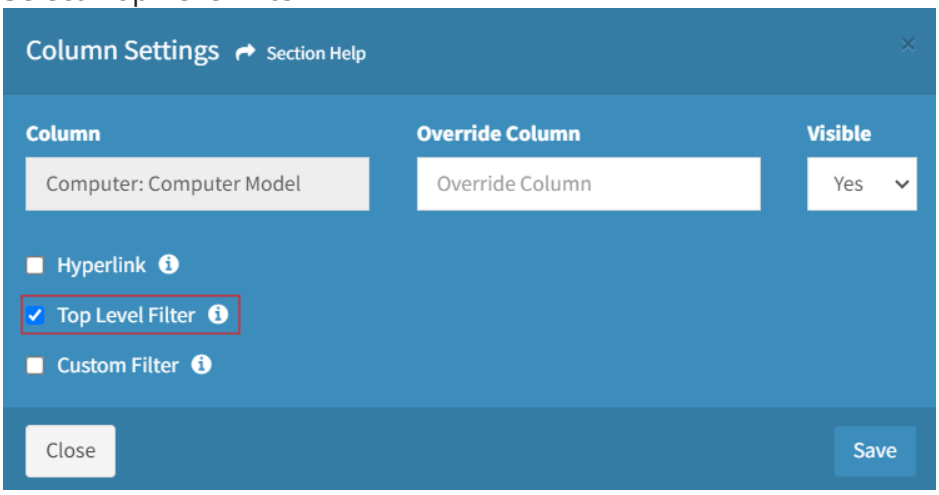
This ensures that regardless of other filters applied, decommissioned computers will never appear in your report.

Top-Level Filters are dynamic filters that appear above your report data. These are particularly useful for fields that you frequently filter on, such as Location or Department. To create a top-level filter:

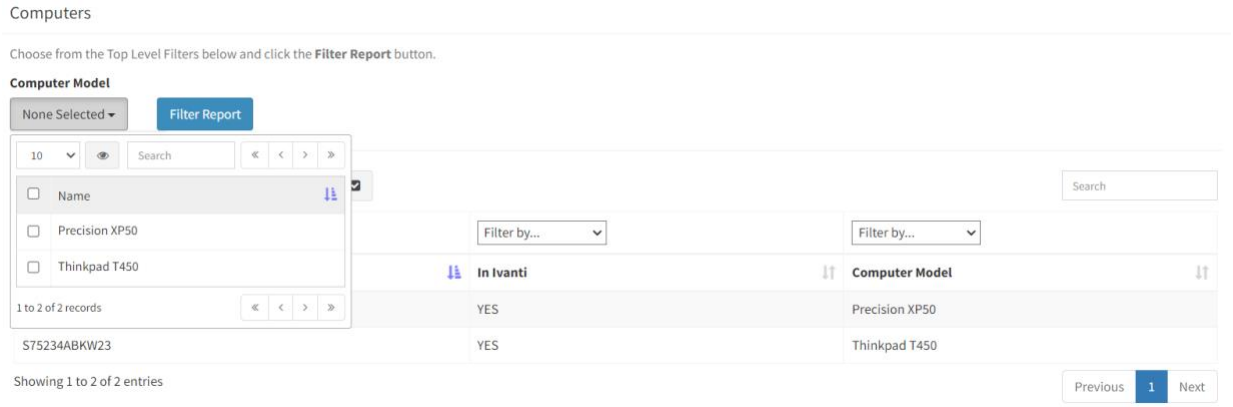
1) Click on the column settings for your chosen field



2) Select 'Top-Level Filter'

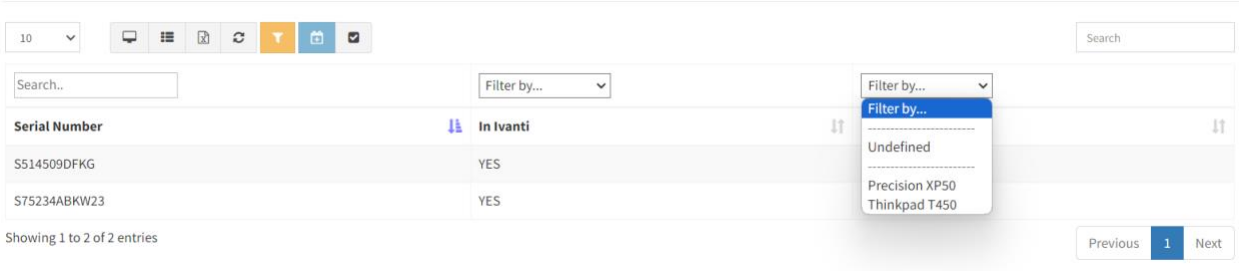


Once set up, users can easily filter the report without needing to modify its underlying structure.



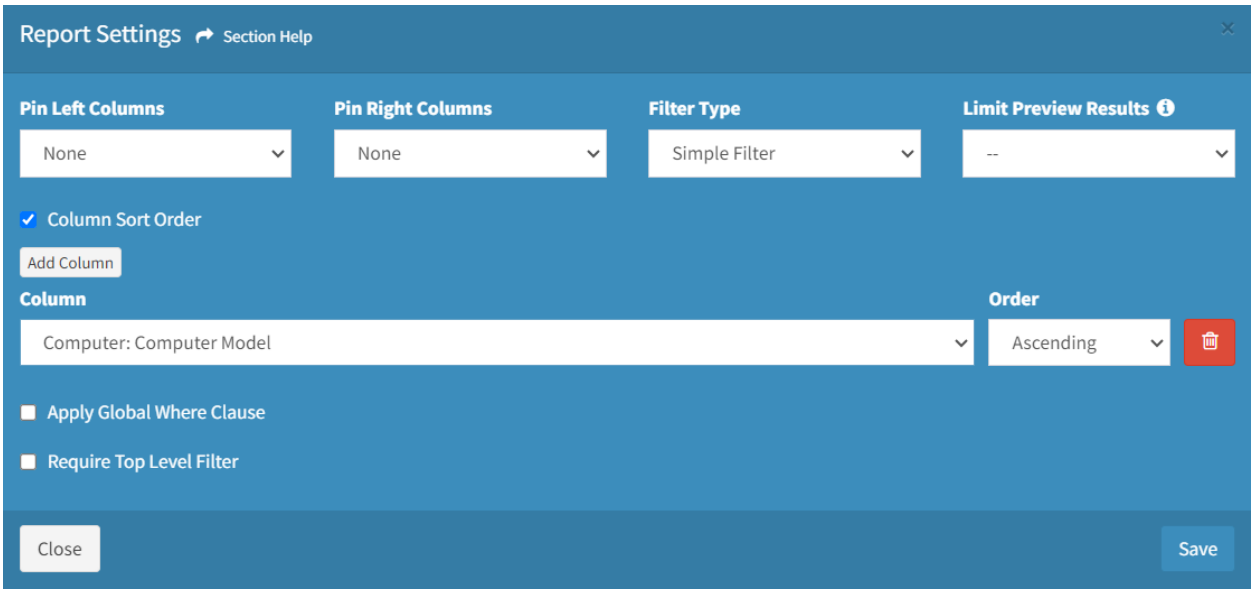
Column-Specific Filters are available on each column in your report. These allow for on-the-fly filtering as you work with your data. The type of filter available depends on the data type of the column:

- Text fields: Allow for text searches and pattern matching
- Numeric fields: Provide options for greater than, less than, equal to, etc.
- Date fields: Enable filtering by specific dates or date ranges
- Lookup fields: Offer selection from predefined values



Sorting in Report Builder helps you organize your data in a meaningful order. You can set default sort orders for your report, ensuring that data is always presented in a consistent, logical manner. To set a default sort:

1) Go to Report Settings
2) Select 'Column Sort Order'
3) Choose the primary column to sort by and the sort direction (ascending or descending)
4) Add additional sort columns if needed

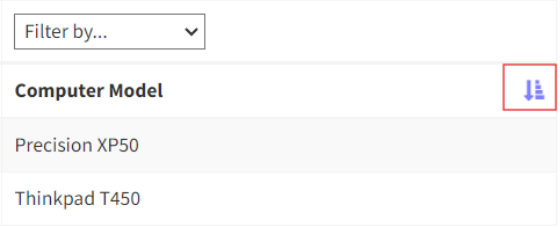


Users can also sort columns on-the-fly by clicking on column headers. This doesn't change the report's default sort order but allows for quick data exploration.

When implementing filtering and sorting, consider these best practices:

- Use global WHERE clauses for filters that should always apply
- Set up top-level filters for commonly used filtering criteria

- Choose a default sort order that makes sense for most use cases of the report
- Be mindful of performance impacts when filtering or sorting on columns from linked assets



Effective use of filtering and sorting can significantly enhance the usability and value of your reports. For instance, in a Windows servicing project, you might create a report with:

- A global WHERE clause to exclude virtual machines
- Top-level filters for Location and Department
- Column filters for OS Version and Last Login Date
- Default sorting by Computer Name

This setup allows operators to quickly drill down to specific subsets of computers, such as all Windows 10 machines in the Finance department that have been logged into within the last 30 days, sorted alphabetically by name.

By mastering these features, you can create dynamic, responsive reports that allow for efficient data analysis and support rapid decision-making in your IT operations.

D. Action Buttons and Forms

Action Buttons and Forms are powerful features in ReadyWorks Report Builder that transform static reports into interactive tools for data manipulation and workflow initiation. These features allow operators to take immediate action based on report data, streamlining processes and reducing the need to switch between multiple interfaces.

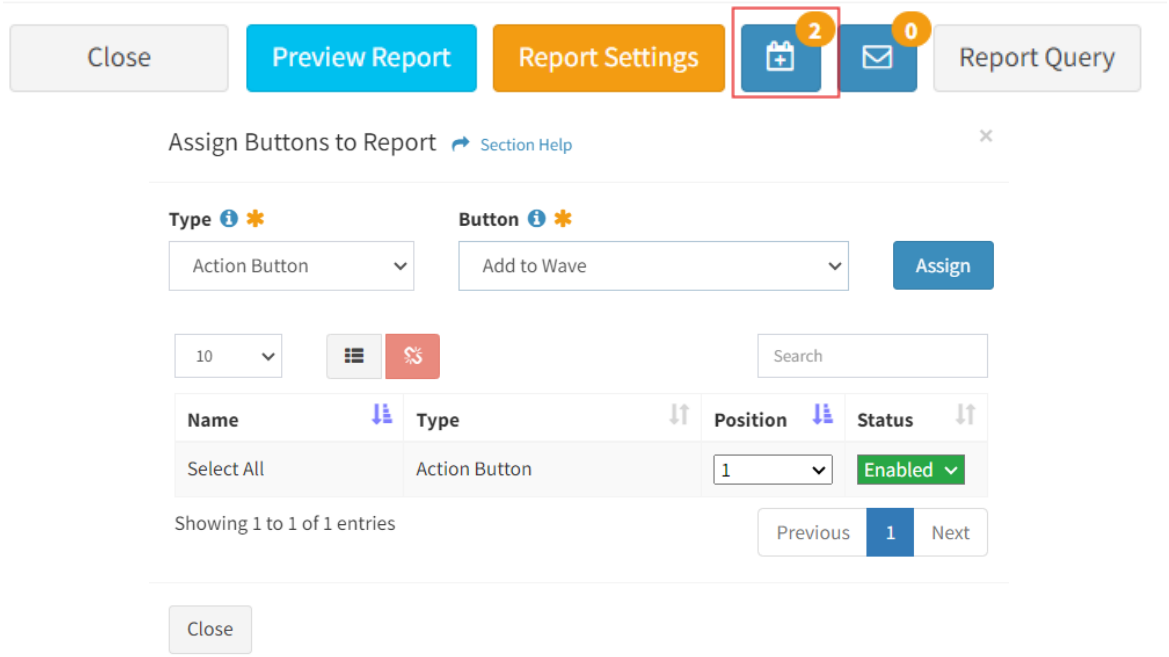
Action Buttons:

Action Buttons are customizable elements that can be added to your reports to trigger specific actions or workflows. These buttons appear at the top of your report and become active when one or more rows are selected. Common use cases for Action Buttons include:

- Adding assets to a deployment wave
- Initiating a software installation
- Updating asset status
- Generating tickets in an integrated ITSM system

To add an Action Button to your report:

1) Navigate to the Admin section and select 'Action Buttons'
2) Choose 'New Action Button' or select from existing templates
3) Configure the button's behavior using the provided scripting interface
4) Add the button to your report in the Report Builder interface using the 'Assign Buttons' form



Action Buttons can be as simple or complex as needed. For example, a basic button might update a single field on selected assets, while a more advanced button could trigger a multi-step workflow involving several systems.

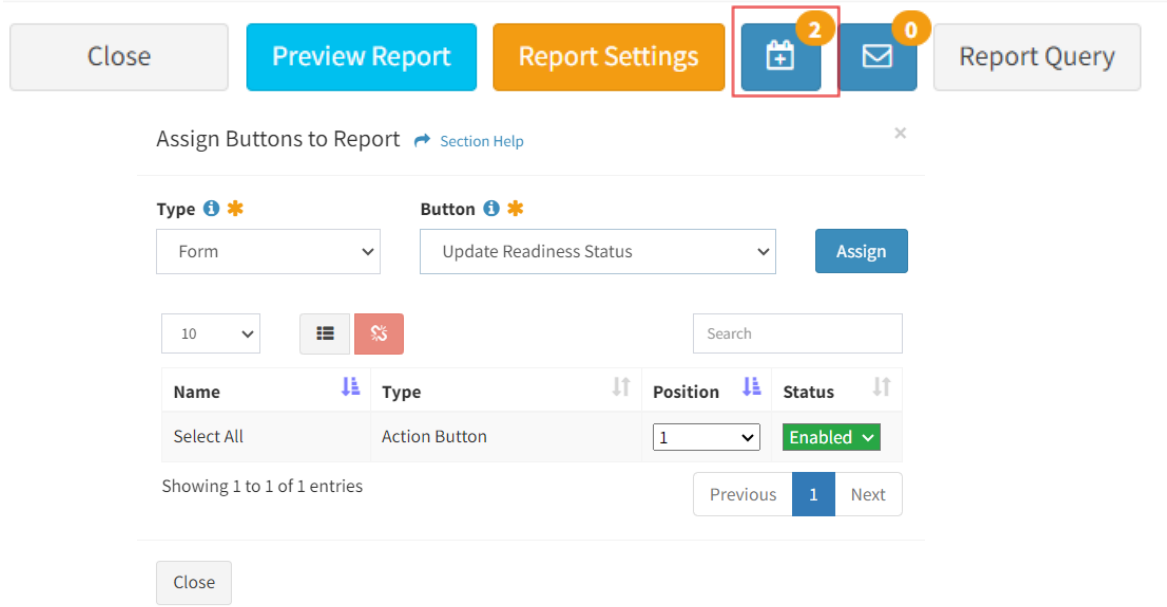
Forms:

Forms in ReadyWorks allow for direct data entry or modification from within a report. They provide a structured way to update asset information without navigating away from the report context. Key aspects of Forms include:

- Custom field selection: Choose which fields to include in the form
- Field validation: Ensure data integrity by setting required fields and data formats
- Conditional logic: Show or hide fields based on user inputs

To create a Form:

1) Go to the Admin section and select 'Form Builder'
2) Choose 'New Form' and select the asset type it will modify
3) Add and configure the desired fields
4) Save the form and add it to your report using the 'Assign Buttons' form



A practical example of combining Action Buttons and Forms might be a "Update Readiness Status" button that, when clicked, opens a form allowing the operator to input:

- Readiness status (dropdown)
- Comments (text area)
- Next review date (date picker)

This information would then be saved directly to the selected assets.

Best Practices for Action Buttons and Forms:

- Keep actions focused: Each button should perform a specific, well-defined task
- Use clear naming conventions: Button labels should clearly indicate their function
- Implement error handling: Ensure your actions gracefully handle unexpected scenarios
- Consider permissions: Restrict access to sensitive actions as needed
- Test thoroughly: Validate that actions and forms behave correctly with various data scenarios
- Provide user feedback: Use pop-up messages to confirm successful actions or explain errors

When implementing Action Buttons and Forms, consider the workflow implications. For instance, in a Windows servicing project, you might create:

1) An "Add to Wave" button that allows operators to add selected computers to a specific deployment wave
2) An "Update Hardware Status" form that lets operators quickly update information about a computer's hardware readiness

These interactive elements can significantly reduce the time and effort required to manage large-scale IT operations. By bringing actionable capabilities directly into your reports, you enable operators to work more efficiently, reducing the risk of errors that can occur when switching between multiple systems or interfaces.

Remember, while Action Buttons and Forms are powerful tools, they should be implemented judiciously. Overloading a report with too many interactive elements can make it cluttered and confusing. Aim for a balance that enhances usability without overwhelming the user.

E. RAG Status Configuration

RAG (Red, Amber, Green) Status Configuration is a critical feature in ReadyWorks Report Builder that enables visual representation of asset status or readiness. This feature is particularly useful for quickly assessing the state of assets across large environments, making it invaluable for operators managing complex IT landscapes.

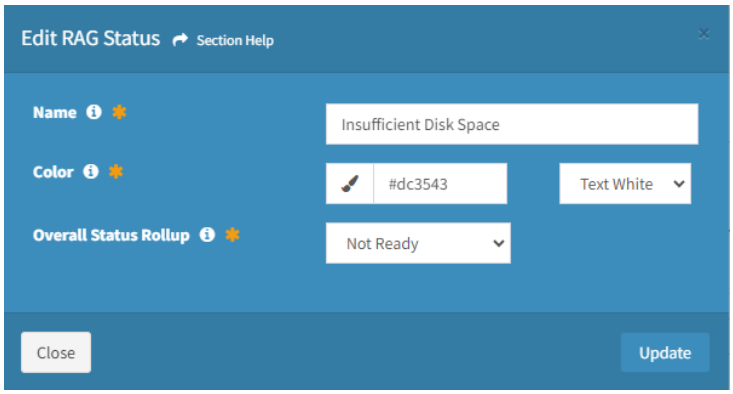
RAG statuses are typically used to indicate:

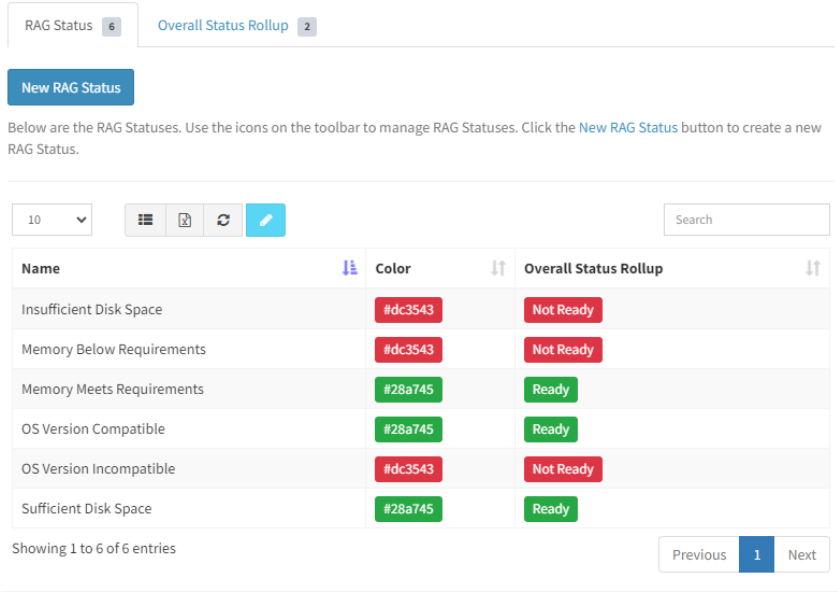
- Red: Critical issues or not ready
- Amber: Warnings or partially ready
- Green: No issues or fully ready

To implement RAG Status Configuration:

1) Define RAG Statuses:
   First, you need to create the RAG statuses in the ReadyWorks configuration. Navigate to the admin section and locate the RAG Status configuration area. Here, you can define statuses such as:
   - Sufficient Disk Space (Green)
   - Insufficient Disk Space (Red)
   - Memory Meets Requirements (Green)
   - Memory Below Requirements (Red)
   - OS Version Compatible (Green)
   - OS Version Incompatible (Red)

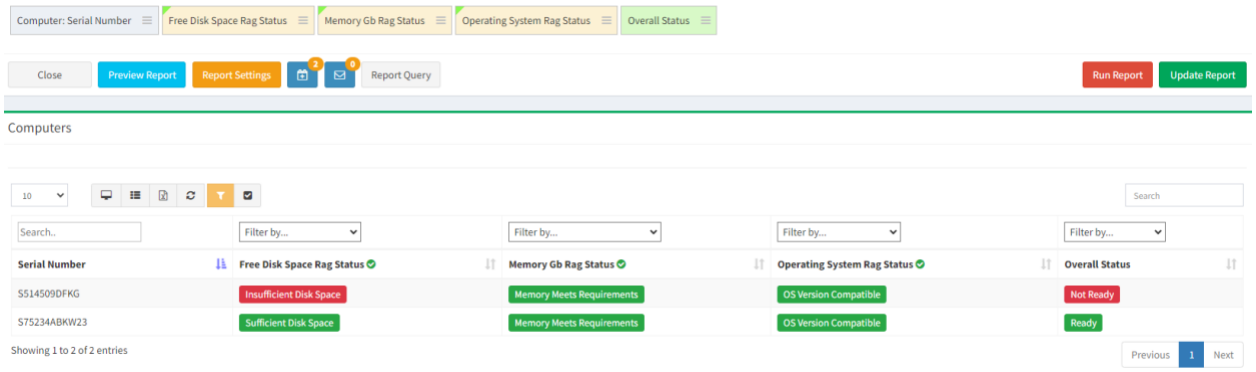
   For each status, you'll specify a name, color (by hexadecimal value), and whether it contributes to a "Ready" or "Not ready" overall roll-up status.





2) Create Custom Status Columns:
   In your report, add custom status columns that use these RAG statuses. For each column:
   - Select the field it's based on (e.g., 'Disk Space')
   - Map field values to your defined RAG statuses
   - Configure how null or unexpected values should be handled

3) Implement Overall Status:
   Create an overall status column that aggregates multiple custom status columns. This provides a high-level view of asset readiness. Typically, an asset's overall status is determined by its "worst" individual status (e.g., if any status is Red, the overall status is Red).



RAG Status Configuration is particularly powerful when combined with filtering and sorting features. For example, you can quickly filter to show all assets with a Red overall status, allowing you to focus on critical issues first.

Best Practices for RAG Status Configuration:

- Keep it simple: Use clear, consistent criteria for each status
- Align with business needs: Ensure your RAG criteria reflect actual operational requirements
- Update regularly: Review and adjust RAG criteria as project needs evolve
- Document thoroughly: Maintain clear documentation of what each status means
- Use meaningful colors: Stick to standard color meanings (Red for issues, Green for good) to avoid confusion
- Consider accessibility: Ensure your color choices are distinguishable for color-blind users

By effectively implementing RAG Status Configuration, you create reports that allow for rapid assessment of your IT environment. This visual approach to data presentation enables operators to quickly identify areas requiring attention, prioritize actions, and track progress on large-scale projects.

Remember, while RAG statuses are powerful, they're a simplification of complex data. Always ensure that detailed information is available for drill-down when needed, allowing operators to understand the specifics behind each status indicator.

F. Report Preview and Publishing

Report Preview and Publishing are essential features in ReadyWorks Report Builder that allow you to validate your report's appearance and functionality, and then make it available to other users. These features ensure that your reports are accurate, effective, and accessible to the right audience.

Report Preview:

The Preview function allows you to see how your report will look and behave before finalizing it. To use the preview feature:

1) Click the 'Preview' button while building or editing your report
2) Review the report layout, including all columns, filters, and action buttons
3) Test interactive elements like filters and sorting to ensure they work as expected
4) Verify that data is displaying correctly and RAG statuses are accurate

When previewing, pay attention to:

- Column order and width: Ensure the most important information is easily visible
- Filter functionality: Test top-level and column filters to confirm they return expected results
- Action button behavior: Verify that buttons are active when appropriate and perform the correct actions
- Data accuracy: Cross-check a sample of data against source systems to ensure correctness

Use the preview function iteratively as you build your report. It's often helpful to preview after each major change, rather than waiting until the end of the report building process.

Deploying your Report:

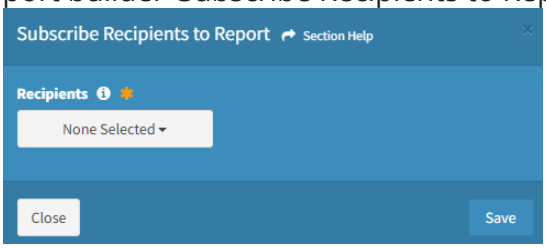
Once your report is finalized and tested, you can deploy it to make it available to other users. The deployment process involves several considerations:

1) Access Control:
   Determine who should have access to reports. ReadyWorks allows you to restrict access to reporting based on user roles or groups. Consider:
   - Which teams need this report?
   - Should access be read-only or include edit rights?
   - Are there any sensitive data elements that require additional restrictions?

2) Naming Convention:
   Use a clear, consistent naming convention for organizing your reports. This might include:
   - A prefix indicating the report type or project
   - A brief description of the report's purpose
   - A version number or date, if appropriate

3) Documentation:
   Provide context for your report users. This might include:
   - A brief description of the report's purpose and contents
   - Explanations of any custom calculations or statuses
   - Guidelines for using interactive elements like action buttons

4) Schedule and Distribution:
   Consider whether the report should be:
   - Available on-demand in the ReadyWorks interface via:
     - The ReadyWorks reporting tab, which requires a ReadyWorks login to view the report
     - Publishing the report to create a shareable URL, which does not require a ReadyWorks login to view the report
   - Automatically generated and distributed via e-mail attachment on a regular schedule via the report builder 'Subscribe Recipients to Report' module.



   - Exported to other systems or formats (e.g., CSV, PDF)

To deploy your report:

1) From the Report Builder interface, select 'Create Report'
2) Configure access permissions (binary only – access to all or none)
3) Set the report location and name
4) Add any necessary documentation or instructions
5) Configure any automated scheduling or distribution

Best Practices for Report Preview and Publishing:

- Plan Permissions: Understand that access to Reports are a binary selection – you grant access to all reports or no reports. ReadyWorks does not currently support granular Permissioning.
- Test thoroughly: Use the preview function extensively before publishing
- Seek feedback: Have other team members review the report before wide release
- Start small: Consider a phased rollout for complex reports
- Monitor usage: Track how often the report is used and by whom to ensure it's meeting needs
- Maintain and update: Regularly review published reports to ensure they remain relevant and accurate

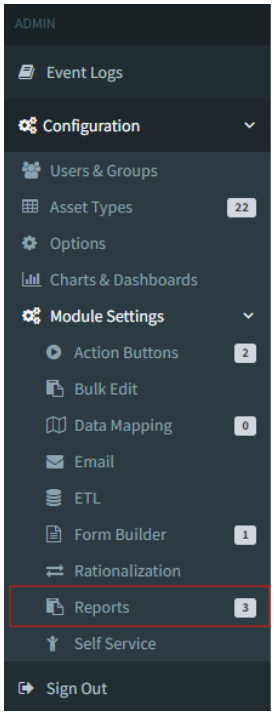
By effectively using the Preview and Publishing features, you ensure that your reports are not only accurate and functional but also readily available to those who need them. This supports efficient decision-making and operations across your IT environment.

Remember, a well-designed and properly published report can become a key tool for your team, providing crucial insights and enabling swift action. Take the time to get it right, and you'll create a valuable asset for your entire IT operation.

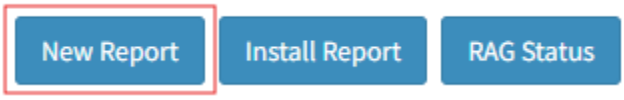
III. Implementation Steps

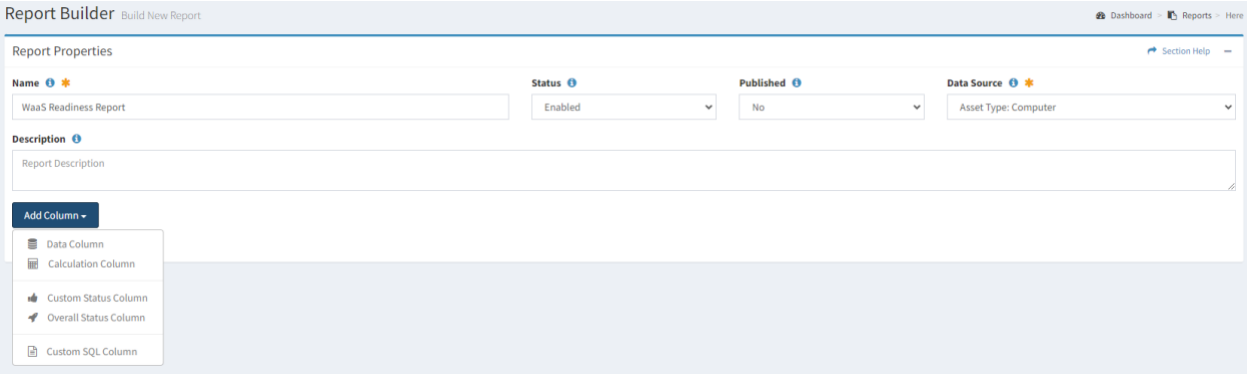
Implementing ReadyWorks Report Builder effectively requires a systematic approach. Follow these steps to create powerful, actionable reports for your environment:

1) Accessing Report Builder
   a) Navigate to the Admin section of ReadyWorks.
   b) Locate and click on "Configuration" in the menu.
   c) Select "Report Builder" from the dropdown options.

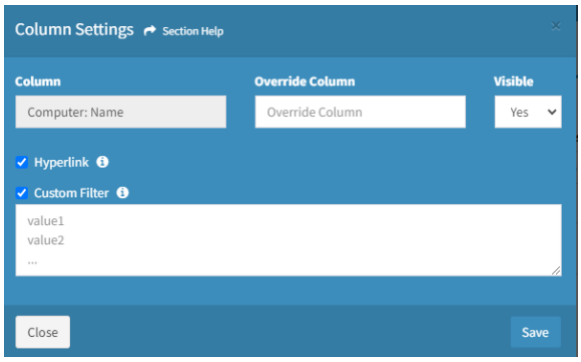


2) Creating a New Report
   a) Click the "New Report" button in the Report Builder interface.
   b) Provide a name for your report. Use a clear, descriptive name that follows your organization's naming conventions.
   c) Select the primary data source for your report (e.g., Computer, User, Application).
   d) Choose whether to enable the report immediately or save it as a draft.



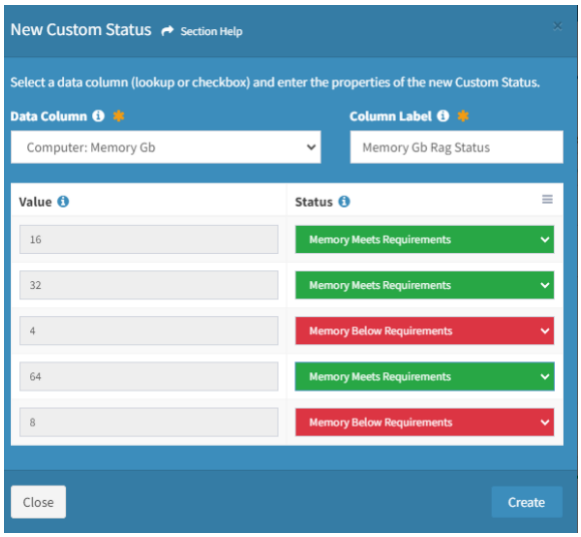


3) Adding Columns
   a) Click "Add Column" to begin selecting data fields.
   b) Choose from available fields related to your primary data source and linked assets.
   c) For each column:
      i) Set the column header name.
      ii) Configure any specific formatting options. E.g
         (1) Hyperlink to the asset page
         (2) Customize filter dropdown options (lookup list, choice or checkbox columns only)

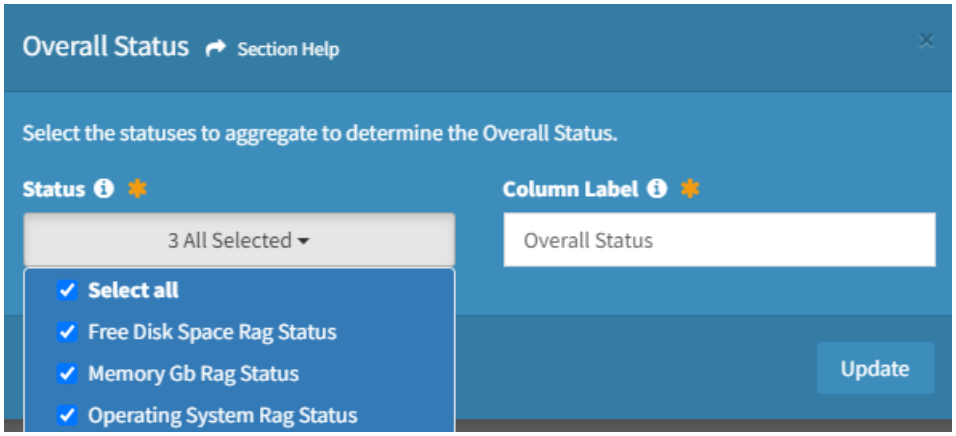


   d) Add calculation columns if needed:
      i) Click "Add Column" and select "Calculation Column."
      ii) Choose the calculation type (e.g., count).
      iii) Select the asset and field to perform the calculation on.

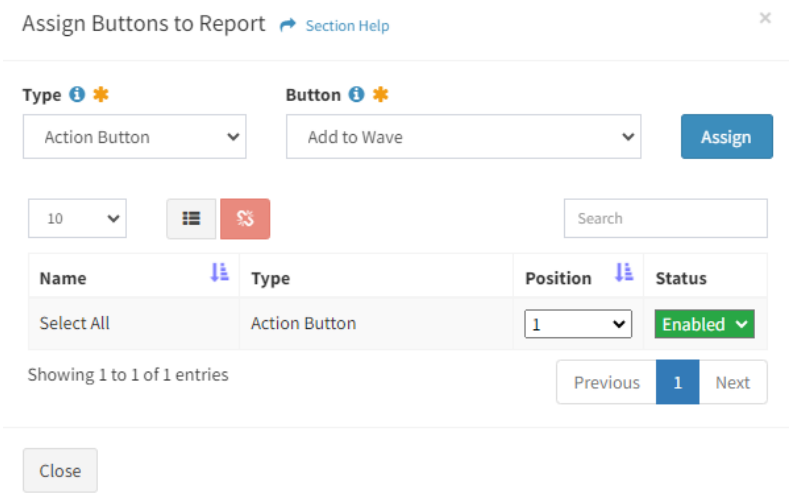
4) Implementing RAG Statuses
   a) First, create RAG statuses in the ReadyWorks configuration:
      i) Navigate to the RAG Status configuration area in the admin section.
      ii) Define your status options (e.g., "Sufficient Disk Space," "Insufficient Memory").
      iii) Assign colors and determine if each status contributes to a "ready" or "not ready" state.



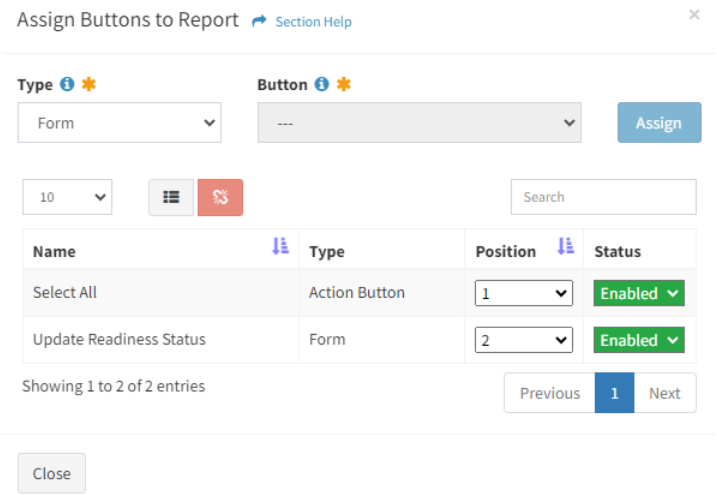
b) In your report, add custom status columns:
   i) Click "Add Column" and select "Custom Status Column."
   ii) Choose the field to base the status on.
   iii) Map field values to your defined RAG statuses.
c) Create an overall status column to aggregate multiple custom statuses:
   i) Add another column and select "Overall Status Column."
   ii) Choose which custom status columns should contribute to the overall status.



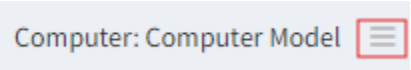
5) Creating Action Buttons
   a) Go to the Admin section and select "Get Actions."
   b) Click "New Action Button" or choose from existing templates.
   c) Configure the button's behavior using the scripting interface within the Action Button module:
      i) Define what happens when the button is clicked.
      ii) Specify any conditions for when the button should be active.
   d) Add the configured action button to your report in the Report Builder interface.



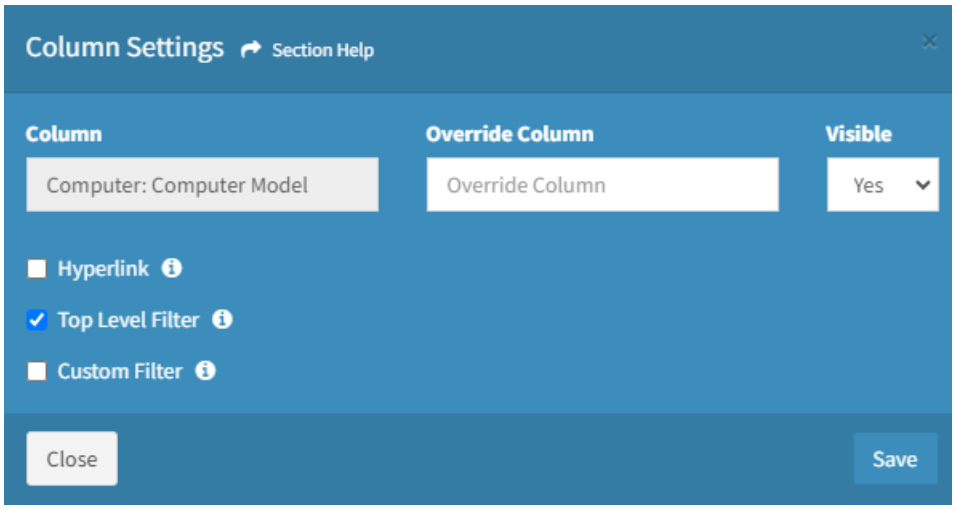
6) Configuring Forms
   a) Navigate to the Admin section and select "Form Builder."
   b) Click "New Form" and select the asset type it will modify.
   c) Add fields to your form:
      i) Choose which fields from the asset should be editable.
      ii) Set any field validation rules or required fields.
   d) Save the form and add it to your report as an action button.



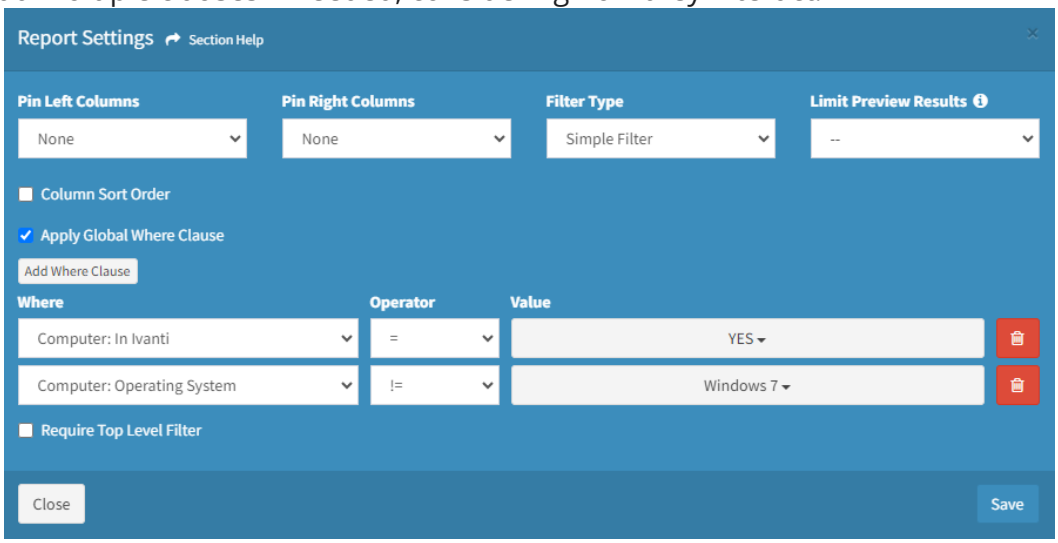
7) Setting Up Top-Level Filters
   a) For each column you want as a top-level filter:
      i) Click on the column settings.



      ii) Select "Top-Level Filter."



8) Applying Global WHERE Clauses
   a) In the Report Settings, locate the "Apply Global WHERE Clause" option.
   b) Click to add a new clause.
   c) Select the field, condition, and value for your global filter.
   d) Add multiple clauses if needed, considering how they interact.



9) Previewing and Publishing Reports
   a) Use the "Preview" function regularly as you build your report to check its appearance and functionality.

      Preview Report

   b) Test all interactive elements, including filters, sorting, and action buttons.
   c) Once satisfied with the report:
      i) Click "Publish" to make it available to other users.
      ii) Set appropriate access permissions.
      iii) Choose where the report should appear in the ReadyWorks interface.

iv) Add any necessary documentation or usage instructions.

By following these steps, you'll create comprehensive, interactive reports that provide valuable insights and enable efficient actions. Remember to iterate and refine your reports based on user feedback and changing operational needs.

IV. Best Practices

Implementing ReadyWorks Report Builder effectively requires more than just technical know-how. It involves understanding your operational needs, designing reports that provide actionable insights, and optimizing for performance and usability. This section covers best practices to help you create reports that are not only functional but also valuable tools for your team.

A. Report Design Considerations

When designing reports in ReadyWorks, it's crucial to focus on clarity, relevance, and usability. Your reports should provide clear, actionable information that supports decision-making and operational efficiency.

Consider the following when designing your reports:

1) Purpose and audience:
   Begin by clearly defining the report's purpose and intended audience. Ask yourself:
   - What specific questions should this report answer?
   - Who will be using this report, and what are their needs?
   - What actions should users be able to take based on this report?

2) Data selection:
   Choose your data points carefully. Include only the information that's necessary for the report's purpose. Remember:
   - More isn't always better. Too much data can obscure important insights.
   - Prioritize the most critical information, placing it prominently in the report.
   - Consider using calculation columns to derive meaningful metrics from raw data.

3) Visual hierarchy:
   Organize your report to guide the user's attention to the most important information:
   - Use RAG statuses to highlight critical issues or priorities.
   - Place key metrics or summary information at the top of the report.
   - Group related information together for easier comprehension.

4) Interactivity:
   Leverage ReadyWorks' interactive features to enhance usability:
   - Implement top-level filters for frequently used criteria.
   - Use action buttons to enable quick responses to report findings.
   - Consider adding drill-down capabilities for detailed analysis.

5) Consistency:
   Maintain consistency across your reports to improve user familiarity and efficiency:
   - Use standardized naming conventions for reports and columns.
   - Apply consistent color coding and status definitions across reports.
   - Standardize the placement of common elements like filters and action buttons.

B. Performance Optimization

As you work with large datasets and complex reports, optimizing for performance becomes crucial. A slow or unresponsive report can hinder operational efficiency and user adoption.

Implement these strategies to enhance report performance:

1) Data source selection:
   Choose your primary data source wisely:
   - Select the asset type that most closely aligns with your report's main focus.
   - Be cautious when including data from multiple linked assets, as this can impact performance.

2) Filtering strategy:
   Use filters effectively to reduce the amount of data processed:
   - Implement global WHERE clauses to exclude irrelevant data from the outset.
   - Encourage users to apply top-level filters before running complex calculations.

3) Calculated columns:
   Be judicious in your use of calculated columns:
   - Consider pre-calculating certain metrics and storing them as fields if they're used frequently.

4) Incremental loading:
   For large datasets, consider implementing incremental loading:
   - Initially load a subset of data, then allow users to load more as needed.
   - Use pagination to break large result sets into manageable chunks.

5) Regular testing:
   Consistently monitor and test your reports' performance:
   - Regularly time how long reports take to load and run calculations.
   - Test with realistic data volumes to identify potential issues before they impact users.
   - Be prepared to refine your report design if performance issues arise.

C. User Access and Permissions

Properly managing user access and permissions is crucial for maintaining data security and ensuring that users have the appropriate level of access to reports and data within ReadyWorks.

Consider the following when setting up user access and permissions:

1) Role-based access control:
   Implement a role-based access control (RBAC) system:
   - Define roles based on job functions (e.g., Operator, Team Lead, Manager).
   - Assign permissions to roles rather than individual users for easier management.
   - Regularly review and update role definitions as responsibilities change.

2) Principle of least privilege:
   Apply the principle of least privilege to minimize security risks:
   - Grant users only the permissions they need to perform their job functions.
   - Avoid giving blanket admin access; instead, use granular permissions.
   - Regularly audit user permissions to ensure they remain appropriate.

3) Report-specific permissions:
   Utilize ReadyWorks' ability to set permissions at the report level:
   - Determine who needs access to each report and at what level (view, edit, run actions).
   - Consider creating different versions of reports for different user groups if needed.

4) Data sensitivity:
   Be mindful of data sensitivity when granting access:
   - Identify reports containing sensitive information (e.g., personal data, security vulnerabilities).
   - Implement additional safeguards for sensitive reports, such as requiring approval for access.
   - Consider using data masking for sensitive fields in reports with broader access.

5) User training:
   Provide training to users on proper data handling and report usage:
   - Educate users on the importance of data security and their role in maintaining it.
   - Train users on how to interpret and act on report data correctly.
   - Establish clear guidelines for sharing report data outside of ReadyWorks.

D. Data Accuracy and Refresh Rates

Ensuring data accuracy and setting appropriate refresh rates are critical for maintaining the reliability and usefulness of your reports. Inaccurate or outdated data can lead to poor decision-making and erode trust in your reporting system.

Implement these strategies to maintain data accuracy and freshness:

1) Data source validation:
   Regularly validate your data sources:
   - Cross-check ReadyWorks data against source systems to ensure accuracy.
   - Implement automated data validation checks where possible.
   - Establish a process for reporting and correcting data discrepancies.

2) Refresh rate optimization:
   Set appropriate refresh rates for your reports:
   - Consider the nature of the data and how quickly it changes.
   - Balance the need for up-to-date information with system performance considerations.
   - Use different refresh rates for different types of data (e.g., more frequent for critical metrics).

3) Real-time vs. scheduled updates:
   Determine which reports need real-time data and which can use scheduled updates:
   - Use real-time data for critical operational reports that drive immediate action.
   - Schedule updates for reports that provide trending or historical analysis.
   - Consider the impact on system performance when deciding between real-time and scheduled updates.

4) Data lineage tracking:
   Implement data lineage tracking to understand and manage your data flow:
   - Document the sources and transformations of data used in your reports.
   - Use this information to troubleshoot data accuracy issues.
   - Ensure that data owners are identified for each data element.

5) User feedback loop:
   Establish a feedback loop with report users:
   - Encourage users to report suspected data inaccuracies.
   - Implement a process for investigating and addressing reported issues.

- Regularly communicate with users about known data issues and resolution efforts.

6) Automated alerts:
   Set up automated alerts for potential data quality issues:
   - Configure alerts for unexpected data values or patterns.
   - Monitor for missing or delayed data updates.
   - Use these alerts to proactively address data quality issues before they impact operations.

V. Troubleshooting Tips

Even with careful planning and implementation, issues can arise when working with ReadyWorks Report Builder. This section provides guidance on identifying and resolving common problems, ensuring that your reports continue to function effectively and provide value to your operations.

A. Common Issues and Solutions

When troubleshooting issues in ReadyWorks Report Builder, it's important to approach the problem systematically. Here are some common issues you may encounter, along with strategies for resolving them:

1) Report fails to load or loads incompletely:
   This issue often relates to data volume or complexity.
   - Check the report's data source and filters:
     - Ensure that the primary data source is appropriate for the report's purpose.
     - Verify that global WHERE clauses and filters are not overly restrictive.
   - Review calculated columns:
     - Look for complex calculations that might be causing performance issues.
     - Consider simplifying calculations or pre-calculating values where possible.
   - Examine linked asset data:
     - Reduce the number of fields pulled from linked assets if not all are necessary.
   - Consult with your ReadyWorks administrator:
     - They may need to optimize database indexes or increase server resources.

2) Inconsistent or unexpected data:
   When report data doesn't match expectations, consider these steps:
   - Verify data refresh timing:
     - Check when the last data import occurred.
     - Ensure that refresh rates are appropriate for the data's volatility.
   - Cross-check with source systems:
     - Compare a sample of data points with the original data sources.
     - Look for any discrepancies in data mapping or transformation.
   - Review calculation logic:
     - Double-check the formulas used in calculated columns.
     - Ensure that RAG status criteria are correctly defined.
   - Examine filters and WHERE clauses:
     - Verify that filters are not inadvertently excluding relevant data.
     - Check for any conflicting filter conditions.

3) Action buttons or forms not working as expected:
   If interactive elements are malfunctioning:
   - Check user permissions:
     - Ensure that users have the necessary rights to perform the actions.
     - Verify that the report itself has the correct permissions set.
   - Review action button configuration:
     - Check the action button's script for errors.
     - Ensure that any conditions for button activation are correctly set.
   - Test form functionality:
     - Verify that all form fields are correctly mapped to asset attributes.
     - Check for any validation rules that might be preventing form submission.

4) Report performance degradation over time:
   If a previously well-performing report becomes slow:
   - Analyze recent changes:
     - Review any modifications made to the report structure or calculations.
     - Check if data volume has significantly increased recently.
   - Examine usage patterns:
     - Look for an increase in concurrent users or frequency of report runs.
     - Consider implementing staggered refresh times for heavy reports.
   - Consult system logs:
     - Work with your ReadyWorks administrator to review system logs for any anomalies.
     - Look for patterns in when performance issues occur.

5) Discrepancies between preview and published report:
   If the preview doesn't match the published version:
   - Check for unsaved changes:
     - Ensure all modifications have been saved before publishing.
     - Re-publish the report if necessary.
   - Review user-specific settings:
     - Verify if any discrepancies are due to user-specific filters or permissions.
   - Clear cache and cookies:
     - Instruct users to clear their browser cache and cookies.
     - Test the report in an incognito/private browsing window.

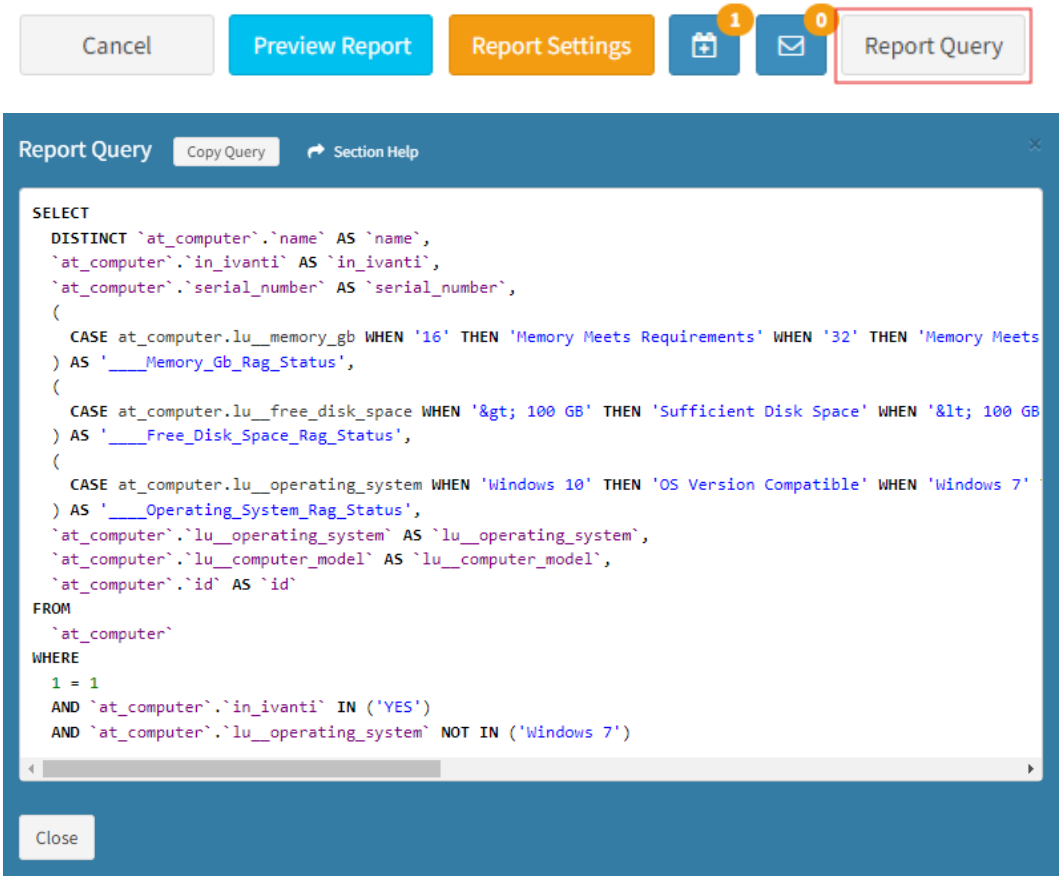
When troubleshooting, always approach the problem methodically:
1. Clearly define the issue.
2. Gather relevant information (error messages, affected users, recent changes).
3. Test in a controlled environment if possible.
4. Apply potential solutions one at a time, testing after each change.
5. Document the problem and solution for future reference.

B. Performance Troubleshooting

Performance issues can significantly impact the usability and effectiveness of your reports. When dealing with performance problems, consider the following approaches:

1) Identify the bottleneck:
   Determine where the performance issue is occurring:
   - Data retrieval: Slow query execution from the database
   - Data processing: Complex calculations or large data volumes
   - Rendering: Issues with displaying large amounts of data in the browser

2) Analyze query performance:
   Work with your ReadyWorks administrator to examine database queries:
   - Use query execution plans to identify slow-running queries
   - Look for opportunities to optimize WHERE clauses or JOINs
   - Consider adding appropriate indexes to frequently queried columns



3) Optimize data volume:
   Reduce the amount of data being processed:

- Implement more restrictive filters or WHERE clauses
- Use data sampling for large datasets where appropriate
- Consider aggregating data at a higher level (e.g., daily instead of hourly)

4) Review calculated columns:
   Examine any custom calculations in your report:
   - Simplify complex calculations where possible
   - Consider pre-calculating frequently used metrics and storing the results
   - Use incremental calculations for time-based metrics rather than recalculating from scratch

Remember, performance optimization is often an iterative process. Make changes incrementally and test thoroughly after each modification to ensure you're moving in the right direction.

C. Data Discrepancies

When you encounter data discrepancies in your reports, it's crucial to investigate and resolve them promptly to maintain trust in your reporting system. Here's how to approach this issue:

1) Verify data sources:
   Ensure that your report is pulling data from the correct sources:
   - Check data source configurations in ReadyWorks
   - Confirm that any integrations or data imports are functioning correctly
   - Verify that the correct version or instance of a data source is being used

2) Cross-check with original data:
   Compare report data with the original source:
   - Use a sample of records to manually verify data accuracy
   - Look for any patterns in discrepancies (e.g., specific fields, date ranges, or asset types affected)

3) Review data transformations:
   Examine any data transformations or calculations:
   - Check the logic of calculated fields
   - Verify that data type conversions are handled correctly
   - Ensure that null or empty values are treated appropriately

4) Investigate timing issues:
   Consider whether timing could be causing discrepancies:
   - Check data refresh schedules and ensure they align with reporting needs
   - Look for any time zone discrepancies in date/time fields

- Verify that report generation times align with data update times

5) Examine filtering and aggregation:
   Review how data is being filtered and aggregated:
   - Check that filters are not inadvertently excluding relevant data
   - Verify that aggregations (sums, averages, etc.) are calculated correctly
   - Ensure that the grain of aggregation matches report requirements

6) Check for data quality issues:
   Look for underlying data quality problems:
   - Investigate any duplicate records or missing data
   - Check for inconsistent data formats or units of measurement
   - Verify that data validation rules are being applied correctly

7) Document and communicate:
   When you identify and resolve discrepancies:
   - Document the issue, its cause, and the resolution
   - Communicate with affected users about the discrepancy and its resolution
   - Update any relevant documentation or data dictionaries

8) Implement ongoing monitoring:
   Set up processes to catch future discrepancies early:
   - Implement automated data quality checks
   - Regularly sample and verify report data
   - Encourage users to report any suspected inaccuracies promptly

Remember, if you're unable to resolve an issue, don't hesitate to reach out to ReadyWorks support. They can provide expert assistance and may be aware of known issues or best practices that can help resolve your problem efficiently.

VI. Advanced Features

As you become more proficient with ReadyWorks Report Builder, you may want to explore its advanced features to create more sophisticated and powerful reports. This section covers some of these advanced capabilities.

A. Integration with Asset Rules

Asset Rules in ReadyWorks allow you to automate actions based on specific conditions. Integrating these rules with your reports can significantly enhance your 's operational efficiency.

1) Understanding Asset Rules:
   Asset Rules are condition-based automations that can:
   - Update asset attributes
   - Trigger notifications
   - Initiate workflows
   - Interface with external systems

2) Leveraging Asset Rules in Reports:
   Integrate Asset Rules with your reports to:
   - Automate data updates based on report findings
   - Trigger actions when certain conditions are met in a report
   - Enhance the dynamic nature of your reports

3) Implementation Strategies:
   To effectively use Asset Rules with reports:
   - Identify repetitive actions that could be automated
   - Design rules that complement your report logic
   - Use report data to drive rule execution

4) Example Use Cases:
   Consider these scenarios:
   - Automatically update an asset's status when it meets certain criteria in a report
   - Trigger a notification when a report identifies critical issues
   - Initiate a workflow for assets that fall into specific categories in your report

5) Best Practices:
   When integrating Asset Rules:
   - Start with simple, well-defined rules and gradually increase complexity
   - Thoroughly test rules in a non-production environment

- Document rule logic and how it interacts with your reports
- Regularly review and update rules to ensure they remain relevant

B. Automated Report Generation and Distribution

Automating the generation and distribution of reports can save time and ensure that stakeholders always have access to the latest information.

1) Scheduling Reports:
   Use ReadyWorks' scheduling features to:
   - Generate reports at regular intervals (daily, weekly, monthly)
   - Align report generation with data refresh cycles
   - Ensure reports are available when stakeholders need them

2) Distribution Methods:
   Consider various distribution options:
   - Email reports directly to stakeholders
   - Save reports to a shared network location
   - Integrate with collaboration tools (e.g., SharePoint, Teams)

3) Customizing Report Formats:
   Tailor the output to meet different needs:
   - Generate reports in various formats (PDF, Excel, CSV)
   - Create different versions of the same report for different audiences
   - Include dynamic elements that update based on the latest data

4) Implementing Conditional Distribution:
   Set up rules for smarter distribution:
   - Only send reports when certain conditions are met (e.g., critical issues identified)
   - Vary the recipient list based on report content
   - Adjust the frequency based on the urgency of the data

5) Security Considerations:
   Maintain data security in automated processes:
   - Ensure that report distribution adheres to your organization's data handling policies
   - Use secure methods for report transmission
   - Implement access controls on shared report locations

6) Monitoring and Maintenance:
   Keep your automated processes running smoothly:

- Set up alerts for failed report generations or distributions
- Regularly review the relevance and accuracy of automated reports
- Maintain a log of report distributions for audit purposes

7) Best Practices:
   To maximize the benefits of automation:
   - Start with your most critical or frequently used reports
   - Clearly communicate the automation schedule to all stakeholders
   - Provide a way for recipients to opt out or modify their preferences
   - Regularly solicit feedback on the usefulness and timing of automated reports

By leveraging these advanced features - integrating Asset Rules and implementing automated report generation and distribution - you can significantly enhance the value and efficiency of your reporting processes. These capabilities allow your team to move from reactive to proactive operations, addressing issues before they escalate and ensuring that all stakeholders have the information they need when they need it.

Remember, while these features are powerful, they should be implemented thoughtfully. Start with clear use cases, test thoroughly, and gradually expand your use of these advanced capabilities as you become more comfortable with them and as your operational needs evolve.

VII. Conclusion

As we conclude this technical documentation on ReadyWorks Report Builder, it's important to reflect on the key capabilities of this powerful tool and look ahead to potential future enhancements.

A. Summary of Report Builder Capabilities

ReadyWorks Report Builder is a versatile and robust solution for creating, managing, and distributing reports in complex IT environments. Its key capabilities include:

- Flexible Data Source Selection:
  - Allows for reports based on various asset types (Computers, Users, Applications, etc.)
  - Enables access to linked asset data for comprehensive reporting

- Customizable Column Configuration:
  - Supports a wide range of column types including data, calculation, and status columns
  - Allows for the creation of custom RAG (Red, Amber, Green) statuses for quick visual assessment

- Advanced Filtering and Sorting:
  - Provides options for global WHERE clauses, top-level filters, and column-specific filtering
  - Enables custom sort orders for intuitive data presentation

- Interactive Elements:
  - Supports the creation of action buttons for initiating workflows directly from reports
  - Allows for the integration of custom forms for data entry and modification

- Performance Optimization Features:
  - Offers tools for managing large datasets efficiently
  - Provides options for caching and incremental loading to enhance report responsiveness

- Automated Report Generation and Distribution:
  - Supports scheduling of report generation
  - Enables automated distribution through various channels

- Integration with Asset Rules:

- Allows for the creation of dynamic, condition-based reports
- Enables automated actions based on report data

These capabilities make ReadyWorks Report Builder an essential tool for operations, enabling data-driven decision making and efficient IT asset management.

B. Closing Thoughts

ReadyWorks Report Builder is more than just a reporting tool; it's a powerful ally in managing complex IT environments. By leveraging its capabilities, operators can gain deep insights into their IT landscape, automate routine tasks, and respond swiftly to emerging issues.

As you continue to work with Report Builder, remember these key points:

- Start with clear objectives for each report
- Design with the end-user in mind
- Regularly review and optimize your reports
- Stay updated on new features and best practices
- Provide feedback to ReadyWorks to help shape future enhancements

Remember, the most effective use of Report Builder comes from a combination of technical skill and operational understanding. Continue to explore its capabilities, experiment with new approaches, and always keep your eye on the ultimate goal: delivering clear, actionable insights that drive your IT operations forward.

By mastering ReadyWorks Report Builder, you're not just creating reports – you're building a more efficient, responsive, and proactive IT operation. As your familiarity with ReadyWorks evolves, so too will your ability to derive value from the Orchestrated data, driving better decisions and more streamlined operations.