QUANTIFICATION ANALYTICS TOOL

User Manual

USAID FROM THE AMERICAN PEOPLE

PEPFAR U.S. President's Emergency Plan for AIDS Relief

USAID FROM THE AMERICAN PEOPLE CDC

U.S. President's Malaria Initiative

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Acronyms & Definitions

AMC	Average monthly consumption
AMI	Average monthly issues
ARTMIS	Automated Requisition Tracking Management Information System
ARU	Alternate reporting unit
ATP	Available to promise
CSP	Coordinated supply planning
EOQ	Economic order quantity
ERP	Enterprise resource planning
FASP	Forecasting and supply planning
FP/RH	Family planning and reproductive health
GAD	Goods available date
GHSC-PSM	Global Health Supply Chain – Procurement and Supply Management program
GLN	Global Location Number
GTIN	Global Trade Item Number
MNCH	Maternal, newborn and child health
MOH	Ministry of health
MOQ	Minimum order quantity
MOS	Months of stock
PEPFAR	President's Emergency Plan for AIDS Relief
PMI	U.S. President's Malaria Initiative
PPMR-HIV	Procurement planning & monitoring report - HIV/AIDS
PPMR-M	Procurement planning & monitoring report - malaria
QAT	Quantification Analytics Tool
RO	Requisition order
SKU	Stock keeping unit
STG	Standard treatment guidelines
TLP	Targeted local procurement
USAID	United States Agency for International Development

Section 1: Overview

Introduction

The Global Health Supply Chain – Procurement and Supply Management (GHSC-PSM) program is an official project of the United States Agency for International Development (USAID), implemented by Chemonics International and its consortium members. The purpose of GHSC-PSM is to ensure uninterrupted supplies of health commodities in support of US Government-funded public health initiatives around the world.

The Forecasting and Supply Planning (FASP) tool modernization initiative is supported with funding from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), the U.S. President's Malaria Initiative (PMI), USAID's family planning and reproductive health (FP/RH) program, and USAID's maternal and child health (MCH) program, which share the cost of the project.

Previous USAID-funded projects, including the Supply Chain Management Systems (SCMS) and DELIVER developed and implemented the existing suite of FASP tools used in the global health domain. These tools have performed their specific functions well and achieved their main objectives. The tools, however, were designed separately, are inconsistent in terms of the user interfaces, and require manual manipulation for data exchange.

The primary objectives of this initiative are to build the next generation FASP tools on a scalable and modular platform that is operating-system agnostic; a tool that is web-based with significant offline capabilities; designed to allow for seamless data exchange and sharing across key stakeholders and public health systems, as well as have a user-centric interface for overall usability and automates supply chain functions for end-to-end data visibility and evidence-based decision making that extends across global and national supply chains and encourages coordination with all stakeholders.

Why Supply Planning?

Supply planning is the component of supply chain management involved with determining how to best fulfill the requirements created from the demand plan. The objective is to balance supply and demand in a manner that achieves the service delivery and financial objectives of the health program.

What is the Quantification Analytics Tool and What Can It Do for You?

The Quantification Analytics Tool (QAT) is a modernized solution for country-led supply planning. QAT leverages new technologies to enhance and modernize the functionality offered by the incumbent PipeLine and Quantimed (module 2) tools by providing advanced scenario planning and updated planning logic. It also streamlines the supply planning activities. Furthermore, the QAT enables offline functioning that helps users log their data even when there is no network coverage. QAT is changing the paradigm of legacy planning solutions by leveraging master data management to drive standardization and increase visibility across all programs.

This new tool seeks to enable users to optimize commodity procurement and delivery schedules, monitor the stock status of products and share data with external platforms and key stakeholders.

QAT supports monitoring and procurement planning functions, as explained below:

QAT monitoring functions include:

- Monitoring stock balances, in terms of quantities and months of stocks on hand in the entire program.
- Comparing stock balances to maximum and minimum stock parameters and identifying stock outs, balances below minimum or above maximum.
- Automating the identification of problems such as additional procurements needed.

Procurement planning functions include:

- Calculation of shortfalls/surpluses and quantities needed to maintain the program's optimum stock levels.
- Automated calculation and tracking of pending actions, based on lead times such as shipments to plan, order, ship, and receive.
- Calculation of estimated shipment and freight costs.
- Tracking estimated budget expenditures.
- Comparison of alternative procurement scenarios and analysis.

Who Should Use QAT?

It is increasingly necessary that local program managers be empowered to do their own forecasting, monitoring, and procurement planning; they must also take charge of coordinating the activities of donors and local suppliers, as well as those of their own logistics management staff. While program managers and decision makers will be the primary users of QAT, the system can provide information to host country policy makers, country directors, procurers, and donors.

Who	Purpose
Planners / Program Managers	Managing procurements from multiple funding sources (with different budgets), multiple procurement agents (with different catalogs, and lead times) and consumption and inventory data coming from different levels of the supply chain. QAT will help decrease the risk of stock imbalances by providing increased visibility into procurement planning, and stock status monitoring in the near- and long-term.
Host-country policy makers / country directors	QAT will highlight stock imbalances and the implications of different decisions, such as budgetary constraints and procurement policies
Procurers and donors	QAT highlights the current supply status and future procurement requirements

Table 1: Recommended QAT users and purpose

Important QAT Concepts and Terms

Terms	Definitions
Alternate Reporting Unit	The product and the unit that the country's data (consumption or stock) is reported in. This could be the same as the planning unit or may be different. QAT users can define an alternate reporting unit and a conversion factor (multiplier) to the planning unit. (E.g. The planning unit is one bottle of 30 tablets; inventory reported in a box of 20 bottles (alternate reporting unit) = 100; multiplier is 20. Therefore, inventory reported is converted to planning units = 20 x 100 = 2,000 bottles of 30 tablets.) ARUs must be added/updated by QAT realm administrators.
Average Monthly	A dynamic value (*could be different month to month*) that determines the average quantity a product is used over a selected period of time. For QAT, the default AMC will be an average of the past three (3) months of consumption, the current

Consumption (AMC)	month, and two (2) months into the future. If there is missing monthly consumption data within the calculated time period, it will be treated as "null," not as zero. QAT program administrators have the ability to change the AMC time period to a maximum of 12 months into the past and 12 months into the future. $Average\ Monthly\ Consumption\ (AMC) = \left(\frac{Consumption\ in\ No.\ of\ MONTHS\ IN\ PAST\ +\ Consumption\ in\ No.\ of\ MONTHS\ IN\ FUTURE}{Number\ of\ Months} \right)$
Data Source	A data source is the location where data that is being entered into QAT originates from. Data sources should be applied for transactional records (Consumption, Inventory, Adjustments and Shipments) by QAT users. The selection of data sources for each transactional record will depend on which Data Source Type that record is for.
Forecasting Unit	The base unit that will be used for a specified forecasting period (e.g. one tablet, one condom, one milliliter). Note: this will be introduced in QAT Module 2 - Forecasting.
Funding Source	Funding Source is any financial institution or other entity providing funding or facilities for the program. Every shipment should be assigned a funding source.
Lead Times	Lead times for QAT shipments have been mapped to the supply planning statuses and are inputted per product by the QAT program administrator. There are six different lead time calculations: • Planned to Submitted: time from when a shipment is planned (need identified) until it is entered into the procurement agent's system. • Submitted to Approved: time from when the shipment is entered into the procurement agent's system until it is approved for procurement. • Approved to Shipped: time from when the shipment is officially approved for procurement until it is shipped by the supplier. • Shipped to Arrived (sea) and Shipped to Arrived (air): time from when the shipment has left the supplier's location until it arrives at the port of entry. • Arrived to Received: time from when the shipment arrives at port of entry and is in the customs clearance process until it arrives at the final destination and is ready to distribute.
Master Data	Master data is a cleaned/standardized set of data that is shared and used by several programs, in the case of the Global Health Realm) that make up a system. Many data points in QAT are standardized – for example, product lists, shipment statuses, data sources, etc. Users can request updates and additions to this master data though a ticketing mechanism.
Minimum & Maximum Stock Levels	The minimum stock level (in months) is determined per planning unit and is set at the program level. QAT program administrators can adjust as desired. $Min\ MoS\ =\ AMC\ \times\ Max\ of\ (\ Min\ Months\ of\ Stock\ ,\ Min\ MoS\ Guardrail\ )$ The maximum stock levels (in months) are dynamically calculated based on the minimum stock level plus the reorder interval. $Max\ MoS\ =\ Min\ Of\ \{\ [\ Max\ (\ MIN\ Months\ of\ Stock\ ,\ Min\ MoS\ Guardrail\ )\ +\ REORDER\ FREQUENCY\ ]\ ,\ Max\ MoS\ Guardrail$
Minimum Order Quantity (MOQ)	Minimum number of units a product must be ordered in.
Months of Stock	This measure is conceptually the same as in PipeLine. However, due to the new AMC calculation methodology, results may vary from those seen in PipeLine.

	$Months\ Of\ Stock = \left(\frac{Ending\ Balance}{AMC}\right)$
Planning Unit	The product to be planned for in QAT. It is a product with a full description up to the primary packaging (e.g. bottle of 30 tablets, 10x10 blister pack, etc.)
Procurement Unit	The product at the item level. A higher-level description of the planning unit including supplier-specific attributes. This information will not be visible/selectable by QAT users but will be sent automatically from procurement management systems.
Procurement Systems Interfacing	The software is designed to interface with different procurement management systems from the various procurement agents. Initially, QAT will have an interface with ARTMIS that will enable import of USAID product information along with shipment data directly into QAT, reducing workload on planners to update shipment delivery dates, quantities, and statuses. In the future, PSM will work to engage other donors such as Global Fund and/or UNFPA to interface with their systems, thus enabling importation of shipment data from them.
Programs	A program arises similar in structure to a PipeLine "supply plans database". Each program consists of only one country, one technical area, one region (national level, central level, etc.), and one organization (MOH, PEPFAR-only, PMI-only).
Realm	QAT is subdivided into realms, each one governed by their own master data (inclusive of product catalog, funder names, procurement agent names, etc.). Future realms could be set up for other fields such as education supply chains, agriculture supply chains, etc.
Region	QAT users can capture data at sub-national levels by structuring their programs with regions. The regions are defined at the program level. If a program administrator does not have subnational-level data or prefers to enter aggregated values, the user may keep the region as "national" or "central." To define sub-national levels, both forecast/actual consumption and inventory/adjustments must be entered at each level, which the application would then aggregate to a national total.
Reorder Interval	A user-input number of months between shipments. QAT program administrators can adjust (default = 1 month) as desired. The reorder interval is used to calculate the maximum stock parameter.
Supply Plan Statuses	Within QAT, there are a total of nine supply planning statuses that have been identified through the shipment's lifecycle. These nine statuses are: Suggested: shipments "suggested" by QAT as an early warning to avoid going below minimum stock levels. These are not actual shipments and as such, do not affect stock projections. Only when a suggested shipment is accepted and the status change to planned, will it be counted towards your stock projections. • Planned: could be manually entered or suggested shipments accepted by the QAT user and are included in stock projections. Must have an assigned procurement agent and funding source (which could be TBD). • Submitted: shipments that have been placed in a procurement management system (i.e. ARTMIS, WAMBO) and have a designated order number (i.e. RO number). This was previously known as 'ordered' in PipeLine • Approved: shipments that have been approved by the procurement agent/funder. • Shipped: orders that have been shipped by the supplier.

	• Arrived: shipments that have arrived at the port of entry and are in the customs clearance process. • Received: shipments that have been received at destination and ready to distribute. • Cancelled: shipment was placed in a procurement management system, but later cancelled due to various reasons. These do not count towards projected inventory balances. • On-hold: shipment in QAT that has been placed in the procurement management system but is waiting for decision-maker action. These do count towards projected inventory balances.
Syncing	Many of QAT's functionalities can be used offline; however, some data must be synced when online in order to have a "live" copy of the data for all program users to access. QAT will sync when a user is online or if the user chooses to manually sync.
Technical Area	In QAT, technical area is synonymous with commodity groups (i.e. ARV, Family Planning, Malaria, etc.) and are used to build a QAT program.
Tickets	When a program user notices an issue with QAT (i.e. bug, system error) or would like to update/add master data, user role/access, or a program, they may submit a ticket. This ticket will be resolved by a realm or application administrator and changes made accordingly.
Unmet Demand	QAT avoids negative stock balance and will only allow a program's stock on hand (SOH) to be equal to or greater than zero. However, in order to capture the difference between the forecast and what was projected to be consumed up to the stock out, QAT will place that quantity in a separate row as unmet demand. This will be useful to inform what the theoretical real consumption would have been, had there not been a stock out (while avoiding negative SOH and the need for manual positive adjustments).
User Roles	These are dedicated assignments to users that allow for different levels of access to data and functional areas within QAT.
Volumetrics	In QAT, programs users will be able to define volumes, and thus be able to estimate the volumetrics of orders.

Table 2: Important QAT Concepts and Terms

Section 2 - Getting Started

System Requirements

The QAT is primarily expected to be accessed via laptops and desktops with standard operating systems such as MS Windows, Linux/Ubuntu, and iOS. The recommended web browser is Google Chrome, but Chromium, Edge, Mozilla Firefox or Safari may be utilized.

Levels of Hierarchy in QAT

The QAT system has **three levels of hierarchy** for conducting operations. The hierarchy levels are as follows:

Application Masters → Realm-level Masters → Program-level Masters

- **Application** Masters is the top-most data hierarchy level in QAT. Application master data applies to all the Realms and Programs within QAT. Most of it is only accessible to Application Admins, though a few of the Application functions are available to Realm Admins such as adding and updating users and assigning roles to users. Application Admins can select the specific application-wide master data they want to add or update.
- **Realm** Level Masters covers all the master data for that Realm which apply to its programs and supply plans. The Realm Admin will be able to view, create and edit this master data. Programs, Technical Areas, Planning Units and Procurement Agents are a few examples of realm master data that the Realm Admin can add and maintain. A lot of the realm level masters are accessible for viewing to Program Admins; however, they do not have the ability to add/update this data.
- **Program** Level Masters is the third level of hierarchy in QAT. While program admins cannot add programs, they can update the program information (e.g., lead times, freight costs, etc.) within their assigned program(s). Program Admin and Program Users can also add and update the program's data (consumption, inventory, shipments).

For more on functionality for Application- and Realm-level administrators, please see Annex 1: Application & Realm Administrator Manual.

Programs are a combination of Country, Technical Area, and Organization and may have a Region. For example, **FASPonia**–ARV-MOH-National, is a program under the Global Health Realm for the management and planning of **antiretrovirals** for the ministry of health of the fictional country FASPonia, and the consumption and inventory data is captured at a national level (region).

User Roles and Permissions

Users can be assigned one of many roles available in QAT that define what level of data users have access to and how they interact with that data, according to the following hierarchy:

Application-level data → Realm-level data → Program-level data

Users will have access to one or more levels of data as per the roles and permissions assigned to them. Roles are defined centrally at the Application or Realm Level. A role can have multiple permissions assigned to it. These permissions define what actions a user is entitled to. (NOTE: Roles can be assigned to only those users that are registered in QAT).

The vast majority of QAT users – in-country health program managers and officers - will interact with the application at the **program level**; thus, this manual will focus mainly on tasks and functions that apply to this group. The Program Admin and Program User roles are usually configured to have access to one or multiple program(s) within a geographic jurisdiction i.e., a Program Admin can only manage assigned program(s) in their country, but not a realm.

A **Realm** Admin manages master data and can have access to all programs within that realm.
At the **Application** level, there is an Application Administrator role. This role has exclusive access to create application-wide data structures, including adding languages, roles, creating realms, updating static and dynamic labels, among other business functions.

Please refer to Annex 4: Business Functions for a table with the full list of QAT business functions available per user role.

How to Log into QAT Install for New Users and Installing a QAT Instance

How to log in to QAT for the first time (online)

1. If you do not have a user profile, please contact the realm administrator to create a new user account and corresponding role on your behalf.
2. Once the account is created, the new user receives an email to "Reset Password".
3. The "Reset Password" link will redirect the user to the QAT website to create the new password. Once complete, click "Submit".
4. Afterwards, the user will be redirected to the sign in screen. Using the User ID email and the created password, log in to QAT.

Note: The password must: be at least six characters long, start with a letter, not be the same as your username or your last password, and must include at least one special character, one number, and one uppercase letter.

Installing the QAT Progressive Web Application

Progressive web applications (PWA) are standalone browsers that bring an app-like look and feel and are installed on the Desktop. Users can only install the QAT PWA through Google Chrome and Edge. The PWA can be used in online or offline mode.

1. Go to https://www.quantificationanalytics.org/
2. Click on the add button in the address bar.
3. Click "install" when the small pop-up appears.

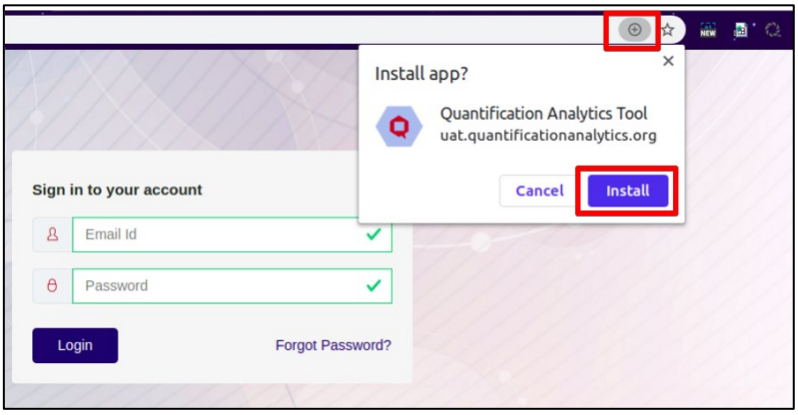


Figure 1: Installing QAT PWA

4. **Note:** The "Reset Password" link will be valid for 15 minutes and can be used only once. If needed, the user can generate the link again to reset the password by clicking "Forgot Password" on the login screen.
5. An icon will appear on your Desktop as a standalone application. Users can directly open from the desktop or type **chrome://apps/** in the browser.

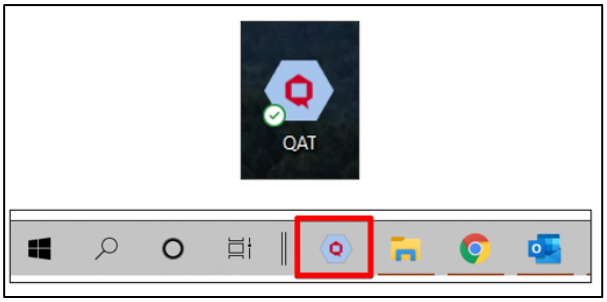


Figure 2: QAT PWA icons

NOTES:

1. Users can utilize the PWA and browser versions concurrently; however, when making changes in one, a refresh is needed in the other so changes are made effective.
2. Press CTRL + F5 buttons to refresh.

Steps to Install PWA When the Install Button is Not Available

1. In your Chrome browser, navigate to https://www.quantificationanalytics.org/
2. Click on the three vertical dots on the top righthand corner of the browser
3. Select "More Tools".
4. Click on "Create Shortcut"
5. A QAT icon will be displayed on your desktop.
6. Click on the "QAT" icon to open PWA of QAT application.

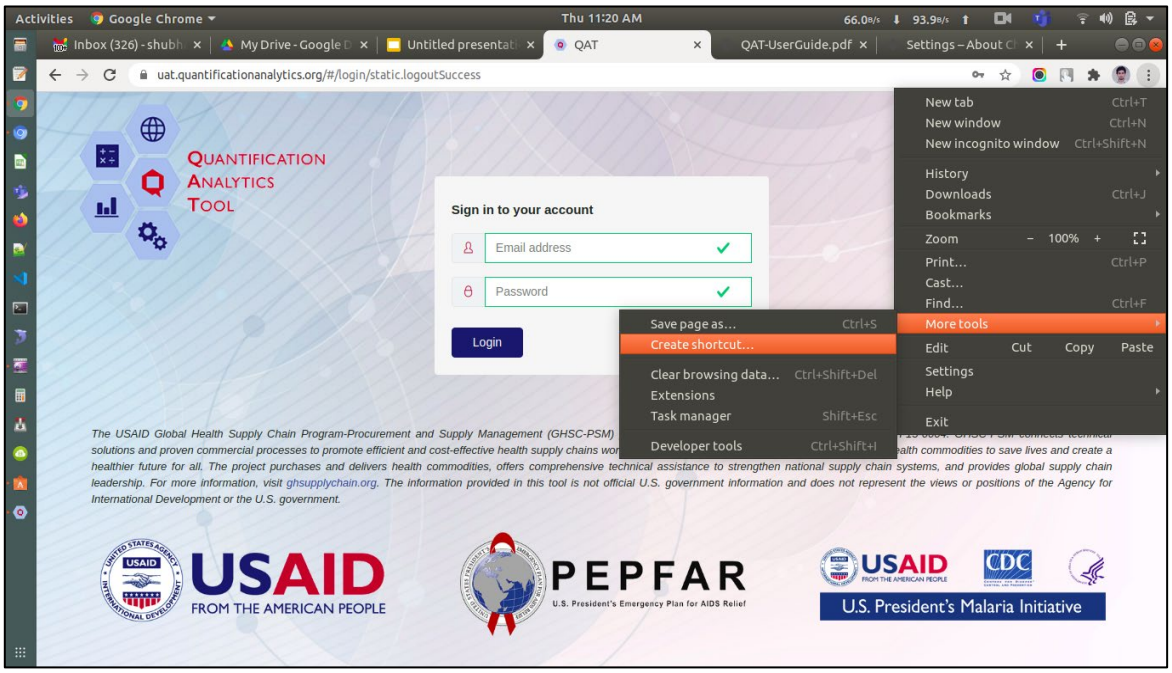


Figure 3: Install PWA alternate method

How to Log into QAT for Existing Users

Login

1. To log in, type the URL https://www.quantificationanalytics.org/ in the browser bar and press enter, or open the PWA from your desktop.
2. A login screen will be displayed.

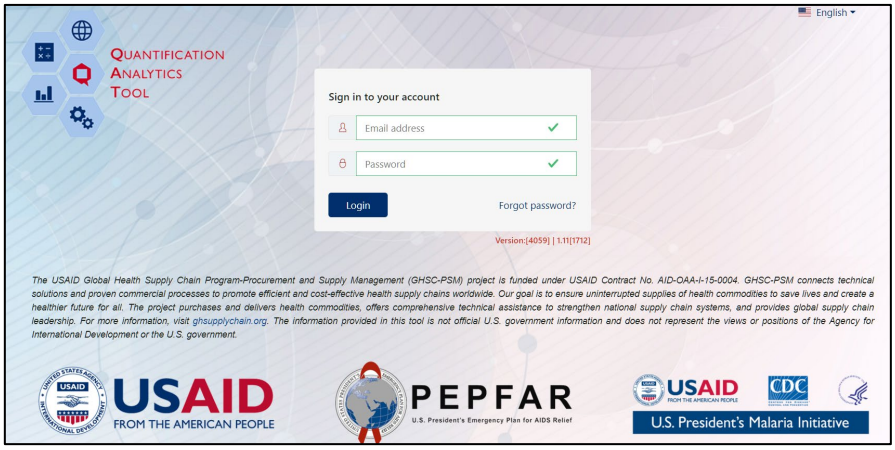


Figure 4: Log-in Screen

a. Type the username and password in the required fields.
b. Click on the "Login" button.

Logging out

1. Go to the top right corner of the screen.
2. Click on the logout button icon to the right of the profile icon.

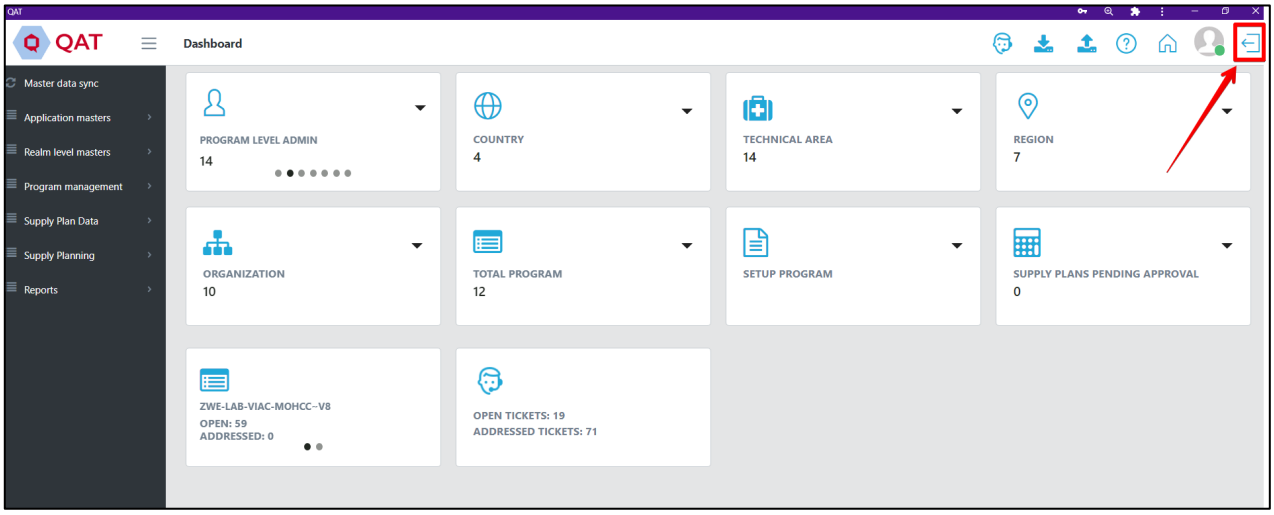


Figure 5: Logout Icon

3. A pop up will appear asking "Are you sure you want to log out?" – click "yes" to log out

Change Password

1. Within QAT, click the Profile icon on the top right corner of the screen.
2. Click "Change Password".

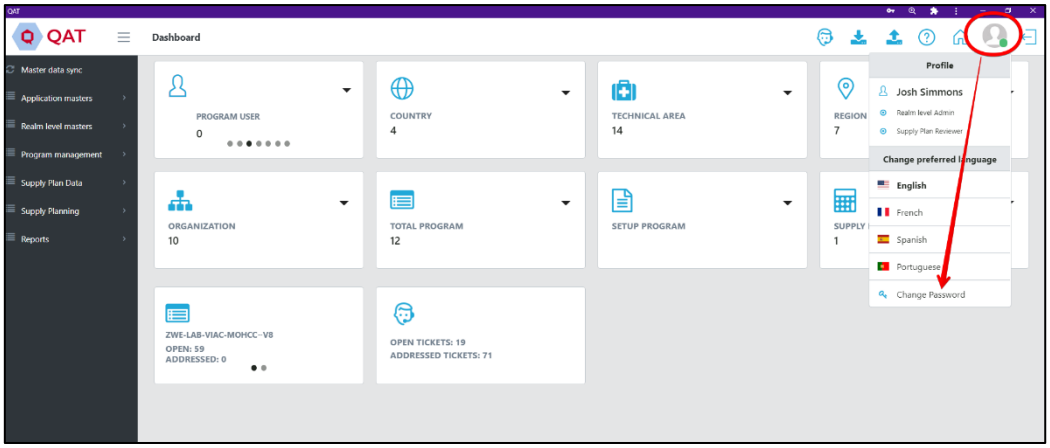


Figure 6: Profile Icon

3. Once on the 'Change Password' screen, enter your old password followed by the desired new password.
4. The new password must meet the following criteria:
    - Password must be at least 6 characters
    - Password should not contain the word 'password'
    - Password must contain at least 1 special character
    - Password must contain at least 1 number
    - Password must contain at least 1 uppercase letter
    - Password must start with a letter
    - New Password should not be the same as your username
    - New password should not be the same as your last password
5. Confirm the new password by typing it again.
6. Click "Submit".

If user forgets their password

1. A user that has forgotten their password, can click on the "Forgot Password?" link to reset it.
2. Type the email address the user is registered in QAT with and click "Submit".

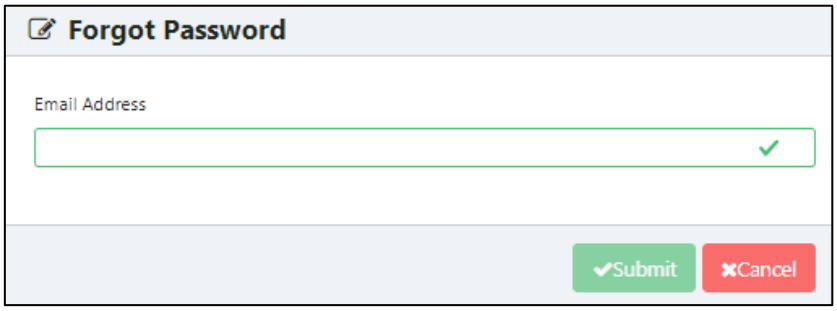


Figure 7: Forgot Password Screen

3. The user will get a link via email to reset their password.

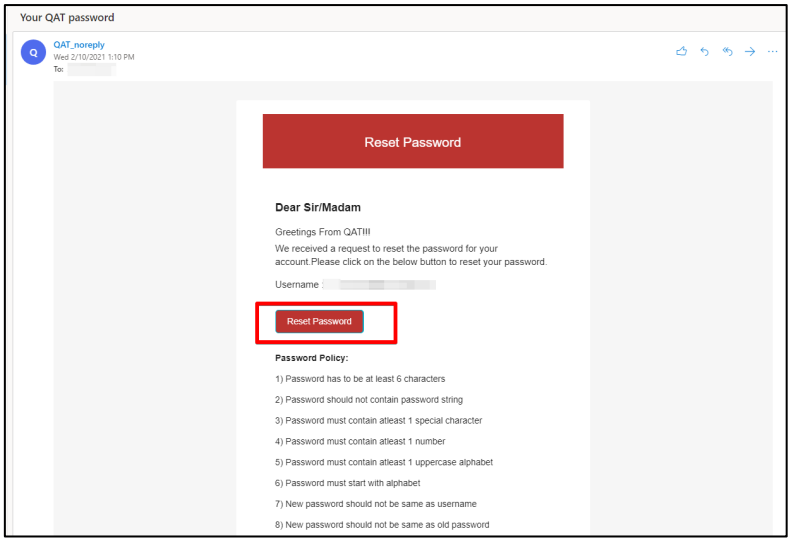


Figure 8: Reset Password Email

4. The "Reset Password" link will redirect you to QAT, where you will input your new password. Once complete, click "Submit".
5. After clicking "Submit" the user will be redirected to the login screen. Using the User ID email and the newly created password, log in to QAT.

Working Offline

QAT can be operated in both online and offline mode. The user can work in offline mode through the PWA without accessing the network. The user must log in to the PWA online at least once after installing before using the offline capabilities to ensure that the software on the local machine is up to date.

The Profile icon on the top right corner shows a green-colored circle when working in online mode. When the user switches to offline mode the color changes to red, as shown on the screenshot below.

Figure 9: Offline vs. Online Icons

The below table details *some* of the key functionalities that can be done in QAT offline as well as *some* of the functionalities that must be done online:

What can a user do Offline?	What must a user do Online?
Import/Export supply plans	Reset password
View master data	Sync master data
Enter/Update data	Update program info, planning units, or budgets
Supply/Scenario plan	Create tickets
View QAT Problem List	Load/Commit/Review supply plans
View program reports	View global reports

Table 3: Online vs. Offline Capabilities

QAT Version Updates

The QAT phase 1 (supply planning module) was deployed in Production/LIVE on 02-Dec-2020 as V1.0. After go-live, there will be incremental maintenance releases that will have incremental decimal numbers (e.g. release 1.1, release 1.2 and so on).

There will also be whole number release updates that will happen when one or more of the following occur:

1. Deployment of future QAT phases such as the forecasting module.
2. One or more large change requests that drastically alters the way QAT works.

Troubleshooting

When a user comes across a potential system issue with QAT, they should attempt to troubleshoot it by first refreshing the site (Ctrl + F5), and if that does not work then attempt clearing site data (Ctrl + Shift + I) [*see more on this below*]. If neither of these steps resolve the issue, the user should submit a helpdesk ticket to report the bug (see section on 'Reporting a Bug').

When and How to Conduct an Application Refresh

The QAT development team will be deploying incremental releases into to address the bugs and changes needed for the application. If a user does not see a change made in their QAT after the release, the user will need to conduct a site refresh by clicking "Ctrl" + "F5" at the same time on their keyboard.

As well as refreshing for development releases, if a user comes across a potential bug in the tool, he/she should attempt a site refresh to troubleshoot the issue.

Figure 10: Ctrl + F5 Site Refresh

When and How to Clear Site Data

If refreshing QAT (Ctrl + F5) does not resolve the issue, the user should attempt to clear site data in order to troubleshoot the issue. Follow the below steps in order to clear site data on your QAT:

Note: If you clear site data on QAT, this will clear all changes that you have made on the PWA and Web Browser since you last committed so make sure to commit any unsaved programs before clearing site data.

1. Click on "Ctrl"+"Shift"+"I" keys at the same time on your keyboard.

Figure 11: Ctrl + Shift + I

2. Go to "Application".
3. On the left-hand side of the screen, click where it says "Storage".
4. Once on the "Storage" screen, select "Clear site data"

This will successfully clear the site data that was not committed. Clearing site data will erase all programs from your local machine so you will need to re-load those programs.

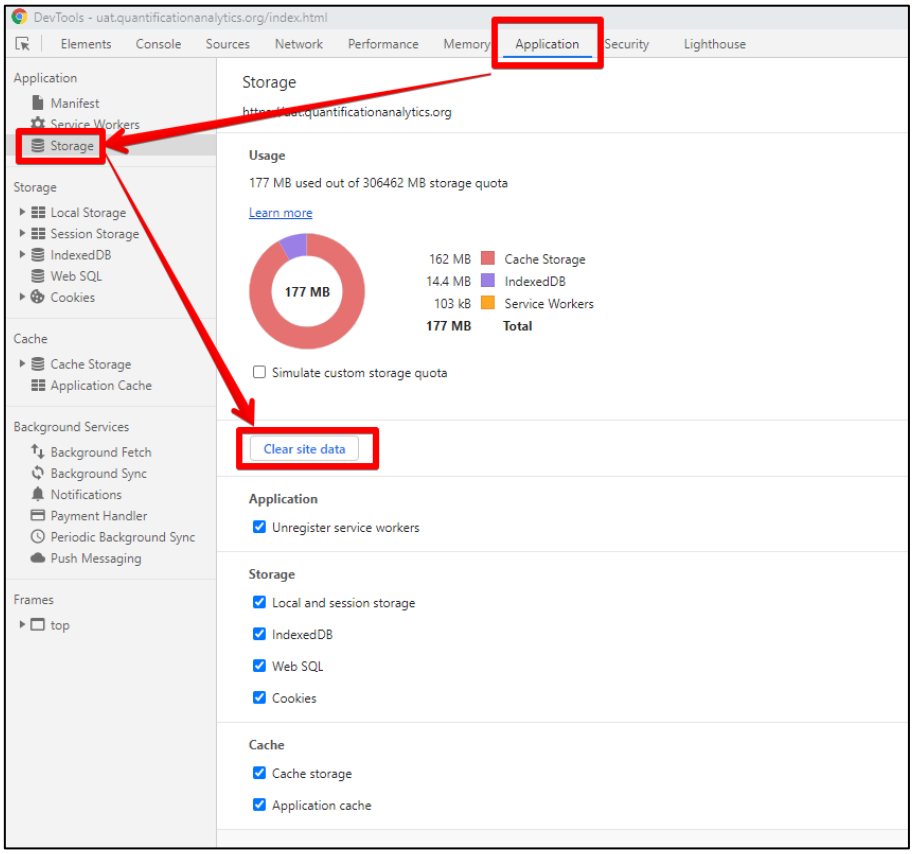


Figure 12: Clear Site Data

QAT Helpdesk and Tickets

Tickets for Adding/Updating Users and Master Data

When a user needs to either add or update a user or master data for any reason, they may do so by taking out a helpdesk ticket. Before requesting any additions or changes to the master data in QAT, the user should first check the realm-level master data (Realm Level Masters >> Product) and the Program Catalog Report to make sure the information does not already exist. For more information on how to access and

use master data, please see Program Management and Realm Masters. For information on how to access the Program Catalog, please see Program Catalog. To access the QAT Helpdesk:

1. Click on the QAT Helpdesk icon in the top right screen of QAT
2. Four options will appear for taking out a ticket: Add/Update User, Add/Update Master Data, Change Request, and Report a Bug. See below sections on Change Requests and Report a Bug.

Figure 13: QAT Helpdesk Icon

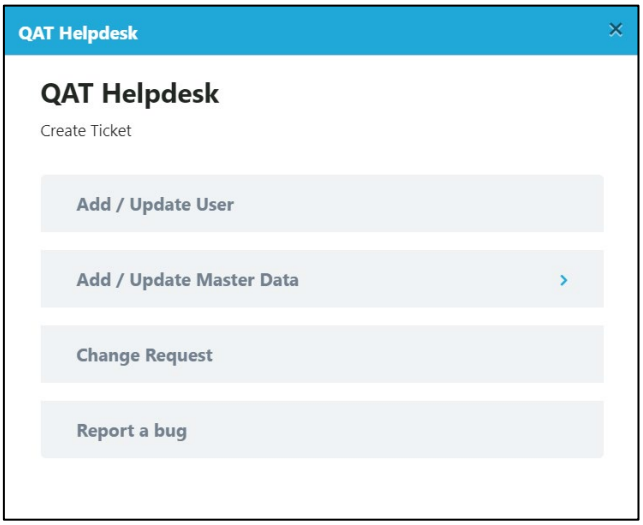


Figure 14: QAT Helpdesk Menu

3. Choose to Add/Update User or Add/Update Master data. Either option will take you to different screens for more information.
4. Enter the information required in the form and click "Submit."

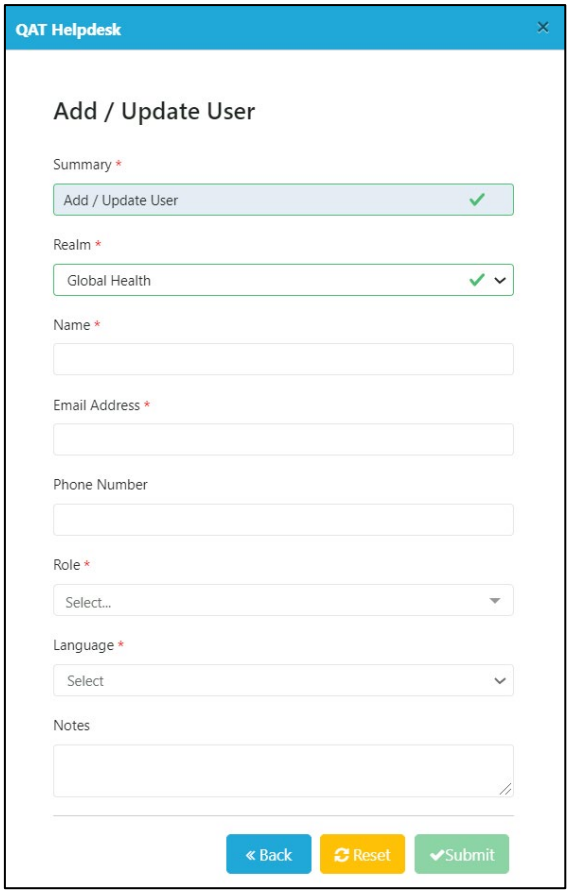


Figure 15: Add/Update User Screen

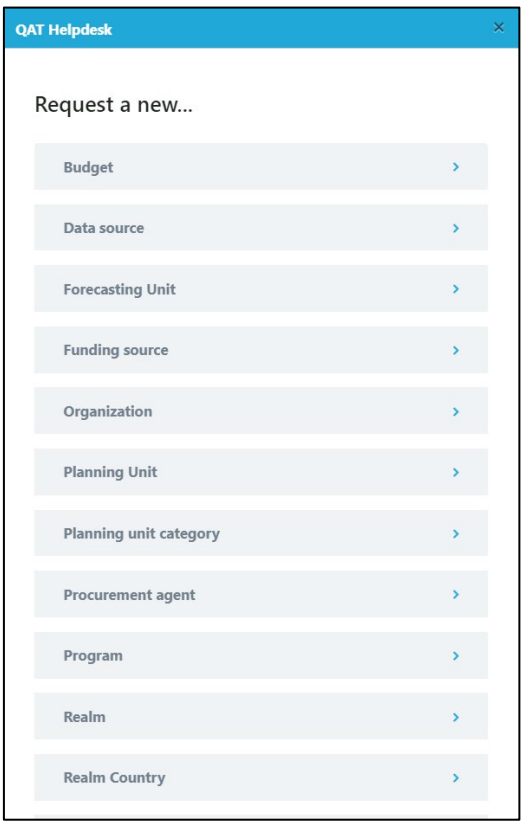


Figure 16: Add Master Data Screen

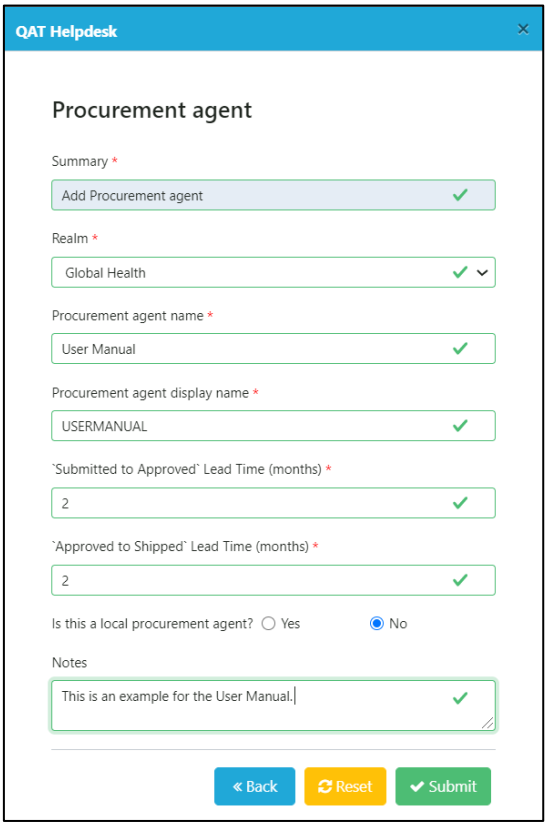


Figure 17: Add Procurement Agent Master Data Screen

After submitting a ticket, the user will be assigned a Ticket Code number (ex: QAT-570). The user will also receive an email notification and the number of "Open Tickets" on the user's home page dashboard will increase. This ticket number corresponds to the ticket number stored in the JIRA software management tool. For more information on managing tickets and the JIRA software management tool, please see Managing Tickets.

Requesting a Change

When a user has an idea for a new feature, functionality, or design element that would make QAT a better application for all users, such as a new report, removing an unnecessary column, etc., they may request a change through the QAT Helpdesk. All change request tickets will require a detailed description and screenshots. Once the technical team receives a user's change request ticket, it will be reviewed for feasibility and usefulness to all QAT users. If the change request is accepted, it will not be made available in QAT immediately, but will placed in a queue based on realm business priority, criticality, and LOE requirements. To request a change in QAT:

1. Click on the QAT Helpdesk icon in the top right screen of QAT

Figure 18: QAT Helpdesk Icon

2. Click on "Request a Change" from the QAT Helpdesk menu options.
3. Complete the form by filling out the required information and click "Submit,"

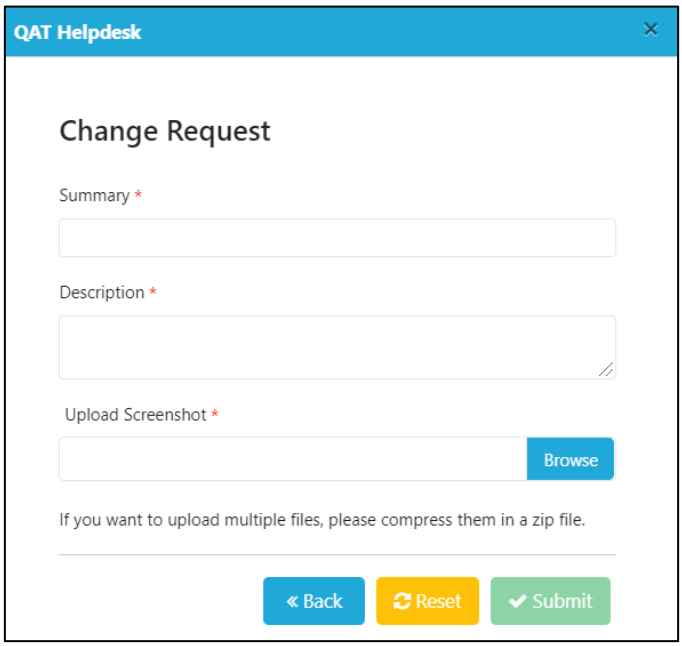


Figure 19: Change Request Ticket

4. After submitting a ticket, the user will be assigned a Ticket Code number (ex: QAT-570). The user will also receive an email notification and the number of "Open Tickets" on the user's home page dashboard will increase. This ticket number corresponds to the ticket number stored in the JIRA software management tool. For more information on managing tickets and the JIRA software management tool, please see Managing Tickets.

Reporting a Bug

When a user comes across a potential system issue with QAT, they should attempt to troubleshoot it through an application refresh and/or clearing site data. If neither of these steps resolve the issue, the user should submit a helpdesk ticket to report the bug.

The bug ticket will be addressed by the development team per the business priority, criticality and available 'capacity' via the incremental releases. The steps to raise a ticket in QAT is shown below:

1. Once logged into QAT, go to the top right corner of the screen, and click on the Helpdesk icon.
2. Once the QAT Helpdesk screen appears, click on "Report a bug".
3. Enter a summary of the bug as well as a description of the bug. Please be descriptive and provide as much detail as possible (*e.g., what program/version/functionality you were working on, steps you took to obtain the bug, etc*).
4. Upload a screenshot of the bug by clicking the "Browse" button and pulling a saved screenshot file from your computer.
    a. ***Note**: If you want to upload multiple files, place the multiple screenshots in a folder on your computer and zip it before browsing in QAT. Then, upload the zipped folder.*
5. Click on the "Submit" button to raise the ticket.

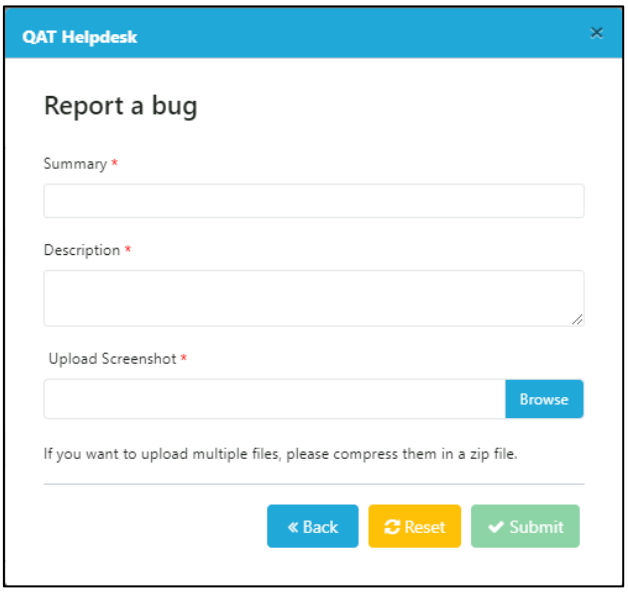


Figure 20: Report a Bug

Managing Tickets

For enhanced visibility, QAT will give users the option to manage and check the status of their tickets, whether they are adding/editing a user or master data, requesting a change, or reporting a bug. When a user submits a ticket, they will be assigned a Ticket Code number (ex: QAT-570). The user will also receive an email notification and the number of "Open Tickets" on the user's home page dashboard will increase. This ticket number corresponds to the ticket number stored in the JIRA software management tool.

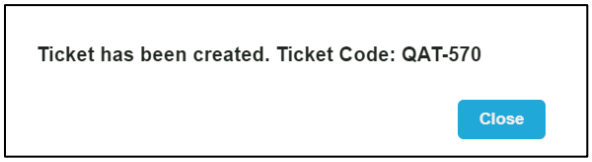


Figure 21: Helpdesk Ticket Code Number

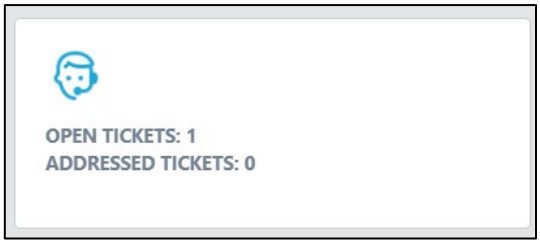


Figure 22: Number of Tickets on User Dashboard

From the email notification, users may click on "View Requests" to see the status of their ticket. Users may also add additional comments and screenshots to their request, if desired. **Users will always receive an email notification once the ticket has been completed.**

Note: In order to fully access the ticket via the JIRA software management software, users must create an account with a username and password in JIRA. Creating an account in JIRA is **optional.** JIRA is an outside software management tool that can be accessed through the link provided in the email or directly through https://qathelpdesk.atlassian.net/servicedesk/customer/portals.

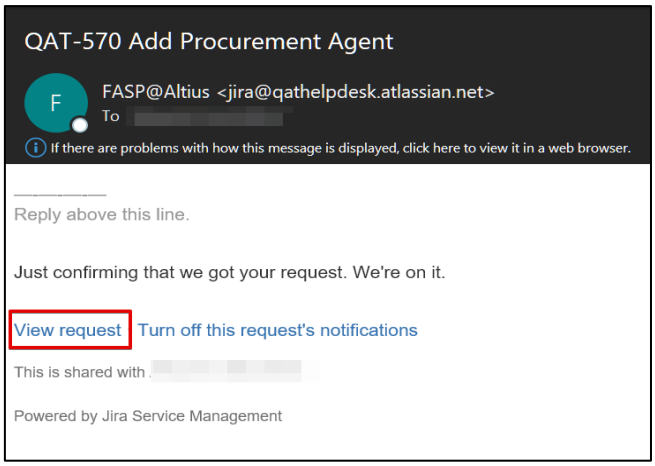


Figure 23: Email Notification for QAT Ticket

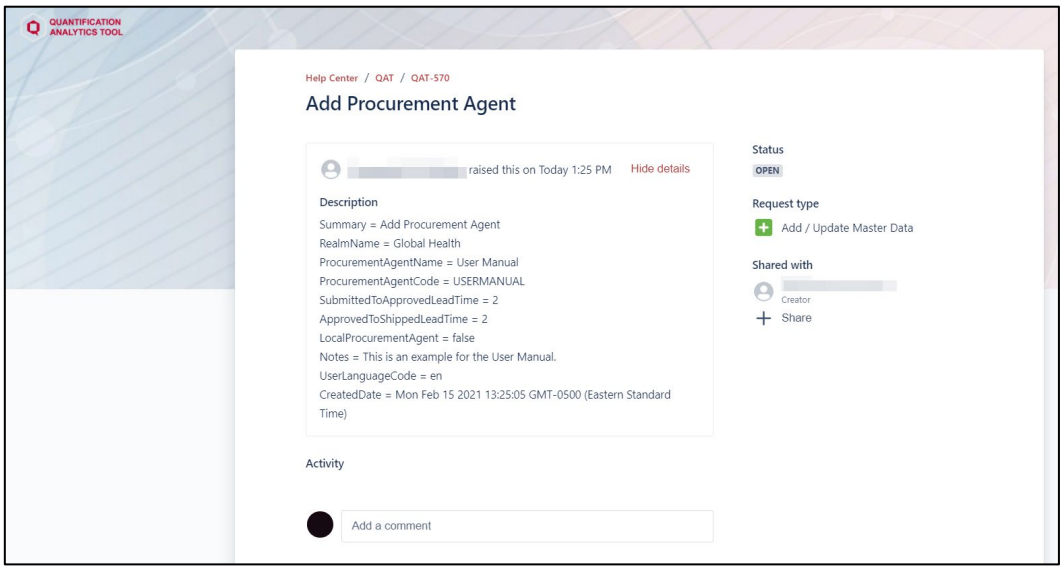


Figure 24: JIRA Ticket Management

Navigation and Menu Bar

Basic Navigation

Once logged into QAT, the below screen will appear:

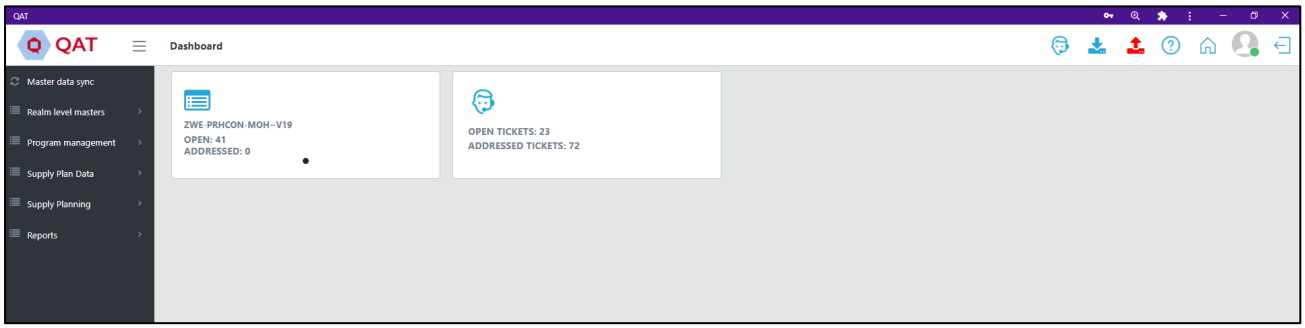
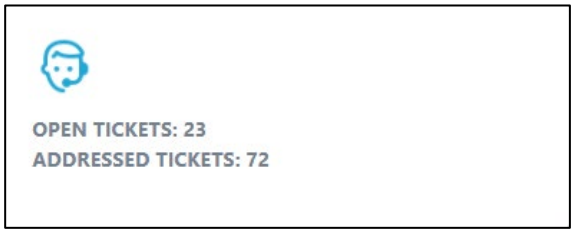


Figure 25: Home Screen

In the main area of the home page will be an application dashboard. The number of tiles and types of tiles will depend on the access according to the role assigned to the user. For information on other tiles within the dashboard, refer to Application Dashboard.

Screenshot	Explanation
QAT Problem List 	This tile displays the **number of open problems** and **number of addressed problems** within the QAT Problem List for the specified program. Clicking on the tile will direct you to the QAT Problem List screen.
Helpdesk Tickets 	This tile displays the **number of helpdesk tickets** the user has **open** and the **number of helpdesk tickets** that have been **addressed**.

In addition to the application dashboard, the screen consists of the top ribbon and a menu sidebar on the left-hand side. All the functions available in the ribbon and sidebar will be accessible to the user throughout the tool no matter which screen they are viewing.

To return to the Dashboard screen, the user can either click the home icon in the top ribbon or the QAT logo in the top left corner of the screen.

Or

Top Ribbon

Screenshot	Function
	Logs user out of QAT.
	The profile icon is green when working online and red while working offline. When the user click on the icon, they are able to: • View the username and associated role(s) assigned to them • Change their preferred language • Change their password
	Returns user to the dashboard/home screen.
	Downloads the QAT user manual to the user's computer. The file can be found in the **Downloads** folder on the user's computer.
	Informs the user when a program stored on the local server has uncommitted changes and should commit that program to the server. If the icon is blue, there are no programs uncommitted. If the icon is red, there is at least 1 program that should be committed to the server.
	Informs the user when there is a newer version on the server for of one of their locally loaded programs. If the icon is blue, the user has the most up to date version of all loaded programs. If the icon is red, there is at least 1 program that is outdated compared to the server.
	Opens up the QAT Helpdesk where users can create tickets to add/update master data, propose change requests and report a bug. For more information on the helpdesk, refer to QAT Helpdesk and Tickets.

Table 4: Top Ribbon Functions

Sidebar Menu:

The sidebar menu is where the user can navigate to the different screens within QAT. The options available in the sidebar will vary based on the access according to the role assigned to the user. Within the sidebar there are menu items. Clicking into one of those items will expand to show a list of sub menu items. As the user selects different items from the menu, the respective data will be displayed in QAT.

Within the sidebar menu, you will find the following menu items:

- Application Masters (only available to Application and Realm Admins) – view/add/edit application level data.
- Realm Level Masters – view/add/edit realm level data.
- Program Management – view/add/edit program level data. Load/Commit/Delete/Import/Export programs. Conduct supply plan reviews.
- Supply Plan Data – Add/Edit supply plan data.

- Supply Planning – View/edit supply plan. Scenario Plan.
- Reports – View Reports. Edit QAT Problem List.

Above the menus you will find a function labeled "Master Data Sync". Clicking on this button will sync the updated master data to your local version. This function is done automatically when logging into QAT, but this button provides the user to do so without logging out and logging back in.

Screenshot	Function
	Completely collapses the sidebar menu to create more space on the screen. Clicking the icon once will make the menu disappear. Clicking it again will make it re-appear.
	Minimizes the sidebar menu while not making it completely disappear. Creates some more space on the screen.
	Shown when sidebar menu is minimized. Click to expand and show the full sidebar menu. Also used to expand and show sub menu items under menu items.
	Shown when sub menu items are displayed. Click to collapse sub menu items.

Table 5: Sidebar Menu Icons

Buttons Found Throughout QAT

The following buttons are frequently found on the different QAT screens:

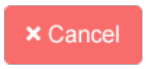
Buttons	Action
	Submits and makes changes.
	Cancels the unsubmitted changes.
	Reverts unsubmitted data back to previous format.
	Adds a new record to the database.
	Updates records.
	Helps users to search the desired information. Searches all fields in the table displayed.
	Allows a user to clear search fields.
	Indicates mandatory data entry fields.
	Displays explanations/definitions and formulas on commonly used terms in the specified window/report.
	Exports report in either a CSV or PDF format.

Table 6: Commonly Used Buttons

Changing Language

To ensure that QAT is adaptable to users around the world, the application displays text in four different languages: English, French, Portuguese, and Spanish. Users are encouraged to submit tickets if they would like to see a particular label translation improved. [Note: Translations for application labels can be edited only by **application admins**. Instructions on how to do so can be found in the translation section.

There are two ways to change the language displayed for the user:

1. **Login Screen:**

On the top right corner of the login screen, there is a drop-down menu from which users can select their preferred language ahead of logging in. This will not only change the text once you are logged in to QAT but it will also change the text displayed on the login screen.

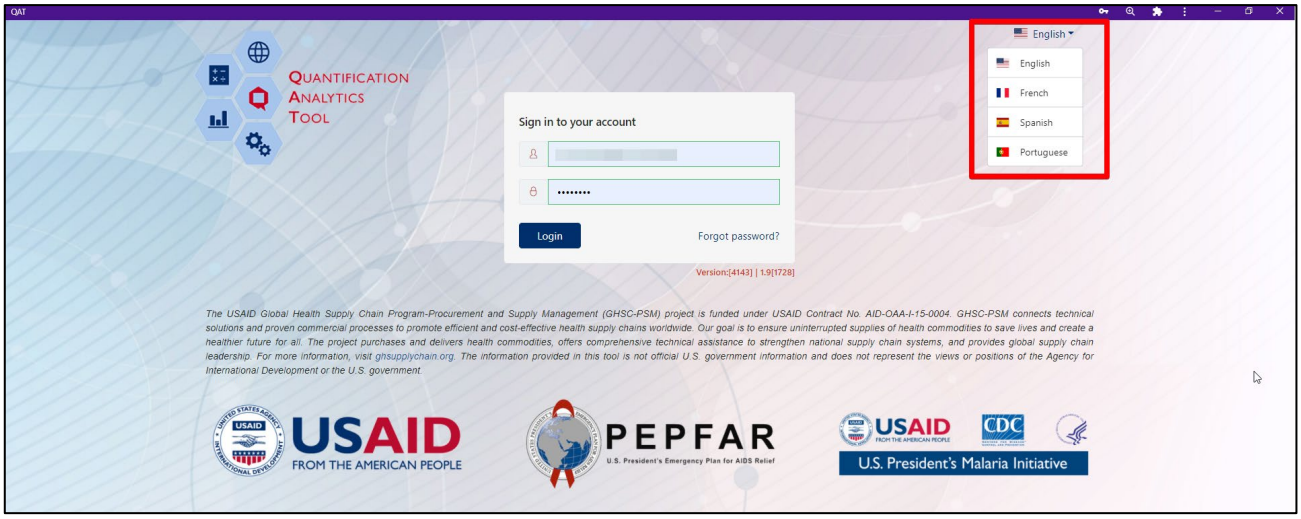


Figure 26: Login Screen Language Change

2. **Within QAT:**

Once logged into QAT, the user may change the display language by clicking on the user profile icon on the top right corner of the screen, selecting the preferred language and then the tool will automatically update it's text/labels.

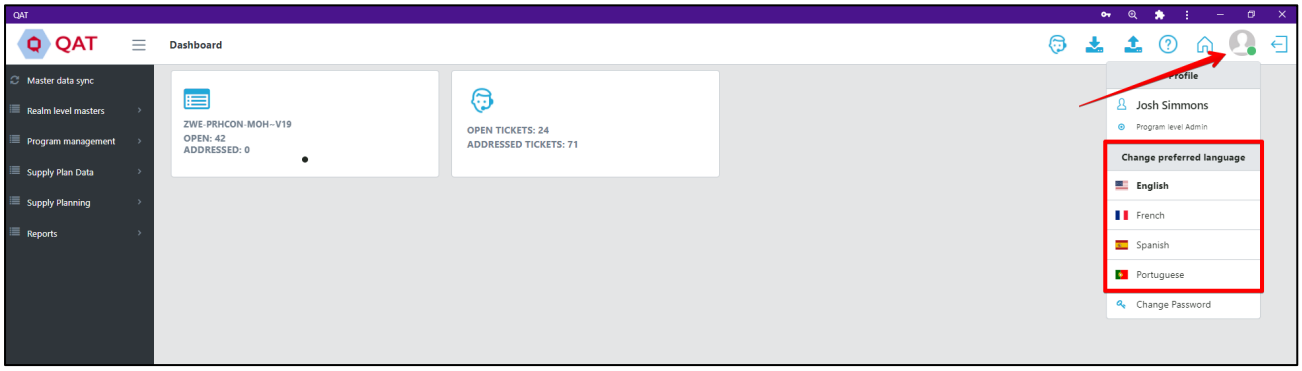


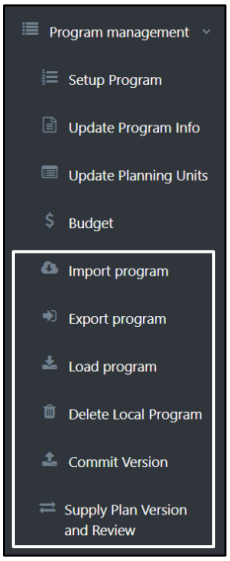
Figure 27: In Tool Language Change

Section 3 – Managing Programs and Versions

Working with Program Data

	Online	Offline
Data from others	Load	Import
Data from users	Commit	Export

Table 7 - Working with Program Data



Program data can be loaded, committed, imported, and exported in QAT.

- Users must **Load** program data to begin supply planning and need to **Commit** their data back to the server to share their work with others.
- Committing can be as "draft" or as "final". Committing a program as "final" initiates the supply plan review process. The status of supply plan versions can be viewed in the **Supply Plan Version & Review** screen – this is the only function described in this section that is available to report viewers.
- When no internet is available, the **Export** feature allows users to shared their data with other users via external devices such as a pen drive/flash drive, who can then use the **Import** data function to open that file on their computer.
- These functions can be accessed from the left menu bar under **Program Management.** Additionally, Load & Commit can be access from the top menu bar (see Figure 28)

Figure 28 Menu Bar

Load Program

- Who? This function is available for **Application/Realm/Program Admins, Program Users and Supply Plan Reviewers.** Not available or needed for **Report Viewers**

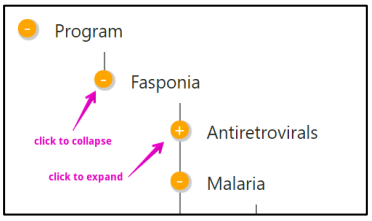
- When? The user must be online to load a program.

- Why? Users should a load a program if they want to enter or update data, or actively supply plan (instead of just viewing reports). Users may load a program when they notice that their local version is not the latest (i.e. when load icon is red instead of the usual blue). Loading programs enables user to work offline. However, note that programs must be loaded to complete the following functions, even if the user is online:
  - Enter/update data (consumption, inventory/adjustments, shipments). For example, if the user is working on "Consumption Details", he/she must select a program from the given list. The list will show data only for those "Programs" which have been loaded in the local index database.
  - Supply/scenario plan
  - View QAT Problem List
  - In reports, viewing the data on the local computer (as opposed to on the server)

- What happens when a user loads a program? When the user loads a Program, it gets stored in his/her local index database in the API format.

- How to load a Program:

1. Go to "Program Management" > "Load Program." (Alternatively, access this screen by clicking the icon in the top right bar in QAT). The screen will display the Program Data as shown in
2. **Figure** *29*.
   - Red text indicates that program loaded is not the latest version. Green text indicates that the program loaded is the latest version. Black text indicates the program is not loaded.
   - Click on the yellow dot to expand (+) or collapse (-) the tree view shown above.



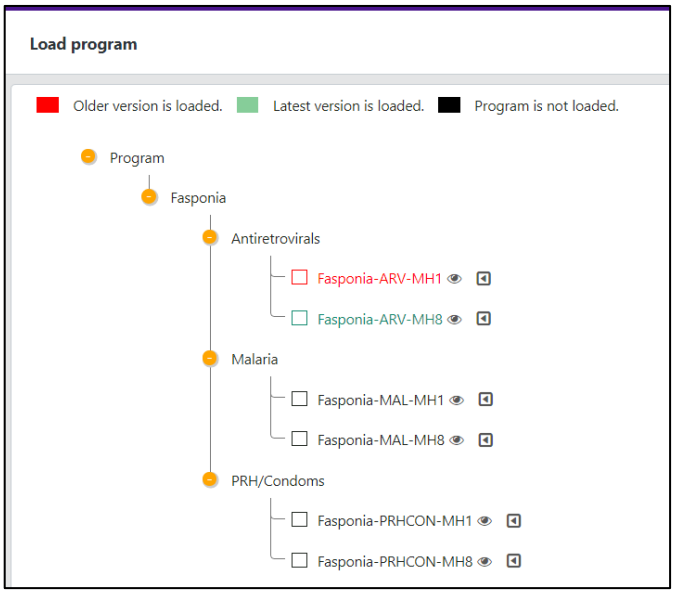
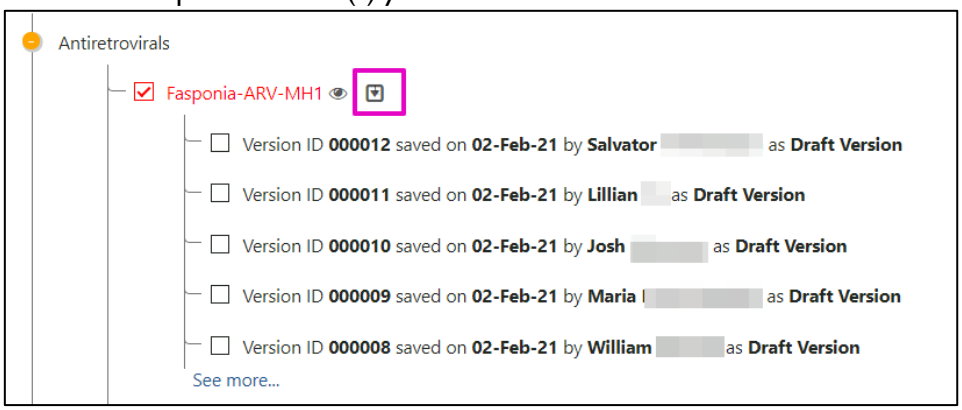


Figure 29 Load Program Screen

3. Select the checkbox next to the program you want to download.
   By default, QAT will download the latest version of the supply plan for the selected program.
4. *(optional)* Click on the triangle button next to the program to see all version of the program. The five latest versions will be displayed. Click "see more" to view older versions. Use the checkbox to select which specific version(s) you would like to load.



5. Click on the "**Load**" button to load the program to your system.

Commit version

- Who? This function is available for **Application/Realm/Program Admins, Program Users and Supply Plan Reviewers.** Not available or needed for **Report Viewers**

- When? The user must be online to commit a program

- Why? The purpose of the **Commit Version** is to allow users to
  - Share the local version of program data with the server and other users (committing as draft)
  - Submit final supply plans to initiate a supply plan review process (committing as final)

- What happens when a user commits a program? When the user commits a Program, it becomes the latest version on the server and is available for all other users to load

- How to Commit a Program:

1. Go to "Program Management" > "Commit Version." (Alternatively, access this screen by clicking the icon in the top right bar in QAT). The screen will display the Program Data as shown in **Error! Reference source not found.**.
2. Use **Program** dropdown to select the appropriate program, if it is not already selected
3. Select a **Version Type** using the dropdown:
    a. **Draft Version**: Indicates the supply plan is a work in progress. Use this to share a supply plan with others, but
    b. **Final Version**: Indicates that the supply plan has reached a final status, and is being submitted to the supply plan review process. Note that QAT will not allow the user to commit as final with any "Open" issues in the QAT Problem List. Please use the QAT problem list (see Closing and Addressing Problems) to mark any open issue as "Addressed" with an explanatory note, or move issue to "in compliance" via data entry first.

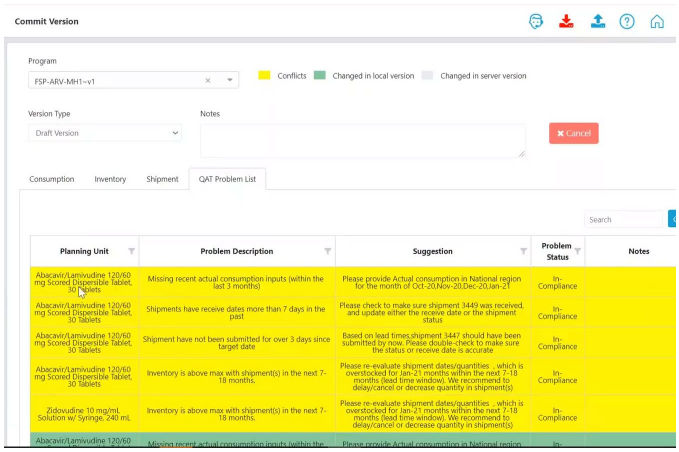


Figure 30 *Commit Version*

	DRAFT	FINAL
Must be online to commit local version to server	✓	✓
Data sent to linked ERP system(s)	✗	✓
'Open' issues allowed on QAT Problem List	✓	✗
Supply Plan Reviewer will be informed	✗	✓

Figure 31 *Committing as Draft vs Final*

4. In **Notes**, type any overall notes about this version, such as summarizing the major changes made the supply plan and the reasoning behind those changes.
5. In the 4 tabs – Consumption, Inventory, Shipment, QAT Problem list – QAT will display a detailed comparison of supply plan details between the "Local version" and the "Server version." Review each tab for any highlighted records. Yellow records require your action before you can commit the supply plan

    Legend Explanation:

    - Green: represents changes that have been made in the local version; by committing your program, these changes will save to the online server as a new version.
    - Light blue: represents changes made by another user that has already been committed to the live/online version – because this is a data point that you did not edit, the server version will persist for this/these records.
    - Yellow: represents a conflict in data between the local version and the server version for the same data cell. You must resolve all yellow conflicts before the Commit button appears. To resolve a conflict, right click on the relevant row, and select "Resolve Conflict." In the pop-up screen, choose whether to keep the local version of the data or the server version of the data. (see Figure 32)

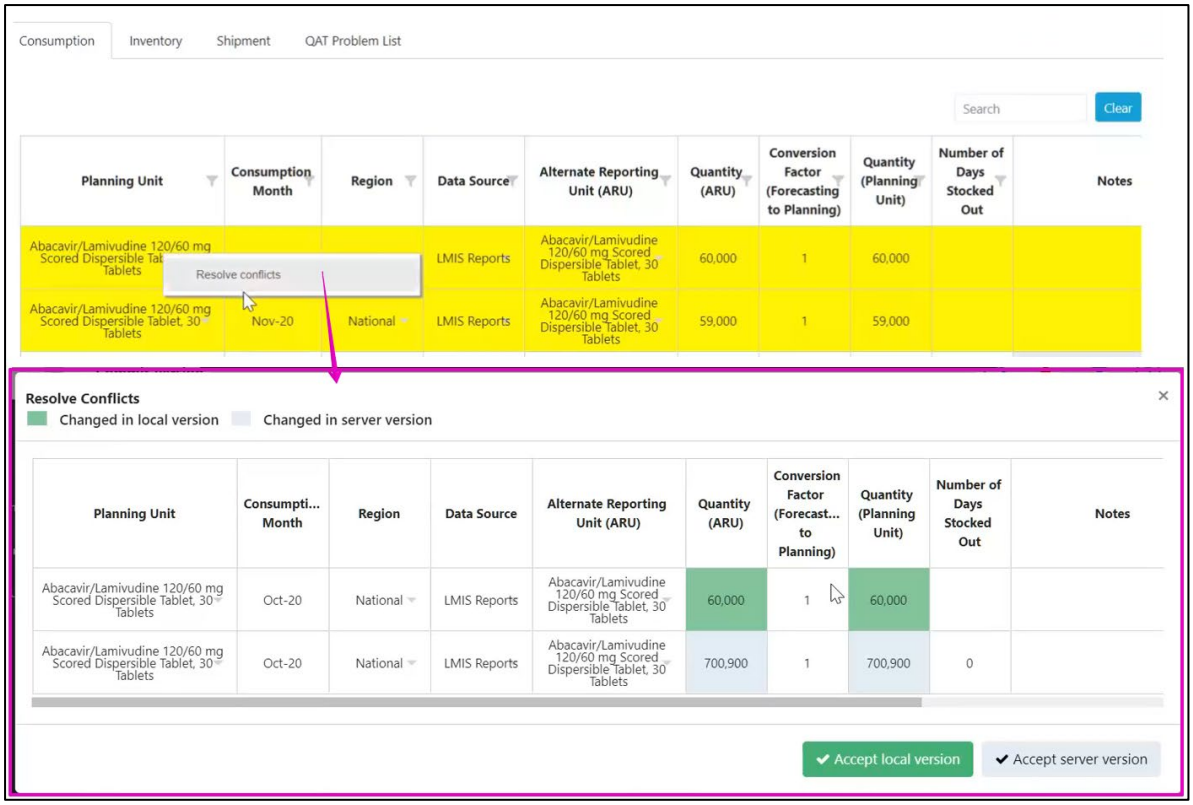
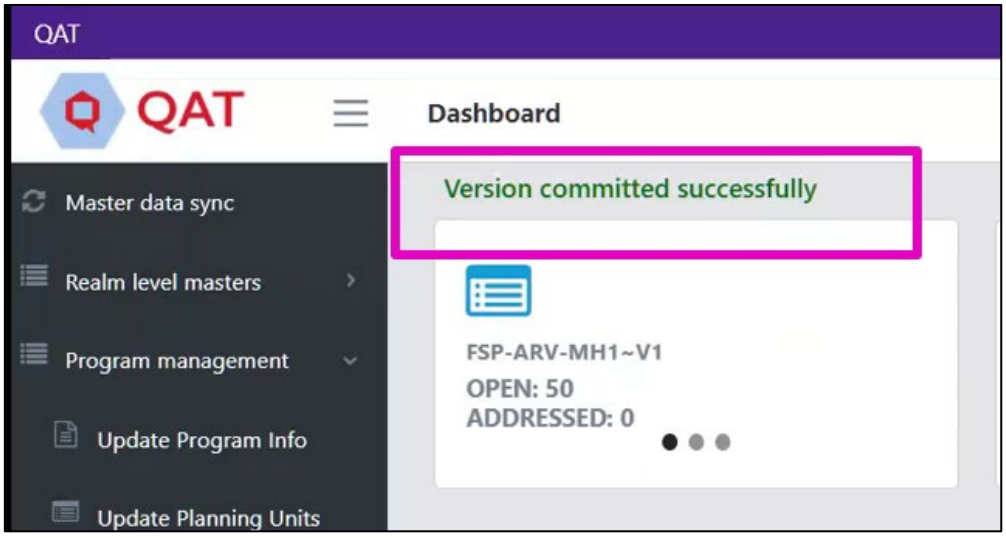


Figure 32 Resolving Conflict during Commit Version

6. After reviewing all updates and resolving all conflicts, click the "Commit" button.
7. QAT will provide a confirm message, as displayed below.



8. Supply planners will receive an email notification when their supply plan is either approved or rejected. They can also check the status of their supply plan review in the Supply Plan Version and Review Report.

Supply Plan Version and Review

- Who? This function is available for **Application/Realm/Program Admins, Program Users, Supply Plan Reviewers, and Data Viewers**
- When? The user must be online. Supply Plan Reviewers will receive an email from QAT whenever a supply plan is committed as final (i.e. ready for review).
- Why? This function allows users to **review the supply plan review status of supply plans.**
    - **Supply planners** (program admins & users) can check on the status of their review
    - **Supply plan reviewers** can view the review queue
    - **Report Viewers** can check on the status of supply plan reviews
- How?

1. Go to "Program Management" > "Supply Plan Version and Review" and the below screen will be displayed. Select the Report Period, Country, Program, Version Type, and Status. In this table, users can see the status of all supply plans and any version comments. Users can also use the search, filter and sort options (see Navigation and Menu Bar) to find specific programs.

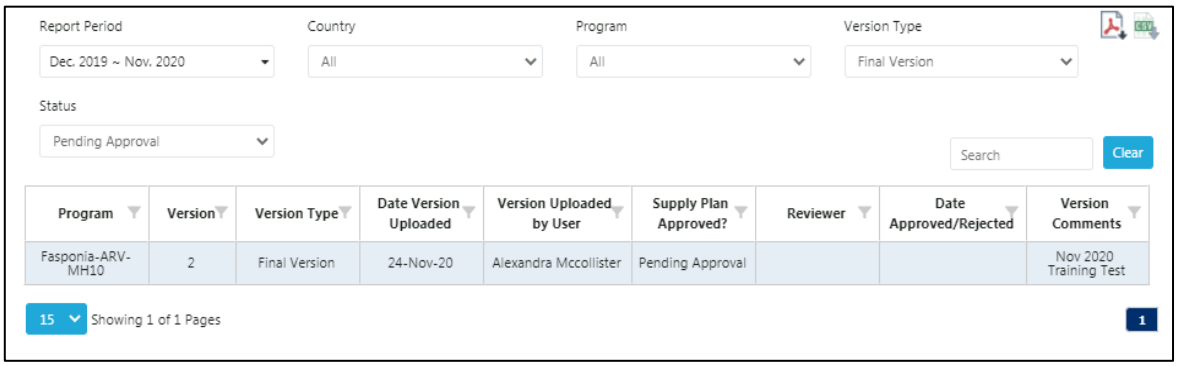


Figure 33: Supply Plan Versions and Review

2. Click any row in the table to open the details for that supply plan.
   ***For Supply Plan Reviewers* ONLY** –
    a. Use the first tab "Supply Planning" to review the stock status and data elements of any given planning unit
    b. Use the second tab "QAT Problem List" to review any issues within the supply plan.
        i. Use the "Reviewed" column and check the checkbox in each row as you review them. All issues other than "in compliance" or "resolved" must be checked as "reviewed" in order for you to approve or reject the plan.
        ii. Use the "Enter Reviewer Notes" column to note any feedback for the supply planner.
        iii. Update the "Problem Status" as needed – Leave issues as "Addressed" if you want the supply planner to review them again in the next review cycle (the issue will become "open" in the next version). Mark issues as "Resolved" if they don't need to be reviewed again even in future review cycles. Mark issues as "Open" if you want to communicate to the reviewer that they need to update their comments.
    c. After reviewing, change the status of the Supply Plan to Approved or Rejected, provide notes (mandatory), and click "Submit"

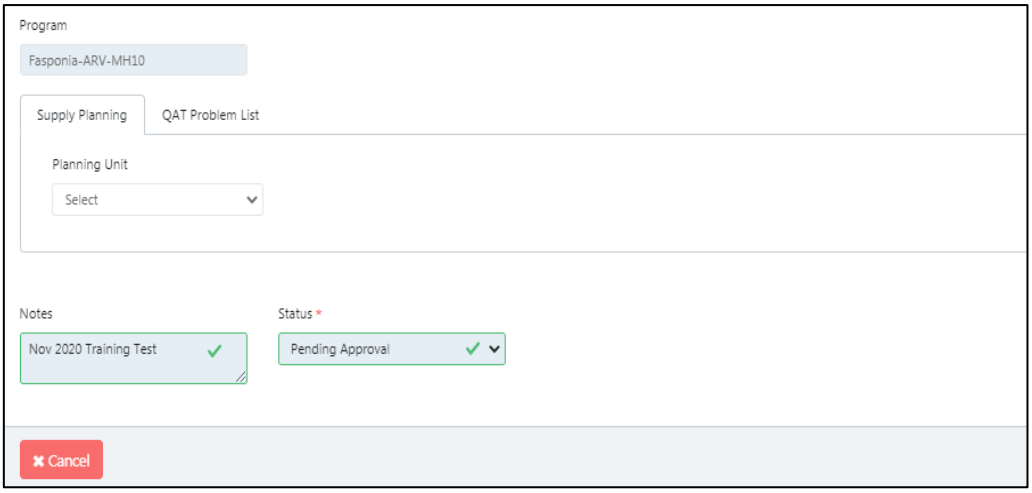


Figure 34: Supply Plan Version and Review (second screen)

3. The user that submitted the supply plan for review will be notified by email when their submission is either Approved or Rejected.

Export Program

- Who? This function is available for **Application/Realm/Program Admins, Program Users and Supply Plan Reviewers.** This function is not available or needed for **Report Viewers.**

- Why? The "Export Program" function is used when the user wants to export the program to his/her local machine. By using the Export function, Program data can be shared with others offline. For example, user A can export a program and save that file on a USB drive to share with user B, who is offline.

- What? The program data file will be exported in the zip format. The zip file contains encrypted data format for that program.

Figure 35: Export Program Screen

- How to export a program:

1. Go to "Program Management" > "Export Program"
2. Select the program to be exported using the dropdown. Programs must be first loaded before exporting is available. See Load Program.
3. Click on the "Submit" button to save the changes.
4. A browse window will pop up. Select the folder you want to save the exported file in. Then click "Save."
5. The .zip file will now be saved in the selected folder.
6. Share the .zip file with others as needed.

Import Program

- Who? This function is available for **Application/Realm/Program Admins, Program Users and Supply Plan Reviewers.** Not available or needed for **Report Viewers**

- Why? The "Import Program" function is used when the user is working on the program in offline mode and wants to open a program that has been exported into a .zip file
    - **Note**: The program data file must be saved in the zip format). For example, user B can (while offline) import a program that user A exported and saved to an external device

- When? This function can be used when offline or online.

Figure 36: Import Program Screen

- How to import a program:
    1. Go to "Program Management" > "Import Program"
    2. Click "Browse". Choose the required file that needs to be imported. The selected file must be in the zip format. The zip file may have multiple programs.
    3. Select the required program to import.
    4. Click on the "Submit" button to import the program into the local machine.

Delete Local Program

- Who? This function is available for **Application/Realm/Program Admins, Program Users and Supply Plan Reviewers.** Not available or needed for **Report Viewers**

- What? Deleting a program will not delete the program from the server. Deleting a program deletes your local copy.

- Why? Deleting programs is helpful if you have lots of old versions on your computer and you want to clear storage space.

Figure 37: Delete Local Program Screen

- How?
    1. Go to "Program Management" > "Delete Local Program".
    2. Select the program(s) that needs to be deleted.
    3. Click on the "Delete" button to save the changes.

4. You will see a confirmation message that the selected program(s) have been deleted.

Section 4: Program Data

As previously defined on Important QAT Concepts and Terms, a program is similar in structure to a PipeLine supply plan database. Each program consists of only one country, one technical area, one region (national level, central level, etc.), and one organization (MOH, PEPFAR-only, PMI-only). Every program within a realm is governed by the same standardized master data, such as product catalog, procurement agents, funding sources, data sources, etc.

Program data management sits on the third tier of the QAT system hierarchy and is generally done by users with the roles **program admin and program user** (for more information on the user roles, please see Annex 3: User Role Matrix). Program-level master data managed by these users include budgets and alternate reporting units.

A user can "Load" or "Delete" programs from their local machine. Programs can also be "Imported" to the local machine or "Exported" from the local machine to share with other users if there are connectivity issues. Program admins and users can manipulate two big categories of data within their programs: Program data and Transactional data (the "big 3" – consumption, inventory, shipments).

	Data Category	Details
Background Data	**Program Info**	Program Manager, Freight %, Lead Times
	Product Info	Planning units – min, reorder interval, alternate reporting units
	Budget	Funding source, amounts, beginning and ending dates, etc.
Transactional Data ("Big 3") for each product	**Consumption**	Forecasted consumption And actual consumption, as it becomes available
	Stock	Inventory counts & Adjustments
	Shipments	Quantities, receive date, status, procurement agent, funder & associated budget (if available) batch #s & expiry dates

Table 8: Program level data

Background Data

Program Information

Program managers in QAT can define their general program parameters, by selecting from a list of dropdowns that contain realm-level master data for each the fields**.** These general parameters include program name, program manager, default freight percentages for air and sea freight, and lead times by shipment status. **Program users** will be able to list/view all the programs they have access to, while only **Program Admins** are able to update any of the program's general parameters.

Update program information:

1. Click on "Program Management" and then select "Update Program Info".
2. Click on the program that needs to be updated.
3. Edit the required information and click "Update" to save the changes.

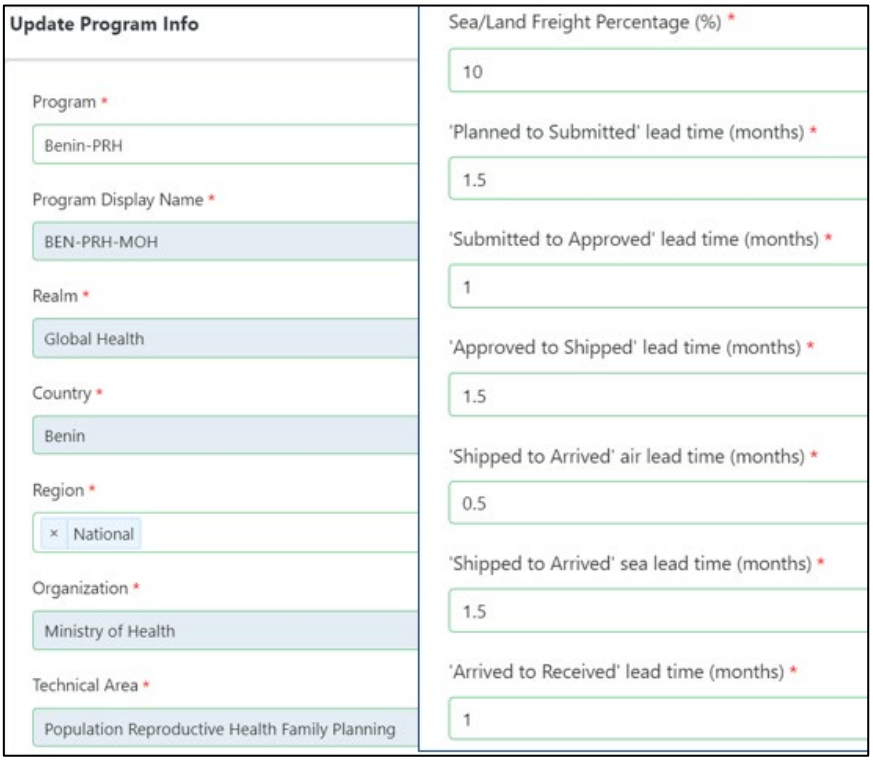


Figure 38: Update Program Info

Planning Units

The planning unit is the product used in QAT as the basis for planning procurements, registering consumption, inventory, and adjustments. A planning unit name is usually inclusive of a full description up to the primary packaging; thus, its nomenclature closely follows the pack size in which dispensing happens, i.e., one bottle of 30 tablets, blister of 10x10 capsules, etc.

The QAT planning unit catalog is considered of realm-level master data, meaning any additions / edits / subtractions from that catalog are managed at the realm level and apply to all programs within that realm. Every program must have at least one planning unit that **Program Admins** can select from the realm-level catalog to add to their programs or deactivate from their programs. Program Admins can also update any parameter related to a particular planning unit, including the reorder frequency, minimum months of stock, average monthly consumption calculation, local procurement agent lead time (see Updating Program Lead Times for further context on lead times), shelf life, and price. Planning units can be deactivated from the program if no longer in use, allowing the program manager to keep all the legacy data.

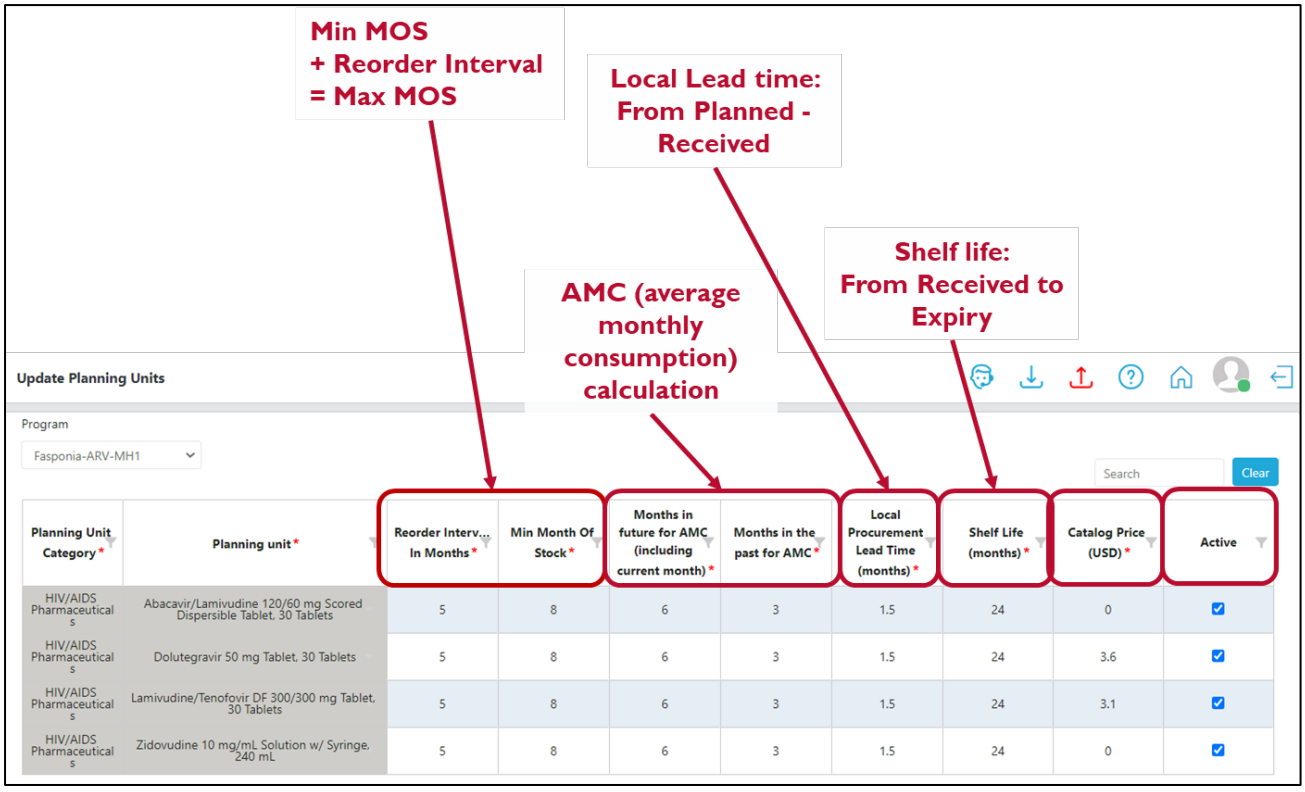


Figure 39: Parameters to update per planning unit

Update planning units within a program:

1. Select "Program Management" and then "Update Planning Units".
2. Select your program to display the planning units currently managed.
3. Double-click on the cell (parameter) that needs updating.
4. Click "Submit" to save the changes.

Add planning units to a program:

1. Select "Program Management" and then "Update Planning Units".
2. Select your program to display the planning units currently managed.
3. Click on the blue "Add row" button on the bottom right of the screen and a new row will appear at the top of the table.
    a. Alternatively, right-click on any row in the table and select "Insert new row before" or "Insert new row after".
4. Double-click the planning unit cell to display the list of planning units that can be selected for the program.
5. Complete all the cells (parameters) in that row.
6. Click "Submit" to save the changes.

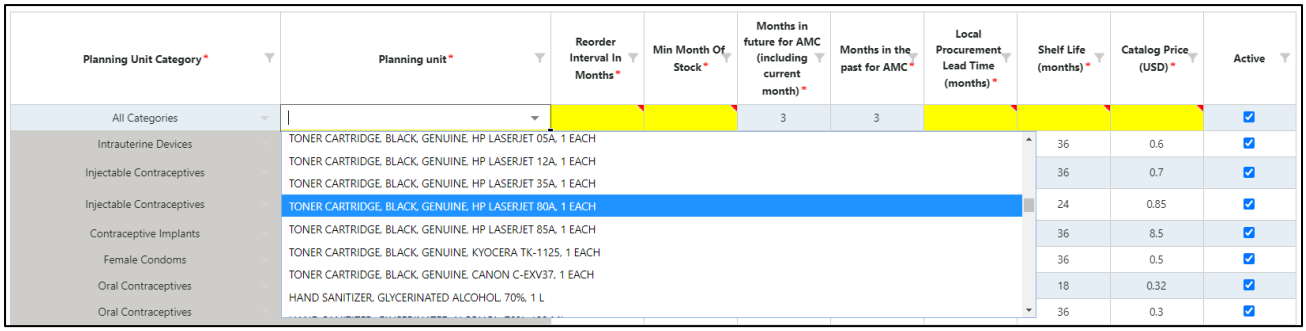


Figure 40: Adding planning units to the program

If a required planning unit is not available in the dropdown, and thus on the QAT catalog, please raise a ticket through the QAT Helpdesk so that it can be created for the entire realm. See more on ticketing in section QAT Helpdesk and Tickets.

Default Lead Times

QAT uses six shipment statuses to track the progression of a shipment from planning to product receipt. Each of those steps in the order lifecycle has an associated lead time that is used to estimate when the next action should happen at each step. Lead times are expressed in months and can be partial months or even zero. When defined at the program level, these lead times are the default for all shipments created by the program, except when they are defined at the procurement agent level (realm-specific).

Figure 41: QAT shipment statuses

There is a different lead time logic depending on whether the procurement is tagged as international or local.

- For international procurement: **Program Admins** manage lead times that are program/country-specific (e.g., planning time, shipment times, custom clearance times, quarantine periods, etc.), while **Realm Admins** manage lead times that are specific to each procurement agent (more on this in the table below).
- For local procurements: the entire lead time ('planned to delivered') is determined by what's entered at the program level, per planning unit. Ideally in local procurement, all steps would be much shorter than for international.

Lead time (from – to)	Definition	Configuration
Planned to submitted	Number of months from identifying procurement need to placing an order with a procurement agent	Always set at the program level by Program Admins
Submitted to approved	Number of months between order placement and approval of order. This lead time can be defined for each procurement agent.	Default set at the program level by Program Admins. However, overwritten by realm-level procurement agent setting, if procurement agent is assigned to a shipment.
Approved to shipped	Number of months between order approval and dispatch from the	Default set at the program level by Program Admins. However, overwritten

	procurement agent/supplier. This lead time can be defined for each procurement agent.	by realm-level procurement agent setting, if procurement agent is assigned to a shipment.
Shipped to arrived by air	Transit time via air between order dispatch until arrival at port of entry -in number of months.	Always set at the program level by Program Admins
Shipped to arrived by sea	Transit time via ocean between order dispatch via air until arrival at port of entry -in number of months.	Always set at the program level by Program Admins
Arrived to received	Number of months from arrival at port of entry until reception into the warehouse.	Always set at the program level by Program Admins

Table 9: Lead times by shipment stage - definitions

Two steps – from 'submitted to approved' and from 'approved to shipped'- are initially defined at program level, but as soon as procurement agent is chosen, this changes to the procurement agent lead times if those are defined for that procurement agent at the realm level.

Enter/update the default lead times at the program level:

1. Go to "Program Management" and then click on "Update Program Info" (see Updating Program Information).
2. Scroll down to the second half of the page where all the lead time fields are.
3. Enter the default program lead times per step.
4. Click "Update" to save the changes.

Enter/update the default local procurement agent lead times:

1. Go to "Program Management" and then click on "Update Planning Units" (see Updating Planning Units)
2. Select the program from the dropdown on the top left.
3. Enter the default program lead time for local procurement.
4. Click "Submit" to save the changes.

Planning unit *	Reorder Interval In Months *	Min Month Of Stock *	Months in future for AMC (including current month) *	Months in the past for AMC *	Local Procurement Lead Time (months) *	Shelf Life (months) *	Catalog Price (USD) *	Active
Abacavir 300 mg Tablet, 60 Tablets	6	6	6	3	1.5	18	8.1	☑
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 60 Tablets	6	6	6	3	1.5	18	7.04	☑

Figure 42: Entering local procurement agent lead times

Budgets

A budget represents an amount (estimated or actual) of capital for a set period that is to be spent on buying commodities for the program.

Go to "Program Management" and then "Budget" to view a list of all budgets for your program(s).

If a budget is highlighted in red, it indicates that the budget has either passed the 'End Date' and/or the 'Used Amount' has exceeded the 'Budget Amount'.

Add a Budget

1. In the "Budget" screen, go to the top right corner and click on the blue "+" icon.
2. A new screen titled "Add Budget" will appear.
3. Enter the required details.
4. Click the "Submit" button.
    a. ***Note:*** *A Program cannot have multiple budgets with the same Funding Source and Budget Display Name. An error message will pop up if this is the case.*

Update a Budget

1. Go to the Budget screen.
2. Left click on the budget that you want to update.
3. A new screen will appear titled "Update Budget
4. Update the details of the selected budget as appropriate.
5. Click "Submit" to save the changes.

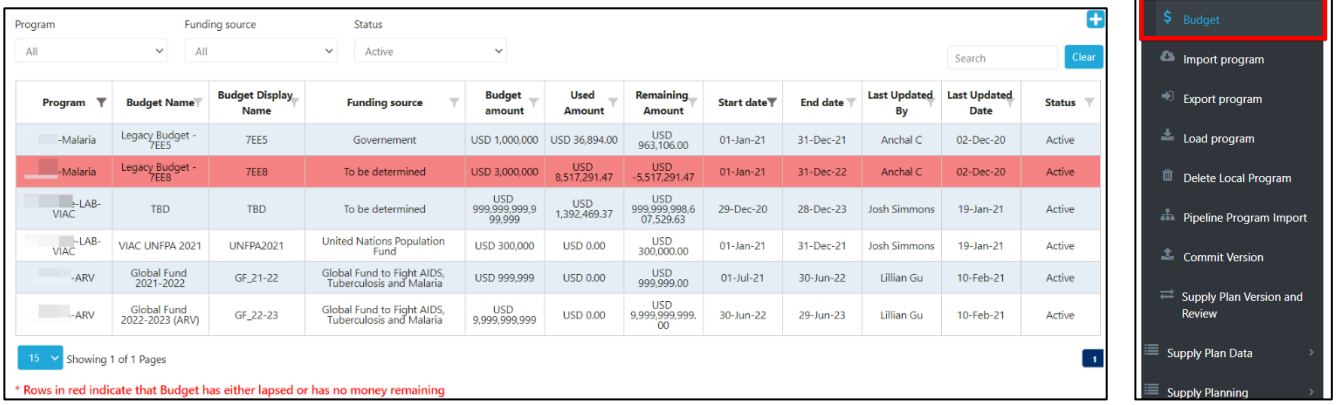


Figure 43: Budget Screen

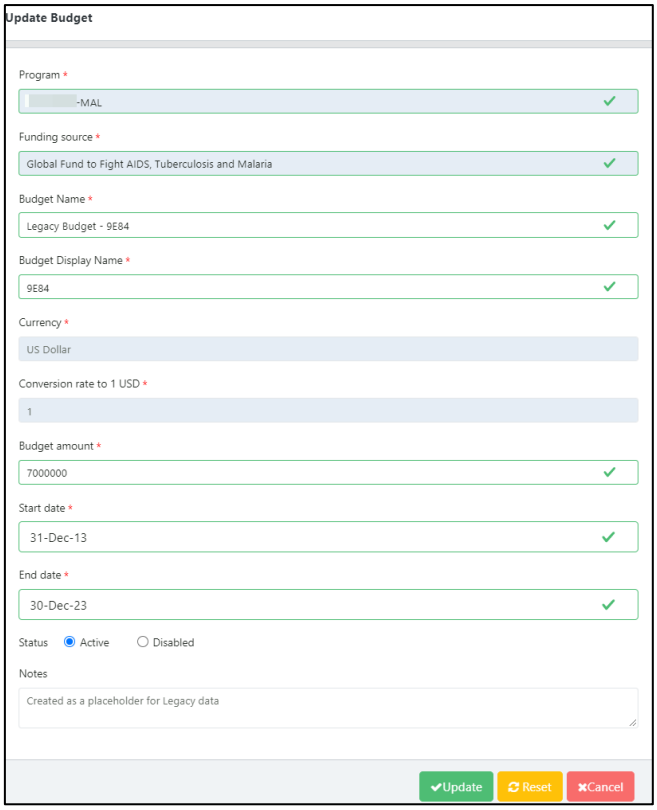


Figure 44: Update Budget

Transactional (Supply Plan) Data

There are 3 main data requirements when creating or updating a supply plan: consumption, inventory, and shipments. The section below will define each of the data elements and how to add/update those elements in QAT.

1. **Consumption**: Stock dispensed by the program to clients.
    a. **Actual Consumption**: The reported quantity of a product dispensed to clients in a given time period for a specific program at a specific supply chain level or combination of levels.
    b. **Forecasted Consumption**: The quantity predicted to be consumed by clients in a given time period which has been agreed upon by the program.
2. **Inventory**: The quantity on hand of usable product at a specific supply chain level or combination of levels, on a specific date, for a specific product.
    a. **Stock count**: A check of how much stock a program has at a particular time in a specific supply chain level or combination of levels.
    b. **Stock adjustments**: Positive or negative modifications to usable inventory quantities for a specific date, categorized by reason for the adjustment, if possible (e.g. damage, expiry, quarantine, transfer to another implementing partner, etc.). Rebalancing transfers between locations in the same supply chain are excluded.
3. **Shipments**: The quantity of funded or planned orders that will ship in current or future month or has shipped in a previous month or that has been received. Expressed in individual shipments, have a shipment number, and expected receipt date.

Consumption Data

Add Consumption Data:

1. From the menu sidebar, go to "Supply Plan Data" and click "Consumption Data".
2. Once the "Consumption Data" screen appears, select the desired filters using the drop-down menus at the top.
3. The screen will display all current data for the selected period, planning unit and other filters selected in step 2.
4. To add a new consumption record, right click on any cell and select "Add new consumption" OR select the blue "+ Add row" at the bottom.
5. Enter the required information and click "Submit".
    a. Any cell that is greyed out (e.g. Quantity (PU) indicates that it is a QAT generated cell and cannot be manually entered/edited.
        i. Reminder that Alternate Reporting Unit is the product and the unit that the country's data is reported in. This could be the same as the planning unit or may be different. QAT users can define an alternate reporting unit and a conversion factor (multiplier) to the planning unit.
    b. Any cell that is highlighted yellow indicates that it is a required field and has not yet been entered by the user.

Notes on Consumption Data:

- For each month and each region, user may enter one forecasted consumption record, and one actual consumption record.
- Users may not enter actual consumption for months in the future
- Users may not edit forecasted consumption more than four (4) months in the past and may not edit actual consumption more than six (6) months in the past.

Consumption Month *	Region *	Consumption Type *	Data Source *	Alternate Reporting Unit (ARU) *	Quantity (ARU) *	Conversion Factor (Alternate Reporting to Planning)	Quantity (PU)	Number of Days Stocked Out	Notes	Active
Feb-2022	National	Forecast	Projected Trend	Copper TCu380A Intrauterine Device, Each	2,407	0.003333	8	0	applied a 2.5% increase to 2020 forecasted consumption	☑
Mar-2022	National	Forecast	Projected Trend	Copper TCu380A Intrauterine Device, Each	2,407	0.003333	8	0	applied a 2.5% increase to 2020 forecasted consumption	☑
Apr-2022	National	Forecast	Projected Trend	Copper TCu380A Intrauterine Device, Each	2,407	0.003333	8	0	applied a 2.5% increase to 2020 forecasted consumption	☑
May-2022	National	Forecast	Projected Trend	Copper TCu380A Intrauterine Device, Each	2,407	0.003333	8	0	applied a 2.5% increase to 2020 forecasted consumption	☑
Jun-2022	National	Forecast	Projected Trend	Copper TCu380A Intrauterine Device, Each	2,407	0.003333	8	0	applied a 2.5% increase to 2020 forecasted consumption	☑
Jul-2022	National	Forecast	Projected Trend		1,500		0			☑

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Figure 45: Add Consumption Data

Update consumption data:

1. From the menu sidebar, go to "Supply Plan Data" and click "Consumption Data".
2. Once the "Consumption Data" screen appears, select the desired filters using the drop-down menus at the top.
3. The screen will display all current data for the report period, planning unit and other filters selected in step 2.
4. To update existing consumption data, the user must double click on the cell(s). A user can update as many cells for as many rows as they need to before saving as long as it is for the same dropdown filters selected in step 2 (i.e. you cannot edit consumption for a product and then edit consumption for a different product without first saving).
    a. **Note:** Users may not edit forecasted consumption more than four (4) months in the past and may not edit actual consumption more than six (6) months in the past. The non-editable data is identified by greyed out rows.
5. Once a consumption record has been saved in QAT, it cannot be deleted. Therefore, if a user wants to remove that record from the supply plan, he/she must de-activate it by checking the blue check box in the far-right column.
6. Once the update(s) have been made, click "Submit".

Add/update batch details:

Adding batch information to consumption records can only be applied to actual consumption.

1. Right click on the "Actual Consumption" row and click "Show Batch Information".
2. A pop-up screen of the batch details for that actual consumption record will appear.
3. The user can edit the existing batch number and/or quantity by double clicking on the cell.
4. The user can also add a new batch(es) by right-clicking and selecting "Add New Batch" or by clicking on the "+Add Row" button".
5. The total quantity of the batches must equal the quantity of that actual consumption record.
6. Click "Submit".

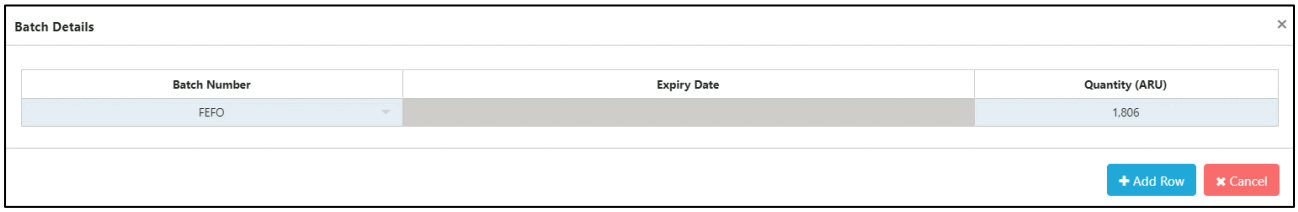


Figure 46: Batch Details

Inventory Data

Add Inventory/Adjustment Data:

1. From the menu sidebar, go to "Supply Plan Data" and click "Inventory Data".
2. Once the "Inventory Data" screen appears, select the desired filters using the drop-down menus at the top.
    a. If the user is entering inventory data, select "Inventory" in the Inventory Type drop-down. If the user is entering adjustment data, select "Adjustment".
3. The screen will display all current data for the selected period, planning unit and other filters selected in step 2.
4. To add a new inventory/adjustment record, right click on any cell and select "Add New Inventory Count"/ "Add new adjustments" OR select the blue "+ Add row" at the bottom.
5. Enter the required information.
    a. Any cell that is greyed out (e.g., Conversion Factor) indicates that it is a QAT generated cell and cannot be manually entered/edited.
    b. Any cell that is highlighted yellow indicates that it is a required field and has not yet been entered by the user.
    c. If entering an adjustment, a note in the "Notes" field is required. Notes for inventory records are optional.
6. Click "Submit".

Notes on Inventory Data:

- For each month and each region, user may enter one inventory record but may enter multiple adjustments.
- Users can not enter inventory for months in the future
- Users may not edit inventory or adjustment records more than six (6) months in the past.

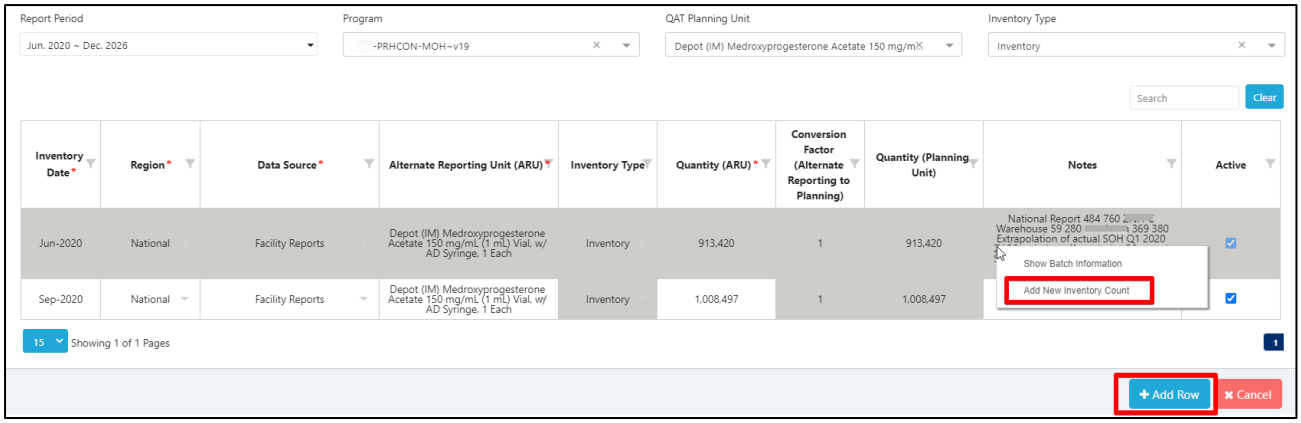


Figure 47: Add Inventory

Update Inventory/Adjustment Data:

1. From the menu sidebar, go to "Supply Plan Data" and click "Inventory Data".
2. Once the "Inventory Data" screen appears, select the desired filters using the drop-down menus at the top.
    a. If the user is updating inventory data, select "Inventory" in the Inventory Type drop-down. If the user is updating adjustment data, select "Adjustment".
3. The screen will display all current data for the report period, planning unit and other filters selected in step 2.
4. To update existing inventory/adjustment data, the user must double click on the cell(s). A user can update as many cells for as many rows as they need to before saving as long as it is for the same dropdown filters selected in step 2 (i.e., you cannot edit inventory/adjustment data for a product and then for a different product without first saving). A user also cannot update adjustment and inventory data at the same time without first saving.
    a. Note: Users may not edit adjustment or inventory records more than six (6) months in the past. The non-editable data is identified by greyed out rows.
5. Once an inventory record has been saved in QAT, it cannot be deleted. Therefore, if a user wants to remove that record from the supply plan, he/she must de-activate it by checking the blue check box in the far-right column.
6. Once the update(s) have been made, click "Submit".

Add/Update Batch Details

1. Right click on the Inventory/Adjustment row and click "Show Batch Information".
2. A pop-up screen of the batch details for that record will appear.
3. The user can edit the existing batch number and/or quantity by double clicking on the cell.
4. The user can also add a new batch(es) by right-clicking and selecting "Add New Batch" or by clicking on the "+Add Row" button".
5. The total quantity of the batches must equal the quantity of that inventory/adjustment record.
6. Click "Submit".

Shipment Data

Add Shipment Data:

1. From the menu sidebar, go to "Supply Plan Data" and click "Shipment Data".
2. Once the "Shipment Data" screen appears, select the desired filters using the drop-down menus at the top.

3. The screen will display all current data for the report period, planning unit and other filters selected in step 2.
4. To add a new shipment record, right click on any cell and select "Add new shipment" OR select the blue "+ Add row" at the bottom.
5. Enter the required information.
    a. Any cell that is greyed out (e.g. Planning Unit Cost) indicates that it is a QAT generated cell and cannot be manually entered/edited.
    b. Any cell that is highlighted yellow indicates that it is a required field and has not yet been entered by the user.
    c. Certain cells will not be available to enter data into until other cells have been filled in. For example, "Budget" cannot be selected until the user has selected a "Funding Source".
    d. "QAT Shipment ID" will display as blank or '0' until the program is committed.
    e. Shipments cannot be marked as 'Received' if the Receive Date is in the future.
    f. In the shipment data screen, the user may select the desired currency from a drop-down list by clicking in the appropriate cell in the currency column. Based on the currency selected, the user will get the catalog price.
        i. That price can be changed during data entry/updating.
        ii. Freight cost is based on shipment mode but can also be modified manually.
    g. If a shipment row is in red text, this means that the shipment is identified as an "Emergency Shipment". QAT will automatically mark the shipment as an emergency shipment if the receive date falls inside the predefined lead time, meaning the shipment will most likely need to be expedited.
    h. If a shipment is highlighted in grey, this means that the shipment is not included in the ending balance of the supply plan. This can be done by either changing the status of the shipment to "Cancelled" OR by de-activating the shipment using the blue check box on the far left.
6. Click "Submit".

Update Shipment Data:

1. From the menu sidebar, go to "Supply Plan Data" and click "Shipment Data".
2. Once the "Shipment Data" screen appears, select the desired filters using the drop-down menus at the top.
3. The screen will display all current data for the report period, planning unit and other filters selected in step 2.
4. To update existing shipment data, the user must double click on the cell(s). A user can update as many cells for as many rows as they need to before saving as long as it is for the same dropdown filters selected in step 2 (i.e. you cannot edit shipments for a product and then edit shipments for a different product without first saving).
5. Unlike consumption data, a user can delete a shipment record even after it has been saved to the program, although the shipment must be in the 'Planned' status. To do so, right-click on the desired shipment and select 'Delete Row'.
6. Once the update(s) have been made, click "Submit".

Add/Update Batch Details

Adding batch information to shipment records can only be applied to shipments in the 'Shipped' or 'Received' status. Once a shipment is marked as 'Shipped', QAT will auto-generate a batch. The user has the ability to edit that batch and/or add new batches to that shipment.

1. Right click on the shipment row and click "Show Batch Information".
2. A pop-up screen of the batch details for that shipment will appear.

3. The user can edit the existing batch number, expiry date and quantity by double clicking on the cell.
4. The user can also add a new batch(es) by right-clicking and selecting "Add New Batch" or by clicking on the "+Add Row" button".
5. Click "Save Batch Information".

The total quantity of the batches must equal the quantity of that shipment.

The column to the far right labeled "Auto Generated" will let the user know if that batch was auto-generated by QAT or manually entered by the user.

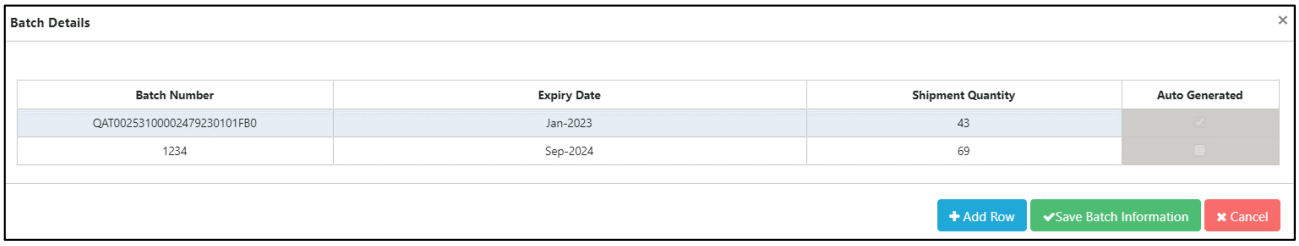


Figure 48: Shipment Batch Details

Strategic Order Calculator:

For specific planning unit and procurement agent combinations, a **strategic order calculator** may appear for the user when entering the quantity of a shipment. The purpose of the calculator is to advise users on the appropriate order quantity for a shipment based on one or more of the following elements: a) Minimum Order Quantity (MOQ); b) Container load; b) Euro 1 pallet; c) Euro 2 Pallet. The calculator will help users plan shipments to maximize efficiency with delivery logistics (e.g. utilizing a full container instead of 20% of the container). Strategic products are defined at the realm level by an application or realm admin. For more information on how to define strategic products, see the section on adding planning units for procurement agents.

1. To view the Quantity Calculator for a strategic product, double click on the cell under the "Order Quantity" column and the "Quantity Calculator" screen will appear.
2. If the product is a non-strategic product, the user can directly modify the order quantity in the cell after double-clicking.
3. The quantity you wish to proceed with/the original quantity of the shipment will appear in the "Manual Order Quantity" cell.
4. Select how you wish to use the calculator by choosing an option from the "Packaging Based On" drop-down as well as the "Rounding Option" drop-down.
5. Depending on your selections in step 4, the quantity in "Final Order Quantity" cell will show you what QAT suggests to make the shipment quantity. The table below those drop-downs will inform you of all the key information around the different packaging modes.
6. If you want to use the recommended Final Order Quantity, click "Save Shipment Quantity".
7. If you don't want to use the strategic calculator and want to use the original "Manual Order Quantity", select "None" in the drop-down for "Packaging Based On" and click "Save Shipment Quantity".

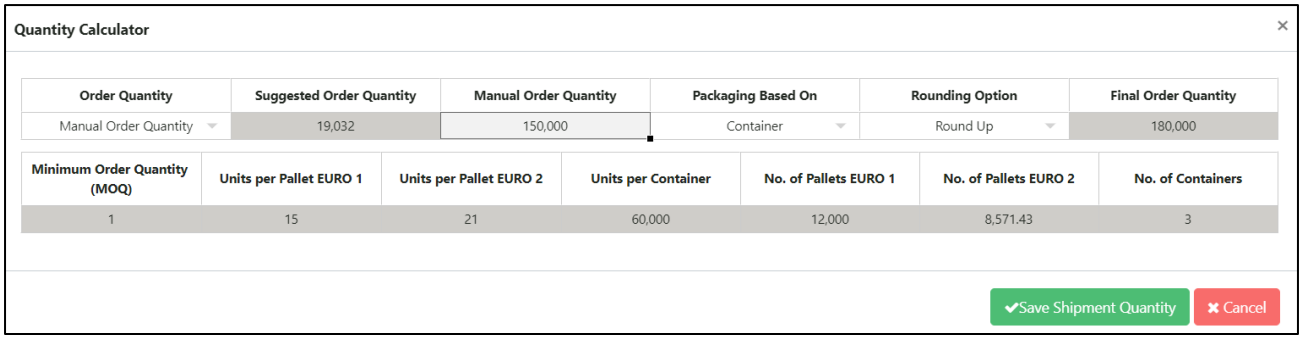


Figure 49: Strategic Order Calculator

View Shipment Dates:

Estimated for each status can be seen, and actual dates can be manually entered, in the Shipment screen. This will allow the user to identify if the shipment is on schedule or behind/ahead based on the lead times. The user can also use this screen to compare the actual dates with the estimated dates of that shipment and use that information to update lead times that may not be accurate.

1. From the menu sidebar, go to "Supply Plan Data" and click "Shipment Data".
2. Once the "Shipment Data" screen appears, select the desired filters using the drop-down menus at the top.
3. The screen will display all current data for the report period, planning unit and other filters selected in step 2.
4. Right-click on the shipment you wish to view the dates for and select "Show shipment dates". A pop-up screen labeled "Shipment Dates" will appear.
5. The row labeled "Estimated" of the "Shipment Dates" screen will show a date for each status of the shipment based on the lead times entered for the program as well as the estimated receive date. Only the estimated receive date can be edited by the user.
    a. If a user changes the estimated receive date, the other estimated dates will also change based on the program's lead times.
6. The row labeled "Actual" will allow the user to enter the actual date that each status occurred for that shipment. If a cell is greyed out in this row, it means that the shipment has not yet reached that status and a date cannot be entered.
7. If the user makes a change to the estimated receive date or one of the actual dates, click "Save shipment dates".

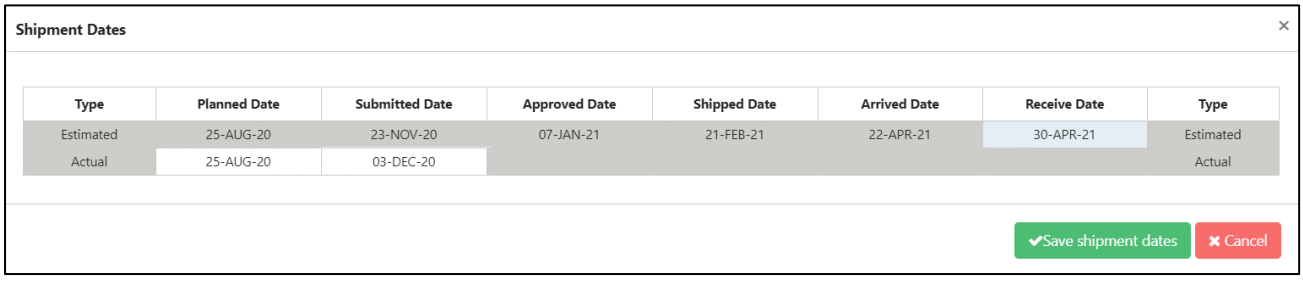


Figure 50: Show Shipment Dates

ERP Shipment Linking – Coming Soon!

ERP Shipment Delinking – Coming Soon!

Importing data for supply planning

Supply Plan Data Excel Import Templates

Consumption, Inventory and Shipment data can be entered through QAT's data entry screens, through the Supply Planning screen or through Quantimed Import (forecasted consumption only). QAT also provides users with the ability to input this data directly from Microsoft Excel. This method of data entry is intended for bulk entries that have a lot of data. The steps below will show how to input data from Excel into QAT:

Notes on Excel Template Entry: Each of the four data types (Inventory, Adjustment, Consumption and Shipment) have their own Excel template so it is important that you click on "Download Template" from the proper screen. For inventory and adjustment, make sure the drop-down menu has selected the type of data you want the template for.

1. From the menu sidebar, go to "Supply Plan Data" and click the type of data you want to enter (e.g. "Consumption Data").
2. Once on the data entry screen, go to the top right corner and click "Download Template".

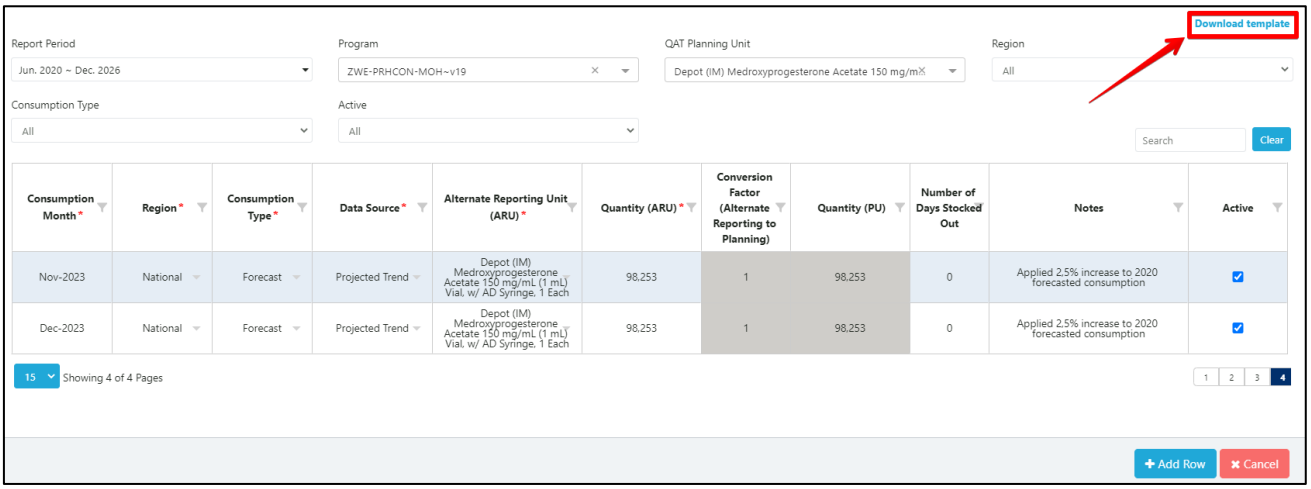
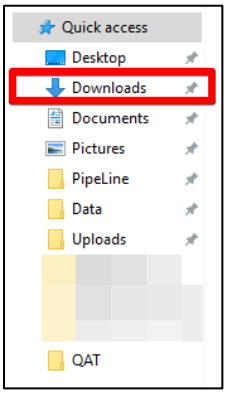


Figure 51: Download Template

3. A Microsoft Excel file will be downloaded directly to your computer's **'Downloads'** folder.
4. Proceed to your computer's Downloads folder and open the Excel file. The name format should be **ConsumptionDataEntryTemplate.xlsx** with the first portion dependent on the type of data you are entering.
    a. *Each of the four data types (Inventory, Adjustment, Consumption and Shipment) have their own Excel template so it is important that you click on "Download Template" from the proper screen. For inventory and adjustment, make sure the drop-down menu has selected the type of data you want the template for.*
5. Once in the Excel template, click "Enable Editing" at the top if it prompts you to.



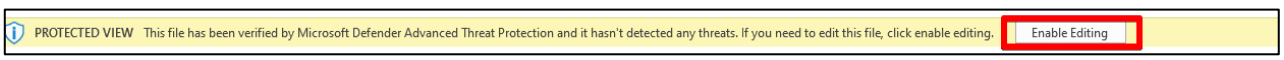


Figure 52: Enable Editing

6. Enter data for all of the required fields.
    a. Any cell highlighted in grey (e.g. Conversion Factor) is non-editable and does not need to be filled in.

b. Certain fields (e.g. Data Source) will have drop down menus pre-populated from QAT. Therefore, it is important to download a new template if it has been a while since the last time the user used the template.
c. Certain fields have built in data validations (e.g. letters cannot be entered in cost cells). If the validation is not met, a pop-up error message will appear.

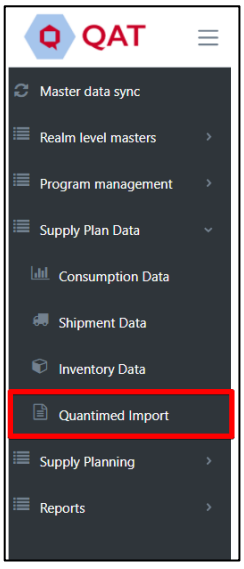
Consumption Month	Region	Consumption Type	Data Source	Alternate Reporting Unit(ARU)	Quantity(ARU)	Conversion Factor(Alternate Reporting to	Quantity(PU)	Number of Days Stocked Out	Notes	Active
2021-02-01	National	Actual	LMIS Reports	Levonorgestrel 0.75 mg Tablet, 2 Tablets	25000			0	TEST	TRUE
2021-03-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	15498			0	TEST	TRUE
2021-04-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	15258			0	TEST	TRUE
2021-05-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	23569			0	TEST	TRUE
2021-06-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	18479			0	TEST	TRUE
2021-07-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	17007			0	TEST	TRUE
2021-08-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	24433			0	TEST	TRUE
2021-09-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	17635			0	TEST	TRUE
2021-10-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	23660			0	TEST	TRUE
2021-11-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	21795			0	TEST	TRUE
2021-12-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	20183			0	TEST	TRUE
2022-01-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	17848			0	TEST	TRUE
2022-02-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	24655			0	TEST	TRUE
2022-03-01	National	Forecast	Demographic Goal	Levonorgestrel 0.75 mg Tablet, 2 Tablets	15746			0	TEST	TRUE

Figure 53: Excel Template

7. Once all the data is entered in the Excel template, re-open QAT window.
8. Go to the Data Entry screen (Consumption, Inventory, Adjustment, Shipment).
9. Click the blue "+Add Row" button at the bottom.
    a. **Note:** You only need to add 1 row in QAT regardless of how many rows there are in the Excel template.
10. In the Excel template, select all data and press Ctrl + C on your keyboard to copy the data.
11. Go to the added row in QAT, left click on the far most left cell in that row and press Ctrl + V on your keyboard to paste the data.
12. QAT will automatically create new rows for the data being imported from Excel.
13. Click "Submit".

Quantimed Forecast Import

Quantimed is a software designed to facilitate the process of determining the quantities of medicines and medical supplies required for a health program. The output of Quantimed is a health programs' forecasted consumption data. That forecasted consumption data can be a key input into QAT user's supply plans. QAT allows users to import Quantimed forecasts into QAT to include in their supply plan.



Step 1: Import Quantimed Data into QAT

1. Go to "Supply Plan Data" on the sidebar menu
2. Selected "Quantimed Import"
3. Import Quantimed Data File
    a. Choose the Quantimed .xml forecast file from your local computer system.
    b. Select the QAT program that you want the Quantimed data to import into.
    c. Click on "Import".

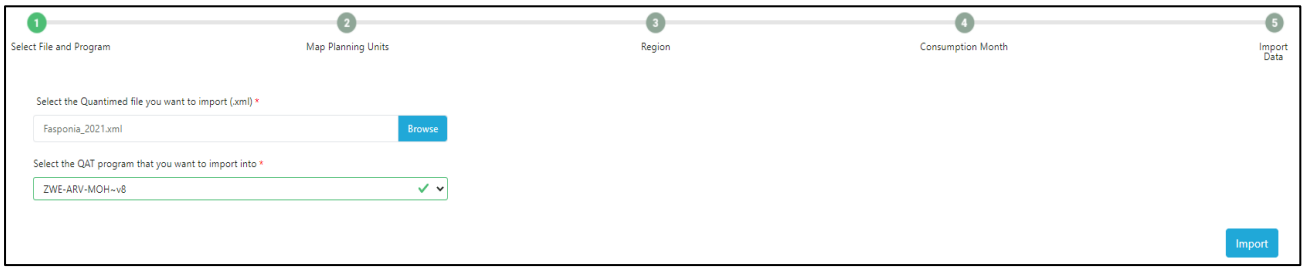


Figure 54: Quantimed File Import

Step 2: Map Planning Units

1. To map a Quantimed product to a QAT planning unit, select the QAT planning unit using the drop-down menu.
2. If you do not want to import a specific Quantimed product, select the "Do Not Import" option for that row.
3. If there is not a QAT planning unit associated with the Quantimed product, the dropdown will show "Planning Unit Not Found". You will either need to manually select a planning unit from the dropdown or go back to the program and add a planning unit for that Quantimed product before proceeding. You cannot click "Next" one or more of the cells says "Planning Unit Not Found".
   a. **Note**: to minimize instances where a planning unit is not found, it is recommended that Quantimed users select products from the GHSC-PSM product catalog .xml file.
4. Once very row has a planning unit selected or says "Do not import", click "Next" at the bottom of the screen.

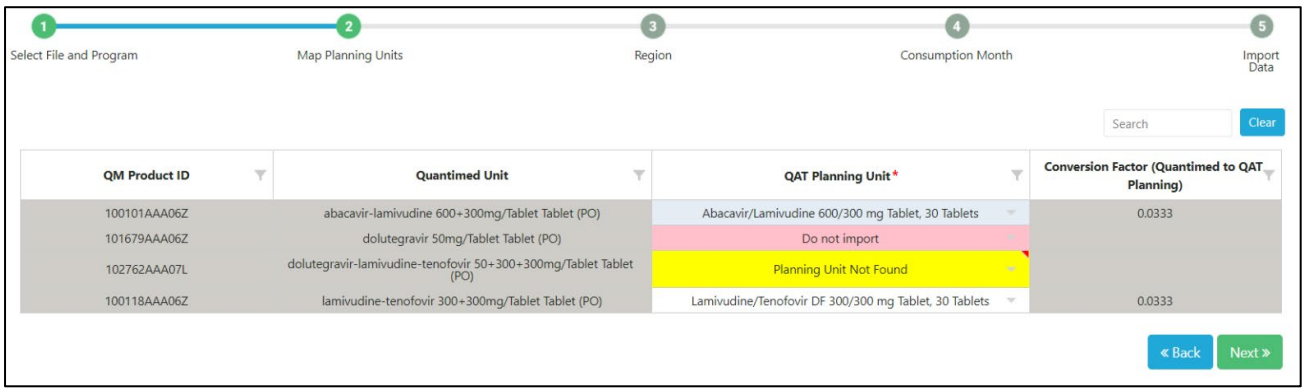


Figure 55: Map Planning Units

Step 3: Region

1. In this step select the region that you want to import the forecasted consumption data into. If there is only one region, you must select that region to proceed.
2. Then, input the percentage of that consumption data that you want to import into QAT. This percentage must range from 0-100% and will apply to all the planning units previously selected.
3. Click "Next".

Step 4: Consumption Month

1. Select the date range for the Quantimed data that you want to import into QAT.
   a. The period you select is the period of data that you will be able to import and will apply to all planning units previously selected.
2. Click "Next".

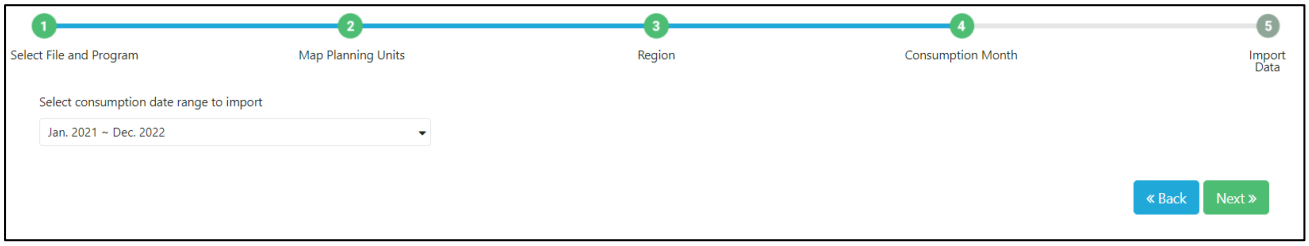


Figure 56: Consumption Month Screen

Step 5: Import Data

1. The final step is to confirm the data that will be imported from Quantimed into QAT based on what was entered in steps 1-4.

a. "Quantimed Forecasted Consumption" is the amount that is being pulled in from Quantimed for the associated product and month-year.
b. "Converted Quantimed Forecasted Consumption" is the amount that will be pulled into QAT for the associated product and month-year after applying the import percentage and conversion factor.
c. "Current QAT Forecasted Consumption" is the forecasted consumption amount currently in QAT for that planning unit and month-year. Once you import the Quantimed data, this amount will be overwritten by the "Converted Quantimed Forecasted Consumption" amount.

2. This screen will show all the data that will be imported into QAT. If you do not want to import certain records, click on the checkbox in the 'Import?' column on the far right. This will prevent QAT from importing the Quantimed data and will keep the current QAT forecasted consumption for that planning unit and month-year.
3. Click "Submit" to import the data.

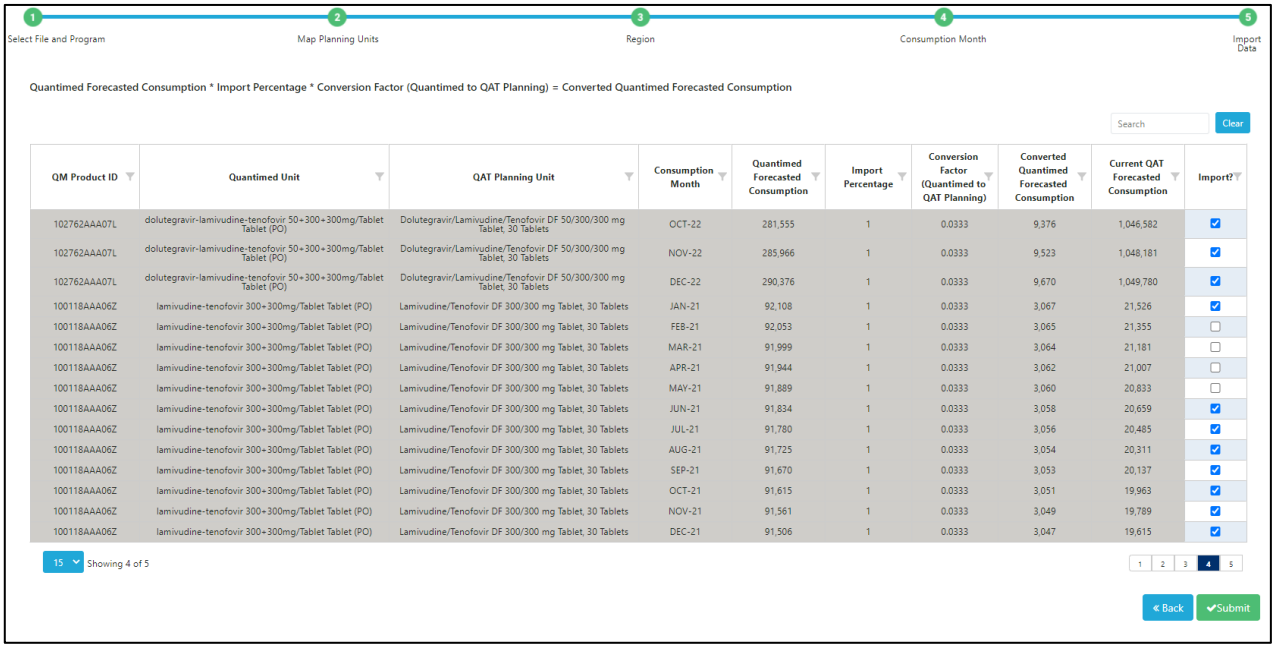
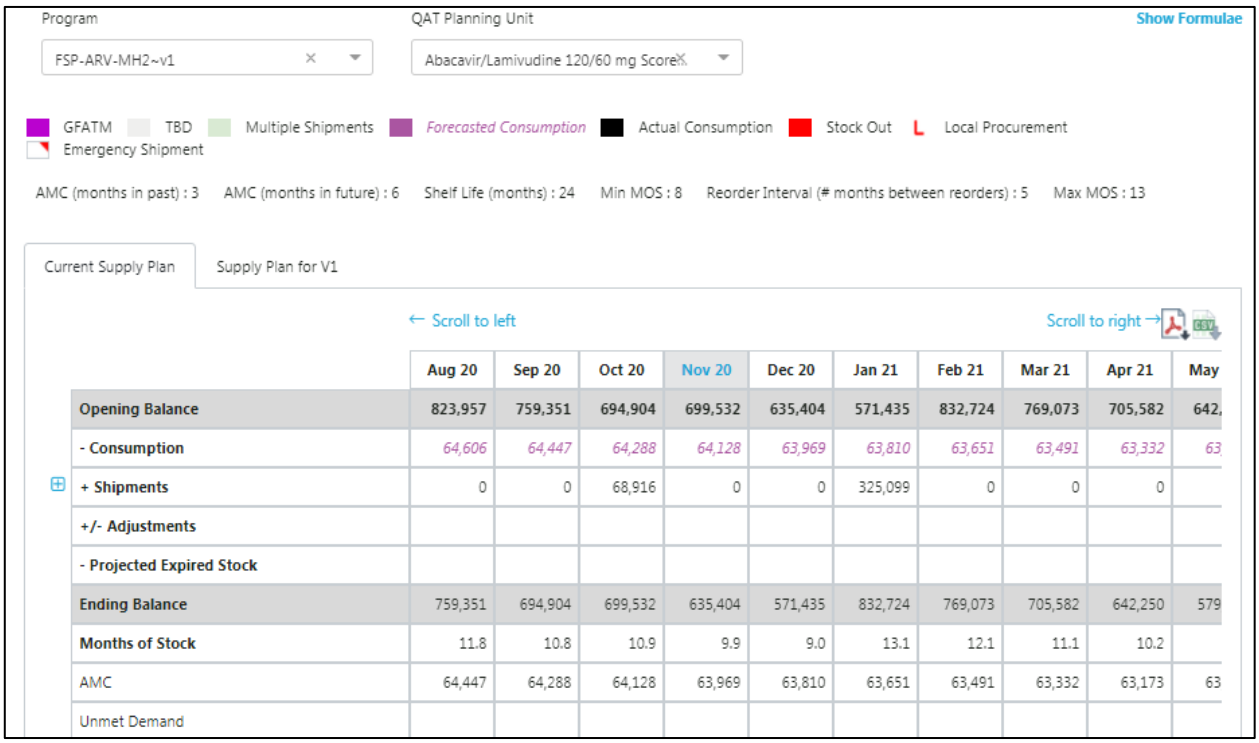


Figure 57: Confirm Data Import Screen

Section 5: Supply Planning

Supply Planning: An Overview



	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May
Opening Balance	823,957	759,351	694,904	699,532	635,404	571,435	832,724	769,073	705,582	642,
- Consumption	64,606	64,447	64,288	64,128	63,969	63,810	63,651	63,491	63,332	63
+ Shipments	0	0	68,916	0	0	325,099	0	0	0	
+/- Adjustments										
- Projected Expired Stock										
Ending Balance	759,351	694,904	699,532	635,404	571,435	832,724	769,073	705,582	642,250	579
Months of Stock	11.8	10.8	10.9	9.9	9.0	13.1	12.1	11.1	10.2	
AMC	64,447	64,288	64,128	63,969	63,810	63,651	63,491	63,332	63,173	63
Unmet Demand										

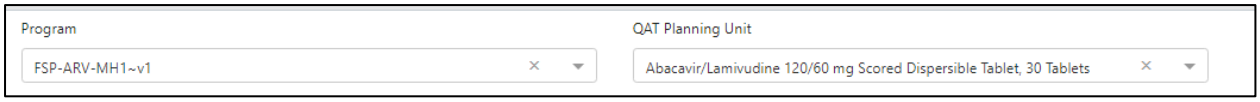
Figure 58: Supply Planning Screen

- What? All major data points (consumption, shipments, inventory) come together on the supply planning screen, and this is where most QAT users will spend the majority of their time. Users can click on many of the cells in the table to directly edit their data. It is recommended to use this screen for active supply planning (including data updates and planning new shipments), but to use the data entry screen when significant data entry is required.

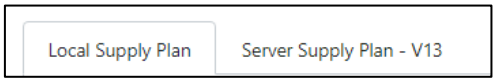
- Who? **Application/Realm Admins/ Admins**, **Supply Plan Reviewers** and **Program Users** can add/edit the supply plan. Certain "view only" roles can view the supply plan.

- When? The user does not have to be online. However, they must have loaded a program onto their local computer while online before beginning.

- How?
  Note: other than step 1 being required, the remaining steps are not sequential, but an explanation of the features available in the supply planning screen.
  1. On the left menu bar, go to Supply Planning > "Supply Planning"
     a. Select the desired **Program**. The drop-down list in the supply plan screen will show all the programs that have been loaded by the user in their local machine. Refer to Load Program for details on how to load a program
     b. Select the desired **QAT Planning Unit**.



2. The screen displays two Supply Plan tabs: **Local Supply Plan** and **Server Supply Plan - VX.** The "Local Supply Plan" tab is the local version that was selected under "program" and is available to be edited. The "Server Supply Plan" is the latest version available on the server and is only available for viewing (not editable).

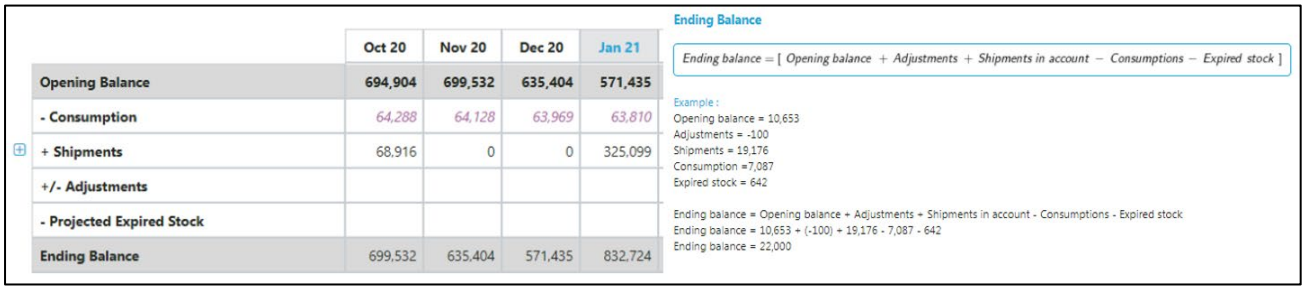


3. By default, the past 3 months and 15 future months from the current date are shown. Use **Scroll to Left/Right** to shows data for 6 months in the past/future

Click "Show Formulae" at the top right of the screen for explanations on calculations on this screen.

4. Click on the PDF & CSV icons to export this report, and will include all planning units in the program. In PDF, only the graph for the selected product will be included, but there will be tables for each planning unit.

5. Understanding the stock balance calculations on the top half of the table:



	Oct 20	Nov 20	Dec 20	Jan 21
Opening Balance	694,904	699,532	635,404	571,435
- Consumption	64,288	64,128	63,969	63,810
+ Shipments	68,916	0	0	325,099
+/- Adjustments				
- Projected Expired Stock				
Ending Balance	699,532	635,404	571,435	832,724

Ending Balance

Ending balance = [Opening balance + Adjustments + Shipments in account − Consumptions − Expired stock]

Example :
Opening balance = 10,653
Adjustments = -100
Shipments = 19,176
Consumption =7,087
Expired stock = 642

Ending balance = Opening balance + Adjustments + Shipments in account - Consumptions - Expired stock
Ending balance = 10,653 + (-100) + 19,176 - 7,087 - 642
Ending balance = 22,000

Figure 59: Ending Stock Balance Calculation

- **Opening Balance** represents the quantity of stock at the beginning of the month. It is equal to the ending balance of the previous month, except the very first month of the program, where the opening balance is zero.
- **Ending Balance** represents the quantity of stock at the end of the month. It can be an inventory count, or a projected calculated value.
- Follow the +/- signs besides each row to understand how the math works from opening balance to ending balance.

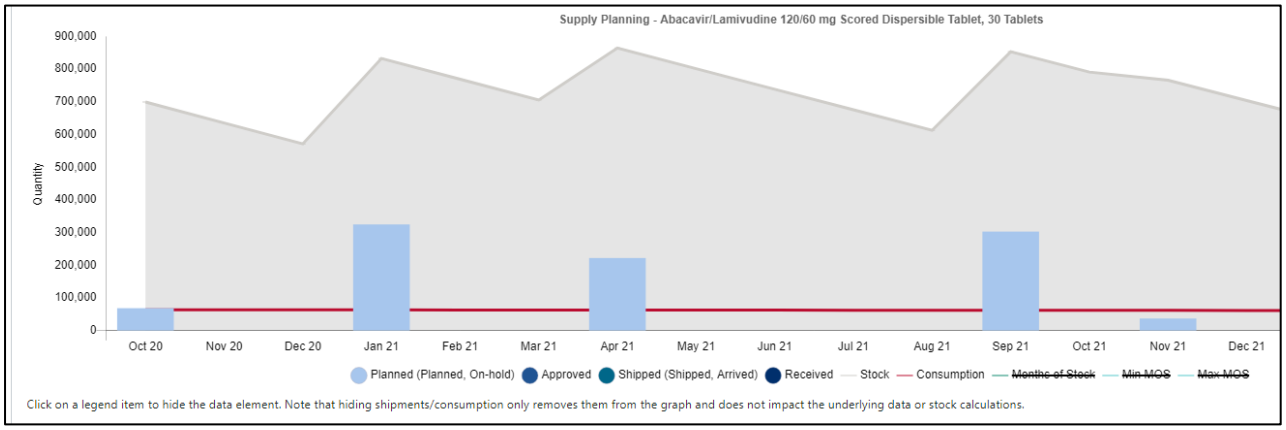
6. Understanding the Months of Stock, AMC & Unmet Demand Calculations on the bottom half of the table:

Months of Stock	10.9	9.9	9.0	13.1
AMC	64,128	63,969	63,810	63,651
Unmet Demand				

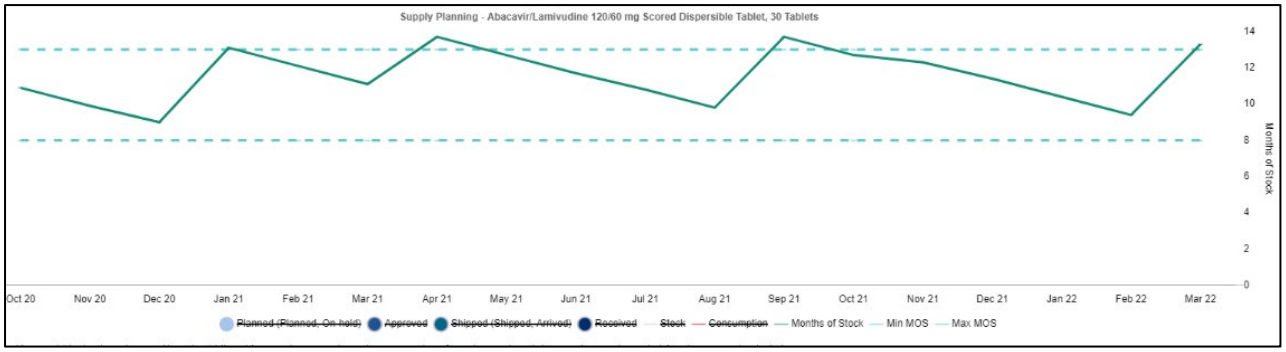
- **Average monthly consumption (AMC)** is an average of the consumption over the months indicated by the AMC parameters, which are displayed above the table. To edit these parameters, see Updating Planning Units.

- **Months of stock** is calculated as the ending balance of the month divided by the AMC.
- **Unmet demand.** When the consumption is greater than the available inventory (opening balance) for the month, there is a stock out, so the ending balance will go to 0 and unmet demand is calculated as the absolute value of consumption - available balance. The next month's opening balance would be 0. The unmet demand is calculated per month and is not carried over between months. The QAT unmet demand functionality is what captures what would have been negative stock in legacy software PipeLine.

7. Reading the stock status graph. The dates on this graph follow the table. By default, all graph elements are displayed. Click on any data element in the legend to hide a data element. The Stock Status graph has two axes:
   - The **primary (left) axis is in units**, and depicts shipments, consumption and stock.



   - The **secondary (right) axis is in months**, and depicts minimum month of stock parameter, maximum month of stock parameter, and the actual Months of Stock.



Supply Planning: Consumption

In the supply planning table, only one number will show per month for the whole program in the consumption row. As noted in the legend, ***forecasted consumption*** is indicated by purple italic text, while **actual consumption** is indicated by black non-italicized text.

	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20
Opening Balance	**170,653**	**160,865**	**151,076**	**140,763**	**131,674**
- Consumption	9,788	9,788	10,313	*9,089*	*9,094*

Forecasted Consumption Actual Consumption

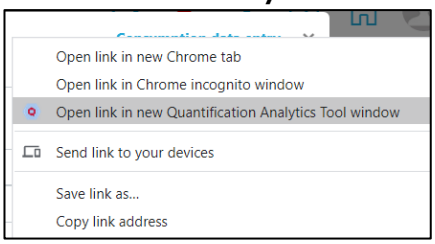
Logic for Consumption Data Displayed

- For single-region programs, the actual consumption will be displayed when it is available. If actual consumption is not available, the forecasted consumption will display.
- For multi-region programs, QAT will display the greater between Σ(actuals) or Σ(forecast) across regional data. (Note: this logic is being reviewed and may be updated in the future).

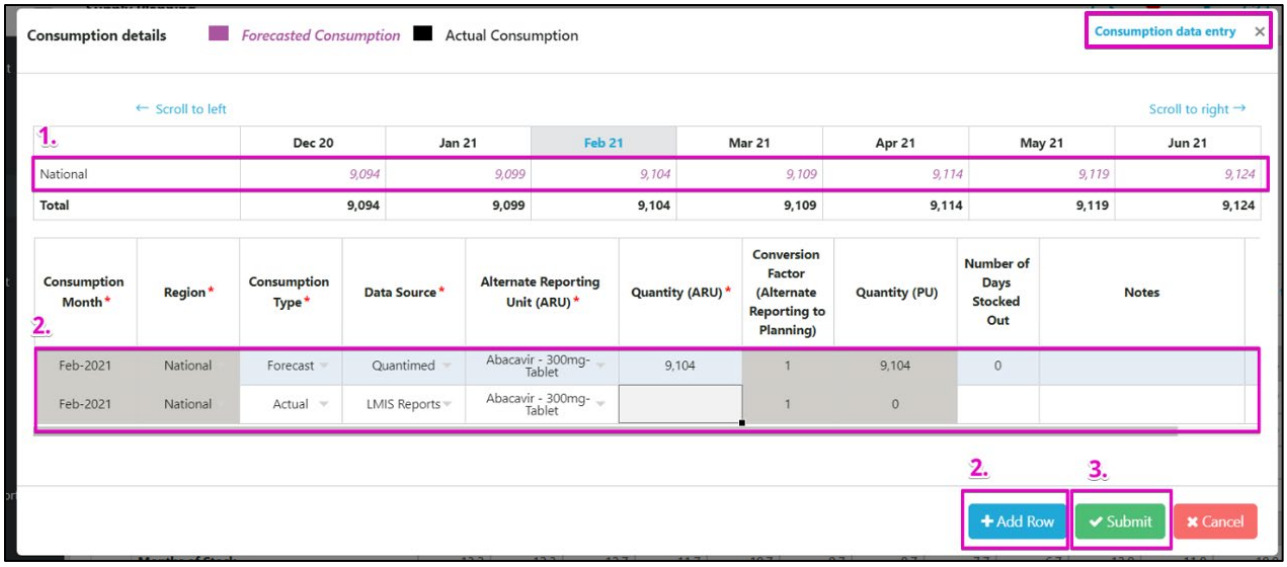
To add or edit consumption records

- Click on the month and cell on the Consumption row in the supply planning screen.
- A new window called Consumption Details will pop up. In the table that appears, each row represents a region. Single-region programs will only have one row, while multi-region programs would have multiple rows.
- The total shows the aggregated consumption for all regions.
- Click on the consumption record of any month and region to display further details.

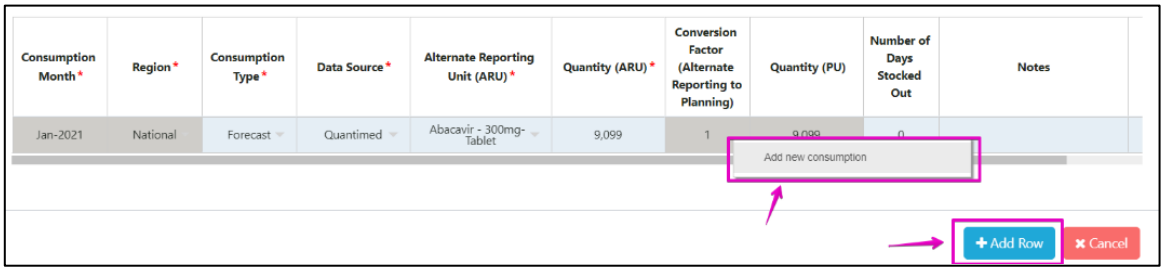
Lots of data to add/update? Go to data entry screen!



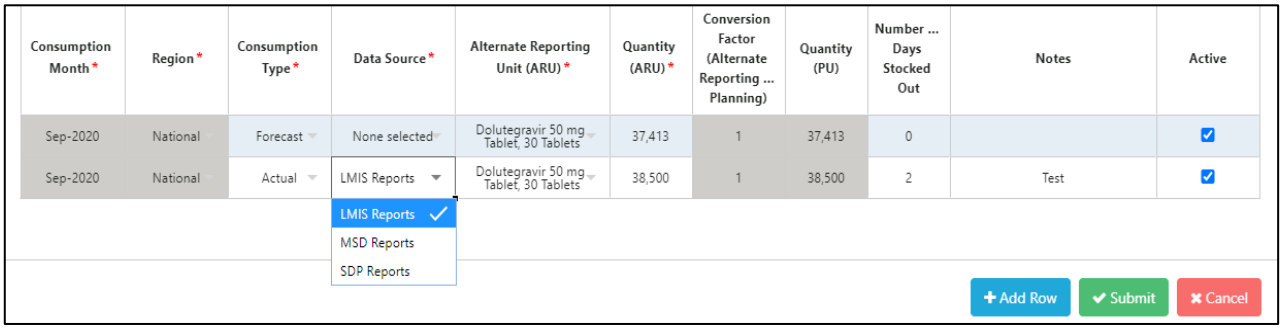
On the consumption details pop-up, users can directly access the Consumption data entry by clicking the link on the top right corner (see Consumption Data). Left click to open a tab on your browser, right click and select "Open link in new Quantification Analytics Tool window" to open a separate QAT PWA window.



1. Any records for that month and region will display below.
    a. To create a new record, right click on the details row and select "Add new consumption" or click the "+ Add Row" button.



    b. To edit a record, click on any cell and edit consumption details (consumption type, data source, quantity, etc.) Double click to activate any dropdowns. See Consumption Data for additional guidance on consumption data entry.



2. Click "Submit" to save the changes and return to the main supply planning screen, where your changes will be reflected.

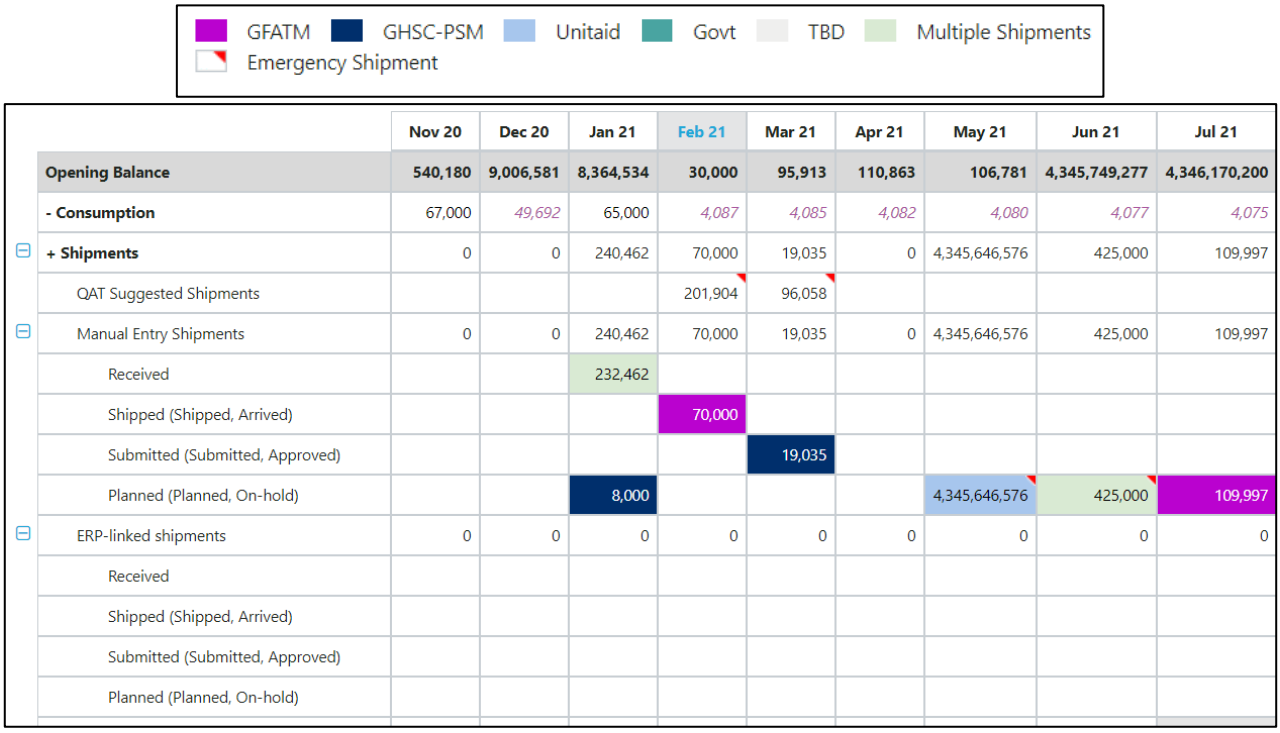
Supply Planning: Shipments

By default, shipments are only shown as one row in the supply planning screen – this is the aggregate quantity of all shipments (excluding suggested shipments). To show more details, click on the + icon to the left of the "+ Shipments" row to expand and display the sub-sections. You will see three main

sections:

1. Suggested shipments: automatically calculated
2. Manual entry shipments: entered by the user – editable by the user.
3. ERP (enterprise resource planning): data linked to ERP from procurement agents are non-editable (see ERP Shipment Linking)

For the Manual Entry & ERP-linked shipment rows, click on the + icon to the left of this row to further expand and see the shipments by status. For all shipment rows, the colors indicate the procurement agent and red triangles on the top right of the cell indicate that a shipment is an emergency (the legend appears at the top of the screen).



	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21
Opening Balance	**540,180**	**9,006,581**	**8,364,534**	**30,000**	**95,913**	**110,863**	**106,781**	**4,345,749,277**	**4,346,170,200**
- Consumption	67,000	*49,692*	65,000	*4,087*	*4,085*	*4,082*	*4,080*	*4,077*	*4,075*
+ Shipments	0	0	240,462	70,000	19,035	0	4,345,646,576	425,000	109,997
QAT Suggested Shipments				201,904	96,058				
Manual Entry Shipments	0	0	240,462	70,000	19,035	0	4,345,646,576	425,000	109,997
Received			232,462						
Shipped (Shipped, Arrived)				70,000					
Submitted (Submitted, Approved)					19,035				
Planned (Planned, On-hold)			8,000				4,345,646,576	425,000	109,997
ERP-linked shipments	0	0	0	0	0	0	0	0	0
Received									
Shipped (Shipped, Arrived)									
Submitted (Submitted, Approved)									
Planned (Planned, On-hold)									

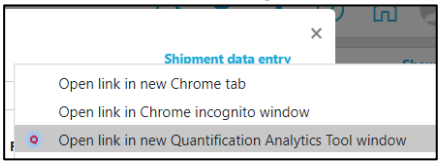
Figure 60 Shipments in Supply Planning

The following sections will cover how to update existing shipments and create new shipments within the supply planning screen. See **Shipment Data** for more tips on the shipment data fields, which apply across the Shipment Data Entry screen and the supply planning screen.

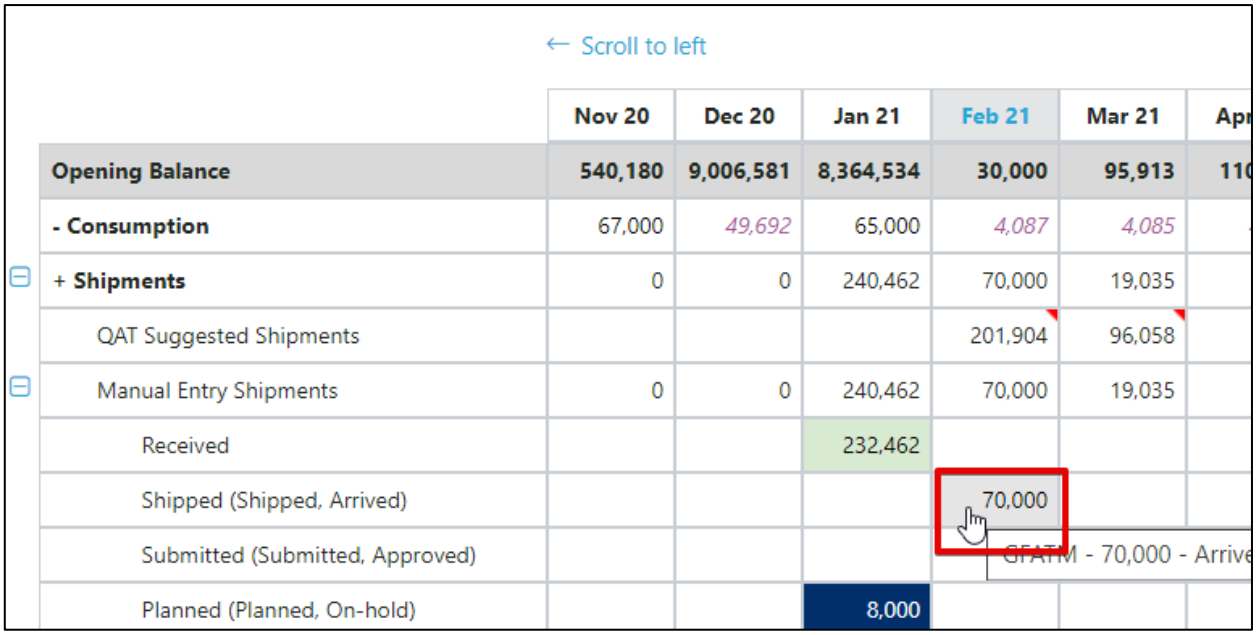
Updating an Existing Shipment

1. Be sure that the shipments section is expanded, and the manual shipments section is expanded. Click on the cell representing the month and shipment to be edited.
2. **Note:** If a user clicks on the manual entry shipment row (instead of one of the cells underneath), this creates a new manual entry shipment for that particular month (see next section). It will not show the existing shipments for that month

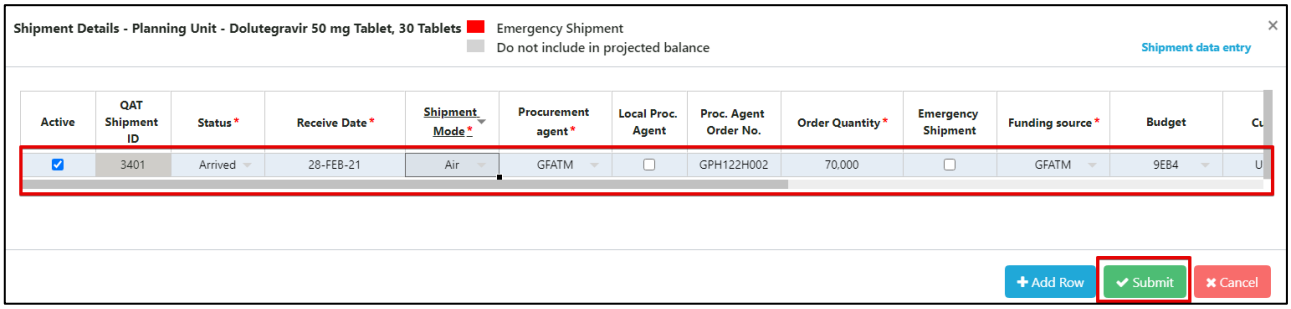
Lots of data to add/update?
Go to data entry screen!



*On the shipment details pop-up, users can directly access the shipment data entry by clicking the link on the top right corner (see **Shipment Data**). Left click to open a tab on your browser, right click and select "Open link in new Quantification Analytics Tool window" to open a separate QAT PWA window.*



3. The Shipment Details pop-up will appear. Make all desired changes.



4. Click "Submit" to save the changes and return to the main supply planning screen, where changes will be reflected (Note: The Submit button will not appear if all required fields are not filled.)

Creating a New Shipment

There are two ways to create new shipments – 1) converting a QAT suggested shipment into a planned shipment or 2) manually adding a shipment.

To **Convert a Suggested Shipment** into a planned shipment:

1. Click on the row for Suggested Shipment under the desired month (see *Figure 62: Suggested Shipment*)

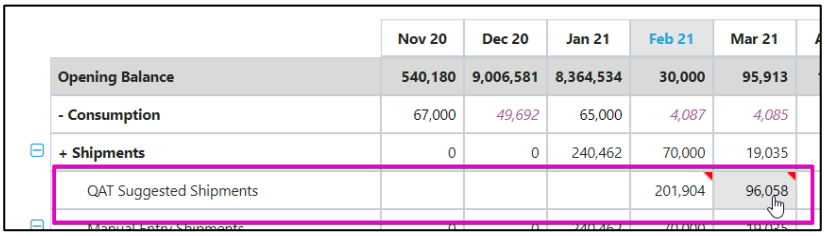


Figure 62: Suggested Shipment

QAT Suggested Shipments

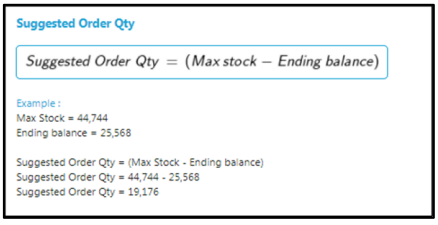
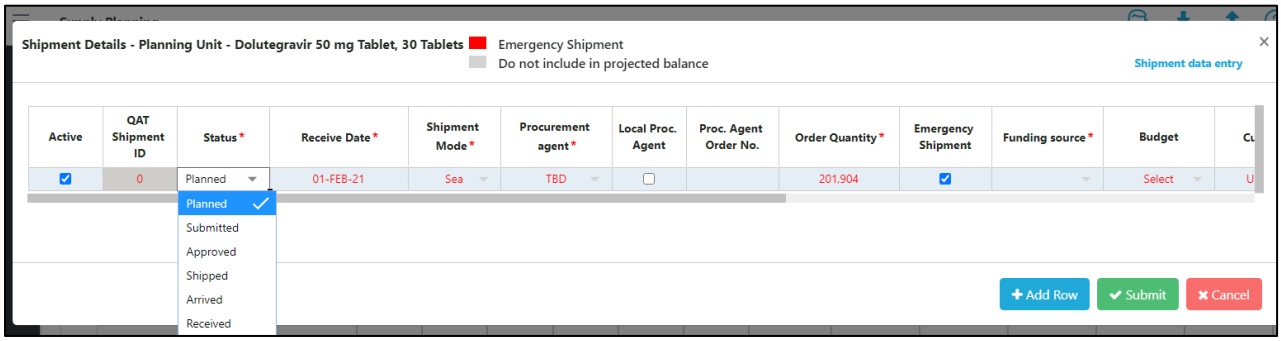


Figure 61 Suggested Order Quantity

QAT suggests a shipment in *every* month that the ending balance is less than the MIN. The quantity suggested by QAT is the quantity required to reach the maximum months of stock by the end of that month. QAT will automatically mark a suggested shipment as an emergency shipment if it is within the lead time.

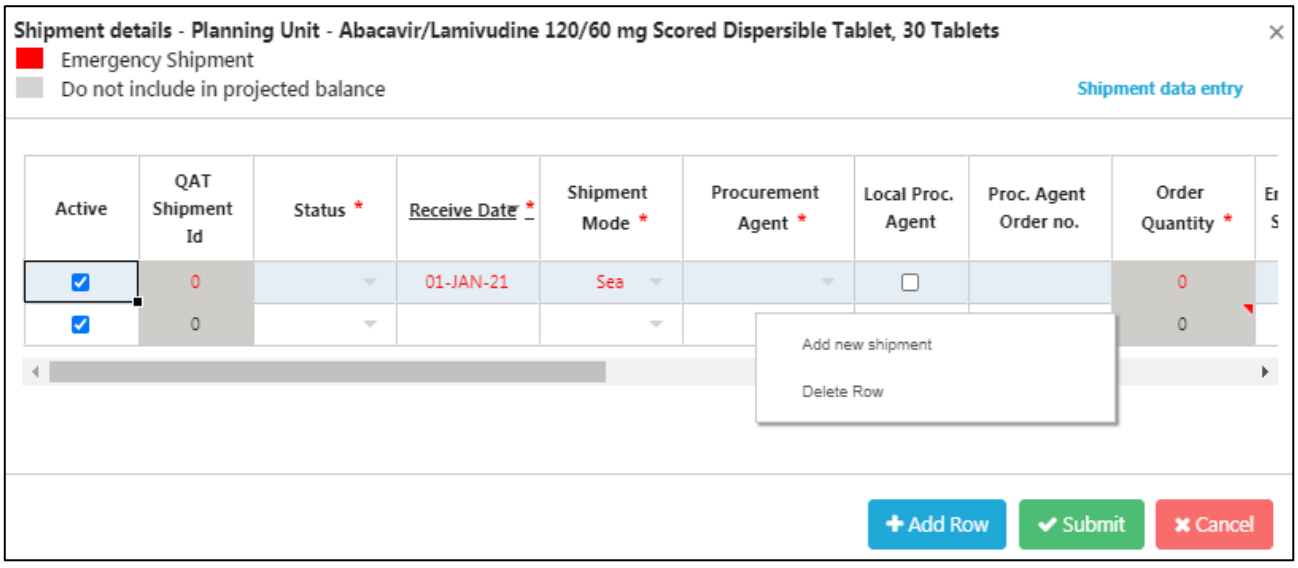
2. The Shipment Details pop-up will appear. Change the status to the desired status, fill out the required fields, indicated by an asterisk. Double click to activate any dropdowns. Scroll to the right to see all fields. The order quantity will be pre-filled by the suggested order quantity (see *Figure 62: Suggested Shipment*).



3. Click "Submit" to save the changes and return to the main supply planning screen, where changes will be reflected (**Note**: The Submit button will not appear if all required fields are not filled)

To Manually Create a New Shipment:

1. Click on the cell in the manual entry shipment row for the desired month.
2. The Shipment Details pop-up will appear. Double click to activate any dropdowns. Change to the desired status, quantity, and complete the required fields indicated by an asterisk. Scroll to the right to see all fields.
3. To create multiple new shipments, right click on any row and select "Add new shipment" or click the "+ Add Row" button.



4. Click "Submit" to save the changes and return to the main supply planning screen, where changes will be reflected (Note: The Submit button will not appear if all required fields are not filled.)

Supply Planning: Inventory/Adjustments

In the supply planning table, only one number will show per month for the whole program in the **adjustments** row, regardless of how many adjustments are made. Similarly, the **ending balance** will always be one row, regardless of whether the ending balance is projected by QAT or provided by the user as an inventory count.

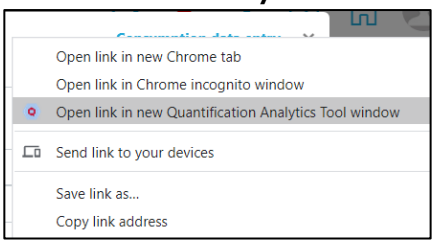
	Nov 19	Dec 19	Jan 20
Opening Balance	238,590	214,799	226,133
- Consumption	23,791	23,791	23,617
+ Shipments	0	0	0
+/- Adjustments		35,125	
- Projected Expired Stock			
Ending Balance	214,799	226,133	202,516

Logic for Adjustments and Ending Balances

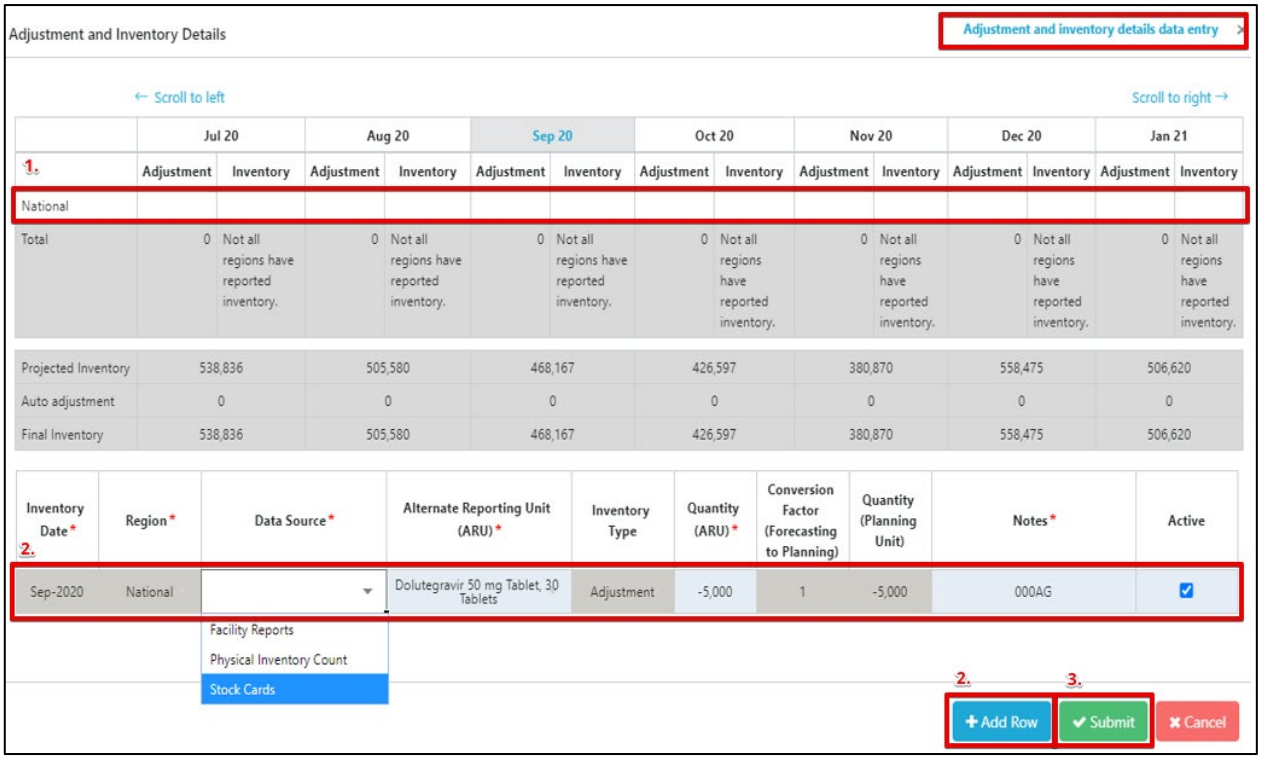
- When there are no inventory counts,
  - **Adjustments =** the sum of all manual adjustments (Σ(manual adjustments))
  - **Ending balance =** projected inventory
- Inventory counts always supersedes manual adjustments.
  - For single-region programs, if there is an inventory count, that inventory count will be the ending balance .
  - For multi-region programs where not all regions are reporting, QAT will use whichever is greater, Σ(inventory count) or (projected inventory) as the ending balance
  - For multi-region programs where *all* regions are reporting, QAT will use Σ(inventory count) as the ending balance
- Whenever QAT uses inventory count as the ending balance, auto adjustments are calculated, and manual adjustments not used.

1. To add or edit adjustment or inventory records, click on the month and cell on the adjustments or ending balance rows in the supply planning screen.
   a. A new window called **Adjustments and Inventory Details** will pop up. In the table that appears, each row represents a region. Single-region programs will only have one row, while multi-region programs would have multiple rows.
   b. The total shows the aggregated adjustments and inventory for all regions.
   c. Click on the record of any month and region to display further details

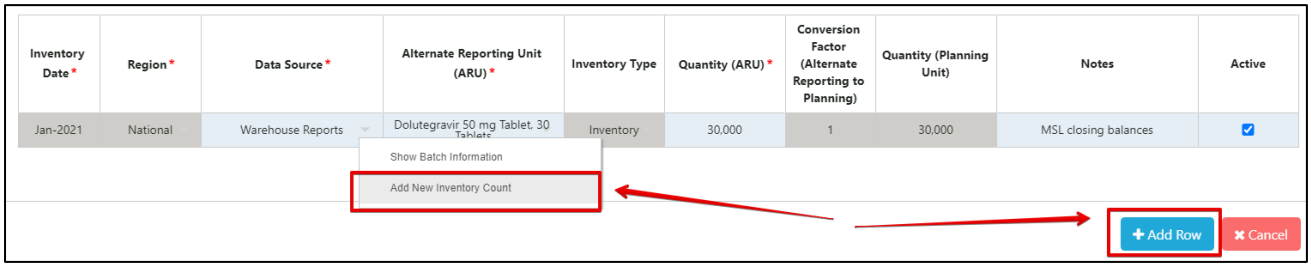
Lots of data to add/update?
Go to data entry screen!



On the Adjustments and Inventory Details pop-up, users can directly access the Adjustments and Inventory data entry by clicking the link on the top right corner (see Inventory Data). Left click to open a tab on your browser, right click and select "Open link in new Quantification Analytics Tool window" to open a separate QAT PWA window.



2. Any records for that month and region will display below.
    a. To add an adjustment or inventory record, click on add row, or right-click on the bottom table and select "Add new adjustment" or "Add new inventory". Enter the required details. For adjustments, users can enter both positive and negative adjustments, in the past and in the future, and notes are required



    b. To edit a record, click on any cell to edit.
3. Click "Submit" to save the changes and return to the main supply planning screen, where your changes will be reflected

Scenario Planning

QAT provides users with predefined scenarios for supply planning. This functionality will allow users to make changes to- and visualize their data in different ways, without necessarily affecting their current supply plan. Users can apply one or more scenarios to their data to see how those changes affect stock projections. The selected scenario(s) can then be applied to a current supply plan, creating a new version.

There are currently six predefined scenarios available to users; more can be programed into QAT depending on the need and use cases. QAT users can request new scenarios through raising a ticket. The need for new scenarios will be managed centrally by the Realm Admin.

Available scenarios:

- **Increase forecasted consumption**: by a user-defined percentage and period. This will apply a percent increase to forecast values for each month of the selected period.
- **Decrease forecasted consumption**: by a user-defined percentage and period. This will apply a percent decrease to forecast values for each month of the selected period.
- **Remove unfunded shipments**: all shipments without an assigned funding source (i.e., funding source = TBD) will be removed from the supply plan and stock projections.
- **Remove all Planned shipments not within the lead time**: all shipments with status "planned" that do not comply with the established lead times (i.e. expected receipt date is sooner than what would be feasible given lead times) will be removed the supply plan and from stock projections.
- **Remove all Approved shipments not within the lead time**: all shipments with status "approved" that do not comply with the established lead times will be removed from the supply plan and stock projections.
- **Remove all Shipped shipments not within the lead time**: all shipments with status "shipped" that do not comply with the established lead times will be removed from the supply plan and stock projections.

To access these scenarios:

1. Go to Supply Planning and click on "Scenario Planning".
2. Select a predefined scenario from the dropdown menu and edit the required fields
3. Click Add to view the changes.

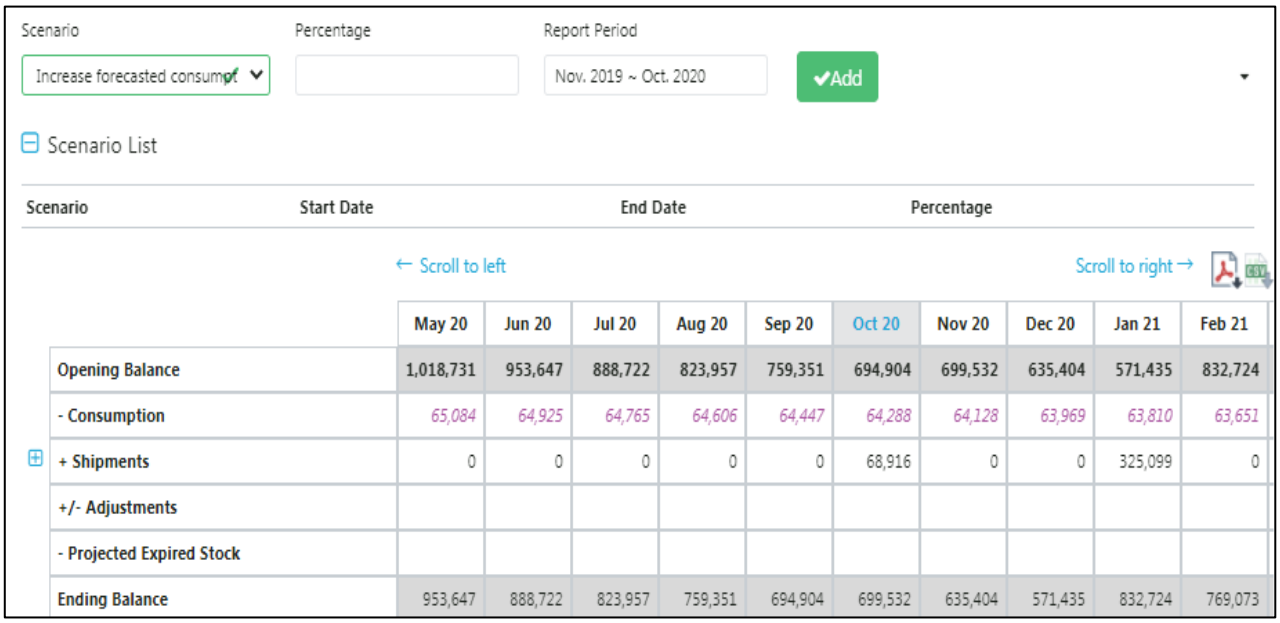


Figure 63 Scenario Planning Screen

4. The scenario will be shown in the "Scenario List".

Scenario List

Scenario	Start Date	End Date	Percentage
Increase forecasted consumption	Nov-19	Oct-20	3

Figure 64: Scenario Planning Scenario List

5. If the user wishes to apply the scenario to their supply plan, they can click on the "Submit" button. The new supply plan will get stored in the local machine of that user, and the user can store this in the server as a new version via the Commit functionality.
6. If the user does not wish to apply the scenario to their current supply plan, they can click on the "Cancel" button or the "Reset" button, and the changes will not take effect.

Supply Plan Report

The purpose of the supply plan report is to allow the user to quickly assess the stock status of a selected product or products, by graphically comparing the availability of the product to dynamic minimum and maximum inventory levels and to be able to see all consumption, inventory and shipping details in one place. The report provides a graphical representation of the supply plan, as well as a tabular view. The report can be exported in PDF and/or CSV format.

This Report, different from the others, can be found under the "Supply Planning" menu.

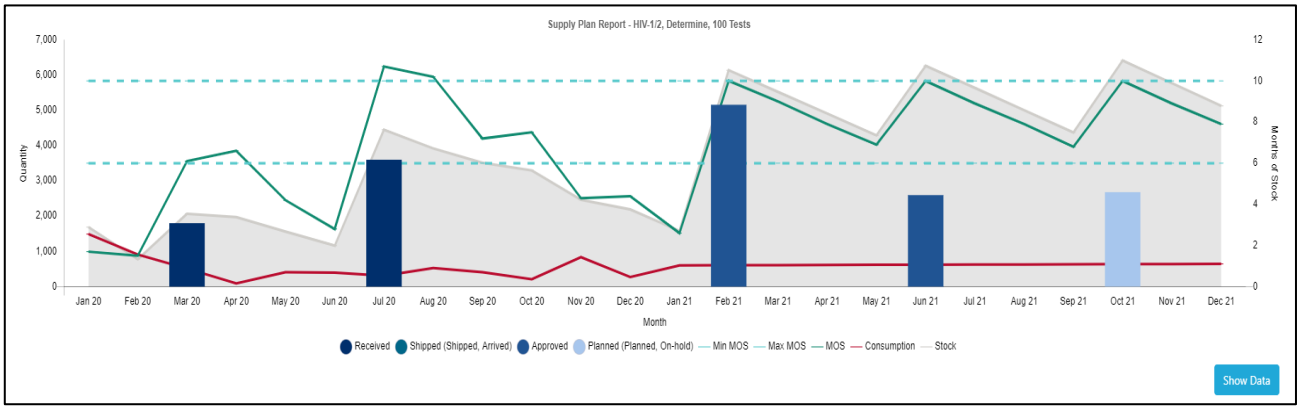


Figure 65: Supply Plan Report Graph View

To view the supply plan report:

1. Go to Supply Planning and click on "Supply Plan Report".
2. Select the Report Period, Program, Version of the program, and desired Planning unit.
3. QAT will display a graphic version of the supply plan.
4. To show the data table click on "Show Data."

	Stock	Consumption		Shipment		Stock					
Month	Opening Balance	Forecasted	Actual	Quantity	Quantity | Funding source | Shipment Status | Procurement Agent	Adjustment Quantity	Ending Balance	AMC	MOS	Min MOS	Max MOS
Jan 20	3,177	780	1,490	0			1,687	971	1.7	6.0	10.0
Feb 20	1,687	780	910	0		0	777	505	1.5	6.0	10.0
Mar 20	777	780	512	1,800	1,800 | Govt | Received | Govt	0	2,065	339	6.1	6.0	10.0
Apr 20	2,065	780	93	0		0	1,972	301	6.6	6.0	10.0
May 20	1,972	780	411	0		0	1,561	374	4.2	6.0	10.0
Jun 20	1,561	578	400	0		0	1,161	413	2.8	6.0	10.0
Jul 20	1,161	581	311	3,598	3,598 | Govt | Received | Govt	0	4,448	417	10.7	6.0	10.0
Aug 20	4,448	585	529	0		0	3,919	384	10.2	6.0	10.0
Sep 20	3,919	589	410	0		0	3,509	486	7.2	6.0	10.0
Oct 20	3,509	593	213	0			3,296	440	7.5	6.0	10.0
Nov 20	3,296	596	835	0			2,461	570	4.3	6.0	10.0
Dec 20	2,461	600	272	0			2,189	495	4.4	6.0	10.0

Figure 66: Supply Plan Report Tabular View

5. **Note:**
    a. The Shipment Quantity column is the sum of all shipments that have a receive date in the same month for that planning unit.
    b. The "Shipment Quantity | Funding Source | Shipment Status" column allows the user to see the disaggregated shipments that have receive date in the same month.

Section 6: Reports

QAT reports allow the user to extract and view their supply planning data in graphs, tables, and other visual formats. The user will also be able to navigate, sort, filter, and view the data for specific needs. QAT reports produce visualizations and display data in a way that can support decision making.

The reports are divided into **Global Reports** and **Program-specific Reports**. Program-specific Reports are shown offline, as well as online. However, the Global Reports are shown only in online mode and are only available to Global Users, such as the Realm Administrator and the Application Administrator.

Note: All QAT reports have the ability to be exported into an Excel CSV file as well as PDF format. Additionally, all graphs allow for the user to hover over a visual for a tool tip with more information.

QAT Problem List

Purpose: A supply plan review integrated within QAT that allows for a quality check to easily identify problematic data/issues and correct these before committing a supply plan to the server as a "Draft" or "Final" version.

- **Accessible to:** Realm Admins, Program Admins, and Program Users
- **Navigation:** Reports → QAT Problem List

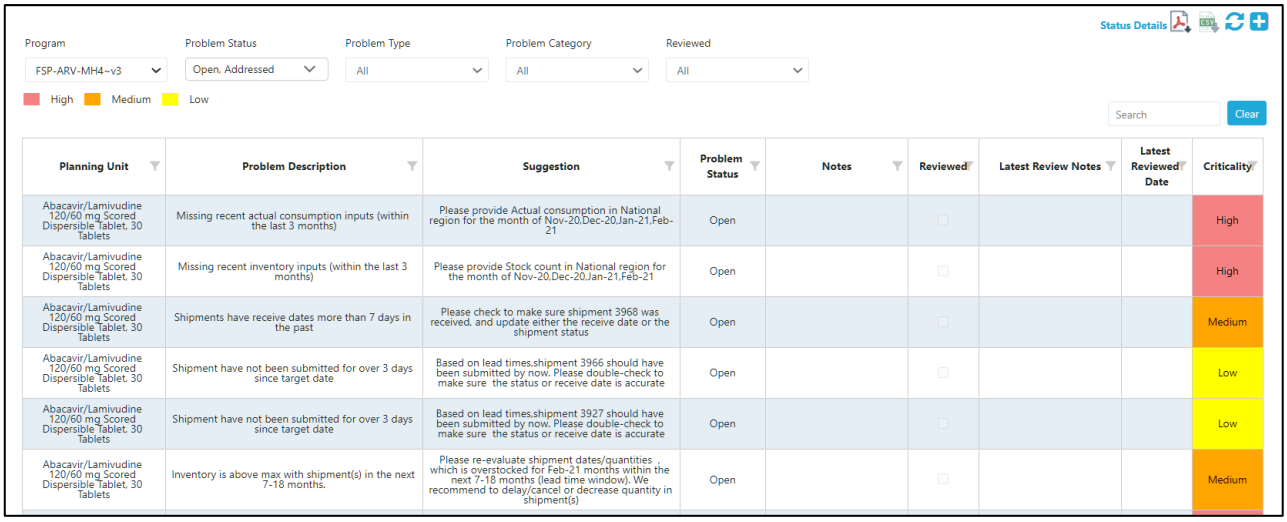


Figure 67: QAT Problem List

Note: Only the Problem associated with those programs which have been loaded by the user in their local machine will appear in the QAT Problem List. For details on how to load specific programs and versions, refer to the Load Program section of the User Manual.

QAT Problem List Basics

Each Problem that is flagged in the QAT Problem List will have a separate line it with the associated planning unit, a description of the problem, a suggestion on how to fix the problem, the problem status, user notes, a checkbox for identifying if the problem has been reviewed, the latest reviewer notes (as applicable), the date it was last reviewed, and the criticality.

Figure 68: Aspects QAT Problem List

QAT Problems can be subdivided into three main categories: Data Quality, Procurement Schedule, and Supply Planning. They are also assigned to different levels of criticality: Low (yellow), Medium (orange), and High (red). The criticality informs users the extent to which a problem affects the quality of the supply plan. However, regardless of criticality, all problems must be "In-compliance" or "Addressed" in the QAT Problem List to be committed as a Final Version. There are five main statuses associated with the individual problems in the QAT Problem List:

1. **In-Compliance** – Issue has been closed through data entry by the user. Status will be automatically changed, and notes are not required.

   Example – A planning unit is missing actual consumption in the last 3 months. A user enters actual consumption data for the last 3 months. QAT automatically marks this as 'in-compliance'.

2. **Resolved** – Issue has been manually marked by reviewer as 'resolved'. The reviewer uses this status if this issue will unlikely be corrected via data entry and also does not require further notes in the future. Only a reviewer can mark an issue as 'resolved'.

   Example – A planning unit gets flagged for not following dynamic forecasting. The user enters a note that this planning unit does not follow dynamic forecasting as it is not a seasonal product. The reviewer marks this as resolved because the explanation will most likely not change in the future.

3. **Addressed** – Issue has been manually marked by either reviewer or user as 'addressed'. The user applies this status when they cannot resolve the issue through data entry. This status must be accompanied by a note. The reviewer uses this status if this issue cannot be resolved in this review period, but will be resolved in the future, most likely in a few periods, rather than before the next review.

   Example – A planning unit being phased out only has 8 months of forecasted consumption in the future instead of 18. This is acceptable as it is a phasing out planning unit, but the user will still need to de-activate the planning unit once it is fully phased out, which is why the issue is marked as 'addressed' instead of 'resolved'.

4. **Open** – This problem has been automatically flagged by QAT, or the problem has been manually marked by the reviewer as 'Open'. The reviewer could use this status when rejecting a supply plan to indicate that the notes are not accepted.

   Example – A user has a planning unit that is missing actual consumption data in the last 3 months. QAT will automatically flag this as 'Open'. If the problem has been 'Addressed' when committed and approved, the problem will revert back to the 'Open' status for the next submission.

5. **Reviewed -** The issue has been reviewed by the supply plan reviewer. This field is only editable by the supply plan reviewer.

Closing and Addressing Problems

1. Closing a problem via data entry: to change an 'Open' problem to one that is 'In-compliance,' the user will need to complete the suggestion provided in the "Suggestion" column for the specific problem. For example, the suggestion may be to "provide actual consumption" for specific months. Thus, the user will need to:

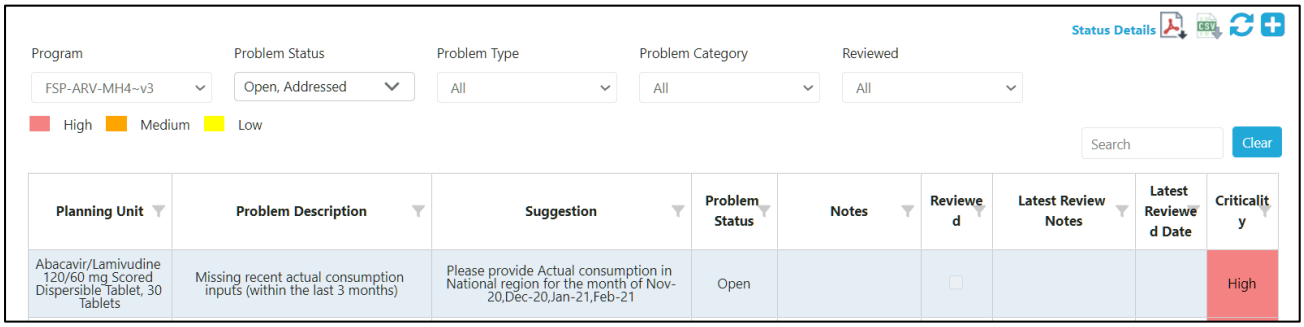


Figure 69: Closing a Problem Example

   a. Navigate to the Consumption Data Entry screen by either clicking directly on the Problem (which will open a new QAT window) or by clicking on Supply Plan Data → Consumption Data.
   b. From the consumption data entry screen, the user will add actual consumption for the requested months. For instructions on how to add consumption, please refer to Consumption Data.
   c. Navigate back to the QAT Problem List and click Recalculate to refresh the QAT Problem List to include the most recent addition of actual consumption data. The previously flagged problem should now be "In-compliance" and no longer be flagged by the QAT Problem List.

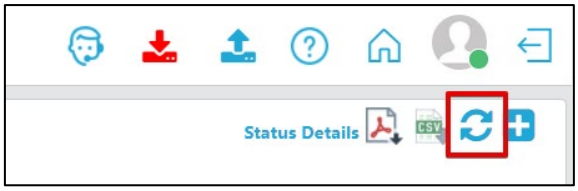


Figure 70: QAT Problem List Recalculate/Refresh

2. Addressing a problem with a comment: If a problem that has been flagged in the QAT Problem List cannot be fixed and made 'In-compliance' through data entry as recommended in the "Suggestion" column, a user can provide a comment and manually change the status to 'Addressed.' For example, a planning unit may be above MAX and the suggestion to "re-evaluate shipment dates/quantities and delay/cancel or decrease quantity in shipment(s)" is presented. If a user is unable to delay/cancel shipments that are to be received in the specified time period, they will need to:

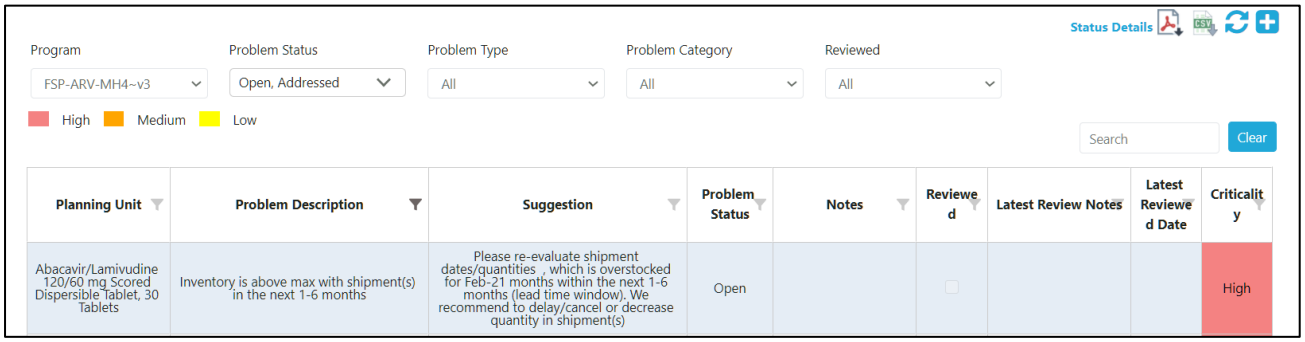


Figure 71: Addressing a Problem Example

a. Right click on the problem and click on "Edit Problem." This will take the user to another screen with a detailed description of the flagged problem.

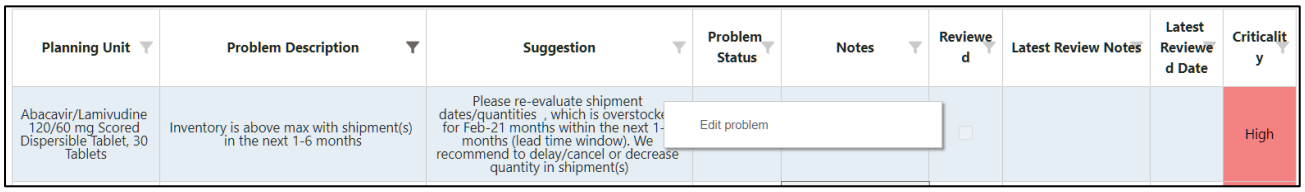


Figure 72: Editing a Problem Example

b. At the bottom of the Problem Description screen, the user will manually select 'Addressed' from the dropdown "Problem Status" and then provide an explanation in the "Notes" sections.

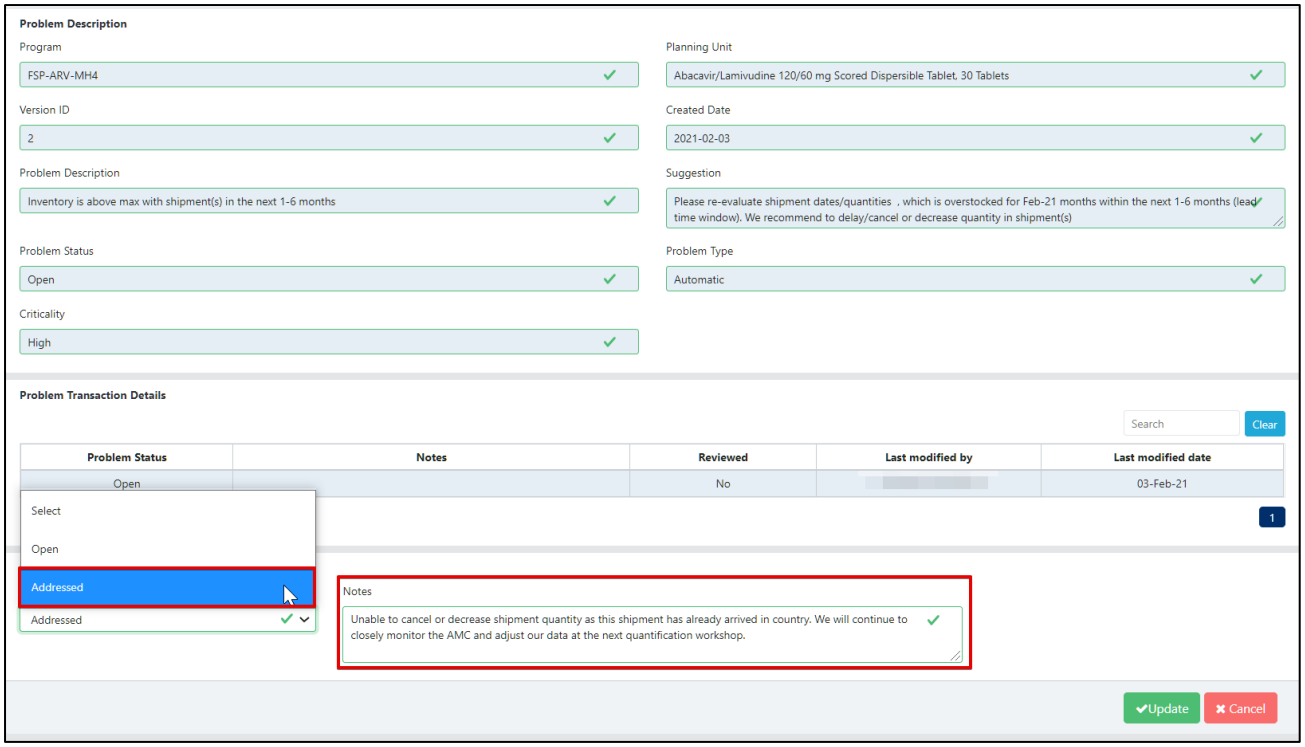


Figure 73: Changing the Problem Status and Adding a Note Example

c. Note: the user can also see in the "Problem Transaction Details" screen. This area will show the user past comments, user and reviewer, if there are any, attached to this specific problem.
d. Click "Update."
e. The user will automatically be navigated back to the QAT Problem List. The QAT Problem List will now include the most recent addition of explanatory notes and the status will be marked as 'Addressed.'

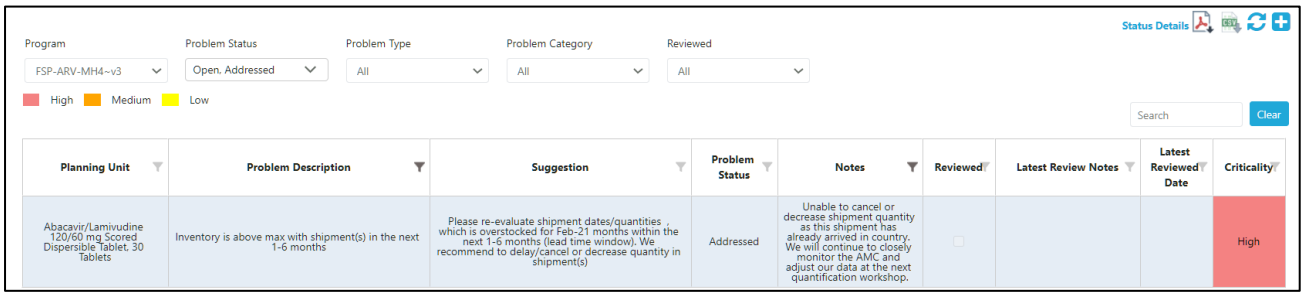


Figure 74: Completing Addressing a Problem Example

QAT Problem List: Explanation of Problems

Missing recent actual consumption inputs (within the last 3 months)

If a planning unit is missing recent actual consumption data inputs within the last three months, it will be flagged in the QAT Problem List. If the inputs are filled in for any of these last three months, whether it is one month or all three months, the problem will not be flagged by the system.

Any gaps in the last 3 months (actual consumption)

If a planning unit is missing a month or months of recent actual consumption inputs between actual consumption entries. This problem is looking for accidental gaps in actual consumption inputs, meaning that there needs to be an actual consumption record both before and after the gap in order for the QAT

Problem List to raise a flag. For example, a user inputs actual consumption for September 2020, December 2020, and January 2021. This will be flagged by the QAT Problem list because there is a gap of missing actual consumption inputs for October 2020 and November 2020.

Missing recent inventory inputs (within the last 3 months)
If a planning unit is missing recent actual inventory data inputs within the last three months, it will be flagged in the QAT Problem List. If the inputs are filled in for any of these last three months, whether it is one month or all three months, the problem will not be flagged by the system.

Supply Plan lacks forecasted consumption within the next 18 months
If a planning unit is lacks forecasted consumption inputs for one or more months for a period of 18 months from the current month, QAT will flag it as a problem. QAT will check for gaps making sure that all 18 months into the future have forecasted consumption inputs.

Note: If there is a planning unit that is phasing out, it is recommended that the user puts zero as the forecasted consumption, until it is fully phased out, at which point the planning unit will need to de deactivated.

Shipments with received dates in the past
QAT will check the receive dates of all shipments to see if any are in the past based on the current date. If the receive date for a shipment is in the past, it will be flagged in the QAT Problem List. For example, there is a planning unit with a receive date of December 31st, 2020. As this date is in the past, QAT will flag it, and the user will need to either change the shipment status to "Received" or change the receive date to one that is in the future.

Note: there is a seven-day buffer time for QAT to recognize that the shipment receive date is in the past and for the problem to be flagged.

Shipments that should have been submitted by the target date
QAT will check the estimated shipment dates, which are calculated based on the Program's pre-defined lead times, to see if there are any shipments with an estimated "Submitted" date in the past. If the estimated shipment submitted date is in the past, it will be flagged in the QAT Problem List. For example, there is a planning unit with a target submitted date of January 15th, 2021. As this date is in the past, QAT will flag it, and the user will need to either change the shipment status to "Submitted" or change the receive date to one that is further in the future. Changing the receive date to one further in the future, will cause QAT to automatically recalculate the target shipment dates. If it is not possible to change the status or receive date, a user many 'Address' the problem (see Closing and Addressing Problems).

Note: there is a seven-day buffer time for QAT to recognize that the shipment submitted date is in the past and for the problem to be flagged.

Dynamic forecasting is not used (for commodity groups Malaria, ARV, VMMC)
For any products that belong to the following tracer categories: Malaria, ARV, or VMMC, QAT will check for dynamic forecasting. GHSC-PSM encourages forecasting with dynamic monthly values, in order to show that factors, such as seasonality, program scale-up, or campaigns have been taken into account. If a planning unit from one of these three commodity groups has four consecutive months with static consumption, it will be flagged in the QAT Problem List.

Supply Plan does not follow minimum/maximum parameters

If a planning unit is overstocked, understocked, or stockout at any point during the next 18 months, it will be flagged in the QAT Problem List. QAT will count the number of months the planning unit is **overstocked and understocked**, by subdividing it in two different time windows: those months within lead time (1-6 months) and those within the planning window (7-18 months). The QAT Problem List will also denote the number of shipments being received in the next 1-6 months and the next 7-18 months. **Stockouts** will be flagged as a separate problem in the QAT Problem List. QAT will directly state which months are stocked out in the subdivided time periods of 1-6 months and 7-18 months. The QAT Problem List will also denote the number of shipments being received in the next 1-6 months and the next 7-18 months.

For example, the planning unit below would have the following Problem Description:

> *In the next 1-6 months (Mar 21 - Aug 21), inventory is…*
> ***understocked** for 2 month(s)*
> ***overstocked** for 1 month(s)*
> *In the next 7-18 months (Sep 21 - Aug 22), inventory is…*
> ***understocked** for 0 month(s)*
> ***overstocked** for 3 month(s)*
>
> ***Note:** There are 2 shipment(s) in the next 1-6 months, and there are 3 shipment(s) in the next 7-18 months.*

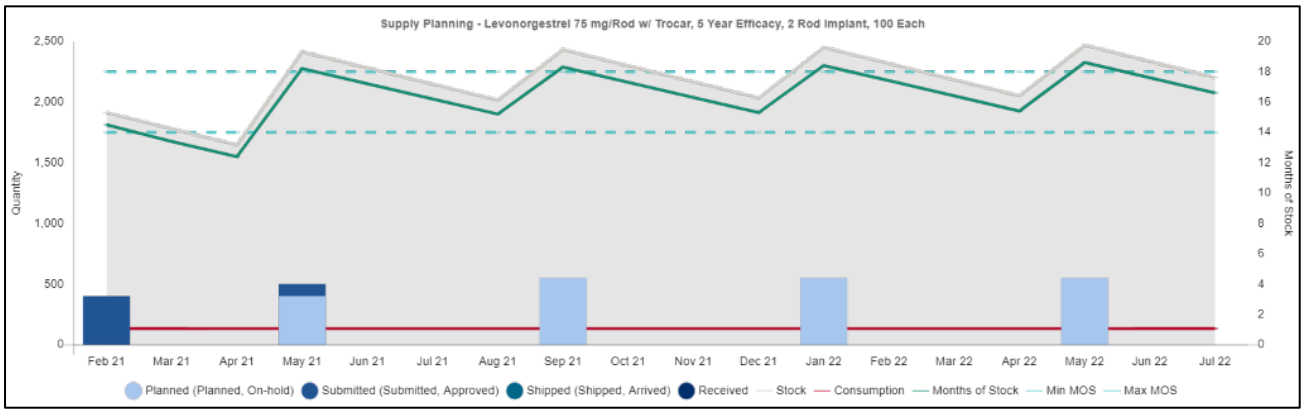
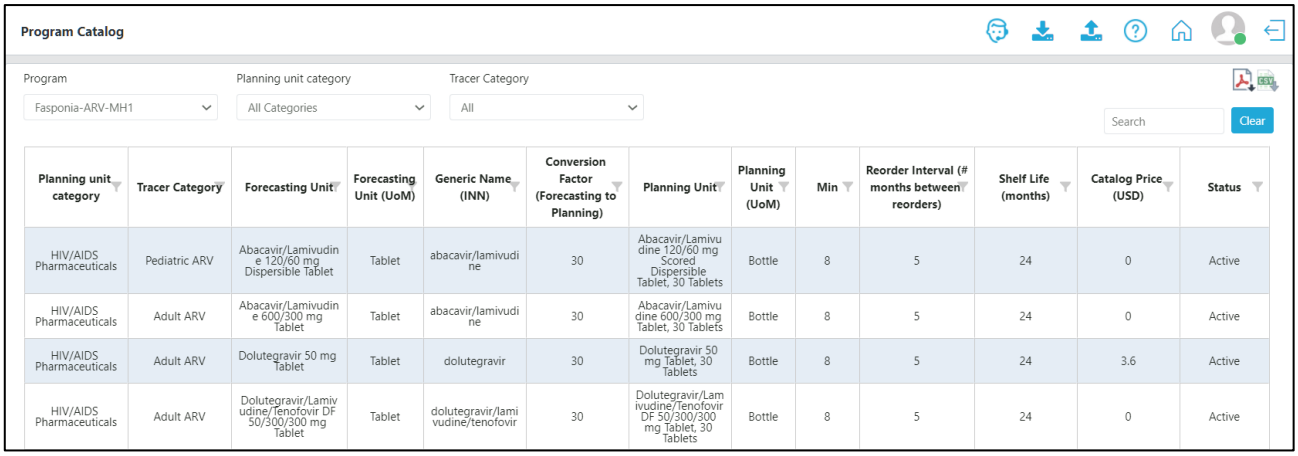


Figure 75: Supply Plan does not follow min/max parameter example

Program Catalog

Purpose: to view a standardized list of all the planning units and forecasting units in your QAT program and their corresponding attributes.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Program Catalog
- **Notes:** A user may select all Planning Unit Categories and Tracer Categories, or they may choose a specific category for viewing. If a user would like to add a planning unit that does not appear in the Program Catalog Report, please refer to Tickets for Adding/Updating Users and Master Data.



Planning unit category	Tracer Category	Forecasting Unit	Forecasting Unit (UoM)	Generic Name (INN)	Conversion Factor (Forecasting to Planning)	Planning Unit	Planning Unit (UoM)	Min	Reorder Interval (# months between reorders)	Shelf Life (months)	Catalog Price (USD)	Status
HIV/AIDS Pharmaceuticals	Pediatric ARV	Abacavir/Lamivudine 120/60 mg Dispersible Tablet	Tablet	abacavir/lamivudine	30	Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	Bottle	8	5	24	0	Active
HIV/AIDS Pharmaceuticals	Adult ARV	Abacavir/Lamivudine 600/300 mg Tablet	Tablet	abacavir/lamivudine	30	Abacavir/Lamivudine 600/300 mg Tablet, 30 Tablets	Bottle	8	5	24	0	Active
HIV/AIDS Pharmaceuticals	Adult ARV	Dolutegravir 50 mg Tablet	Tablet	dolutegravir	30	Dolutegravir 50 mg Tablet, 30 Tablets	Bottle	8	5	24	3.6	Active
HIV/AIDS Pharmaceuticals	Adult ARV	Dolutegravir/Lamivudine/Tenofovir DF 50/300/300 mg Tablet	Tablet	dolutegravir/lamivudine/tenofovir	30	Dolutegravir/Lamivudine/Tenofovir DF 50/300/300 mg Tablet, 30 Tablets	Bottle	8	5	24	0	Active

Figure 76: Program Catalog Report

Stock Status Reports

Stock Status Over Time

Purpose: to compare one or more products and their inventory-levels across a period time

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Stock Status → Stock Status Over Time
- **Notes:** The Planning Unit can be single, multi-select, or select all. The "Select All " option may not be advantageous if the program has many planning units, as the graph will not be able to decern the individual lines on the graph. We suggest choosing less than ten products at once. Specifically, this report can be useful to compare categories.

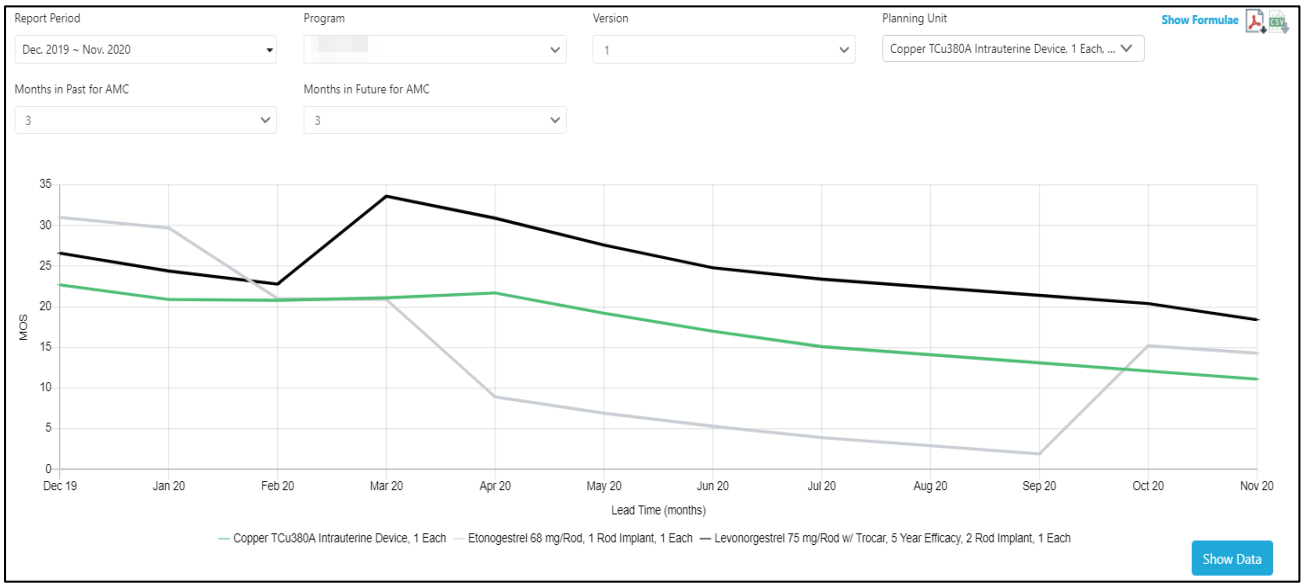


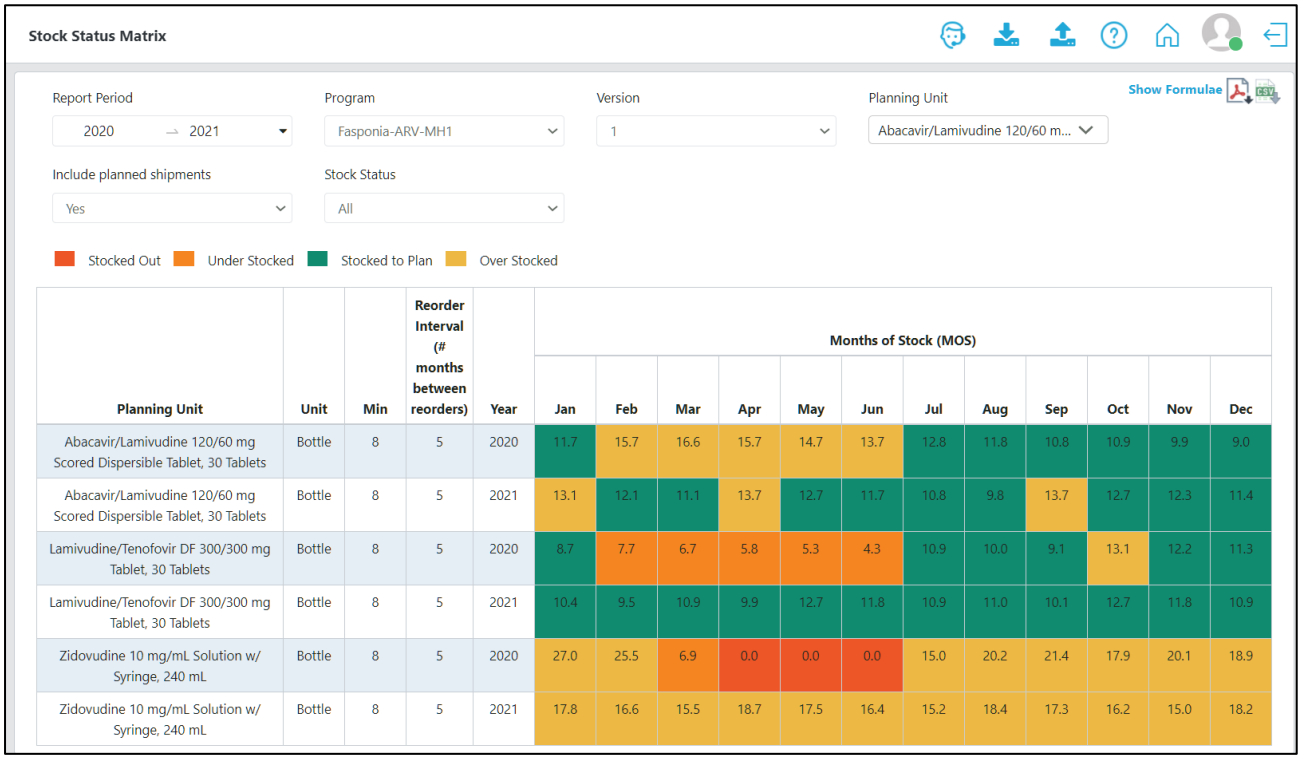
Figure 77: Stock Status Over Time Report

Stock Status Matrix

Purpose: to provide a quick snapshot of the months of stock across time in an easy-to-read table format.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers and Program Users
- **Navigation:** Reports → Stock Status → Stock Status Matrix

- **Notes:**
  - The MOS for each planning unit selected will be shown monthly according to the number of years selected in the Report Period.
  - The various color corresponds to the stock levels during that particular month:
    - Red – Stocked Out
    - Orange – Under Stocked
    - Green – Stocked to Plan
    - Yellow – Over Stocked
  - Although the PDF and CSV do not export the conditionally formatted colors, users may copy and paste the table to keep all the colors and formatting.



Planning Unit	Unit	Min	Reorder Interval (# months between reorders)	Year	Months of Stock (MOS)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	Bottle	8	5	2020	11.7	15.7	16.6	15.7	14.7	13.7	12.8	11.8	10.8	10.9	9.9	9.0
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	Bottle	8	5	2021	13.1	12.1	11.1	13.7	12.7	11.7	10.8	9.8	13.7	12.7	12.3	11.4
Lamivudine/Tenofovir DF 300/300 mg Tablet, 30 Tablets	Bottle	8	5	2020	8.7	7.7	6.7	5.8	5.3	4.3	10.9	10.0	9.1	13.1	12.2	11.3
Lamivudine/Tenofovir DF 300/300 mg Tablet, 30 Tablets	Bottle	8	5	2021	10.4	9.5	10.9	9.9	12.7	11.8	10.9	11.0	10.1	12.7	11.8	10.9
Zidovudine 10 mg/mL Solution w/ Syringe, 240 mL	Bottle	8	5	2020	27.0	25.5	6.9	0.0	0.0	0.0	15.0	20.2	21.4	17.9	20.1	18.9
Zidovudine 10 mg/mL Solution w/ Syringe, 240 mL	Bottle	8	5	2021	17.8	16.6	15.5	18.7	17.5	16.4	15.2	18.4	17.3	16.2	15.0	18.2

Figure 78: Stock Status Snapshot Report

Stock Status Snapshot

Purpose: to give a high-level view of a program's stock status across planning units at a single point in time (one month).

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Stock Status → Stock Status Snapshot
- **Notes:**
  - The various color corresponds to the stock levels during that particular month:
    - Red – Stocked Out
    - Orange – Under Stocked
    - Green – Stocked to Plan
    - Yellow – Over Stocked
  - Although the PDF and CSV do not export the conditionally formatted colors, users may copy and paste the table to keep all the colors and formatting.

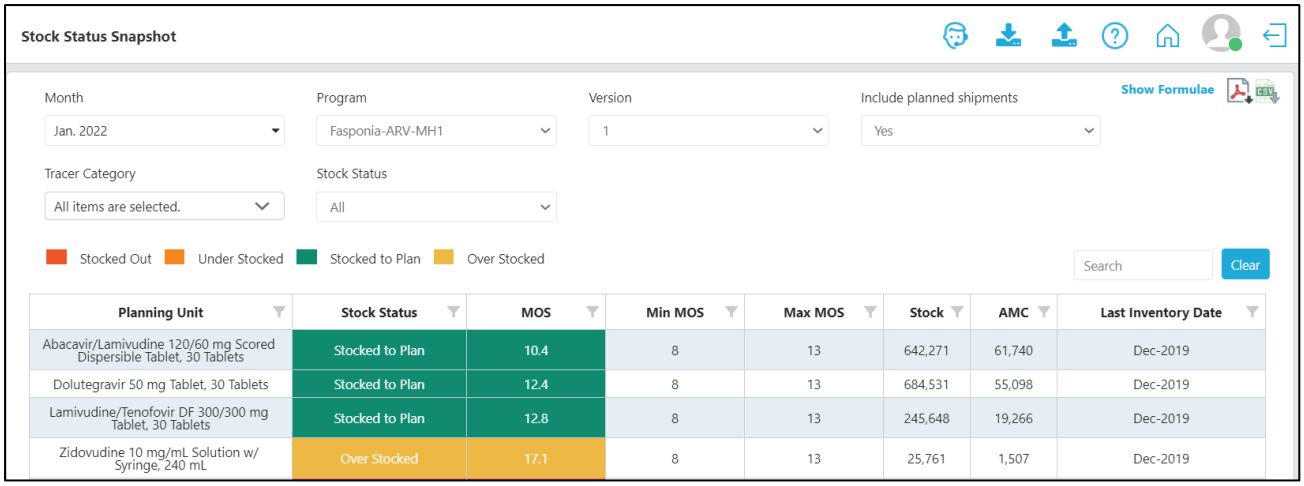
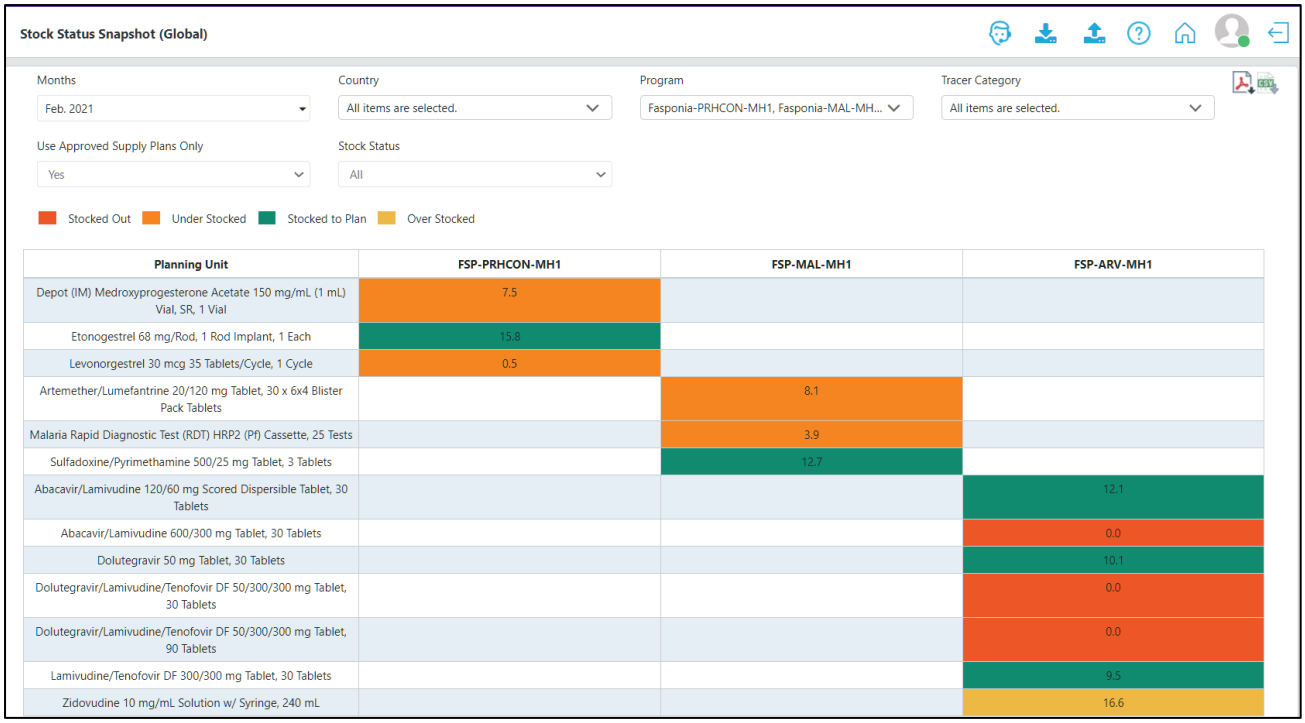


Figure 79: Stock Status Snapshot Report

Stock Status Snapshot (Global)

Purpose: to give a high-level view of a program's stock status across planning units at a single point in time (one month) for multiple programs.

- **Accessible to:** Realm Admins and Report Viewers
- **Navigation:** Reports → Stock Status → Stock Status Snapshot (Global)
- **Notes:**
    - The various color corresponds to the stock levels during that particular month:
        - Red – Stocked Out
        - Orange – Under Stocked
        - Green – Stocked to Plan
        - Yellow – Over Stocked
    - Although the PDF and CSV do not export the conditionally formatted colors, users may copy and paste the table to keep all the colors and formatting.



Planning Unit	FSP-PRHCON-MH1	FSP-MAL-MH1	FSP-ARV-MH1
Depot (IM) Medroxyprogesterone Acetate 150 mg/mL (1 mL) Vial, SR, 1 Vial	7.5		
Etonogestrel 68 mg/Rod, 1 Rod Implant, 1 Each	15.8		
Levonorgestrel 30 mcg 35 Tablets/Cycle, 1 Cycle	0.5		
Artemether/Lumefantrine 20/120 mg Tablet, 30 x 6x4 Blister Pack Tablets		8.1	
Malaria Rapid Diagnostic Test (RDT) HRP2 (Pf) Cassette, 25 Tests		3.9	
Sulfadoxine/Pyrimethamine 500/25 mg Tablet, 3 Tablets		12.7	
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets			12.1
Abacavir/Lamivudine 600/300 mg Tablet, 30 Tablets			0.0
Dolutegravir 50 mg Tablet, 30 Tablets			10.1
Dolutegravir/Lamivudine/Tenofovir DF 50/300/300 mg Tablet, 30 Tablets			0.0
Dolutegravir/Lamivudine/Tenofovir DF 50/300/300 mg Tablet, 90 Tablets			0.0
Lamivudine/Tenofovir DF 300/300 mg Tablet, 30 Tablets			9.5
Zidovudine 10 mg/mL Solution w/ Syringe, 240 mL			16.6

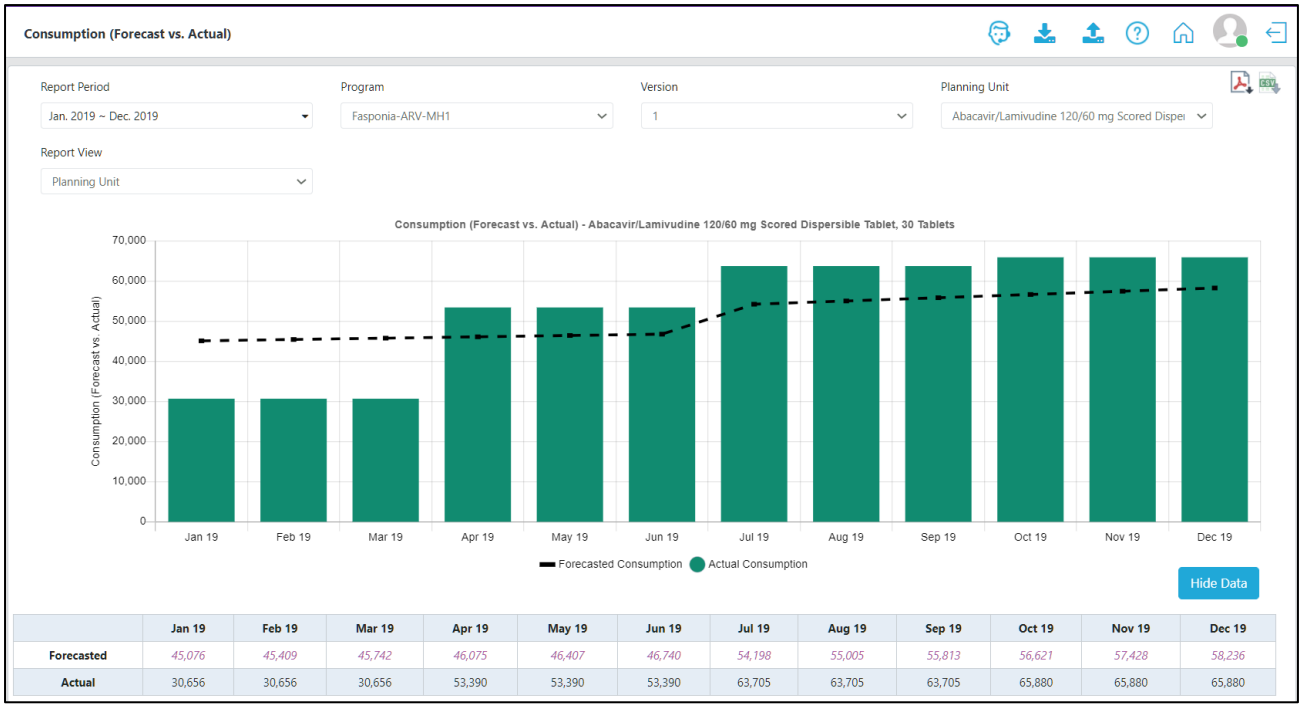
Figure 80: Stock Status Snapshot (Global) Report

Consumption Reports

Consumption (Forecast vs Actual)

Purpose: to visually compare the accuracy of forecasting consumption over time.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Consumption → Consumption (Forecast vs. Actual)
- **Notes:**
  - In the graph, the green vertical bars represent the actual consumption and the black dotted horizontal like represents the forecasted consumption
  - The Report View can be either planning unit or forecasting unit. A user may want to choose forecasting unit when comparing in base units.
  - If data is missing for either forecasted or actual consumption, there will be a missing segment of the line or a missing bar in the graph.



	Jan 19	Feb 19	Mar 19	Apr 19	May 19	Jun 19	Jul 19	Aug 19	Sep 19	Oct 19	Nov 19	Dec 19
Forecasted	45,076	45,409	45,742	46,075	46,407	46,740	54,198	55,005	55,813	56,621	57,428	58,236
Actual	30,656	30,656	30,656	53,390	53,390	53,390	63,705	63,705	63,705	65,880	65,880	65,880

Figure 81: Consumption (Forecast vs. Actual) Reports

Consumption (Global)

Purpose: to visually show the consumption of a planning unit or multiple planning units across countries.

- **Accessible to:** Realm Admins and Report Viewers
- **Navigation:** Reports → Consumption → Consumption (Global)
- **Notes:**
  - The various colors stacked in the horizontal bars represent different countries. Users can determine which country by referencing the graph legend.
  - The x-axis corresponds to the consumption quantity (in millions) for each country.

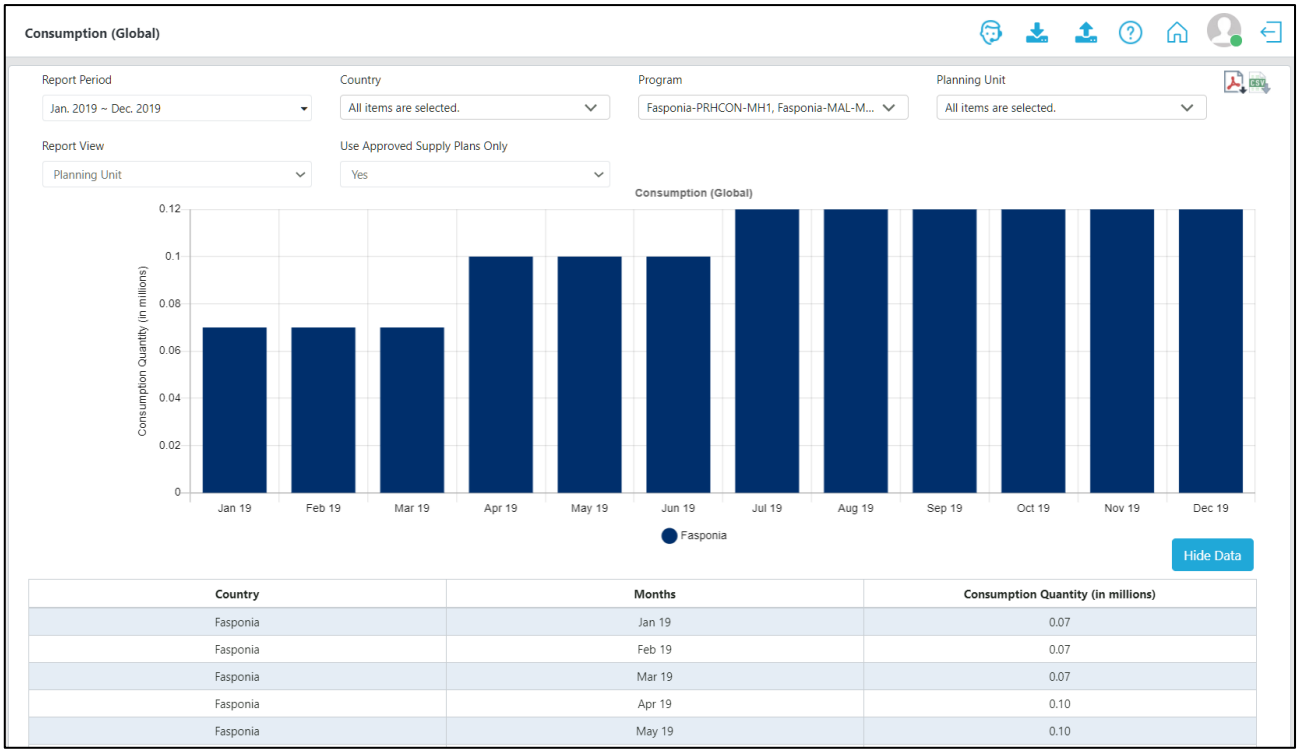


Figure 82: Consumption (Global) Report

Forecast Error (Monthly)

Purpose: to visually show forecast accuracy using the weighted average percent error (WAPE) method, over time.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Consumption → Forecast Error (Monthly)
- **Notes:**
  - For the time window, non-seasonal products with predictable consumption pattern can have a short time window, but those that have a more variable consumption/those with seasons should have a long-time window, or at least long enough to consider the entire season
  - In the graph, the forecast error percentages that are high (> 50% error) will be highlighted red
  - If there is missing data for actual or forecasted consumption, it will not be possible to calculate the forecast error and the user may see a gap in the line graph
  - Forecast Error uses the Weighted Average Percent Error (WAPE) formula:

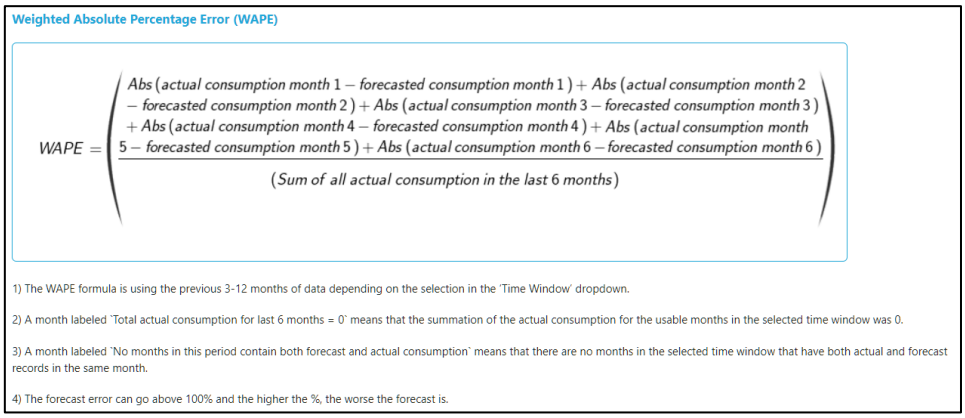


Figure 83: WAPE Formula

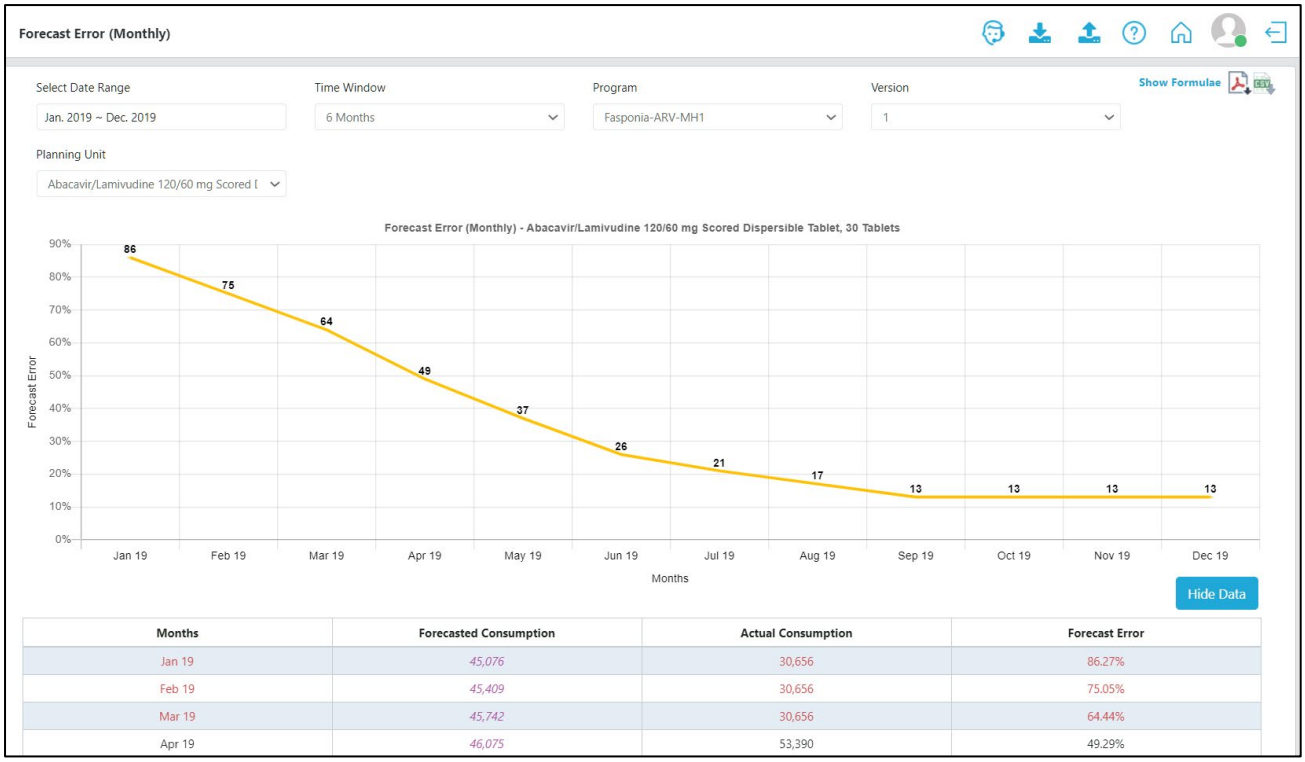


Figure 84: Forecast Error (Monthly) Report

Forecast Error (by Planning Unit)

Purpose: to assess forecast accuracy for selected products during a specific month across countries.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Consumption → Forecast Error (by Planning Unit)
- **Notes:**
  - For the time window, non-seasonal products with predictable consumption pattern can have a short time window, but those that have a more variable consumption/those with seasons should have a long-time window, or at least long enough to consider the entire season
  - In the table, the forecast error percentages that are high (> 50% error) will be highlighted red
  - If there is missing data for actual or forecasted consumption, it will not be possible to calculate the forecast error and the user will see an error message in the table.
  - Forecast Error uses the Weighted Average Percent Error (WAPE) formula:

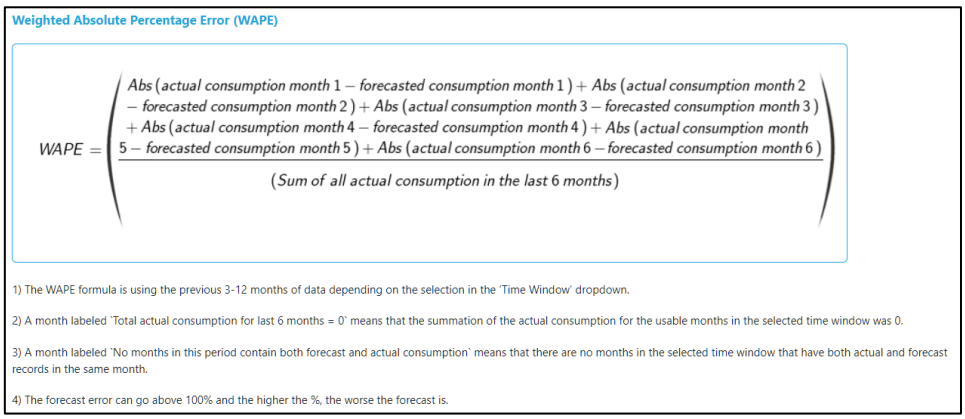
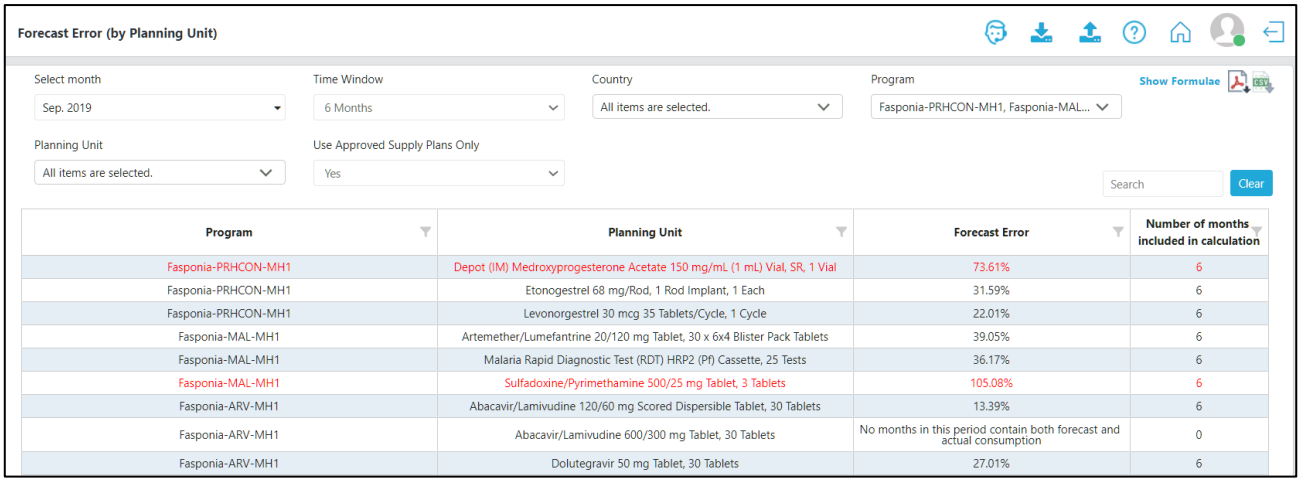


Figure 85: WAPE Formula



Program	Planning Unit	Forecast Error	Number of months included in calculation
Fasponia-PRHCON-MH1	Depot (IM) Medroxyprogesterone Acetate 150 mg/mL (1 mL) Vial, SR, 1 Vial	73.61%	6
Fasponia-PRHCON-MH1	Etonogestrel 68 mg/Rod, 1 Rod Implant, 1 Each	31.59%	6
Fasponia-PRHCON-MH1	Levonorgestrel 30 mcg 35 Tablets/Cycle, 1 Cycle	22.01%	6
Fasponia-MAL-MH1	Artemether/Lumefantrine 20/120 mg Tablet, 30 x 6x4 Blister Pack Tablets	39.05%	6
Fasponia-MAL-MH1	Malaria Rapid Diagnostic Test (RDT) HRP2 (Pf) Cassette, 25 Tests	36.17%	6
Fasponia-MAL-MH1	Sulfadoxine/Pyrimethamine 500/25 mg Tablet, 3 Tablets	105.08%	6
Fasponia-ARV-MH1	Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	13.39%	6
Fasponia-ARV-MH1	Abacavir/Lamivudine 600/300 mg Tablet, 30 Tablets	No months in this period contain both forecast and actual consumption	0
Fasponia-ARV-MH1	Dolutegravir 50 mg Tablet, 30 Tablets	27.01%	6

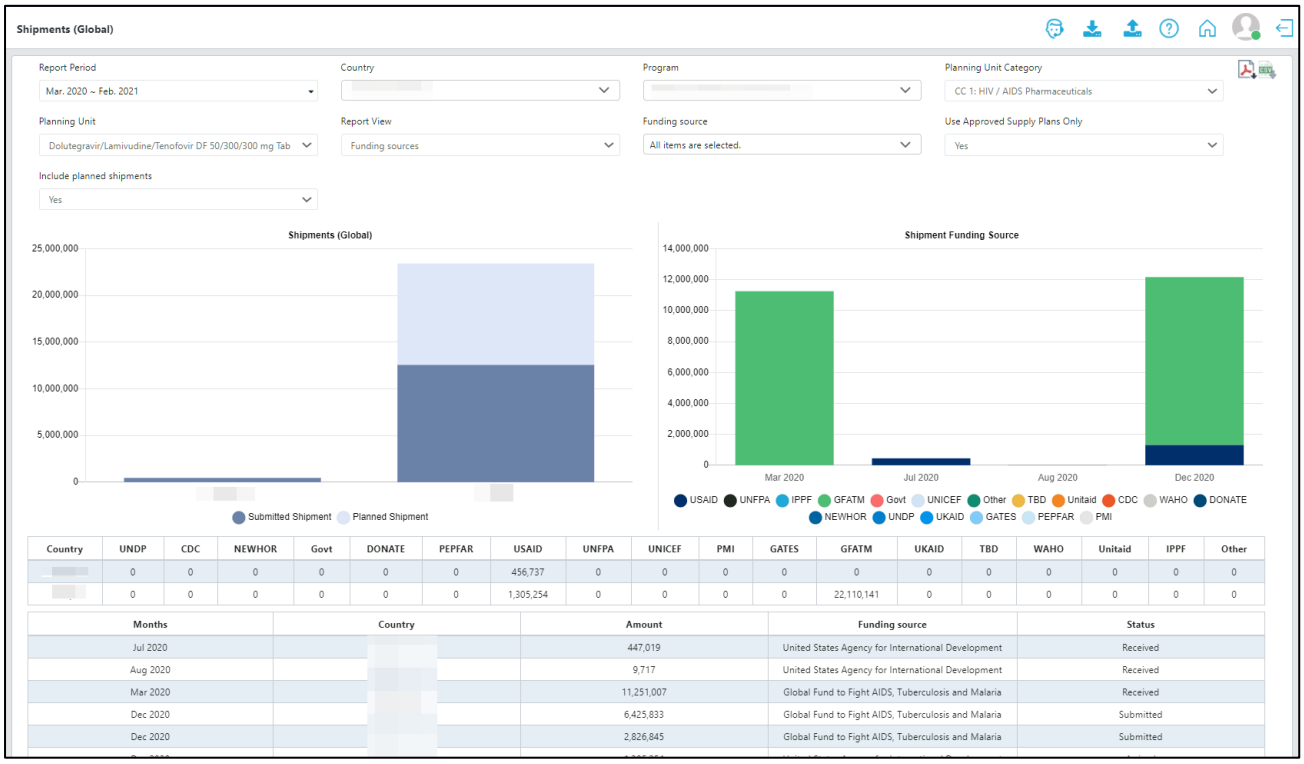
Figure 86: Forecast Error (by Planning Unit) Report

Shipment Reports

Shipment Global Report

Purpose: to aggregate procurement quantities by funding source across all countries

- **Accessible to:** Realm Admins and Report Viewers
- **Navigation:** Reports → Shipment → Shipments (Global)
- **Notes:**
  - The two graphs that appear first in the Shipments (Global) Report depict the aggregated quantity of shipments per country and cost of the shipments (in USD) per funding source for a single planning unit. For a tabular view of the data, the user may find details in the bottom two tables.
  - If a country does not procure the selected planning unit, it will not appear in the graph of the tables in the report.



Country	UNDP	CDC	NEWHOR	Govt	DONATE	PEPFAR	USAID	UNFPA	UNICEF	PMI	GATES	GFATM	UKAID	TBD	WAHO	Unitaid	IPPF	Other
	0	0	0	0	0	0	456,737	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	1,305,254	0	0	0	0	22,110,141	0	0	0	0	0	0

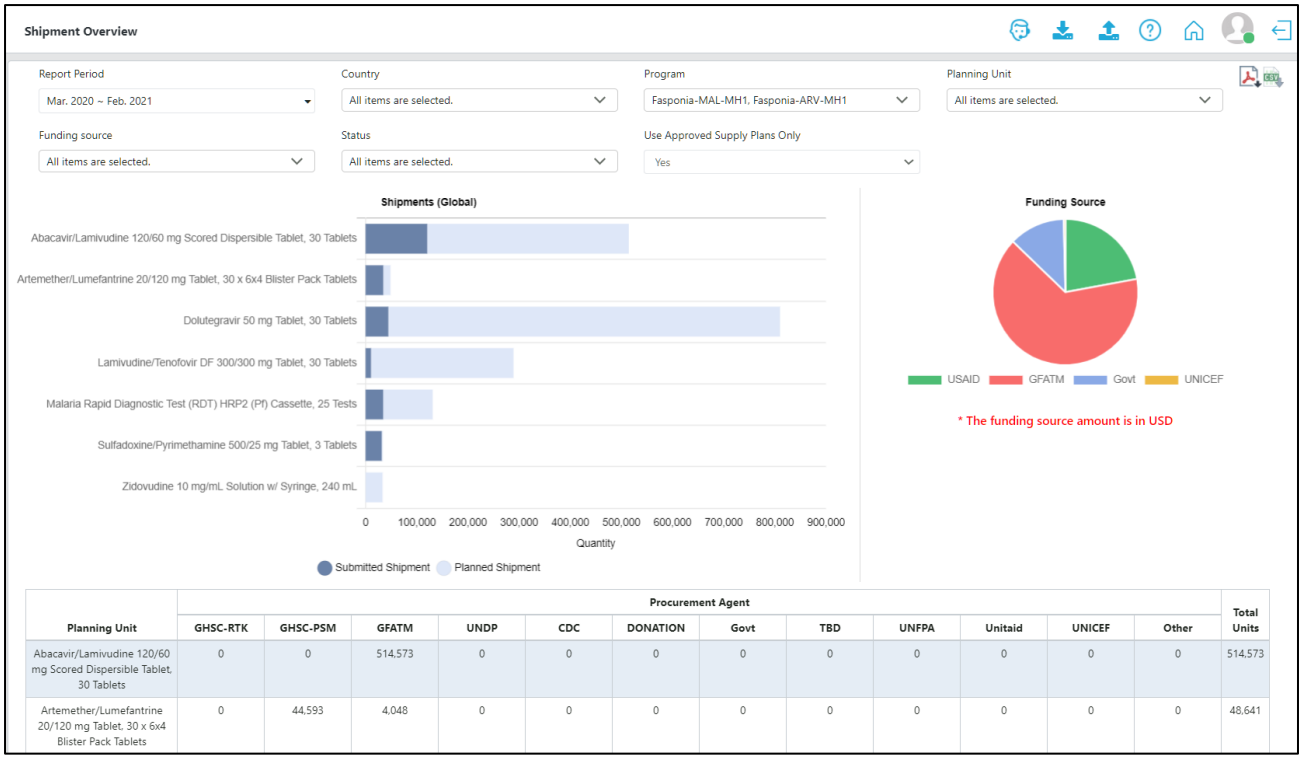
Months	Country	Amount	Funding source	Status
Jul 2020		447,019	United States Agency for International Development	Received
Aug 2020		9,717	United States Agency for International Development	Received
Mar 2020		11,251,007	Global Fund to Fight AIDS, Tuberculosis and Malaria	Received
Dec 2020		6,425,833	Global Fund to Fight AIDS, Tuberculosis and Malaria	Submitted
Dec 2020		2,826,845	Global Fund to Fight AIDS, Tuberculosis and Malaria	Submitted

Figure 87: Shipment (Global) Report

Shipment Overview

Purpose: to aggregate procurement quantities by funding source across all countries.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Shipment → Shipment Overview
- **Notes:**
    - The two graphs that appear first in the Shipments Overview Report depict the aggregated quantity of shipments across countries and cost (in USD) of the shipments per funding source across planning units. For a tabular view of the data, the user may find details in the bottom table.



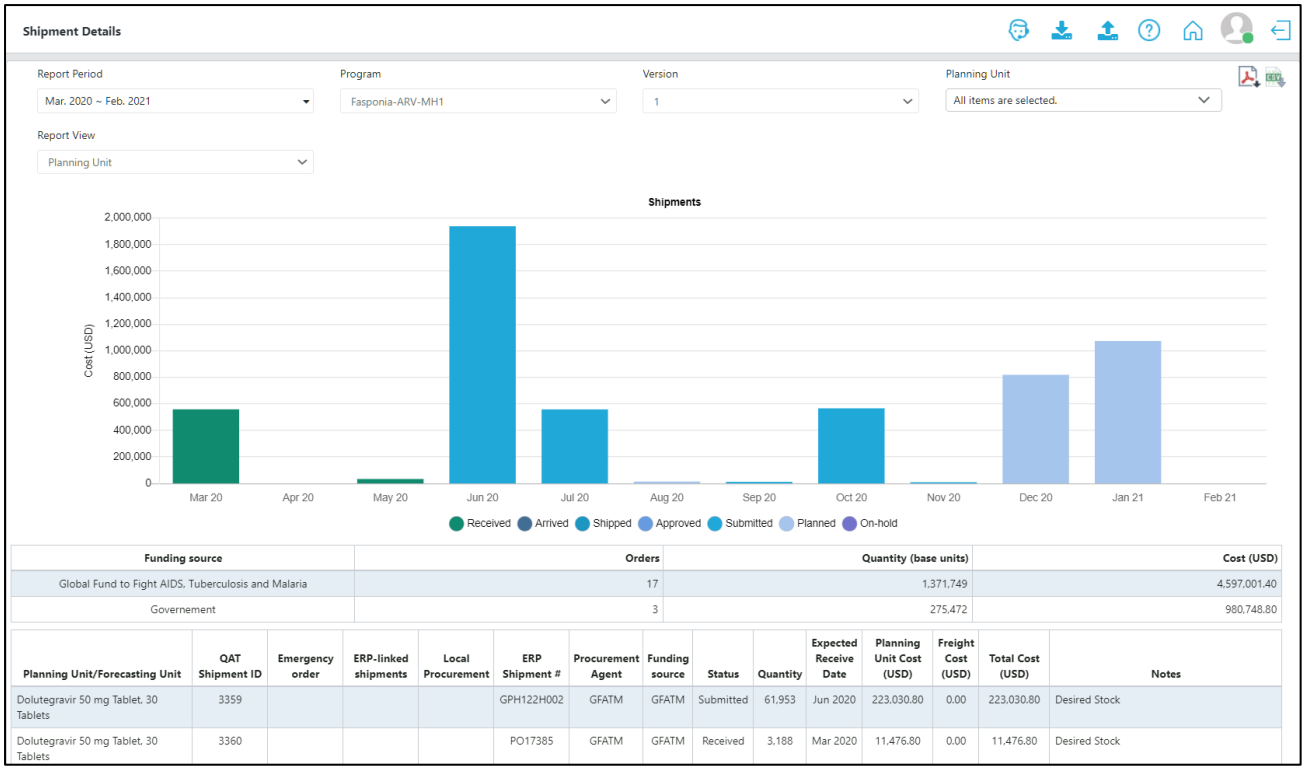
Planning Unit	Procurement Agent											Total Units
	GHSC-RTK	GHSC-PSM	GFATM	UNDP	CDC	DONATION	Govt	TBD	UNFPA	Unitaid	UNICEF	Other	
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	0	0	514,573	0	0	0	0	0	0	0	0	0	514,573
Artemether/Lumefantrine 20/120 mg Tablet, 30 x 6x4 Blister Pack Tablets	0	44,593	4,048	0	0	0	0	0	0	0	0	0	48,641

Figure 88: Shipment Overview Report

Shipment Details

Purpose: to provide a comprehensive view of all shipments for a program.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Shipment → Shipment Details
- **Notes:**
  - The top graphs shows total USD per month by shipment status
  - There are two tables below the graph: the first one provides a summary and the second one provides detailed information on shipments.
    - The summary table shows the total number of orders, and total costs per funding source, for the selected time period.
    - The detailed table contains the shipments disaggregated by planning unit, etc.



Funding source	Orders	Quantity (base units)	Cost (USD)
Global Fund to Fight AIDS, Tuberculosis and Malaria	17	1,371,749	4,597,001.40
Governement	3	275,472	980,748.80

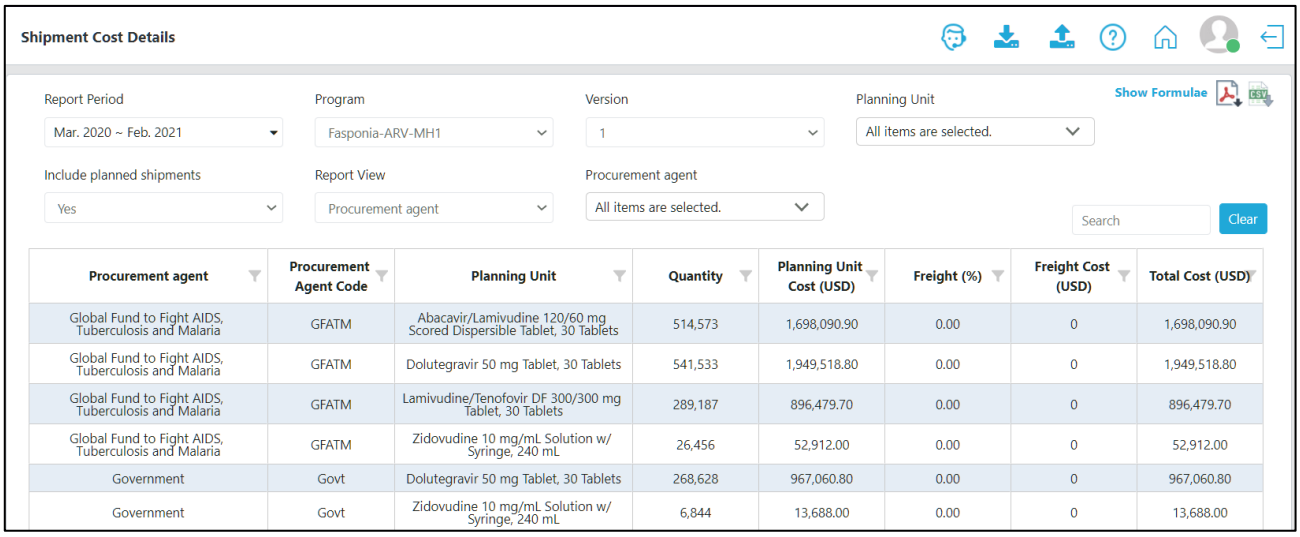
Planning Unit/Forecasting Unit	QAT Shipment ID	Emergency order	ERP-linked shipments	Local Procurement	ERP Shipment #	Procurement Agent	Funding source	Status	Quantity	Expected Receive Date	Planning Unit Cost (USD)	Freight Cost (USD)	Total Cost (USD)	Notes
Dolutegravir 50 mg Tablet, 30 Tablets	3359				GPH122H002	GFATM	GFATM	Submitted	61,953	Jun 2020	223,030.80	0.00	223,030.80	Desired Stock
Dolutegravir 50 mg Tablet, 30 Tablets	3360				PO17385	GFATM	GFATM	Received	3,188	Mar 2020	11,476.80	0.00	11,476.80	Desired Stock

Figure 89: Shipment Details Report

Shipment Cost Details

Purpose: to provide a simple view of all shipments for a program and their total costs.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Shipment → Shipment Cost Details
- **Notes:**
  - Can be displayed by funding source, procurement agent, or planning unit.



Procurement agent	Procurement Agent Code	Planning Unit	Quantity	Planning Unit Cost (USD)	Freight (%)	Freight Cost (USD)	Total Cost (USD)
Global Fund to Fight AIDS, Tuberculosis and Malaria	GFATM	Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	514,573	1,698,090.90	0.00	0	1,698,090.90
Global Fund to Fight AIDS, Tuberculosis and Malaria	GFATM	Dolutegravir 50 mg Tablet, 30 Tablets	541,533	1,949,518.80	0.00	0	1,949,518.80
Global Fund to Fight AIDS, Tuberculosis and Malaria	GFATM	Lamivudine/Tenofovir DF 300/300 mg Tablet, 30 Tablets	289,187	896,479.70	0.00	0	896,479.70
Global Fund to Fight AIDS, Tuberculosis and Malaria	GFATM	Zidovudine 10 mg/mL Solution w/ Syringe, 240 mL	26,456	52,912.00	0.00	0	52,912.00
Government	Govt	Dolutegravir 50 mg Tablet, 30 Tablets	268,628	967,060.80	0.00	0	967,060.80
Government	Govt	Zidovudine 10 mg/mL Solution w/ Syringe, 240 mL	6,844	13,688.00	0.00	0	13,688.00

Figure 90: Shipment Cost Details Report

Shipment Cost Overview

Purpose: to provide a general view of the total shipment costs per calendar year for a program and planning unit, by funding source.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Shipment → Shipment Cost Overview
- **Notes:**
  - This report can only be viewed in PDF format
  - This report can be based on either the shipment receive date, or the shipment submitted date

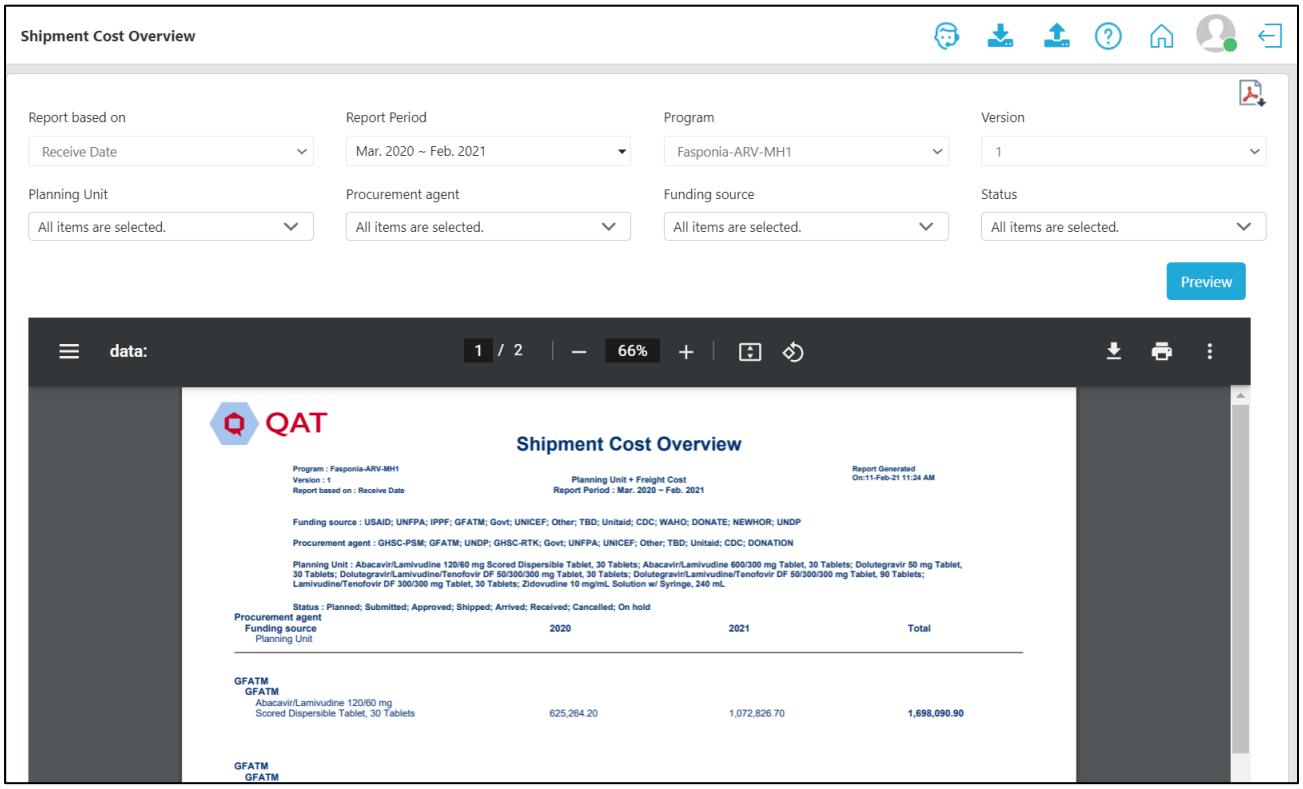
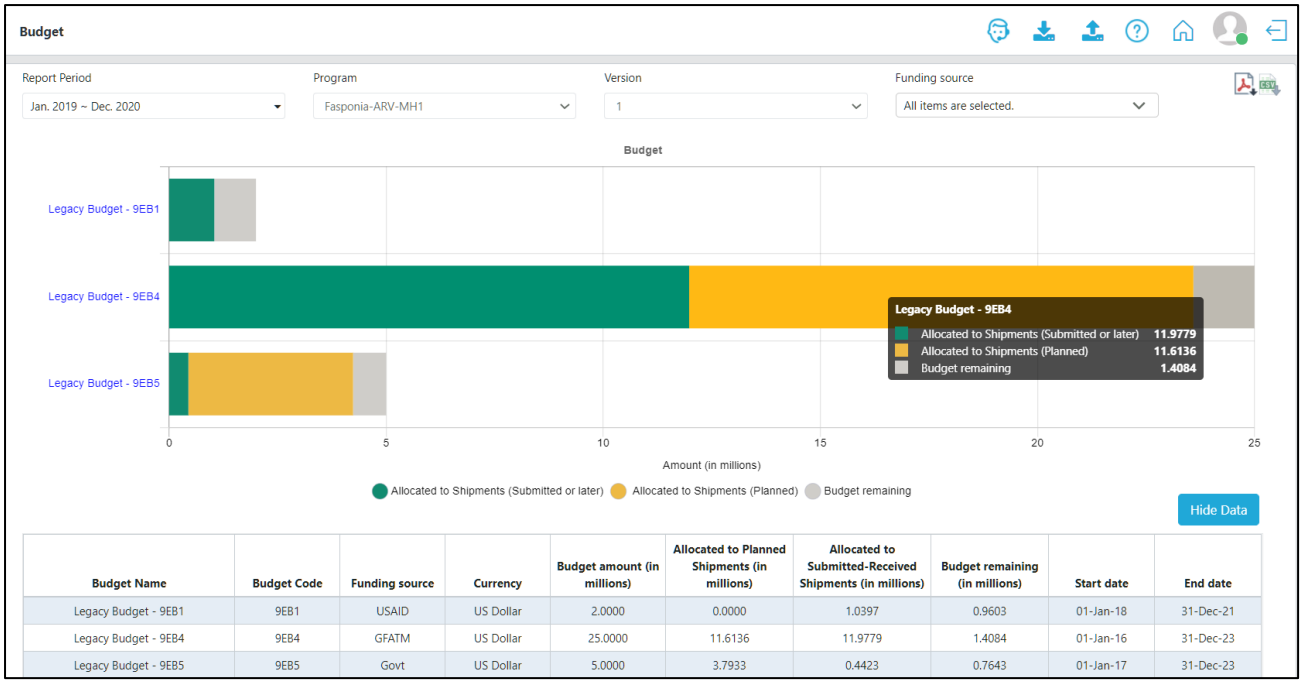


Figure 91: Shipment Cost Overview Report

Budget

Purpose: to show the different budgets assigned to a program, the estimated amounts allocated to existing shipments, and estimated amounts remaining.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Shipment → Budget
- **Notes:**
  - The graph shows every predefined Budget in a program and whether it is allocated to shipments (planned or ordered) and the remaining amount.
  - The tabular view of the graph also provides information on the funding source for each budget, start and end date, and other detailed information.



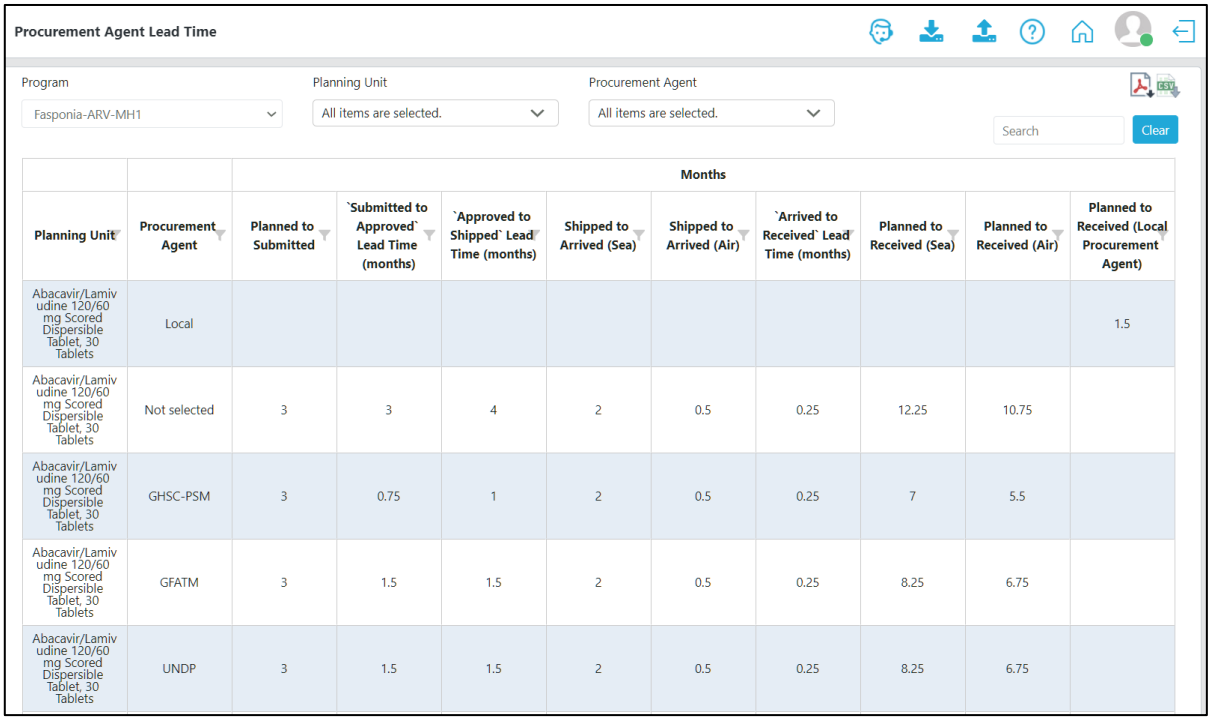
Budget Name	Budget Code	Funding source	Currency	Budget amount (in millions)	Allocated to Planned Shipments (in millions)	Allocated to Submitted-Received Shipments (in millions)	Budget remaining (in millions)	Start date	End date
Legacy Budget - 9EB1	9EB1	USAID	US Dollar	2.0000	0.0000	1.0397	0.9603	01-Jan-18	31-Dec-21
Legacy Budget - 9EB4	9EB4	GFATM	US Dollar	25.0000	11.6136	11.9779	1.4084	01-Jan-16	31-Dec-23
Legacy Budget - 9EB5	9EB5	Govt	US Dollar	5.0000	3.7933	0.4423	0.7643	01-Jan-17	31-Dec-23

Figure 92: Budget Report

Procurement Agent Lead Time

Purpose: to show the detailed lead times (in months) for all planning units, by procurement agent.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Shipment → Procurement Agent Lead Time



Planning Unit	Procurement Agent	Months								
		Planned to Submitted	`Submitted to Approved` Lead Time (months)	`Approved to Shipped` Lead Time (months)	Shipped to Arrived (Sea)	Shipped to Arrived (Air)	`Arrived to Received` Lead Time (months)	Planned to Received (Sea)	Planned to Received (Air)	Planned to Received (Local Procurement Agent)
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	Local									1.5
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	Not selected	3	3	4	2	0.5	0.25	12.25	10.75	
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	GHSC-PSM	3	0.75	1	2	0.5	0.25	7	5.5	
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	GFATM	3	1.5	1.5	2	0.5	0.25	8.25	6.75	
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	UNDP	3	1.5	1.5	2	0.5	0.25	8.25	6.75	

Figure 93: Procurement Agent Lead Time Report

Inventory Reports

Expiries

Purpose: to provide planners with estimated quantities of planning units expiring in the future based on batch/shelf life

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Inventory → Expiries
- **Notes:**
  - This report pulls from data previously entered by including batch information on shipments, inventory, and actual consumption, and shelf life per planning unit.
  - The report can include quantities in planned shipments expected to arrive and expiry during the selected timeframe
  - It will calculate (based on shelf life, stock projections, and forecast consumption) how much of a particular batch is expected to expire and when.
  - For the expiry calculation, refer to Annex 2: Business Rules

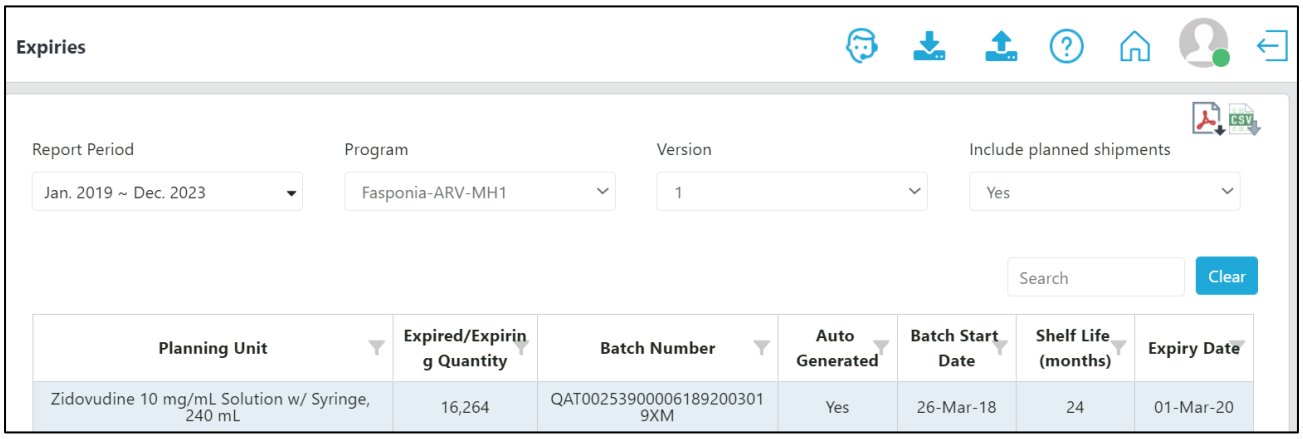


Figure 94: Expiries Report

Cost of Inventory

Purpose: for a selected month, provides an estimated cost of inventory based on actual or projected stock on hand and the planning unit catalog price.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Inventory → Cost of Inventory
- **Notes:**
  - The report can include quantities in planned shipments expected to arrive during the selected timeframe
  - The stock column could be based on an actual inventory or projected ending balance
  - This report uses the following formula:

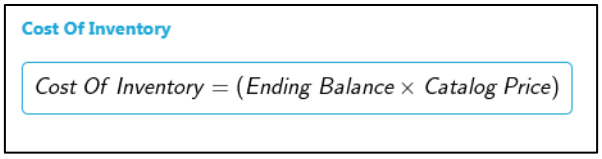
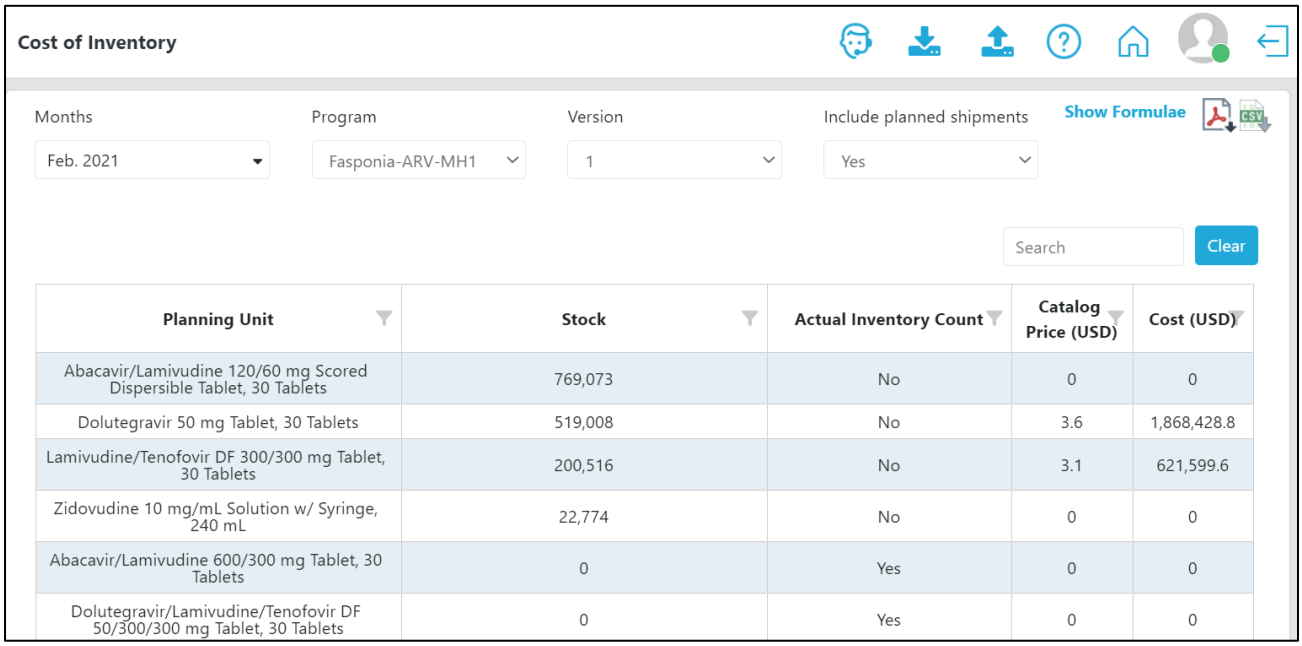


Figure 95: Cost of Inventory Formula



Planning Unit	Stock	Actual Inventory Count	Catalog Price (USD)	Cost (USD)
Abacavir/Lamivudine 120/60 mg Scored Dispersible Tablet, 30 Tablets	769,073	No	0	0
Dolutegravir 50 mg Tablet, 30 Tablets	519,008	No	3.6	1,868,428.8
Lamivudine/Tenofovir DF 300/300 mg Tablet, 30 Tablets	200,516	No	3.1	621,599.6
Zidovudine 10 mg/mL Solution w/ Syringe, 240 mL	22,774	No	0	0
Abacavir/Lamivudine 600/300 mg Tablet, 30 Tablets	0	Yes	0	0
Dolutegravir/Lamivudine/Tenofovir DF 50/300/300 mg Tablet, 30 Tablets	0	Yes	0	0

Figure 96: Cost of Inventory Report

Inventory Turns

Purpose: to show the number of inventory turns per planning unit during a particular time period. Inventory turns are a way to measure the velocity of the supply plans. Inventory turnover is a key statistic often used to signal supply chain management effectiveness. Generally, higher turns mean a healthier supply chain – products are moving downstream and being replaced by fresh products more frequently.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Inventory → Inventory Turns
- **Notes:**
  - Inventory turnover: Inventory turns are a way to measure the velocity of the supply plans. Inventory turnover is a key statistic often used to signal supply chain management effectiveness.
    - Generally, higher turns mean a healthier supply chain – products are moving downstream and being replaced by fresh product more frequently.
    - Low turnover implies low consumption, possibly excess inventory – it could point for instance to program targets being too ambitious.
  - This report uses the following formula:

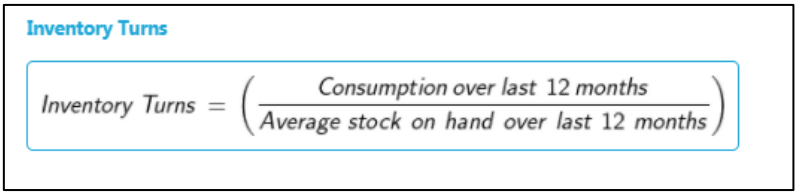


Figure 97: Inventory Turns Formula

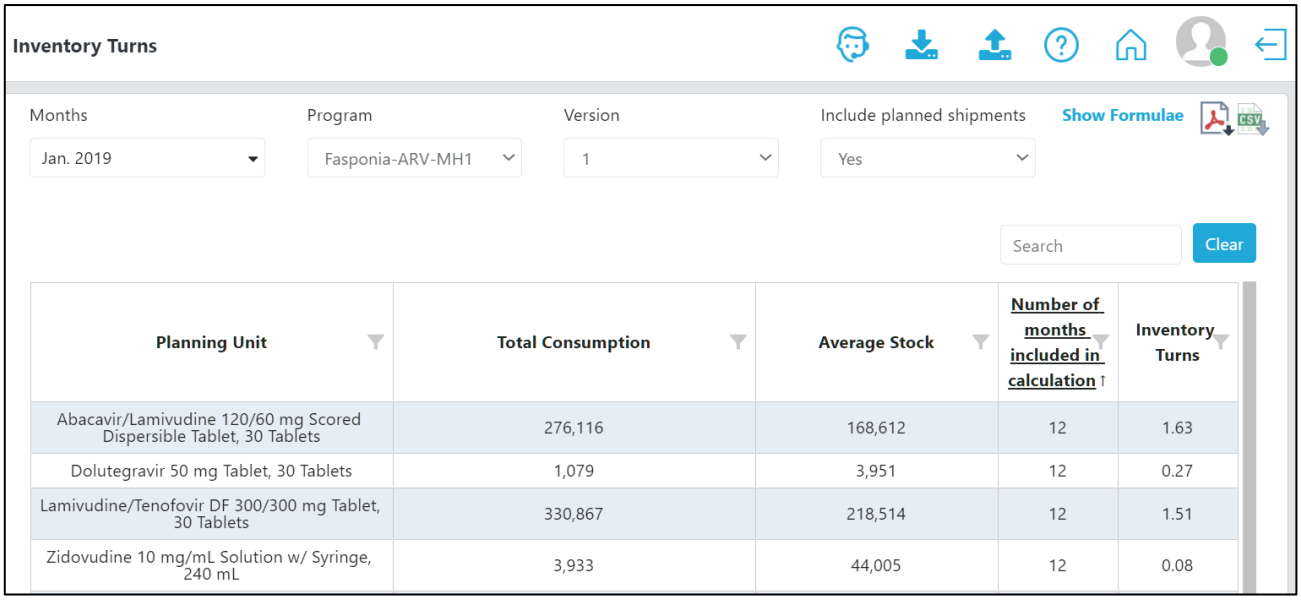


Figure 98: Inventory Turns Report

Stock Adjustment

Purpose: to show a list of all the manually entered stock adjustments in a program. Note: automatically calculated adjustments will not display on this report.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Inventory → Stock Adjustment
- **Notes:**
    - Automatically calculated adjustments (as a result of a difference between projected ending balance and an inventory count) do not appear in this report.

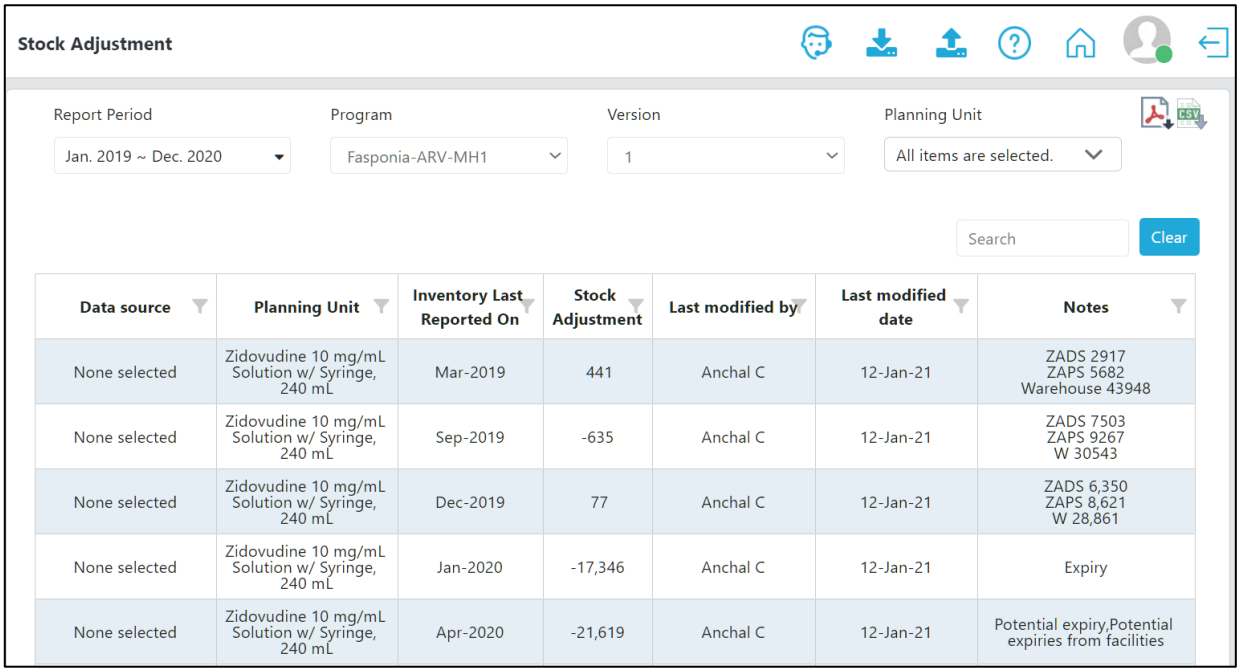


Figure 99: Stock Adjustment Report

Warehouse Capacity (by Program)

Purpose: displays the volume (in cubic meters) of all regions within a country (if a user enters such information upon setting up a program.

- **Accessible to:** Realm Admins, Program Admins, Report Viewers, and Program Users
- **Navigation:** Reports → Inventory → Warehouse Capacity (by Program)
- **Notes:**
    - This report is most useful for those countries with multiple regions.

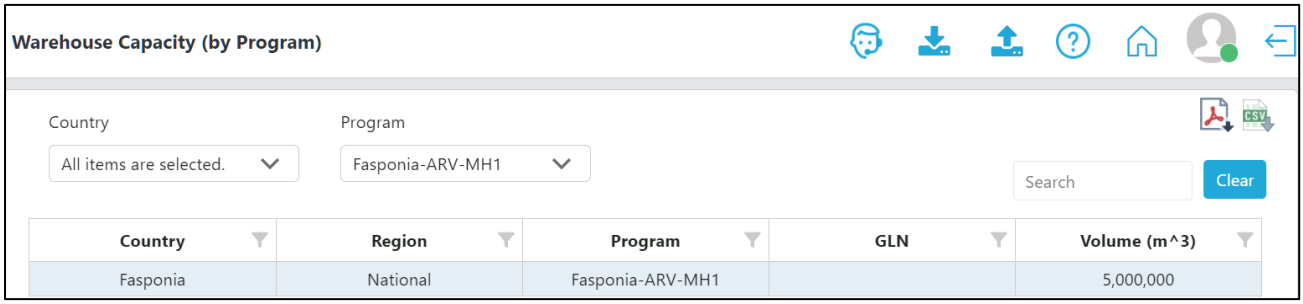


Figure 100: Warehouse Capacity (by Program)

Warehouse Capacity (by Country)

Purpose: displays the volume (in cubic meters) of all countries and regions within a country (realm-level access required).

- **Accessible to:** Realm Admins and Report Viewers
- **Navigation:** Reports à Inventory à Warehouse Capacity (by Country)
- **Notes:**
    - This report is most useful for those countries with multiple regions.

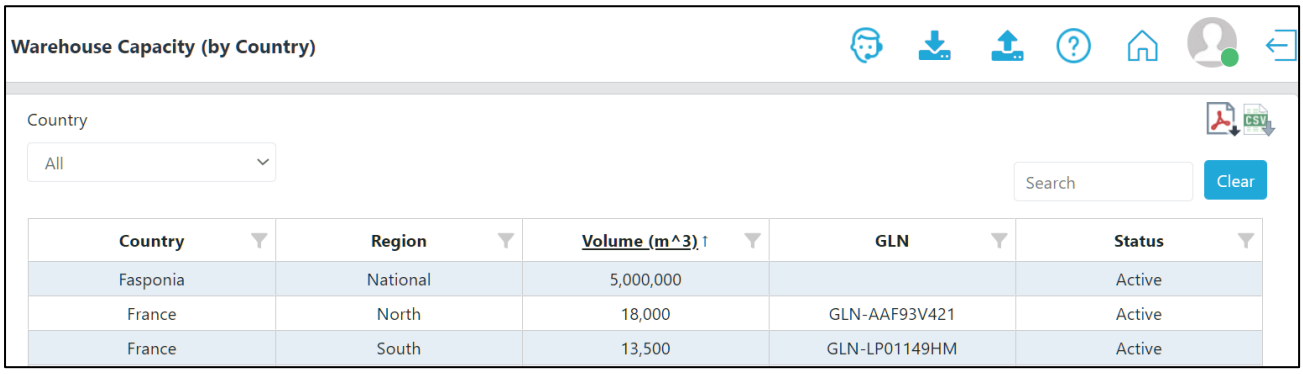
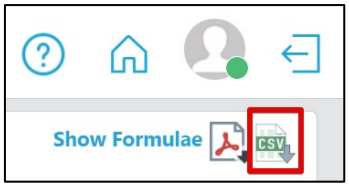


Figure 101: Warehouse Capacity (by Country)

Correcting the Language when Exporting CSV

Purpose: If the user changes the language while downloading the report in CSV format, the file may not reflect the language change. Therefore, it is suggested that the user should follow the given procedure in order to get the CSV table in his/her preferred language.

1. Download any QAT screen using the CSV download button in the upper righthand screen



2. The CSV file will get stored in the Download folder of the user's PC
3. Open a new workbook in Microsoft Excel.
4. Click on "Data".
5. Then Select "From Text".
6. Browse through the Download folder and select the correct QAT CSV file.

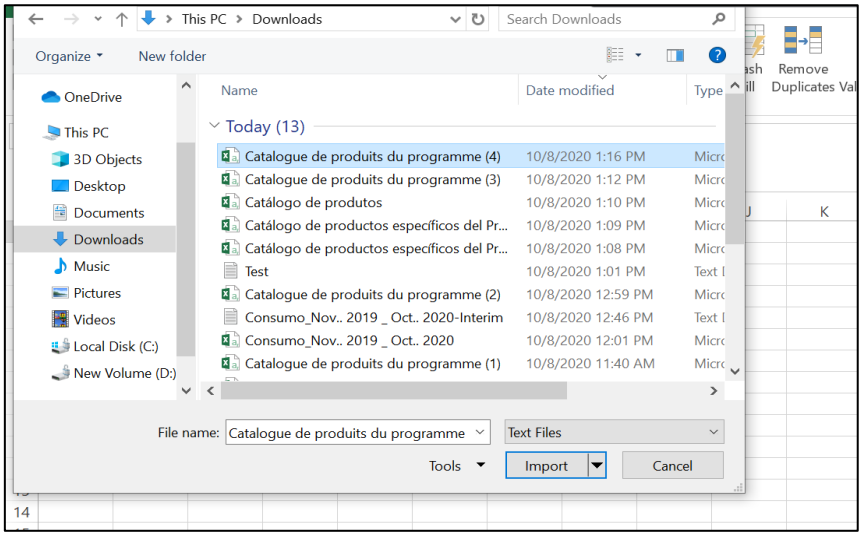


Figure 102: Import Download into Excel

7. Click on the Import button. The below screen will appear:

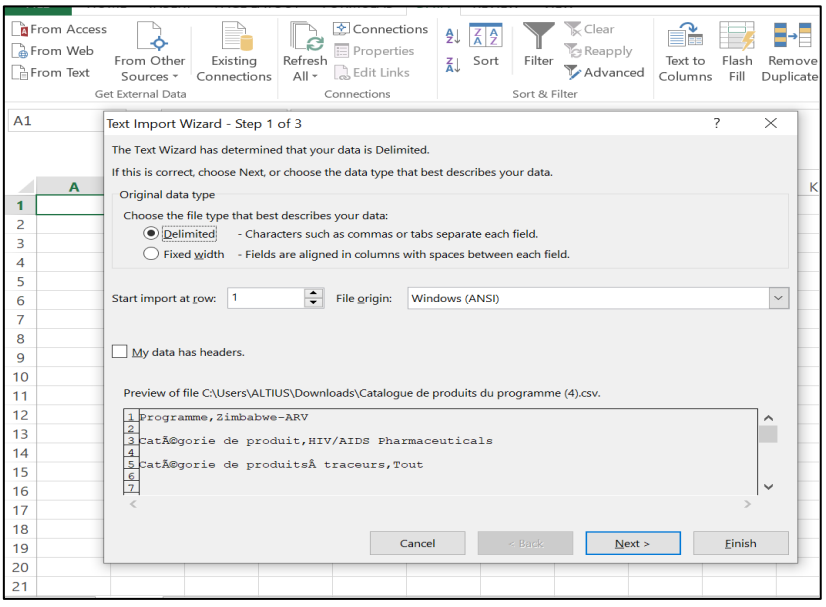


Figure 103: Importing Excel to Change Language

8. In File origin dropdown, select the **65001: Unicode (UTF-8)** function.

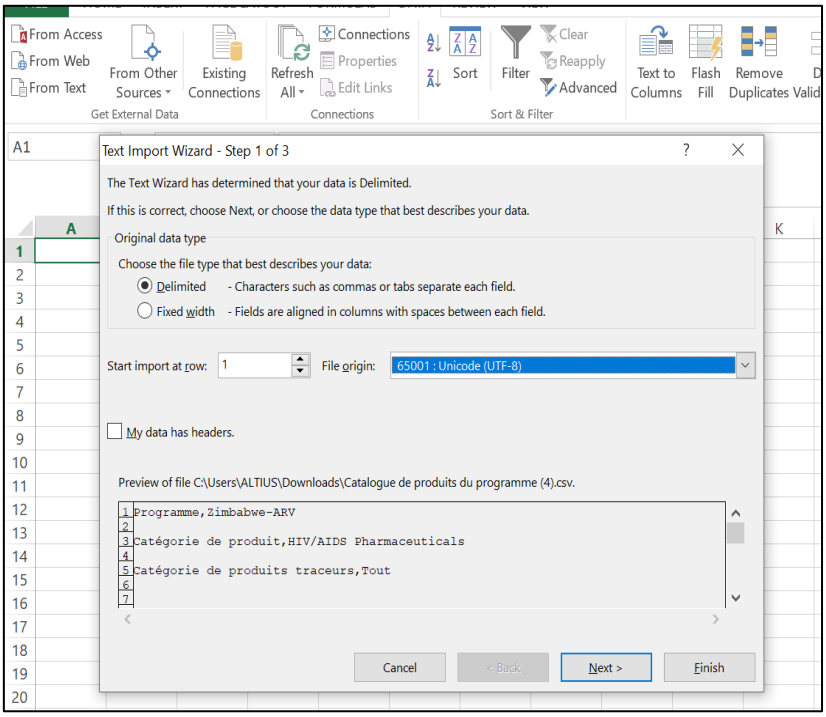


Figure 104: Saving Language in Excel

9. Click Next button
10. Select/Check the "Tab" and "Comma" as delimiters. See screenshot below:

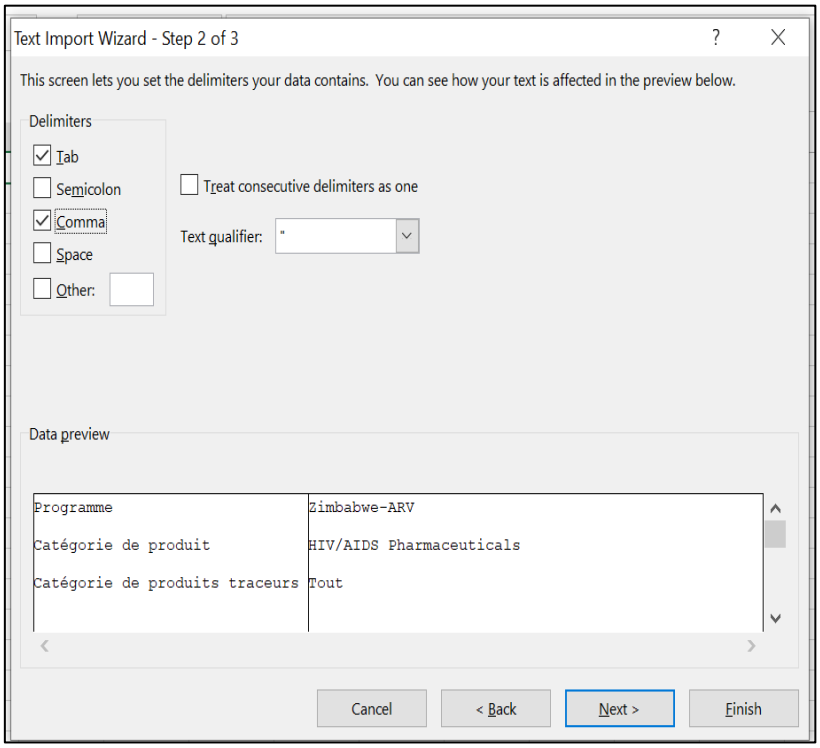


Figure 105: Completing Excel Language Import

11. Click on Next.
12. Then click on Finish.
13. The data will render in the language chosen for exporting.

Annex 1: Application & Realm Administrator Manual

Introduction

While the focus of the user manual is to guide program administrators and users on how to supply plan in QAT, the objective of this annex is to provide guidance on functionalities available to application and realm administrators only. Application masters are mainly available to the App Administrator (with a few exceptions), while Realm Level Masters are available to both App and Realm Administrators.

Application Dashboard

The functions available on the Application Dashboard will be visible according to the **user's role**. Below is an explanation of the tiles unique to App and Realm Level Admins. For an explanation of other tiles (tickets and program), please see Navigation and Menu Bar.

In the screenshot below, the role assigned is "**App Level Admin**".

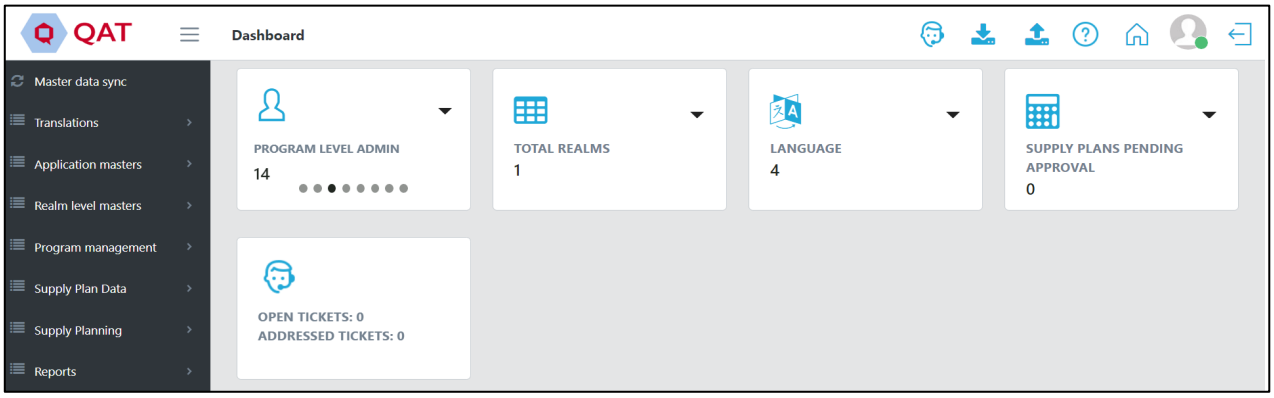


Figure 106: App Level Admin Dashboard

In the screenshot below, the role assigned is "**Realm Level Admin**".

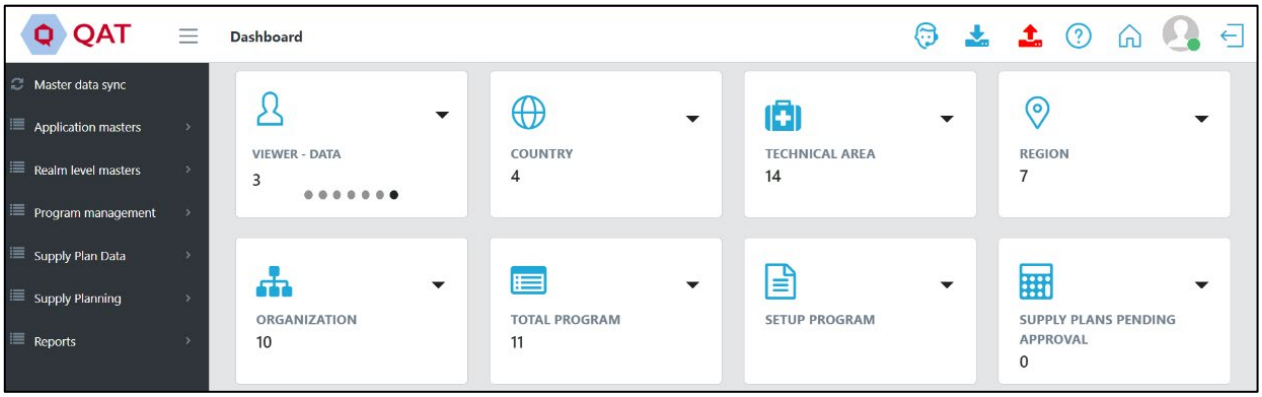
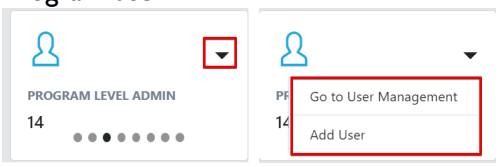
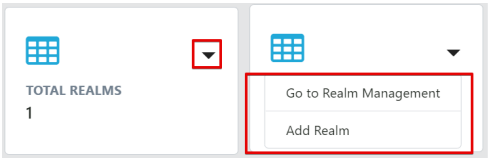
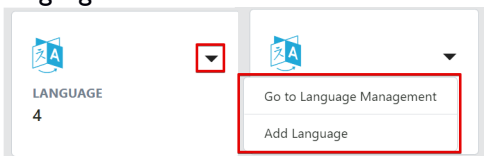
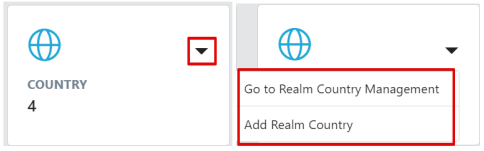
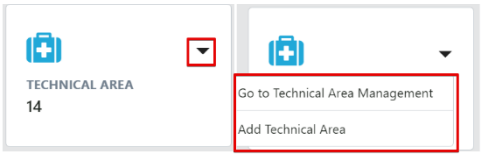
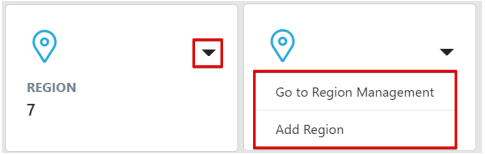


Figure 107: Realm Level Admin Dashboard

Which Admins?	Screenshot	Explanation
App & Realm	Program user 	This tile displays the **number of users in each role.** Clicking on the pull-down button displays two functions ("Go to User Management" and "Add User"). Both redirect users to the "Application Masters" > "User" (See Users for more)
App	Total Realms 	This tile displays the **total number of realms** in the app. Clicking on the pull-down button displays two functions ("Go to Realm Management" and "Add Realm"). Both redirect users to the Realms screen, which is also accessible in the left menu under *Application Masters* > *Realms* (See Realm for more)
App	Language 	This tile displays the **number of languages** in the app. Clicking on the pull-down button displays two functions ("Go to Language Management" and "Add Language"). Both redirect users to the Language screen, which is also accessible in the left menu under *Application Masters* > *Language* (See Language for more)
Realm	Country 	This tile displays the **number of countries** in the realm. Clicking on the pull-down button displays two functions: "Go to Realm Country Management" brings users to a table of countries, which is also accessible in the left menu under *Realm Masters* > *Country*. "Add Realm Country" brings users to the Realm screen, which is also accessible in the left menu under *Application Masters* > *Realm,* where users can map countries to the realm. (See Realm Country for more)
Realm	Technical Area 	This tile displays the **number of technical areas** in the realm. Clicking on the pull-down button displays two functions ("Go to Technical Area Management" and "Add Technical Area"). Both redirect users to the Technical Area screen, which is also accessible in the left menu under *Application Masters* > *Technical Area* (See Technical Area for more)
Realm	Region 	This tile displays the **number of regions** in the app. Clicking on the pull-down button displays two functions ("Go to Region Management" and "Add Region"). Both redirect users to the Language screen, which is also accessible in the left menu under *Application Masters* > *Region*. (See Realm Country for more)

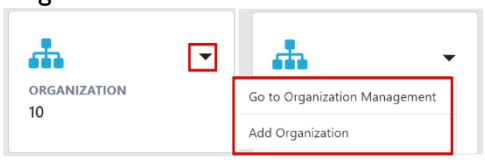
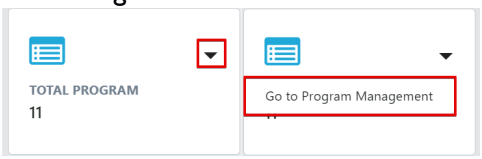
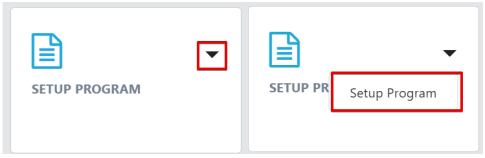
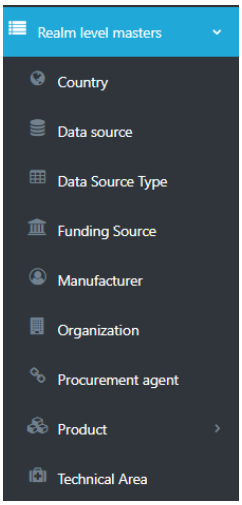
Realm	Organization 	This tile displays the **number of organizations** in the app. Clicking on the pull-down button displays two functions ("Go to Organization Management" and "Add Organization"). Both redirect users to the Language screen, which is also accessible in the left menu under *Application Masters* > *Organization*. (See Organization for more)
Realm	Total Program 	This tile displays the **number of programs** in the app. Clicking on the pull-down button displays ("Go to Program Management", which redirects users to the Update Program Info screen, which is also accessible in the left menu under *Program Management* > *Update Program Info*. (See Program Information for more)
Realm	Setup Program 	This tile allows users to click on the pull-down button to navigate to the "Setup Program" screen, which is also accessible in the left menu under *Program Management* > *Setup Program*. (See Setting up a new program for more)

Table 10 : App and Realm Admin Tiles

Managing Master Data

Application Masters is the top-most data hierarchy level in QAT. Application master data applies to all the Realms and Programs within QAT. Most of it is only accessible to Application Admins, though a few of the Application functions are available to Realm Admins such as adding and updating users and assigning roles to users. Application Admins can select the specific application-wide master data they want to add or update.

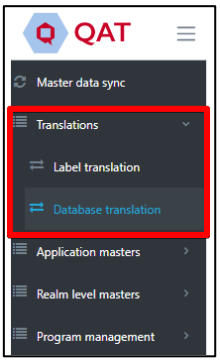
Realm Level Masters covers all the master data for that Realm which apply to its programs and supply plans. The Realm Admin will be able to view, create and edit this master data. Programs, Technical Areas, Planning Units and Procurement Agents are a few examples of realm master data that the Realm Admin can add and maintain. A lot of the realm level masters are accessible for viewing to Program Admins; however, they do not have the ability to add/update this data.



Program Level Masters is the third level of hierarchy in QAT. While program admins cannot add programs, they can update the program information (e.g., lead times, freight costs, etc.) within their assigned program(s). Program Admin and Program Users can also add and update the program's data (consumption, inventory, shipments).

Application Masters

Database Translation



The database translation screen, which is accessible for application admins is used to translate "Dynamic labels" that are stored in QAT. The dynamic labels are included in drop-down lists throughout QAT as well as be labels that reference other labels (e.g. QAT Problem List problems that reference shipment IDs).

For every dynamic label, there must be at least an English translation as identified by the red asterisk next to 'English' in the below figure. The translations for the other software languages are highly recommended but not required to save a translation.

To edit a translation, double-click that cell and input the desired text. Then click the "Submit" button. The submitted translation(s) will not be changed on the front end in QAT until the next software release.

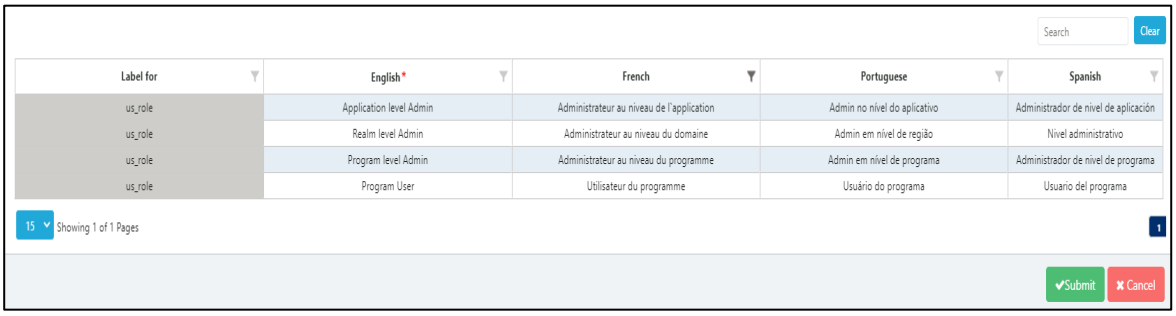


Figure 108: Database Language Translation Screen

Label Translation

The Label translation screen is used to translate "static labels" that do not reference other QAT labels and are not part of drop-down lists. Table column headers are an example of a static label in QAT.

For the static labels, there must be at least an English translation as identified by the red asterisk next to 'English' in the below figure. The translations for the other software languages are highly recommended but not required to save a translation.

To edit a translation, double-click that cell and input the desired text. Then click the "Submit" button. After you click submit, the translation will immediately reflect in QAT for all users.

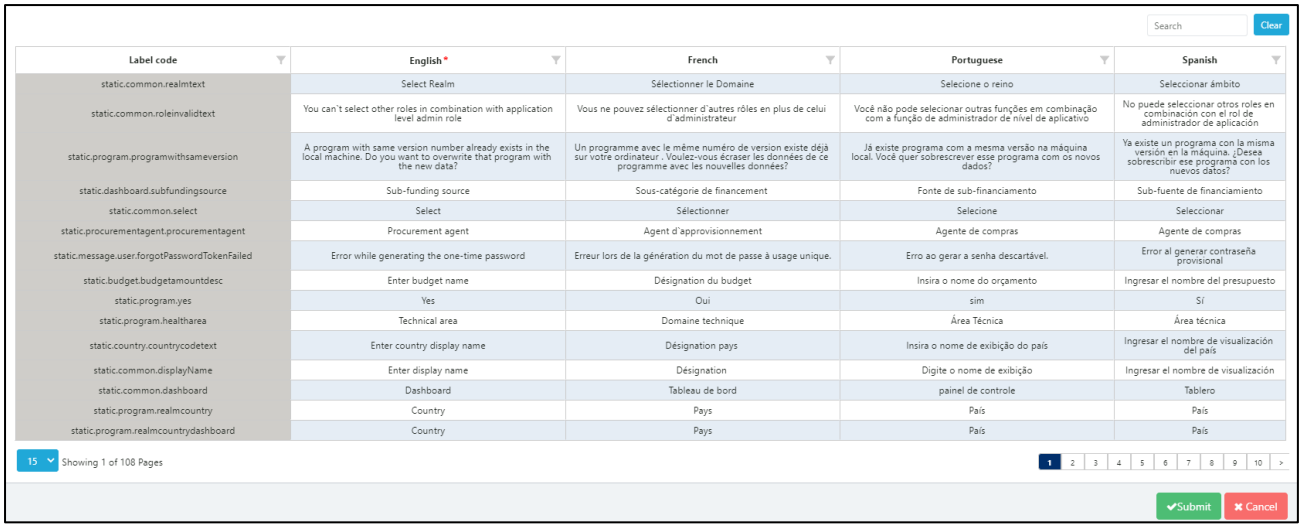


Figure 109: Label Translation Screen

Country

QAT displays a Country table listing all default countries in the application, but new countries can be added, as needed.

To view a list of the current countries that are in QAT:

1. Go to "Application Masters" and click on "Country."
2. The application administrator can view and filter the countries by their status of "Active" or Disabled." Additionally, the user can search for a specific country by using the search bar.

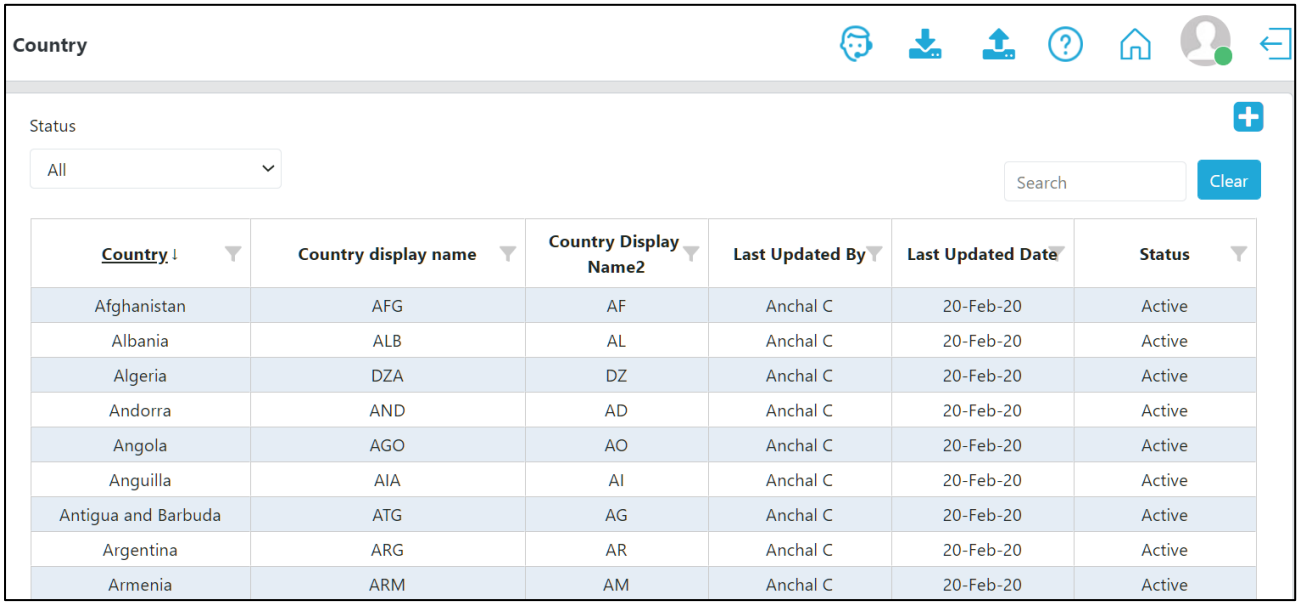


Figure 110: List of Countries

To add a country:

1. In the top right corner of the country list, click on the "+" icon.
2. A new screen "Add Country" will be opened as shown below.
3. Enter the new Country, Country Display Name, Country Display Name2, and Currency and click on the "Submit" button.
    a. **Note**: Country Display Name is always the three-letter country code (e.g., Angola = AGO). Country Display Name2 is always the two-letter country code (e.g., Angola = AO).

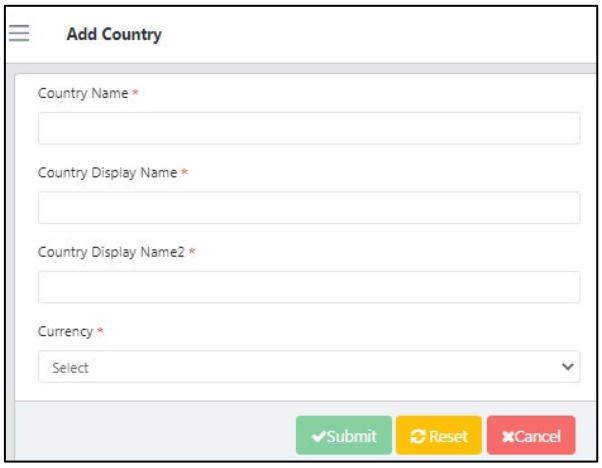


Figure 111: Add Country Screen

To update a country:

1. To update a current country, go to the Application Admin country list.
2. Click on the country that needs to be changed or updated.
3. Update the information as needed and then click on the "Update" button. This can include "disabling" a country or making one "active."

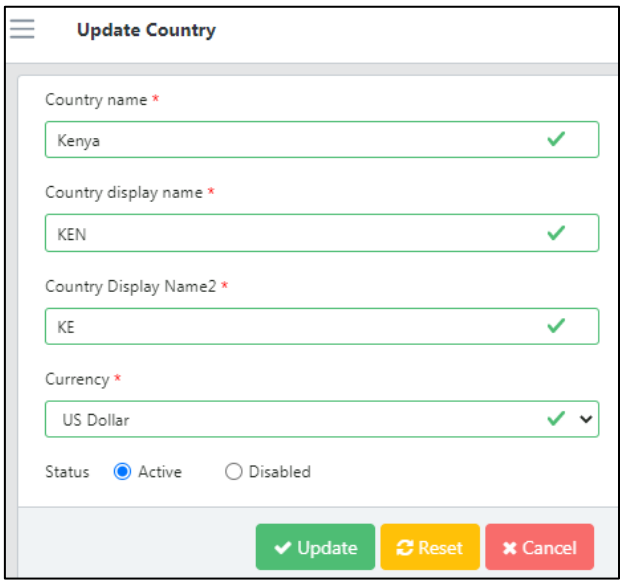


Figure 112: Update Country Screen

Currency

To view a list of the current currencies that are in QAT:

1. Go to "Application Masters" and click on "Currency."
2. A list of currencies and their attributes, such as conversion rate will be shown as below:

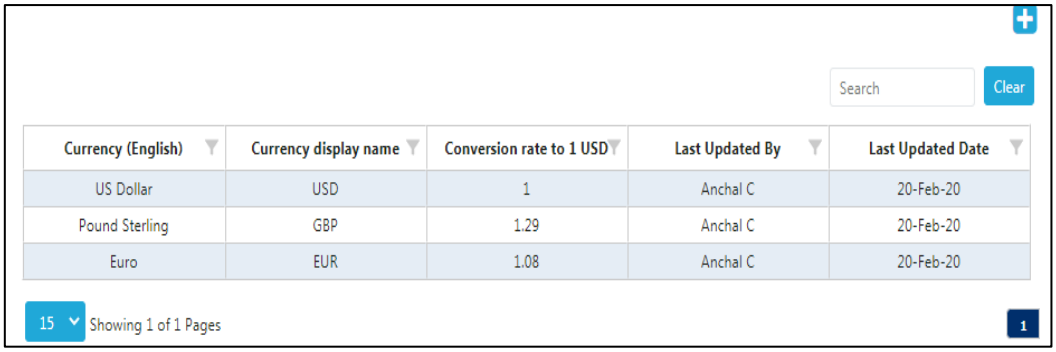


Figure 113: Currency List

To add a currency:

1. In the top right corner of the currency list, click on the "+" icon.
2. A new screen "Add Currency" will be opened as shown below.
3. Enter the new Currency, Currency Display Name, Conversion Rate to 1 USD, and whether it should Sync Online. When all information has been entered, click on the "Submit" button.
    a. **Note:** The conversion rate to 1 USD can be entered manually or it can be obtained from the integration with the public online source by selecting "Yes" on the "Sync online conversion rate", which is the default.

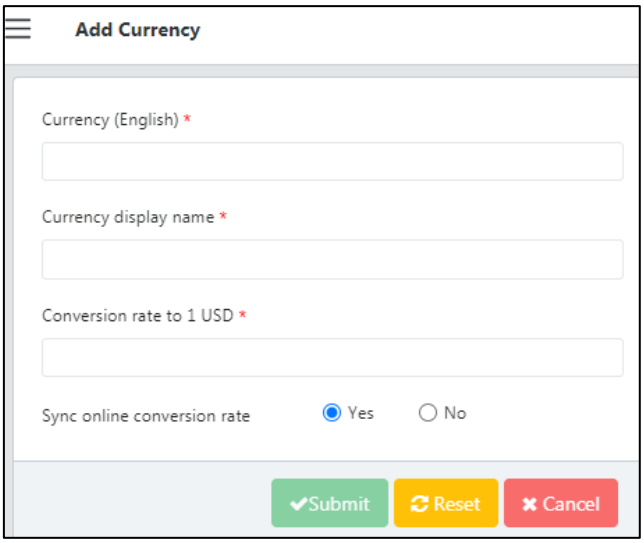


Figure 114: Add Currency Screen

To update an existing currency:

1. To update an existing currency, go to the Application Admin currency list.
2. Click on the currency that needs to be changed or updated.
3. Update the information as needed and then click on the "Update" button.

Dimensions

Dimensions denote various measurable values, such as length, volume, weight, or height.

To view a list of the current dimensions that are in QAT:

1. Go to "Application Masters" and click on the "Dimension."
2. A list of dimensions will be shown as below:

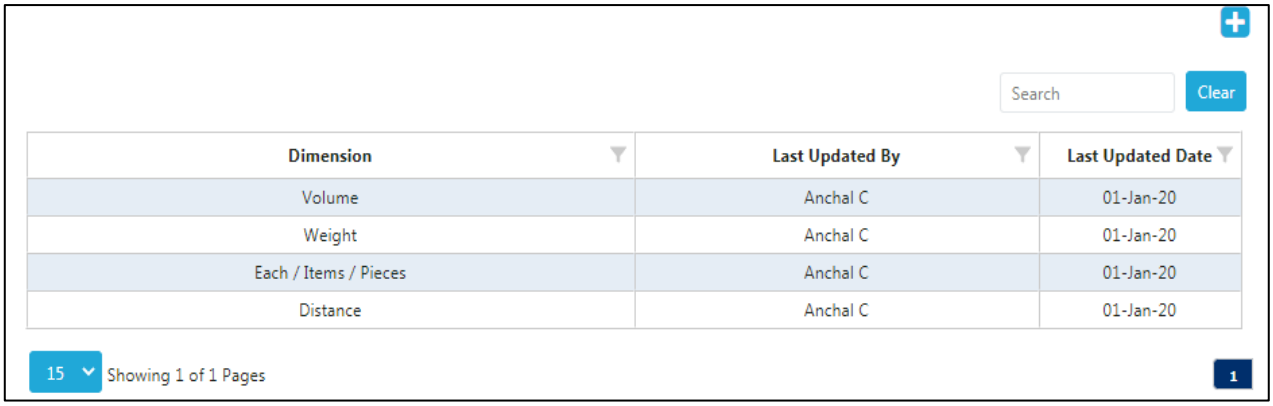


Figure 115: List of Dimensions

To add a dimension:

1. In the top right corner of the Dimension List, click on the "+" icon.
2. A new screen "Add Dimension" will be opened as shown below.
3. Enter the new dimension and click on the "Submit" button.

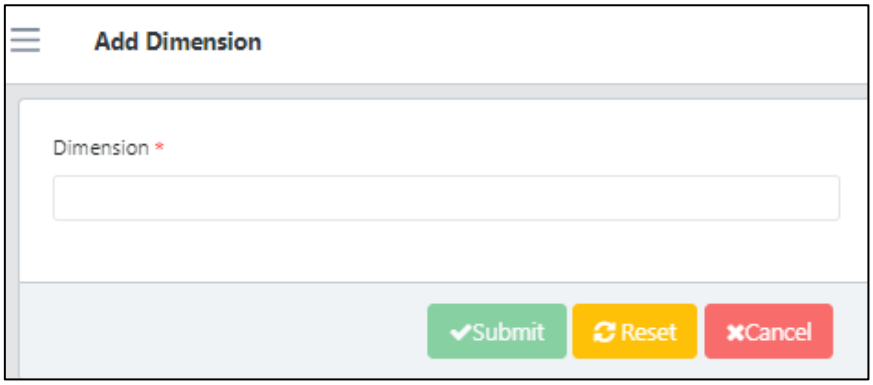


Figure 116: Add Dimension Screen

To update a dimension:

1. To update a current dimension, go to the Application Admin dimension list.
2. Click on the dimension that needs to be changed or updated.
3. Update the information as needed and then click on the "Update" button.

Language

QAT is available in four different languages: English, French, Spanish, and Portuguese.

To view a list of the current languages that are in QAT:

1. Go to "Application Masters" and click on the "Language."
2. A list of languages will be shown as below:

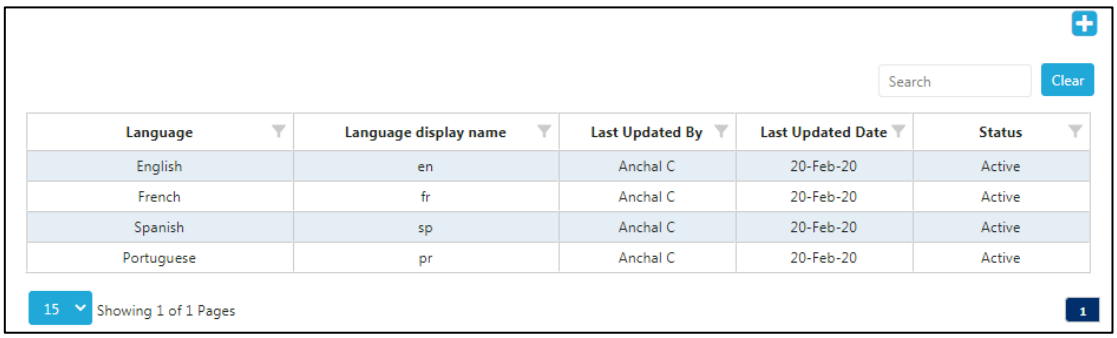


Figure 117: List of Languages

To add a language:

1. In the top right corner of the language list, click on the "+" icon.
2. A new screen "Add Language" will be opened as shown below.
3. Enter the new Language and the Language Display Name and click on the "Submit" button.
4. **Note:** All QAT database and display labels must be translated in order for a new language to appear across QAT. Please see Database Translation and Label Translation in Appendix 1 for more information.

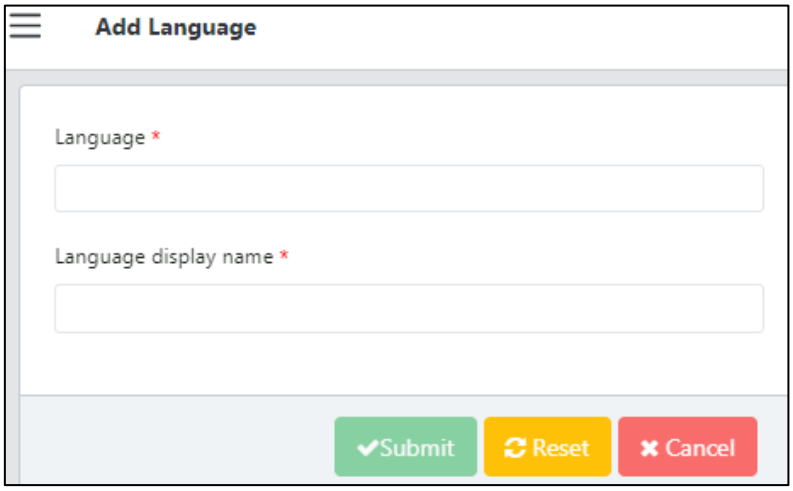


Figure 118: Add Language Screen

To update a language:

1. To update a current language, go to the Application Admin language list.
2. Click on the language that needs to be changed or updated.
3. Update the information as needed and then click on the "Update" button. This can include "disabling" a language or making one "active."

Roles

Application Administrators are able to create and edit role types for the entire application as the need arises to modify the business rules that certain roles can access. For a list of the current roles, access, and associated functions, please see Annex 3: User Role Matrix.

To view a list of the current roles that are in QAT:

1. Go to "Application Masters" and click on the "Roles."
2. A list of roles will be shown as below:

Role ID	Role
ROLE_APPLICATION_ADMIN	Application level Admin
ROLE_PROGRAM_ADMIN	Program level Admin
ROLE_PROGRAM_USER	Program User
ROLE_REALM_ADMIN	Realm level Admin
ROLE_SUPPLY_PLAN_REVIEWER	Supply Plan Reviewer
ROLE_VIEW_DATA_ENTRY	Viewer - Data
ROLE_REPORT_USER	Viewer - Reports
ROLE_GUEST_USER	Viewer - Supply Plan Review

Figure 119: Current list of roles

To add a role:

1. In the top right corner of the role list, click on the "+" icon.
2. A new screen "Add Role" will be opened as shown below.
3. Enter the new Role, Business Function, and Can Create Role and click on the "Submit" button.
4. For a description and more information on individual business functions, see Annex 4: Business Functions
5. "Can Create Role" allows the new role to create users and assign them to specific roles and access. For example, a Realm Admin can create a user, assign them as a Program Admin, and determine which countries and programs the user will have access to.

Figure 120: Add Role Screen

To update a role:

1. To update a current role, go to the Application Admin role list.
2. Click on the role that needs to be changed or updated.
3. Update the information as needed and then click on the "Update" button.
4. For a description and more information on individual business functions, see Annex 4: Business Functions
5. "Can Create Role" allows the new role to create users and assign them to specific roles and access. For example, a Realm Admin can create a user, assign them as a Program Admin, and determine which countries and programs the user will have access to.

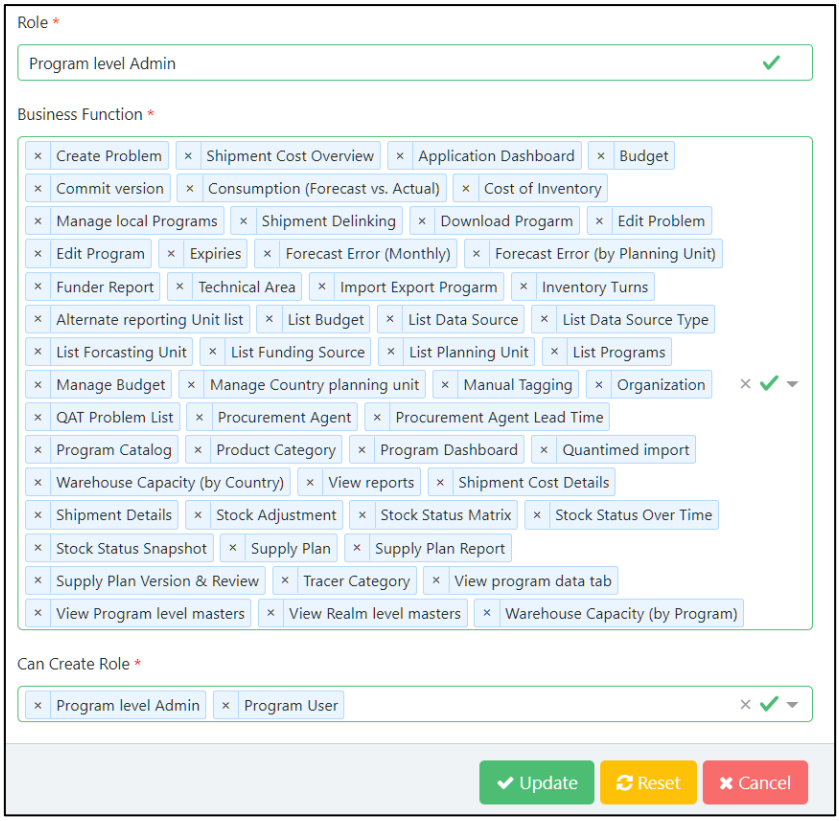


Figure 121: Edit Role Screen

Realm

QAT is subdivided into realms, each one governed by their own master data (inclusive of product catalog, funder names, procurement agent names, etc.). Future realms could be set up for other fields such as education supply chains, agriculture supply chains, etc. For information and functions that can be performed by a Realm Admin, see Realm Level Masters.

To view a list of the current realms that are in QAT:

1. Go to "Application Masters" and click on the "Realm."
2. A list of realms will be shown as below:

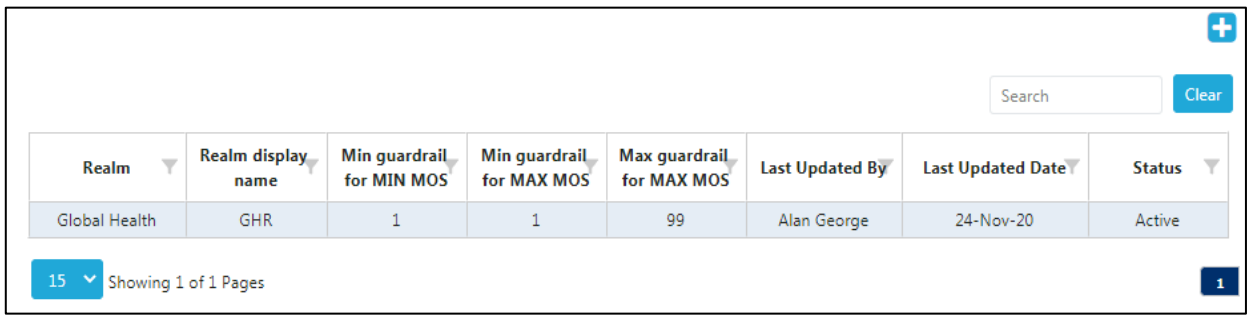


Figure 122: List of Realms

To add a realm:

1. In the top right corner of the realm list, click on the "+" icon.
2. A new screen "Add Realm" will be opened as shown below.
3. Enter the new Realm, Realm Display Name, Min Guardrail for MIN MOS, Min Guardrail for MAX MOS, and Max Guardrail for MAX MOS. Determine if this will be the Default realm and then click on the "Submit" button.

a. When adding a user to QAT, if they are not assigned a realm, they will be automatically assigned to the realm that is considered the "default." There can only be one default realm per QAT instance.
b. **Note**: the MIN/MAX guardrails are the absolute inferior and superior limits for setting program MIN/MAX parameters; they are set at the realm level. This means a program cannot have a MIN MOS that is less than the "Min guardrail for MIN MOS", or a MAX MOS that is greater than the "Max guardrail for MAX MOS"

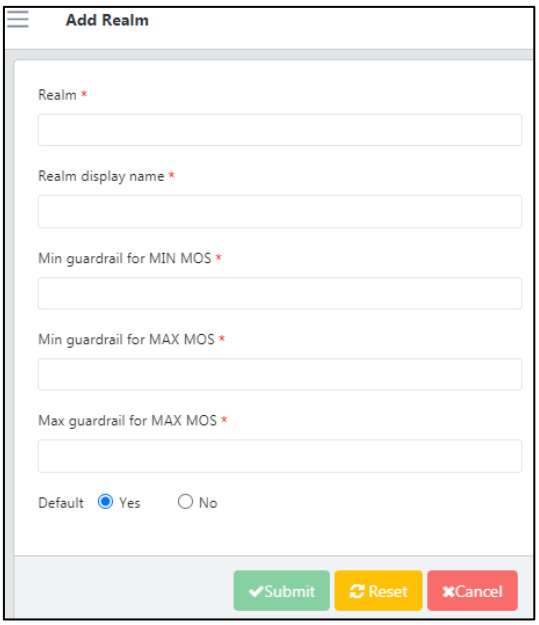


Figure 123: Add Realm screen

To update a realm:

1. To update a current realm, go to the Application Admin realm list.
2. Click on the realm that needs to be changed or updated.
3. Update the information as needed and then click on the "Update" button. This can include "disabling" a realm or making one "active."

To add a country to a realm

1. To add a country an existing realm, go to the Application Admin realm list
2. Right click on the realm and then click on "Map countries to this realm" as shown below:

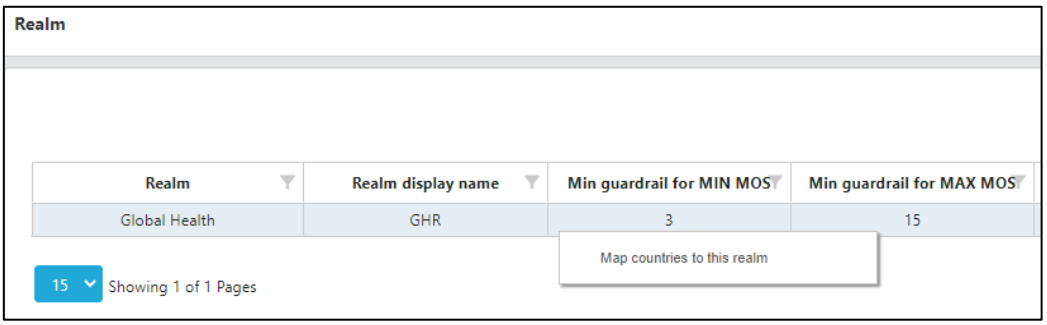


Figure 124: Map Countries

3. From this new window, the application admin can add a country by clicking the "Add Row" button at the bottom of the screen. The new country cannot already exist in the realm to be added. For more information on how to add a country see Application Masters: Country.

4. From this new window, the application admin can also make a country "Active" as programs are on-boarded to QAT, or inactive by using the checkbox in the last column.
5. When all updates and changes have been made, click "Submit."

Figure 125: Mapping countries to a Realm

Users

Adding and updating users and their roles/access controls is available to both application administrators and realm administrators.

To view a list of the current user that are in QAT:

1. Go to "Application Masters" and click on the "User."
2. A list of users will be shown, along with pertinent information, such as email, last login date, and status.

To add a new user:

1. In the top right corner of the realm list, click on the "+" icon.
2. A new screen "Add User" will be opened as shown below.
3. Enter the new user's name, email address, phone number (optional), role, and language and click "Submit."
4. For a detailed description on roles, their function, and access, see Annex 3: User Role Matrix

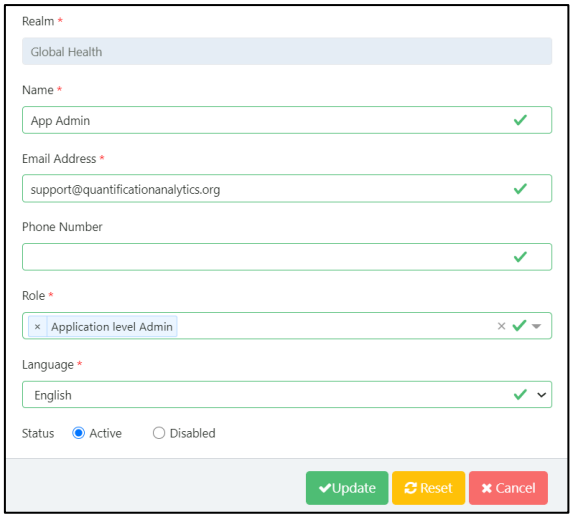


Figure 126: Add User Screen

To update an existing user:

1. To update an existing user, go to the user list.
2. Click on the user that needs to be changed or updated.
3. Update the information as needed and then click on the "Update" button. This can include "disabling" a user or making one "active."

To provide and manage user access controls:

After creating a user and assigning the relevant role, the next step is to assign the permissions through user access control setup.

1. To add access controls to an existing user, go to the Application Admin user list
2. Right click on the user and then click on "Access control" as shown below:

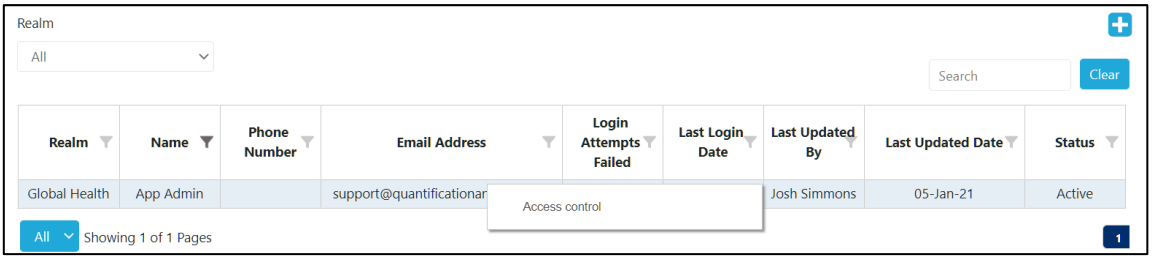


Figure 127: User Access Control

3. Select from the dropdowns on the table the different permissions assigned to that user.
4. A user can be assigned multiple permissions by adding new rows. Click on "Add Row" at the bottom right of the screen to add multiple permissions. For example, a user may be assigned to a specific country and then to multiple programs, such as South Africa-PRH-MOH and South Africa-ARV-MOH. This will require two separate rows of access permissions.
5. Make any other changes or updates to the user and click "Submit."

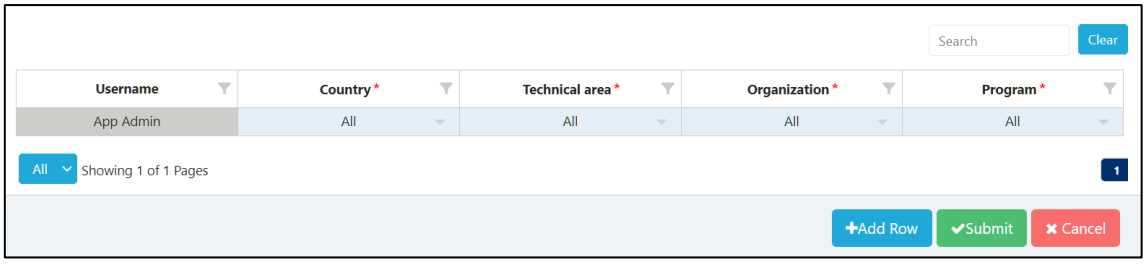


Figure 128: Adding/Updating User Access Controls

Unit

Unit is a fixed quantity (in this case a value like mL, gm or even Box) used as a standard of measurement.

To view a list of the current units that are in QAT:

1. Go to "Application Masters" and click on "Unit."
2. A list of units and their attributes, such as dimension will be shown as below:

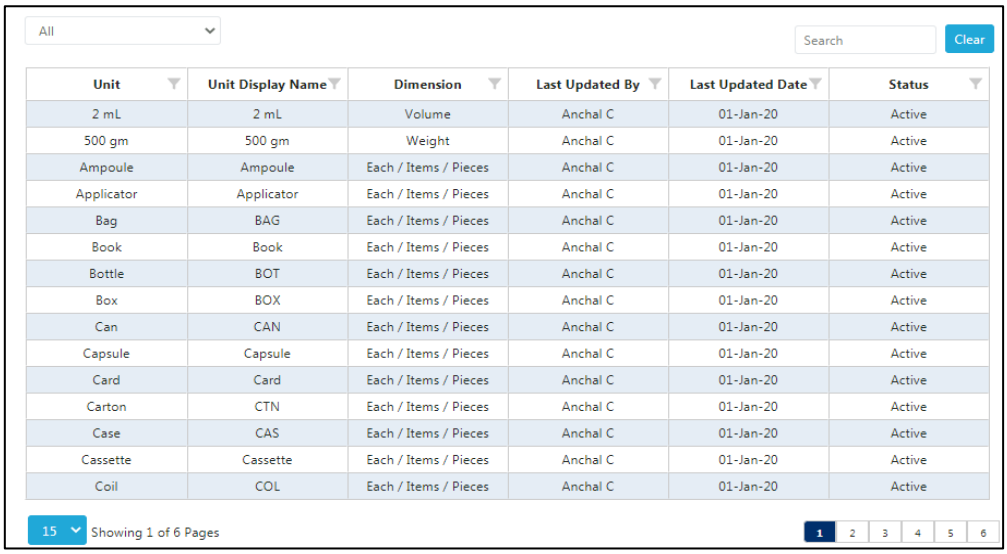


Figure 129: List of Units

To add a unit:

1. In the top right corner of the unit list, click on the "+" icon.
2. A new screen "Add Unit" will be opened as shown below.
3. Enter the new Unit, Unit Display Name, and its corresponding Dimension and click on the "Submit" button.

To update an existing unit:

1. To update an existing unit, go to the Application Admin unit list.
2. Click on the unit that needs to be changed or updated.
3. Update the information as needed and then click on the "Update" button. This can include "disabling" a user or making one "active."

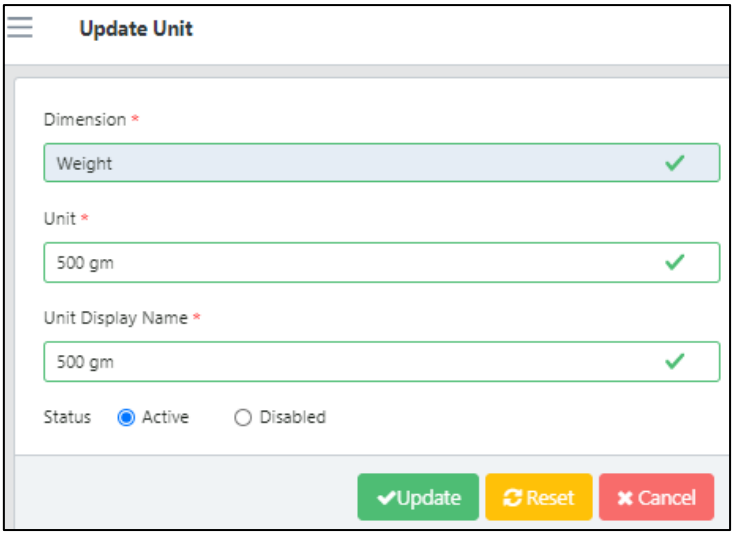


Figure 130: Updating a Unit Screen

Realm Masters

The QAT application is subdivided into Realms, each with their own master data (inclusive of product catalog, funder names, procurement agent names, etc.) Realm is the second level of hierarchy in the QAT system.

A Realm covers all the programs and their supply plans. For example, "Global Health" is a Realm under which various programs are managed. Other realms could be set up for other fields such as education supply chains, agriculture supply chains, etc.

Country

The Country menu under Realm Level Masters allows Application and Realm Admins to create/assign regions to previously created countries.

A region could be "National" for single-region programs, or it could be any number of regions for multi-region programs. The decision to add regions depends on how inventory and consumption data will be entered into QAT. Note that QAT shipments are always National and may not be attributed to Regions.

1. Go to "Realm Level Masters".
2. Click on "Country" and the screen below will be shown.
3. Right click on a specific country that needs to be updated.
4. Click on "Map Region" to show the Realm Country Region screen.

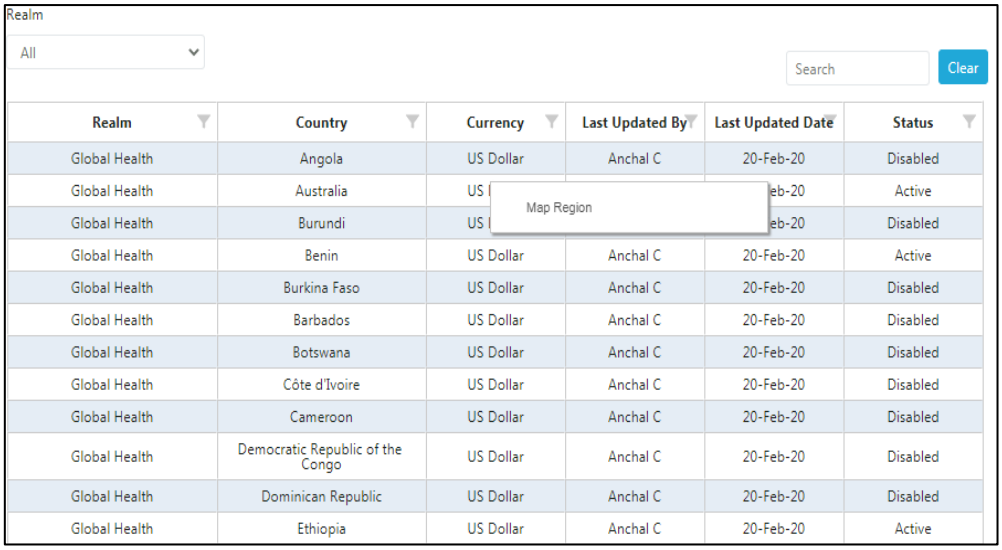


Figure 131: Mapping regions to a country within a realm

5. Enter a Region description as well available warehouse volume and Global Location Number (GLN) of your warehouse.
6. Select the status ("Active" or "Disabled") as shown in the screen.
    a. **Note:** To add multiple regions, click the blue "+ Add row" button, or right-click on the form and select "Insert new row before" or "Insert new row after".
7. Click "Submit" to save your changes or "Cancel" to close the form without saving.

Figure 132: Adding multiple regions to a country

Data Source

A data source is the location where data that is being entered into QAT originates from. Users should apply data sources to all transactional records (Consumption, Inventory, Adjustments and Shipments) in QAT. The user selects data sources as required from drop down lists. The selection of data sources for each transactional record will depend on which Data Source Type that applies to that type of transactional record. **Application and Realm Admins** can add/edit Data source(s) as follows:

Add a Data Source

Go to the top right corner in the "Data Source" screen and click on the blue "+" icon.

1. A new screen showing "Add Data Source" will appear.
2. Enter the required details and click on the "Submit" button.
3. Click on the "Cancel" button to not add the data source.

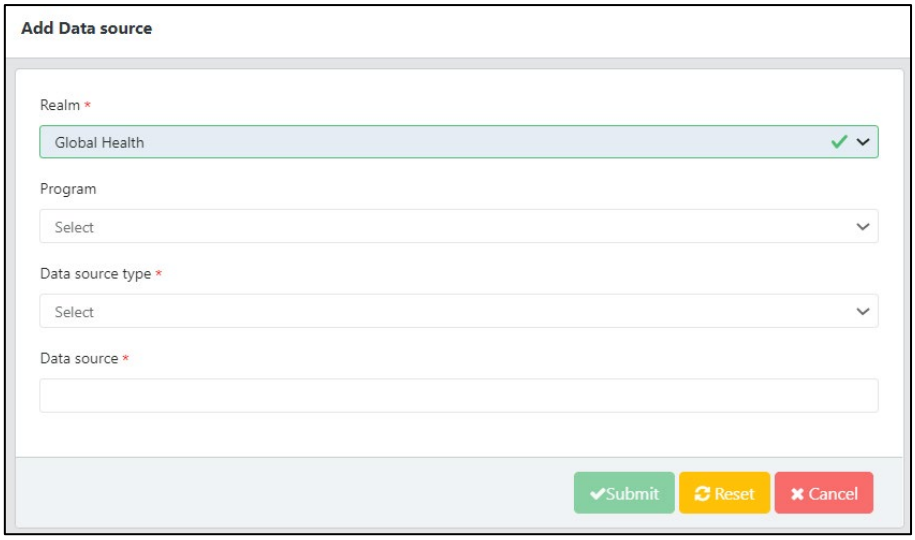


Figure 133: Adding a data source

Update Data Source

1. Go to the "Data Source" screen.
2. Click on the data source row that you want to update.
3. A new screen showing "Update Data Source" will appear.
4. Enter the updated details.
5. If you want to activate/de-activate that data source, select the corresponding circle.
6. Click on the "Submit" button.
7. Click on the "Cancel" button to keep the existing information.

Data Source Type

Refers to the type of data a source is providing information for. There are four data source types: actual consumption, forecast consumption, inventory, shipments. **Application and Realm Admins** can add/edit Data Source Type.

Add Data Source Type

1. Go to "Realm Level Masters" and then on "Data Source Type" to show the below table.

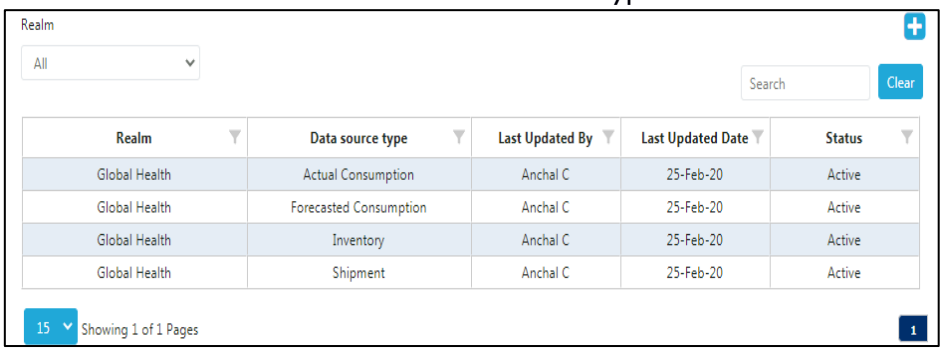


Figure 134: Data Source type

2. Click on the blue "add" button on the top right corner. A new screen showing "Add Data Source Type" will be opened.

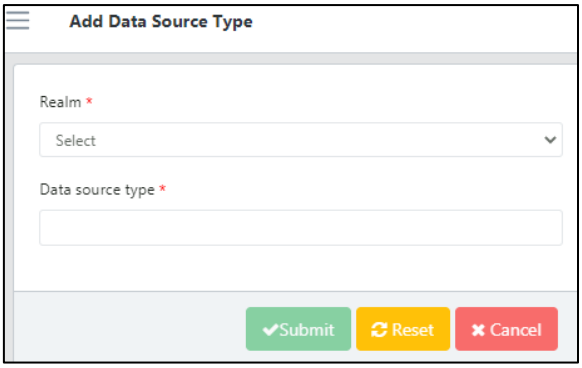


Figure 135: Add Data Source type

3. Enter the required details and click on the "Submit" button.

Update Data Source Type

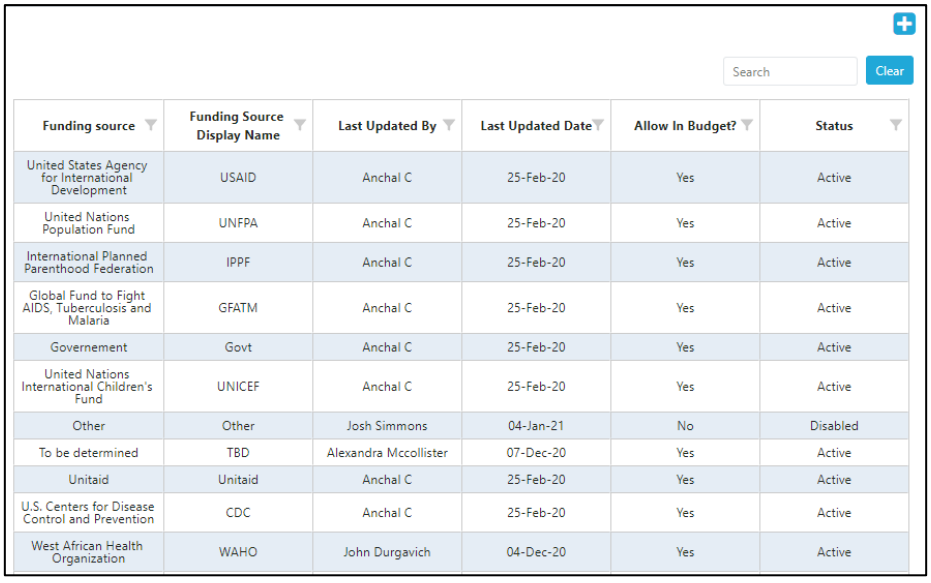
1. Go to the Data Source Type List.
2. Click on any parameter that needs to be changed or updated.
3. Click on the "Update" button.

Funding Source

Funding Source refers to the entity providing funding for procurement for the program. **Application and Realm Admins** can add/edit Funding Sources.

To add a Funding Source

1. Go to "Realm Level Masters" and click on "Funding Source" to display the list of current funding sources.



Funding source	Funding Source Display Name	Last Updated By	Last Updated Date	Allow In Budget?	Status
United States Agency for International Development	USAID	Anchal C	25-Feb-20	Yes	Active
United Nations Population Fund	UNFPA	Anchal C	25-Feb-20	Yes	Active
International Planned Parenthood Federation	IPPF	Anchal C	25-Feb-20	Yes	Active
Global Fund to Fight AIDS, Tuberculosis and Malaria	GFATM	Anchal C	25-Feb-20	Yes	Active
Governement	Govt	Anchal C	25-Feb-20	Yes	Active
United Nations International Children's Fund	UNICEF	Anchal C	25-Feb-20	Yes	Active
Other	Other	Josh Simmons	04-Jan-21	No	Disabled
To be determined	TBD	Alexandra Mccollister	07-Dec-20	Yes	Active
Unitaid	Unitaid	Anchal C	25-Feb-20	Yes	Active
U.S. Centers for Disease Control and Prevention	CDC	Anchal C	25-Feb-20	Yes	Active
West African Health Organization	WAHO	John Durgavich	04-Dec-20	Yes	Active

Figure 136: Realm-level funding sources

4. Click on the blue "add button below the profile icon.
5. A new screen "Add Funding Source" opens.
6. Enter the required details and click on the "Submit" button to save your changes or "Cancel" to close the form without saving.

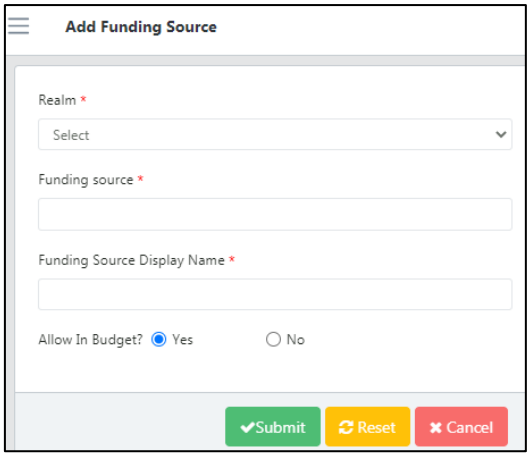


Figure 137: Add Funding Source

To update a Funding Source

1. Go to the Funding Source List.
2. Click on the funding source that needs to be changed or updated.
3. Enter the required information and click on the "Update" button.

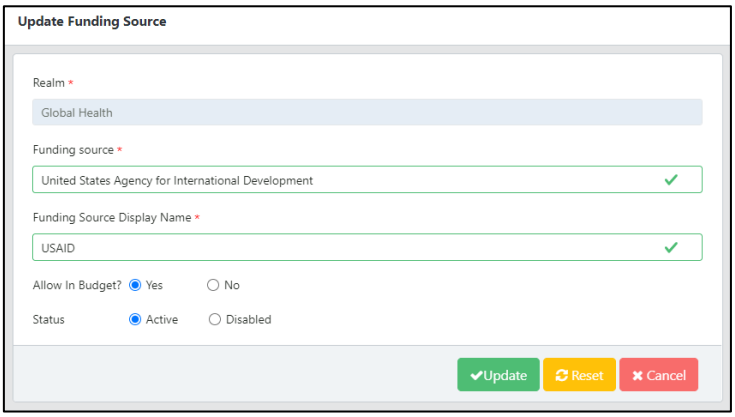


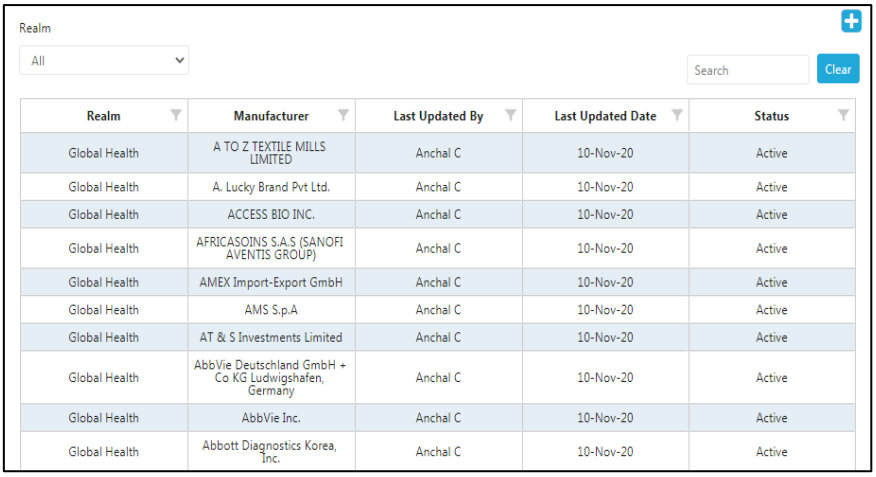
Figure 138: Update Funding Source

Manufacturer

The manufacturer of a commodity is master data that is not accessible/visible to main users of QAT. However, they are part of shipment/order data that can/will be received from order management systems along with manufacturer-specific commodity attributes.

To add a manufacturer

1. Go to "Realm Level Masters" and then click on "Manufacturer" to display the below table.



Realm	Manufacturer	Last Updated By	Last Updated Date	Status
Global Health	A TO Z TEXTILE MILLS LIMITED	Anchal C	10-Nov-20	Active
Global Health	A. Lucky Brand Pvt Ltd.	Anchal C	10-Nov-20	Active
Global Health	ACCESS BIO INC.	Anchal C	10-Nov-20	Active
Global Health	AFRICASOINS S.A.S (SANOFI AVENTIS GROUP)	Anchal C	10-Nov-20	Active
Global Health	AMEX Import-Export GmbH	Anchal C	10-Nov-20	Active
Global Health	AMS S.p.A	Anchal C	10-Nov-20	Active
Global Health	AT & S Investments Limited	Anchal C	10-Nov-20	Active
Global Health	AbbVie Deutschland GmbH + Co KG Ludwigshafen, Germany	Anchal C	10-Nov-20	Active
Global Health	AbbVie Inc.	Anchal C	10-Nov-20	Active
Global Health	Abbott Diagnostics Korea, Inc.	Anchal C	10-Nov-20	Active

Figure 139: Realm-level Manufacturers

2. Click on the blue "+" button to open a new "Add Manufacturer" screen.
3. Enter the required details.
4. Click "Submit" to save changes or "Cancel" to close the form without saving.

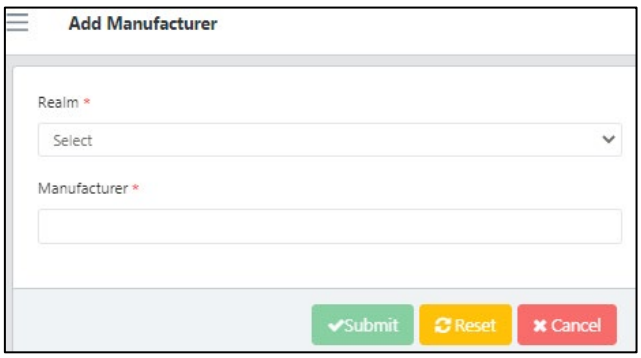


Figure 140: Add Manufacturer

Update Manufacturer

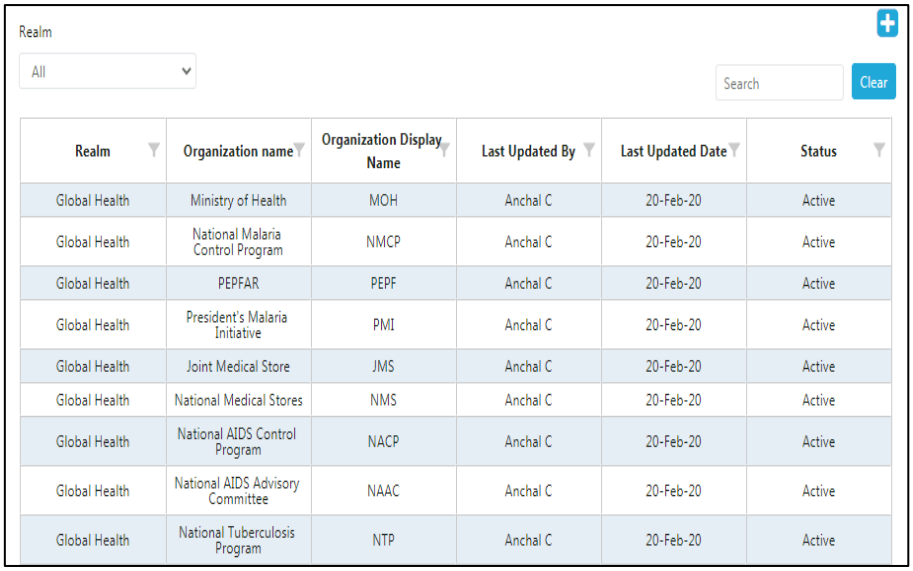
1. Go to the Manufacturer screen.
2. Click on the manufacturer that needs to be updated.
3. Enter the required information and click on the "Update" button.

Organization

An organization is a group of people with a particular purpose, which can be a private or government body. **Application, Realm Admins, Program Admin, Program User and Guest User** can list/view organizations.

To add an Organization

1. Go to "Realm Level Masters" and then click on "Organization" to display the below table.



Realm	Organization name	Organization Display Name	Last Updated By	Last Updated Date	Status
Global Health	Ministry of Health	MOH	Anchal C	20-Feb-20	Active
Global Health	National Malaria Control Program	NMCP	Anchal C	20-Feb-20	Active
Global Health	PEPFAR	PEPF	Anchal C	20-Feb-20	Active
Global Health	President's Malaria Initiative	PMI	Anchal C	20-Feb-20	Active
Global Health	Joint Medical Store	JMS	Anchal C	20-Feb-20	Active
Global Health	National Medical Stores	NMS	Anchal C	20-Feb-20	Active
Global Health	National AIDS Control Program	NACP	Anchal C	20-Feb-20	Active
Global Health	National AIDS Advisory Committee	NAAC	Anchal C	20-Feb-20	Active
Global Health	National Tuberculosis Program	NTP	Anchal C	20-Feb-20	Active

Figure 141: Organization

2. Click on the blue "+" button to open a new "Add Organization" screen.
3. Enter the required details.
4. Click "Submit" to save changes or "Cancel" to close the form without saving.

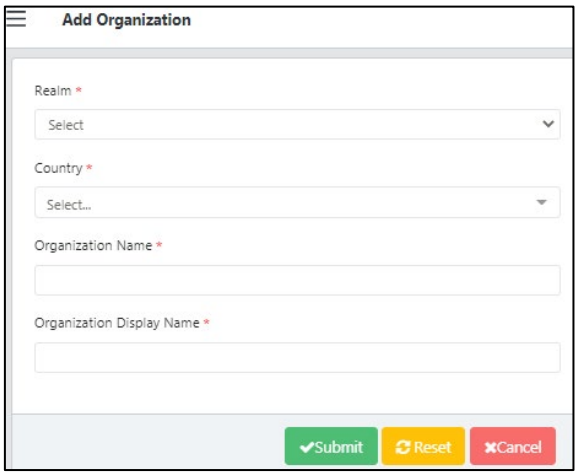


Figure 142: Add Organization

Update an Organization

1. Go to the Organization screen.
2. Click on the record that needs to be updated.
3. Enter the required information and click on the "Update" button.

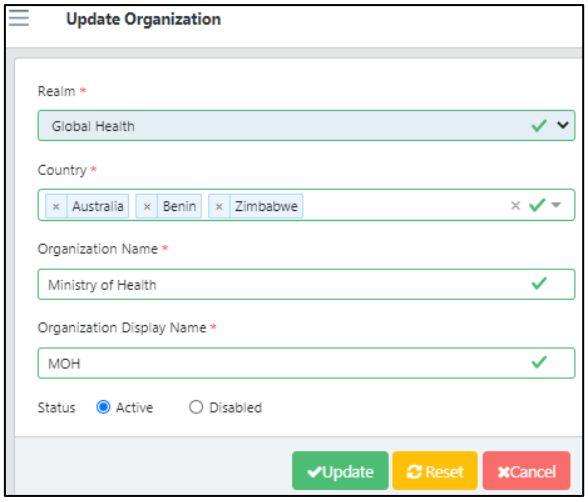


Figure 143: Update Organization

Product

QAT supports data standardization within each realm through master data management. An essential piece of master data are products. In QAT, "Product" refers to the multiple tiers of commodities that should be configured and managed by realm: forecasting units, planning units, procurement units, and alternate reporting units. Products in QAT can be **edited/added by Application or Realm Admins**, except for the alternate reporting units, which are managed at the country/program level. **Country-level users** can also request new planning/forecasting units to be added to the QAT catalog by raising a ticket.

Forecasting Unit

The forecasting unit is the QAT equivalent of the product base unit. It will be used for estimating future demand, i.e., the forecast. For example: one tablet, one milliliter, one condom. These forecasting units have a one-to-many relationship with the planning unit, that is, many planning units (e.g., TLD, Bottle of 90 tablets, TLD, Bottle of 180 tablets, etc.) may relate to a single forecasting unit (e.g., 1 tablet TLD)

To see the list of all forecasting units in the realm-level catalog:

1. Go to "Realm Level Masters"
2. Click on "Product" and then "Forecasting Unit".

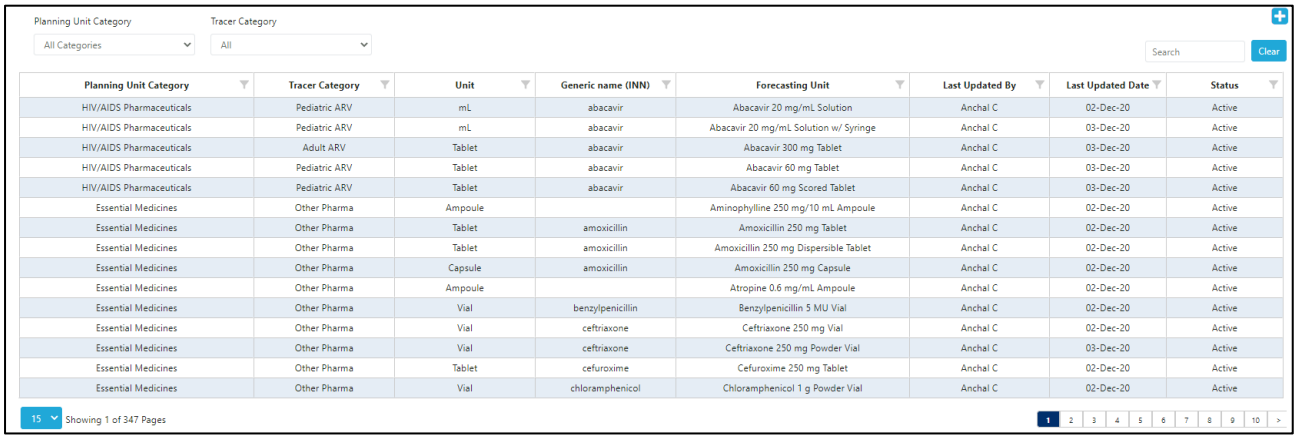


Figure 144: List of Forecasting Units

To add forecasting units:

1. Go to "Realm Level Masters"
2. Click on "Product" and then "Forecasting Unit".

3. Click the blue "add" button on to the top right corner of the Forecasting Unit screen.
4. A new screen called "Add Forecasting Unit" will be opened.
5. Enter the required details and click "Submit".

To edit/update forecasting units:

1. Go to "Realm Level Masters"
2. Click on "Product" and then "Forecasting Unit".
3. Click on any forecasting unit that needs to be changed or updated.
4. Edit the required information.
5. Click on "Update" to save the changes.

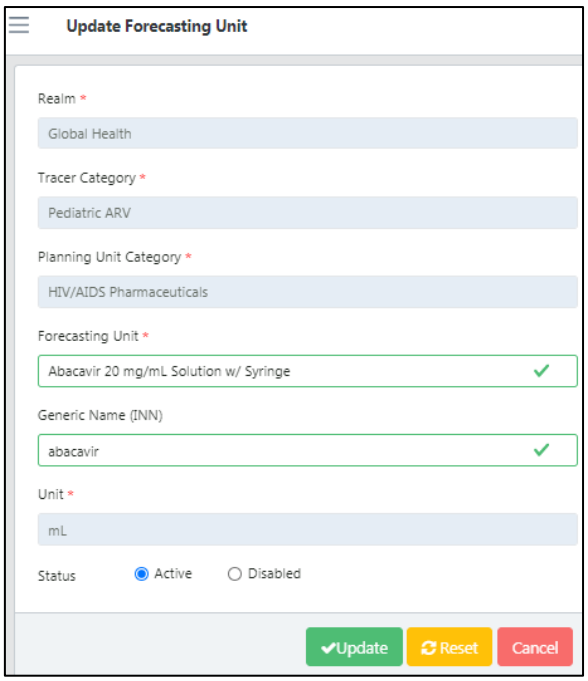


Figure 145: Update Forecasting Unit

Planning Unit

By default, supply planning in QAT is managed in Planning Units. A planning unit description is usually inclusive of a full description of the product up to the primary packaging; thus, its nomenclature generally follows the pack size in which dispensing happens, i.e., one bottle of 30 tablets, one blister of 10x10 capsules, etc. Planning Units can also have volumetric data attributed to them to enable more detailed planning, but this screen is view only for Program Administrators, and its purpose is to show volumetric data for each planning unit, not to edit or add.

To see the list of all planning units in the realm-level catalog:

1. Go to "Realm Level Masters".
2. Click on "Product" and then "Planning Unit".

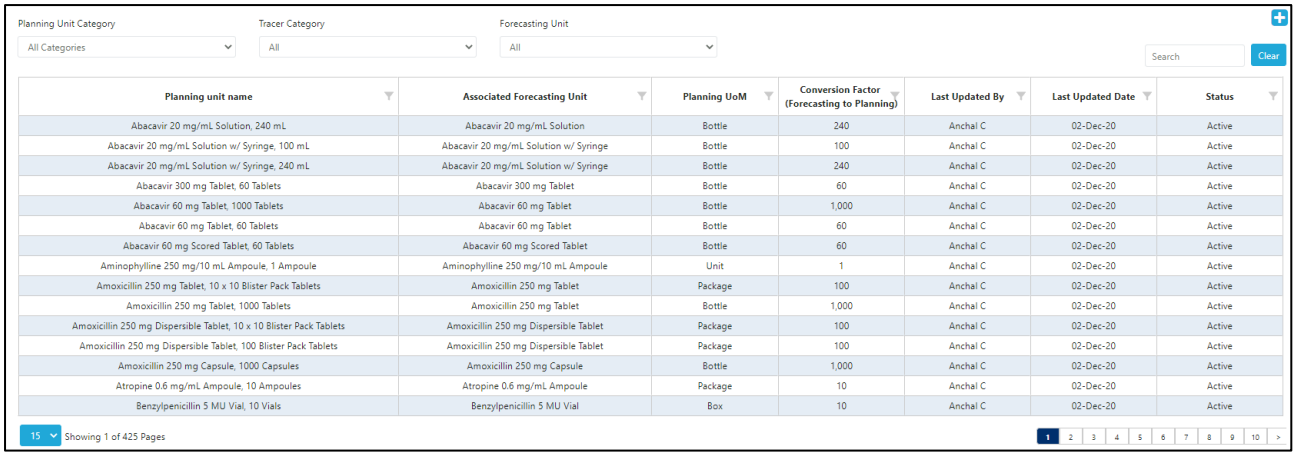


Figure 146: List of Planning Units

To add planning units:

1. Go to "Realm Level Masters".
2. Click on "Product" and then "Planning Unit".
3. Click the blue "add" button on to the top right corner of the Planning Unit screen.
4. Enter the required details.
5. Click the "Submit" button to save the changes.

To edit/update planning units:

1. Go to "Realm Level Masters".
2. Click on "Product" and then "Planning Unit".
3. Click on any forecasting unit that needs to be changed or updated.
4. Edit the required information.
5. Click on "Update" to save the changes.

Planning Unit Volume

As mentioned in the Planning Unit section, planning units can have volumetrics attributed to them to enable more detailed planning. However, this screen is view only for program Admins, and its purpose is to show volumetric data for each planning unit, not to edit or add. **Application and Realm admins** can add/edit planning unit volumetric data in the Planning Unit screen.

To add volumetric data to planning units:

Application and Realm admins can add/edit planning unit volumetric data from the Planning Unit screen.

1. Go to "Realm Level Masters".
2. Click on "Product" and then "Planning Unit".
3. Right click on the planning unit to be edited.
4. Click "Map Volumes"
5. Use the blue "Add Row Button" to add a new row if needed or edit the Planning Unit details in the existing planning unit row.
6. Click on the "Submit" button.

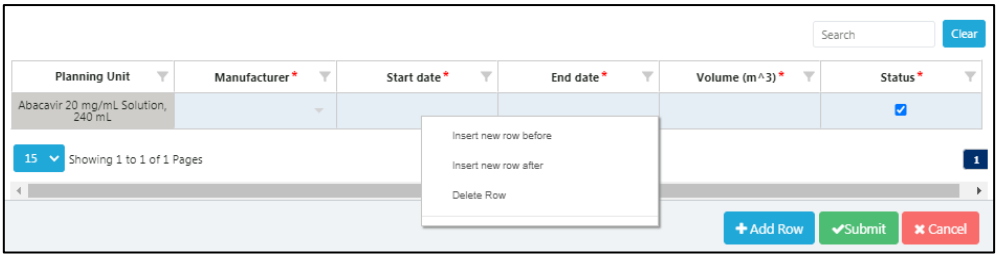


Figure 147: Adding volumetric data to planning units

Planning Unit Category

At the realm-level, planning units should grouped in broad categories, such as HIV/AIDS pharmaceuticals, Reproductive Health Pharmaceuticals & Devices (in the Global Health Realm) in order to filter searches and reports. **Application and Realm Admins** can add/edit planning unit categories.

To add planning unit categories

1. Go to "Realm Level Masters"
2. Click on "Product" and then "Planning Unit Category"
3. Write the name of the new category to add, click "Add" and then "Submit".

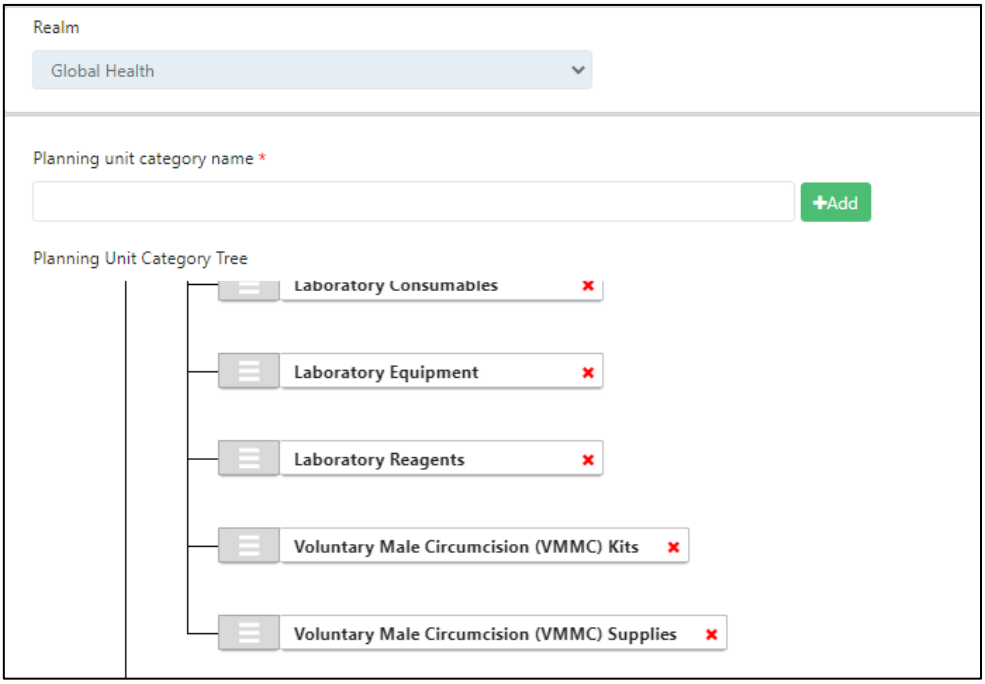


Figure 148: Viewing/adding planning unit categories

Alternate Reporting Unit

An alternate reporting unit (ARU) is the product and unit that the country's data (consumption, inventory & adjustments) is reported in and it could the same description as the planning unit, forecasting unit, procurement unit, or in an altogether different packaging description. The ARU is defined within a particular country and requires entering a conversion factor from the ARU to the planning unit it is associated with (could be 1). Of all the product masters, the ARU is the only one program admins manage, because they are country specific. **Application, Realm, and Program Admins** can add/edit ARU for a country and program. Alternate reporting units are useful when:

- Data sources report data in different units (e.g. pieces vs packs)
- There's another common name in country (e.g. brand name)

To see the list of all alternate reporting units in one country:

1. Go to "Realm Level Masters".
2. Click on "Product" and then "Alternate Reporting Unit".
3. Select the country from the dropdown list.

To add alternate reporting units to a country:

1. Go to "Realm Level Masters".
2. Click on "Product" and then "Alternate Reporting Unit".
3. Select the country from the dropdown.
4. Click on the "Add Row" button at the bottom right corner of the screen, or right-click on any row to add another.
5. Enter the details in the newly created row and click on "Submit".

Planning Unit *	Alternate Reporting Unit *	SKU Code *	Unit *	Conversion Factor (Alterna... Reporting to Planning) *
Lamivudine/Tenofovir DF 300/300 mg Tablet, 30 Tablets	Lamivudine/Tenofovir DF 300/300 mg Tablet, 30 Tablets	FP-ARV-103442	Bottle	1
Lamivudine/Tenofovir DF 300/300 mg Tablet, 30 Tablets	Lamivudine/Tenofovir DF 300/300 mg Tablet, 30 Tablet Bottle - box of 25 bottles	FP-ARV-103442-2	Bottle	25

Figure 149: ARUs

Procurement Unit

An item-level description of the "planning unit" including supplier/manufacturer-specific attributes such as GTIN and order prices, that can be manually added/edited by **Application and Realm Admins** or received automatically through integration and mapping QAT planning units to a procurement agent order management system. Procurement units are specific to each procurement agent. Procurement units are not visible to/editable by country/program-level users.

To add procurement units to the realm-level catalog, the Application or Realm Admin must:

1. Go to "Realm Level Masters" and Click on "Product".
2. Click on "Procurement Unit" and a table of procurement units will be displayed.
3. Click on the blue "add" button on the top right corner of the screen.
4. Enter all the required details on the "Add Procurement Unit" screen and click "Submit".
    a. **Note:** Required details include planning unit name, manufacturer, conversion factor, volume and weight attributes, units per pallet and per container, etc.

To edit/update procurement units:

1. Go to "Realm Level Masters" and Click on "Product".
2. Click on "Procurement Unit" and a table of procurement units will be displayed.
3. Click on any procurement unit that needs to be changed or updated.
4. Edit the required information.
    a. **Note:** Details such as planning unit name and manufacturer are not editable.
5. Click on the "Update" button to save the changes.

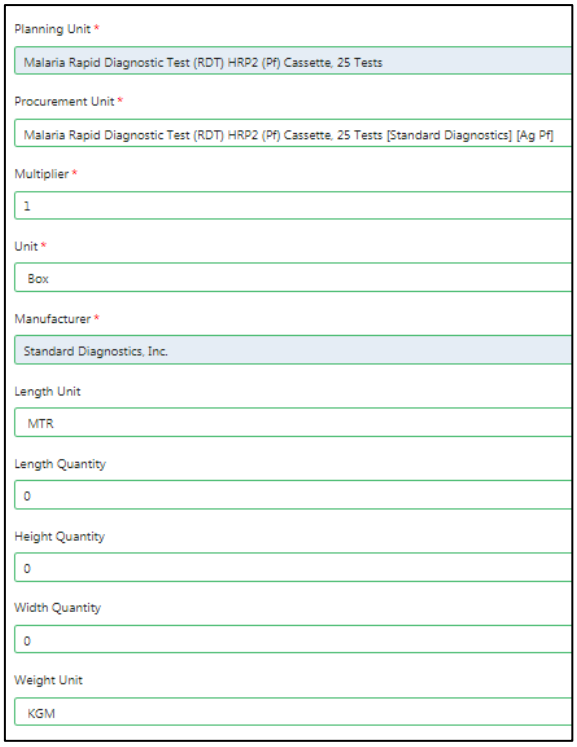


Figure 150: Add/Update Procurement Unit

Tracer Category

Tracer categories are a second tier, less broad grouping of product types specific to a Realm. **Application Admins and Realm Admins** can add/edit Tracer categories. For example, Adult antiretrovirals are a tracer category belonging to the broader grouping HIV/AIDS Pharmaceuticals (Planning Unit Category).

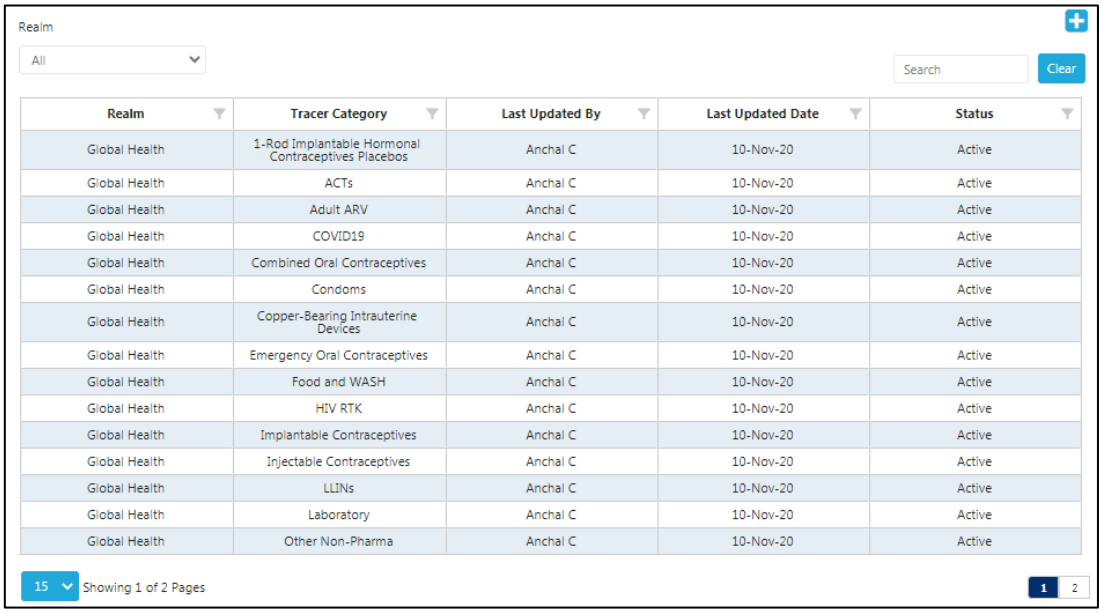


Figure 151: List of tracer categories

To add tracer categories to the realm-level catalog:

1. Go to "Realm Level Masters" and Click on "Product".
2. Click on "Tracer Category" and a Tracer category table will be shown for the selected Realm.
3. Click the blue "add" button on the top right corner of the screen.
4. Enter all the required details on the "Add Tracer Category" screen and click "Submit".

To update/edit tracer categories:

1. Go to "Realm Level Masters" and Click on "Product".
2. Click on "Tracer Category" and a Tracer category table will be shown for the selected Realm.
3. Click on any row that needs to be changed or updated.
4. Update the required information and click "Update" to save the changes.

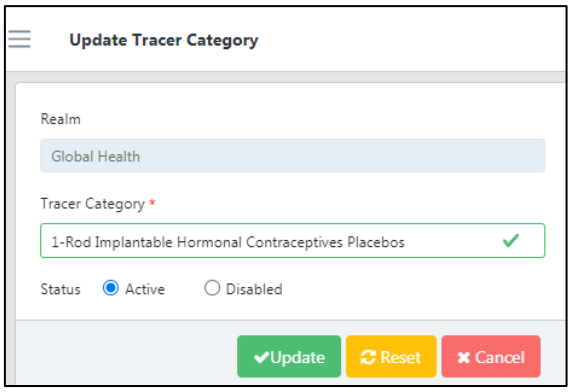


Figure 152: Update Tracer Category

Technical Area

Technical Area is a key component of a QAT program and specifies the focus of that program. For example, in the Global Health Realm, the technical areas are aligned with medical conditions or health care, treatment and prevention programs such as Malaria, Family Planning and HIV/AIDs, each of which requires a variety of medicines and supplies. **Application Admins and Realm Admins** can add/update Technical Area(s).

To add a Technical Area:

1. Go to the top right corner in the Technical Area screen and click on the blue "+" button. A new screen showing "Add Technical Area" will open:

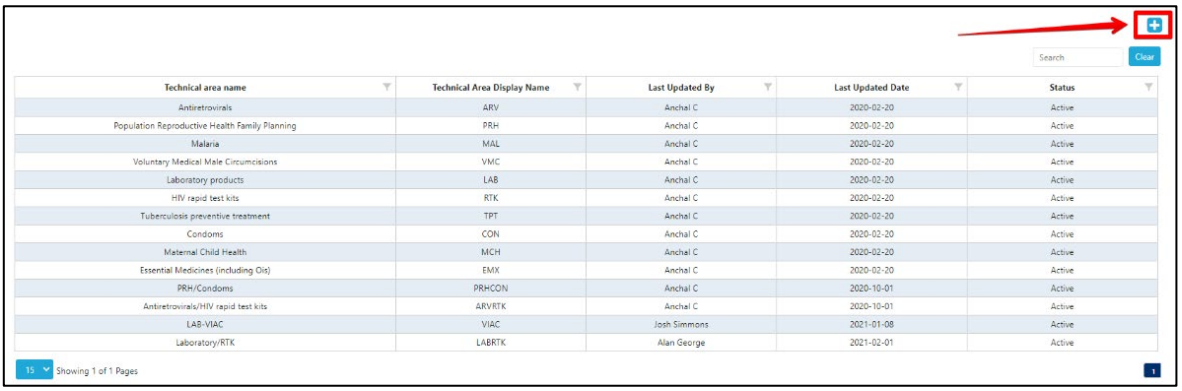


Figure 153: Add Technical Area Screen

2. Enter the required details and click on the "Submit" button.
    a. If you do not wish to proceed with creating a new technical area, and you have not clicked submit, click on the "Cancel" button and QAT will close the form without saving and take you back to the Technical Area screen.

To update a Technical Area:

1. To update the technical area, go to the Technical Area Screen.

2. Left click on the technical area that you wish to update.
3. Enter the desired edits to the technical area and click the "Submit" button.
4. If you want to disable or re-activate the technical area, click the circle next to that option and click the "Submit" button"
    a. By clicking on the "Reset" button, the information in the technical area will not go away, rather it will reset to what it was prior to updating it.

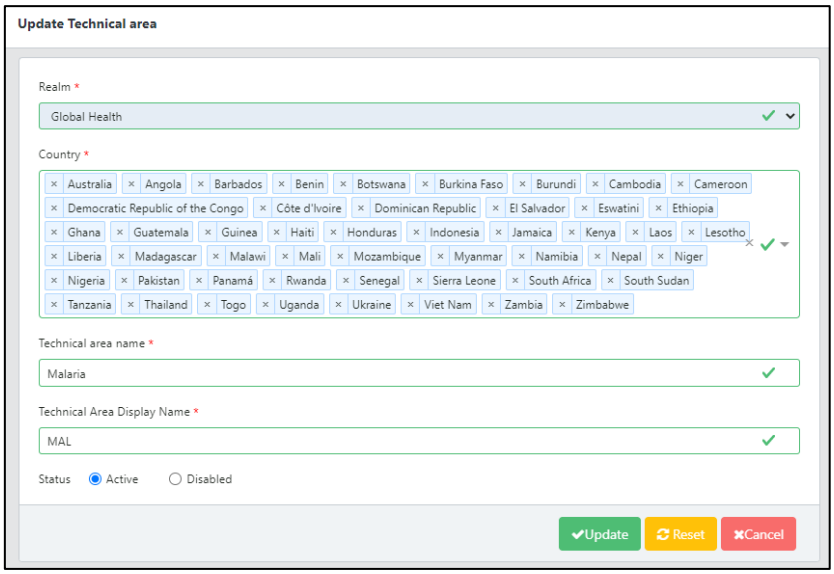


Figure 154: Update Technical Area

Procurement Agent

A Procurement Agent selects the vendors, establishes payment terms, strategic vetting, selection, the negotiation of contracts and actual purchasing of goods that are shipped to a program. Procurement Agents are generally hired by the agency funding a particular shipment (a "Funding Source" in QAT) and identified by the Program-level user when planning a shipment. Procurement Agents are managed by **Application Level Admins** and **Realm Level Admins**.

To see the list of realm level procurement agents:

1. Go to "Realm Level Masters" from the sidebar menu.
2. Click on "Procurement Agent".

To add a Procurement Agent

1. On the Procurement Agent screen, go to the top right corner of the screen and click on the blue "+" button.
2. A screen titled "Add Procurement Agent" will appear.
3. Enter the required details.
4. Click on the "Submit" button to save the procurement agent.
    a. Before submitting, if you wish to not proceed with that procurement agent, click the "Cancel" button.

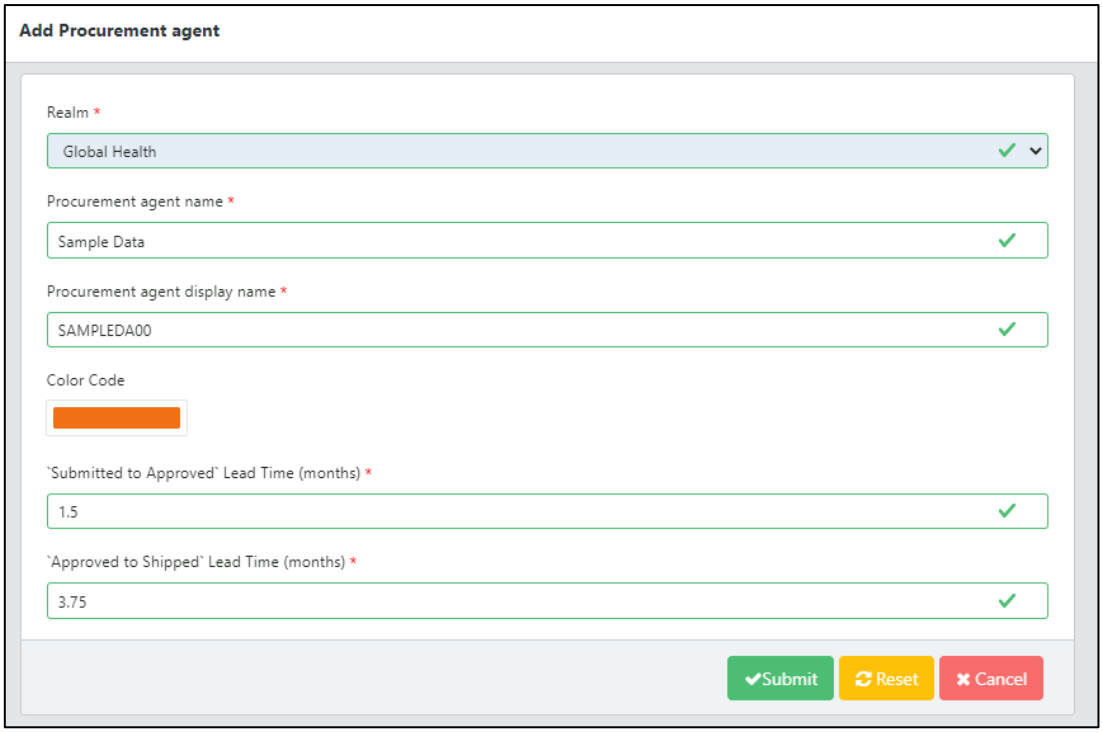


Figure 155: Add Procurement Agent

To update a Procurement Agent:

1. Go to the Procurement Agent screen.
2. Left click on the Procurement Agent that needs to be updated.
3. A screen labeled "Update Procurement Agent" will appear.
4. Input the desired change(s), for example modifying the agent's color code or Lead Times.
5. If you want to either activate or disable the procurement agent, select the corresponding option at the bottom of the screen.
6. Click the "Update" button to save changes or cancel to close the form without saving.

Planning Unit Details for Mapping to a Procurement Agent:

Planning Unit	The planning unit is the product to be planned in QAT. It is a product with full description up to the primary packaging (e.g. bottle of 30 tablets, 10x10 blister pack, etc.).
Procurement Unit	The procurement unit is a higher-level description of the Planning Unit which includes supplier-specific attributes such as costs and GTINs.
SKU Code	Stock Keeping Unit (SKU) Code is a feature used to identify specific products and often printed on the product and case labels. The SKU code should match with what is in the procurement agent's catalog.
Catalog Price	Price included in the procurement agent's catalog.
MOQ	Minimum Order Quantity refers to the minimum amount that can be ordered from a procurement agent for that specific planning unit.
Units per Container	The maximum number of units for a planning unit that can fit in a container used by the procurement agent to ship the product to a program.
Units per Pallet	Units per pallet defines the number of planning units that can be packed onto a standard pallet, per pallet dimension. Units per pallet describes the individual items on a pallet into single "units" that can be moved easily with a pallet jack or forklift truck.

Volume	The volume of the planning unit.
Weight	The weight of the planning unit.
GTIN	The Global Trade Item Number is an identifier for trade items, developed by GS1. Such identifiers are used to look up product information in a database which may belong to a manufacturer.

Table 11: Procurement Agent Planning Unit Details

To add a Procurement Agent Planning Unit:

1. Go to the "Procurement Agent" screen.
2. Right click on the desired procurement agent that you want to add a planning unit to. Then select "Map Planning Unit".
3. A screen titled "Add Procurement Agent Planning Unit" will appear.
4. Either click on the "Add Row" button or right click and select "Insert New Row" to add a row.
5. Enter the details for the new planning unit. Refer to the table above for definitions on any of the data elements.
6. If you enter information for "MOQ", "Unit Per Pallet" or "Unit Per Container", this procurement agent/planning unit combination will be considered a *strategic product. (*Refer to Shipment Data section to learn more about strategic products).
7. Click the "Submit" button.

To update a Procurement Agent Planning Unit:

1. Go to the "Procurement Agent" screen.
2. Right click on the desired procurement agent that you want to update a planning unit(s) for. Then select "Map Planning Unit".
3. A screen titled "Add Procurement Agent Planning Unit" will appear.
4. Enter the details for the existing planning unit by double clicking into the cells and typing in the information. Refer to the table above for definitions on any of the data elements.
5. If you enter information for "MOQ", "Unit Per Pallet" or "Unit Per Container", this procurement agent/planning unit combination will be considered a *strategic product. (*Refer to Shipment Data section to learn more about strategic products).
6. Click the "Submit" button.

Note: If the procurement agent's catalog is integrated with QAT, the planning units and associated details in QAT will automatically reflect that catalog and any change you manually make in QAT will be overridden automatically with the data from the procurement agent's catalog at the time their data updates.

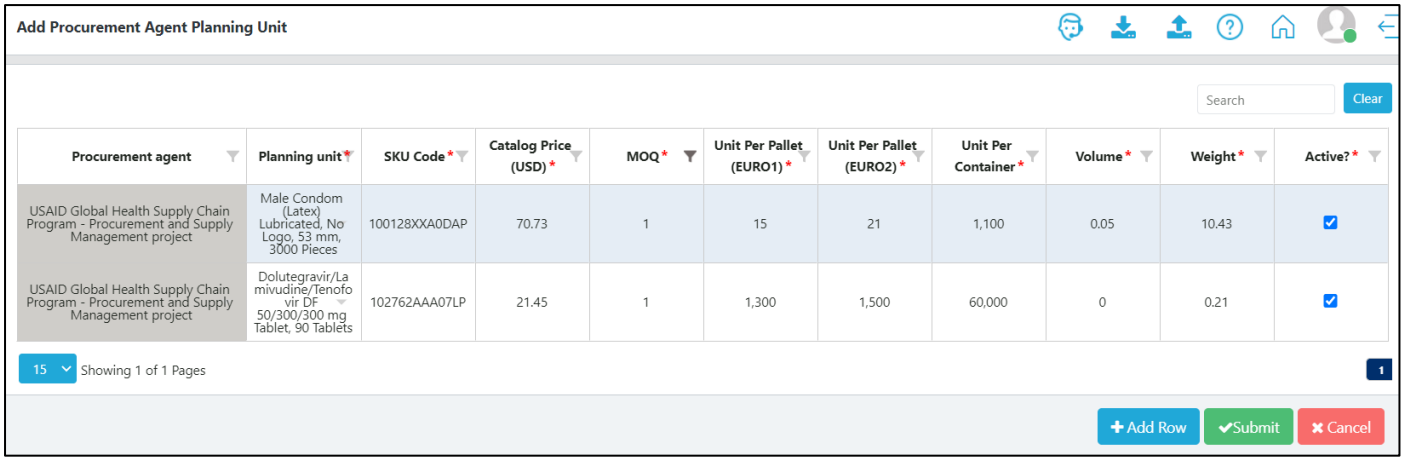


Figure 156: Map Procurement Agent Planning Unit

To add a Procurement Agent Procurement Unit:

1. Go to the "Procurement Agent" screen.
2. Right click on the desired procurement agent that you want to add a planning unit to. Then select "Map Procurement Unit".
3. A form titled "Add Procurement Agent Procurement Unit" will appear.
4. Either click on the "Add Row" button or right click and select "Insert New Row" to add a row.
5. Enter the details for the new procurement unit. Refer to the table above for definitions on any of the data elements.
6. All the fields are required except for the GTIN field which is optional.
7. Click the "Submit" button.

To update a Procurement Agent Procurement Unit:

1. Go to the "Procurement Agent" screen.
2. Right click on the desired procurement agent for which you want to update a procurement unit(s). Then select "Map Procurement Unit".
3. A form titled "Add Procurement Agent Procurement Unit" will appear.
4. Enter the details for the existing procurement unit by double clicking into the cells and typing in the information. Refer to the table above for definitions on any of the data elements.
5. All the fields are required except for the GTIN field which is optional.
6. Click the "Submit" button.

Note: If the procurement agent's catalog is integrated with QAT, the procurement units and associated details in QAT will automatically reflect that procurement agent's catalog and any change you make manually in QAT will be overridden by the integration at the time of the next update.

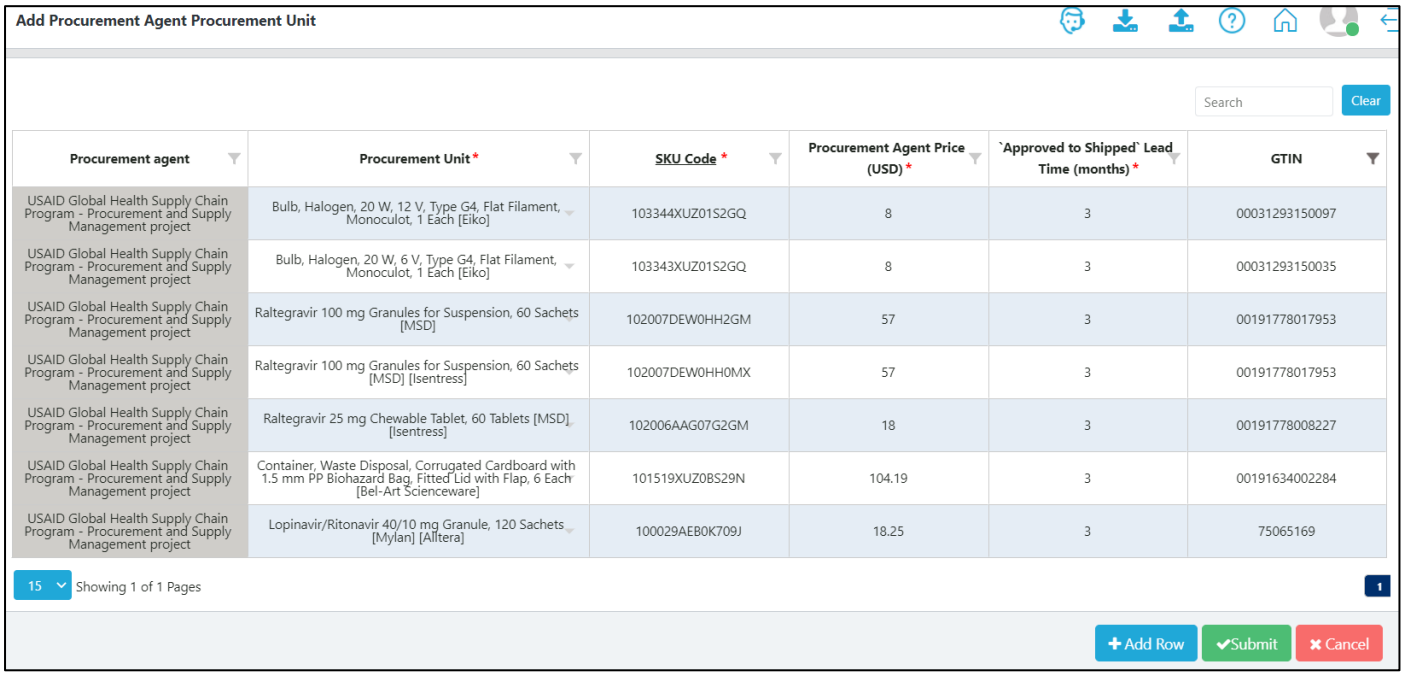


Figure 157: Map Procurement Agent Procurement Unit

Setting Up a New Program

A Realm or Application administrator can create a new program when required. Each program must consist of a country, technical area, region(s) and organization. Once the program is setup in QAT, program admins will have the ability to update certain program settings. Information on updating these settings can be found in the "Program Information" section.

To set up a new Program[1] follow these steps:

1. Go to "Program Management" from the sidebar menu.
2. Click on "Setup Program".

OR

1. Go to "Program Management" from the sidebar menu and select "Update Program Info".
2. Click on the blue "+" icon in the top right corner of the screen. This button will redirect the user to the "Set up Program" screen.

Figure 158: Setup Program Screen

3. Fill in the Realm section and click on "Next". If the user only has access to one realm then this will automatically be selected for the user.
4. Next, select the Country that the program is for and click "Next". If the country is not listed, the Application admin will need to add or activate that specific country for the realm.
5. Select the Technical Area that the program is for and click "Next". If the Technical Area is not listed, the Application admin will need to add or activate that Technical Area for the realm.
6. Select the Organization that the program is for and click "Next". If the Organization is not listed, the Application admin will need to add or activate that Organization for the realm.
7. Select the Region(s) that the program is for and click "Next". If a Region the user needs is not listed, the Application admin will need to add or activate that Region for the realm. This step allows for one or more selections.
8. Step 6 is where the user will provide the Program Data. Fill in all the required details.

[1] An alternative approach to set up a new program requires importing a PipeLine database directly into QAT. For more on this approach, please see Annex 5: PipeLine Program Import.

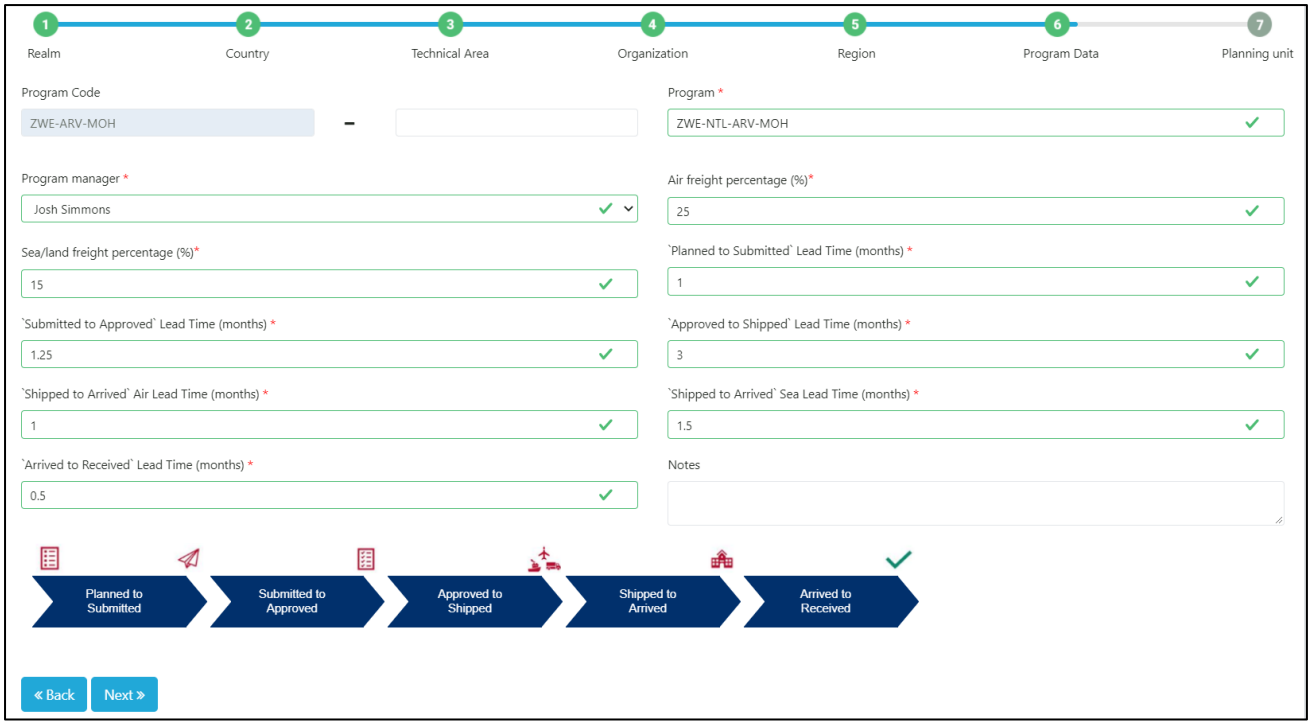


Figure 159: Add Program Data

9. The final step to setup the program is to add in the planning unit(s). All of the fields in this step are required in order to proceed. Any field that is left blank will be highlighted yellow until it is filled in.

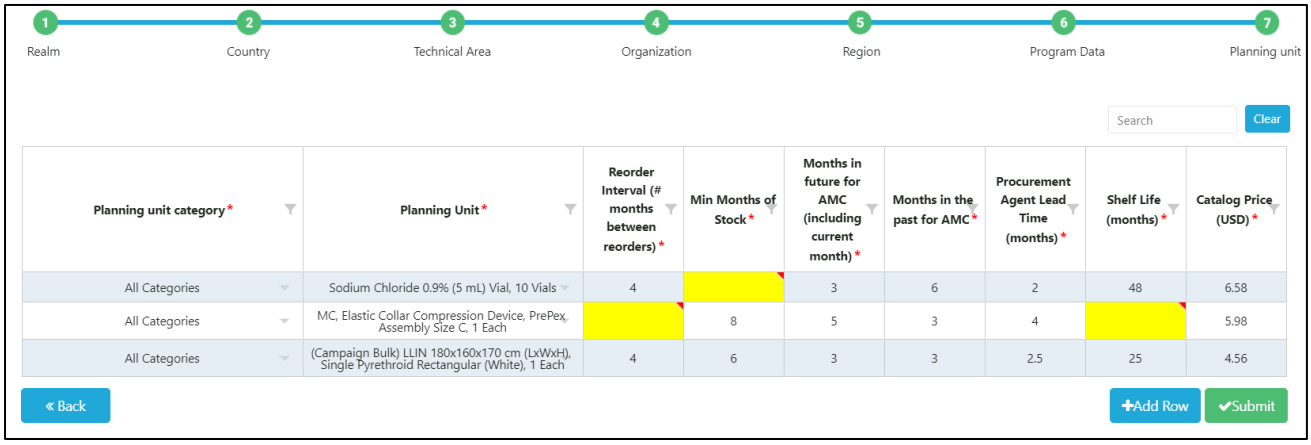


Figure 160: Add Planning Unit

10. Click "Submit".

Annex 2: Business Rules

Introduction

This document outlines the key formulas and business rules that underpin the Quantification Analytics Tool (QAT) application.

Supply Plan Functionality

1. **Opening Balance:**
   Opening balance for a month is the same as that of the closing balance of last month and if that is the first month then the opening balance is 0.

   Formula:
   Opening balance of first month = 0
   Opening balance for current month = Closing balance of previous month

2. **Expired Stock:**
   Expired stock is calculated as the sum of the closing balance of all the batches of the previous month that are available and have the expiry date same as that of the current month.

   Formula:
   Expired Stock = Sum of closing balance of batches that are expiring this month

3. **Total Shipment:**
   Total shipment is calculated as the sum of all the shipments with received date(if present or expected delivery date) is the same as that of current month and the shipment status is not cancelled and if that particular shipment needs to be accounted for that is to be considered in the closing balance.

   Formula:
   Total shipments = Sum of all the shipments whose receive date or expected delivery date is equal to the month

4. **Final Stock and Adjustment:**
   Final stock is calculated as the sum of stock of all the regions and final adjustment is calculated as sum of the adjustments of all the regions based on certain conditions.
   a. If the region has reported both the actual stock and the adjustment then we only consider the actual count while doing the sum and the adjustment is ignored for that region even if someone has entered the data for adjustment.
   b. If the region has only reported the adjustment then that adjustment is considered while doing the sum.

   For example, if Region A has reported both the stock count and the manual adjustment so in that case we only consider the stock count and ignore the adjustment. And If Region B has reported only the adjustments then we take the sum of all the adjustments for that region. And then we sum up the counts for both the regions as final stock and final adjustment.

Formula:
Final Stock = Sum of stock for all the regions
Final Adjustments = Sum of adjustments of all the regions for which there is no stock qty available.

5. **Final consumption:**
Final consumption is calculated as the sum of consumption of all the regions based on some conditions.
    a. If all the regions have not reported the actual consumption, we take the max of sum of forecasted consumption and sum of actual consumption.
    b. If all the regions have reported the actual consumption, we take that sum as final consumption.

For example, If region A has reported actual consumption as well as forecasted consumption but region B has only reported forecasted consumption and sum of forecasted consumption for both the regions is greater than the sum of actual consumption so we will consider the forecasted consumption. And if suppose region A and region B both have reported the actual as well as forecasted consumption and even if sum of forecasted consumption is greater than sum of actual consumption, we will still consider the actual consumption as final consumption.

Formula:
Final consumption (If all the regions have not reported the actual consumption) = MAX (Sum of actual consumption for all the regions, Sum of forecasted consumption for all the regions)

Final consumption (If all the regions have reported the actual consumption) = Sum of actual consumption for all the regions

6. **Projected inventory:**
Projected inventory is calculated as sum of opening balance, total shipments, total adjustments and deduction of total final consumption and expired stock.

Formula:
Projected inventory = Opening balance + Total shipments + Final adjustments - Final consumption - Expired stock

7. **Calculate National Adjustment:**
National adjustments is calculated based on three conditions:
    a. If all the regions have reported the actual stock count and projected inventory is not equal to final inventory
    b. If some of the regions have reported the actual stock count and final inventory is greater than sum of projected inventory and final adjustment
    c. If any of the regions have reported the actual stock count and projected inventory is less than 0

And based on the above conditions if any of the conditions is satisfied then national adjustment is calculated as difference between final inventory and projected inventory otherwise it is considered as 0.

Formula:
National adjustments = Final stock - Projected inventory

8. **AMC:**

Average monthly consumption(AMC) is calculated as the ratio of sum of all the final consumptions of months in past and the final consumptions of months in future to the total number of months for all the non-zero final consumptions and including the current month in months in future. Both months in past and months in future are based on the mapping of program planning units.

Formula:
AMC = Sum (Final consumptions in No. of months in past)+Sum(Final consumptions in No. of months in future)/Total number of months

9. **Min MoS:**
   Min MoS is calculated as max of min months of stock and min MOS guardrail. Min months of stock is based on the mapping of the program planning unit and min mos guardrail is based on the realm.

   Formula:
   Min MoS = Max of (Min months of stock, Min MoS guardrail)

10. **Max MoS:**
    Max MoS is calculated as min of max of sum of min MoS and reorder frequency and the min max guardrail and max max guardrail. Reorder frequency is based on the mapping of the program planning unit and min max guardrail and max max guardrail are based on the realm.

    Formula:
    Max MoS = Min(Max(Min MoS + Reorder frequency,Min Max guardrail),Max Max guardrail)

11. **Min Stock:**
    Min stock is calculated by multiplying the AMC and Min MoS.

    Formula:
    Min Stock = AMC * Min MoS

12. **Max Stock:**
    Max stock is calculated by multiplying the AMC and Max MoS.

    Formula:
    Max Stock = AMC * Max MoS

13. **Closing Balance:**
    Closing balance is calculated based on certain conditions:
    a. If all the regions have reported the actual stock count then the closing balance is equal to the final stock.

       Formula:
       Closing balance = Final Stock

    b. If some of the regions have reported the actual stock count and if the final stock is greater than the sum of projected inventory and national adjustment, then the closing balance is equal to the final stock.

       Formula:
       Closing balance = Final Stock

c. Otherwise closing balance is calculated as the sum of projected inventory and national adjustment

Formula:
Closing balance = Projected inventory + National adjustment

14. **Unmet demand:**
Unmet demand is calculated if closing balance is less than 0 and is calculated as difference between 0 and projected inventory.

Formula:
Unmet demand = 0 - projected inventory

15. **MoS:**
MoS is calculated as the ratio of closing balance to that of amc.

Formula:
MoS = Closing balance / AMC

16. **When to suggest shipments:**
QAT suggests the shipment for a month when MoS for the month and following two months is less than that of the Min MoS and if the month is greater than the current month

Formula:
When to suggest shipments = If MoS for month and following two months < Min MoS

17. **Suggested shipment quantity:**
Suggested shipment quantity is calculated as the difference between Max stock and closing balance

Formula:
Suggested shipment quantity = Max stock - Closing balance

18. **Batch calculations:**
Below are the steps for the all the batch allocations:

a. **FEFO Calculations:**
We first calculate the unallocated FEFO that is we calculate the total remaining quantity of the final consumption and final adjustment which will be used in case of FEFO calculations and for which we do not have the batch information. So, the unallocated FEFO is calculated based on two different conditions

i. If the sum of final adjustment and national adjustment is greater than 0 then unallocated FEFO is calculated as difference between final consumption and the sum of final adjustment and national adjustment.

Formula:
Unallocated FEFO = Final consumption - (Final adjustment + National adjustment)

ii. If the sum of adjustment and national adjustment is less than 0 then unallocated FEFO is the same as that of final consumption.

Formula:
Unallocated FEFO = Final consumption

We sort all the batches based on the expiry date in ascending order that is sort the batches in the order which is expiring first

We then loop across all the batches for doing the FEFO calculations

We calculate the opening balance for a batch which is the same as that of the closing balance for the same batch in the previous month. And if the batch is created then the opening balance is considered as 0.

Formula:
Opening balance of newly created batch = 0
Opening balance of remaining batches = Closing balance

We then calculate the Expired stock quantity which is equal to the closing balance of the same batch from the previous month and is only calculated when the expiry date of the batch is the same as that of the current month otherwise it is 0.

Formula:
Expired Stock (If expiry date is same as that of current date) = Closing Balance
Expired Stock (Otherwise) = 0

We then calculate the temp Closing Balance. Temp Closing Balance is calculated as sum of opening balance, total shipments, total adjustments and deduction of total final consumption and expired stock.

Formula:
Temp Closing Balance = Opening Balance + Shipment Qty + Adjustment Qty - Consumption Qty - Expired Stock

We then calculate the closing balance amount which is calculated based on two different conditions

i. If temp Closing Balance is greater than or equal to unallocated FEFO then closing balance is equal to the difference between the temp closing balance and unallocated FEFO also in this case we make the unallocated FEFO as 0 since we have allocated all the quantity to the batch.

Formula:
Closing balance = Temp Closing Balance - unallocated FEFO
Unallocated FEFO = 0

ii. If temp Closing Balance is less than unallocated FEFO then closing balance is equal to 0 since we will fully consume this batch. Also we then deduct the temp CB from the unallocated FEFO since we have consumed that much of the quantity.

Formula:
Closing balance = 0
Unallocated FEFO = Unallocated FEFO - Temp closing balance

We repeat this process for every batch in the order of their expiry date.

b. LEFO Calculations:

We first calculate the unallocated LEFO that is we calculate the total remaining quantity of the final consumption and final adjustment which will be used in case of LEFO calculations and for which we do not have the batch information. So, the unallocated LEFO is calculated based on two different conditions

i. If the sum of final adjustment and national adjustment is less than 0 then unallocated LEFO is calculated as difference between 0 and the sum of final adjustment and national adjustment.

Formula:
Unallocated LEFO = 0 - (Final adjustment + National adjustment)

ii. If the sum of adjustment and national adjustment is greater than 0 then unallocated LEFO is 0.

Formula:
Unallocated LEFO = 0

iii. If unallocated LEFO is not equal 0 then we continue otherwise we break.

We sort all the batches based on the expiry date in descending order that is sort the batches in the order which is expiring first

We then loop across all the batches for doing the LEFO calculations

We then calculate the temp Closing Balance. Temp Closing Balance is the same as that of closing the balance of batch after FEFO calculations.

Formula:
Temp Closing Balance = Closing balance after FEFO calculations

We then calculate the closing balance amount which is calculated based on two different conditions

i. If temp Closing Balance is greater than or equal to unallocated LEFO then closing balance is equal to the difference between the temp closing balance and unallocated LEFO also in this case we make the unallocated LEFO as 0 since we have allocated all the quantity to the batch.

Formula:
Closing balance = Temp Closing Balance - unallocated LEFO
Unallocated LEFO = 0

ii. If temp Closing Balance is less than unallocated LEFO then closing balance is equal to 0 since we will fully consume this batch. Also we then deduct the temp CB from the unallocated LEFO since we have consumed that much of the quantity.

Formula:
Closing balance = 0
Unallocated LEFO = Unallocated LEFO - Temp closing balance

We repeat this same process for the rest of batches till unallocated LEFO is not equal to 0.

QAT Problem List

Data Quality

1. Missing recent actual consumption inputs (within the last <%X %> months)
    a. **Suggestion:** Please provide Actual consumption in <%REGION %> region for the month of <%DT %>.
    b. **Logic:** QPL will check actual consumption for the past three months and current month. If actual consumption for all of the past three month and current month is missing, then the problem is flagged.

2. Missing recent inventory inputs (within the last <%X%> months)
    a. **Suggestion:** Please provide Stock count in <%REGION %> region for the month of <%DT%>.
    b. **Logic:** QPL will check stock for the past three months and current month. If stock for all of the past three month and current month is missing, then the problem is flagged.

3. Missing recent actual consumption inputs for months in gaps
    a. **Suggestion:** Please provide Actual consumption in <%REGION %> region for the month of <%DT %>.
    b. **Logic:**
        i. QPL will check actual consumption inputs for the current month (consider as t) and for the month which will be current month minus two months (consider as t-2) i.e. t and t-2 if both the months have actual consumption and current month minus one month (consider as t-1) i.e. t-1 don't have actual consumption. Then in this case the problem is flagged.
        ii. QPL will check actual consumption inputs for the current month minus one month (consider as t-1) and for the month which will be current month minus three months (consider as t-3) i.e. t-1 and t-3 if both the months have actual consumption and current month minus two month (consider as t-2) i.e. t-2 don't have actual consumption. Then in this case the problem is flagged.

Procurement Schedule

1. Shipments have receive dates more than <%X%> days in the past
    a. **Suggestion:** Please check to make sure shipment <%SHIPMENT_ID %> was received, and update either the receive date or the shipment status.
    b. **Logic:** QPL will check the receive date for all the shipments and if the receive date is past and has also crossed the buffer time period then the problem is flagged. For example, buffer time for this problem is 7 days so if the receive date of the shipment plus the buffer days are past then the problem is flagged for each shipment.

2. Shipment have not been submitted for over <%X%> days since target date
    a. **Suggestion:** Based on lead times, shipment <%SHIPMENT_ID%> should have been submitted by now. Please double-check to ensure that the status or receive date is accurate.
    b. **Logic:** QPL will check the submitted date for all the shipments and if the submitted date is past and has also crossed the buffer time period then the problem is flagged. For example, the buffer time for this problem is 3 days. Hence if the submitted date of the shipment plus the buffer days have already passed, then the problem is flagged for each shipment.

Supply Planning

1. No Forecasted consumption <%X %> months into the future
    a. **Suggestion:** Please provide Forecasted consumption in <%REGION %> region for the month of <%DT %>.
    b. **Logic:** QPL will check forecasted consumption for future 18 months. If forecasted consumption for any one of the month is missing then the problem is flagged. The problem gets into in-compliance state if and only if all the 18 months have forecasted consumption.

2. Dynamic forecasting is not used for commodity groups ARV
    a. **Suggestion:** Please check consumption data in region <%REGION%> during period <%DT%> as we encourage forecasting with dynamic monthly values, showing that factors such as program scale or seasonality have been taken into account.
    b. **Logic:** QPL will check whether the planning unit of the program falls in the commodity group ARV then QPL will check forecasted consumption for future 18 months if any four consecutive months within the future 18 month span have the same forecasted consumption quantity then the problem is flagged.

3. Dynamic forecasting is not used for commodity groups MALARIA
    a. **Suggestion:** Please check consumption data in region <%REGION %> during period <%DT%> as we encourage forecasting with dynamic monthly values, showing that factors such as program scale or seasonality have been taken into account.
    b. **Logic:** QPL will check whether the planning unit of the program falls in the commodity group MALARIA then QPL will check forecasted consumption for future 18 months if any four consecutive months within the future 18 month span have the same forecasted consumption quantity then the problem is flagged.

4. Dynamic forecasting is not used for commodity groups VMMC
    a. **Suggestion:** Please check consumption data in region <%REGION%> during period <%DT%> as we encourage forecasting with dynamic monthly values, showing that factors such as program scale or seasonality have been taken into account.
    b. **Logic:** QPL will check whether the planning unit of the program falls in the commodity group VMMC then QPL will check forecasted consumption for future 18 months if any four consecutive months within the future 18 month span have the same forecasted consumption quantity then the problem is flagged.

5. Supply Plan does not follow minimum/maximum parameters
    a. **Suggestion:** Re-evaluate supply plan to meet the min/max parameters. If overstocked, consider delaying/canceling shipment(s), review future expiries, or donating stock. If understocked, consider planning & ordering, expediting, or increasing shipment quantity.
    b. **Logic:** QPL will check to see if each planning unit is overstocked or understocked at any point during the next 18 months according to the minimum and reorder parameters defined

at individual program-levels. QAT will then count the number of months the planning unit is overstocked and understocked and subdividing it in two different time windows: those months within lead time (1-6 months) and those within the planning window (7-18 months). The QPL will also denote the number of shipments being received in the next 1-6 months and the next 7-18 months.

6. Stock outs in the next 1-6 months/Stock outs in the next 7-18 months
    a. **Suggestion:** Consider planning & ordering, expediting, or increasing shipment quantity. Communicate the potential stockout(s) with relevant stakeholders.
    b. **Logic:** QPL will check to see if each planning unit is stocked out (zero MOS) at any point during the next 18 months. QAT will then count the number of months the planning unit is stocked out and subdividing it in two different time windows: those months within lead time (1-6 months) and those within the planning window (7-18 months). The QPL will also denote the number of shipments being received in the next 1-6 months and the next 7-18 months.

Other QAT Reports

1. **WAPE (Weighted Absolute Percentage Error)**
   WAPE (Weighted Absolute Percentage Error) is being used to calculate forecast error. This calculation is used in forecast error reports which helps supply plan owners to review forecast error in order to monitor the strength for their forecast.The WAPE formula is using the previous 3-12 months of data depending on the selection in the 'Time Window' dropdown.

   WAPE is Dividing the sum of absolute differences by the sum of actual values for a particular time window. time window can be 3,6,9 or 12

   Formula:
   WAPE=((Abs(actual consumption month 1-forecasted consumption month 1)+ Abs(actual consumption month 2-forecasted consumption month 2)+ Abs(actual consumption month 3-forecasted consumption month 3)+ Abs(actual consumption month 4-forecasted consumption month 4)+ Abs(actual consumption month 5-forecasted consumption month 5)+ Abs(actual consumption month 6-forecasted consumption month 6)) / (Sum of all actual consumption in the last 6 months))

   Note: Time window considered as 6 months

2. **Shipment Cost**
   It is the total cost required to received order at warehouse

   Formula:
   Shipment Total Cost = (Product Cost+ Freight Cost) * conversion rate to USD

3. **Cost of Inventory**
   This calculation provide us cost of available product

   Formula:
   Cost of Inventory = ending balance* catalog price

4. **Average Stock**

Formula:
Average stock= sum (ending balance for 'n' months) / n

Note: "n" is number of months

5. **Inventory Turns**
   It is the ratio of consumption versus average stock

   Formula:
   Inventory Turns = consumption over last 12 months/average stock on hand over last 12 months

   Note: Actual consumption precedes forecasted consumption in calculation if available

6. **Procurement Agent Total Lead Time:**
   This is the total time required to receive a product in the warehouse since the date when order was planned. It also depends on shipment mod (sea or air). This calculation is used to calculate the expected delivery date so that user can order products before stock out

   Formula:
   Procurement Agent total Lead Time(by Air) = Planned to Submitted Lead Time in months +Submitted to Approved Lead Time in months+ Approved to Shipped Lead Time in months+ Shipped to Arrived Lead Time in months(by Air)+Arrived to Received Lead Time in months

   Procurement Agent total Lead Time(by Sea) = Planned to Submitted Lead Time in months +Submitted to Approved Lead Time in months+ Approved to Shipped Lead Time in months+ Shipped to Arrived Lead Time in months(by Sea)+Arrived to Received Lead Time in months

Annex 3: User Role Matrix

Role	Role description
Application Admin	For managing app-wide settings (labels), create roles
Realm Admin	For managing realm specific parameters and realm masters (planning units, technical areas, orgs etc.)
Program Admin	For managing program specific parameters (lead times, planning units, ARUs, budgets etc.)
Supply Plan Reviewer	For those reviewing/approving supply plans.
Program User	For those actively supply planning and needing to enter data.
Viewer - Reports	For anyone who only need to view reports (not including supply planning), but not enter data. Depending on the access settings, could be at global or program/country level.
Viewer - Supply Plan Review	Supplemental role to reports viewer, for those who need to see status of supply plan review process. (Includes SP Notifications)
Viewer - Data	Supplemental role to reports viewer, for those who need to access raw data entry screens for viewing and to see status of supply plan review process. This role allows loading of supply plan data (allows for offline viewing), without ability to commit back to server.

Business Function	Application Admin	Realm Admin	Program Admin	Supply Plan Reviewer	Program User	Viewer - Reports	Viewer - Data	Viewer - Supply Plan Review
Application Masters								
View Application Dashboard	Y	N	N	N	N	N	N	N
Label Translations	Y	N	N	N	N	N	N	N
Create Realm	Y	N	N	N	N	N	N	N
Manage Country	Y	N	N	N	N	N	N	N
Create Role	Y	N	N	N	N	N	N	N
Add Language	Y	N	N	N	N	N	N	N
Add Currency	Y	N	N	N	N	N	N	N
Add/manage Dimension	Y	N	N	N	N	N	N	N
Add/manage Unit	Y	N	N	N	N	N	N	N
Database Translation	Y	N	N	N	N	N	N	N
Create/manage User	Y	Y	N	N	N	N	N	N
Assign role to user	Y	Y	N	N	N	N	N	N
Edit Realm	Y	Y	N	N	N	N	N	N
Realm level Masters								
View Realm Dashboard	N	Y	N	N	N	N	N	N

Create/manage Realm Country	Y	Y	N	N	N	N	N	N
Create/manage Region	Y	Y	N	N	N	N	N	N
Create/manage Data Source	Y	Y	N	N	N	N	N	N
Create/manage Data Source Type	Y	Y	N	N	N	N	N	N
Create/manage Funding Source	Y	Y	N	N	N	N	N	N
Create/manage Organization	Y	Y	N	N	N	N	N	N
Create/manage Procurement Agent	Y	Y	N	N	N	N	N	N
Create/manage Supplier	Y	N	N	N	N	N	N	N
Create/manage Alternate Reporting Unit	Y	Y	Y	N	N	N	N	N
Create/manage Forecasting Unit	Y	Y	N	N	N	N	N	N
Create/manage Planning Unit	Y	Y	N	N	N	N	N	N
Create/manage Planning Unit Category	Y	Y	N	N	N	N	N	N
Manage Planning Unit Volume	Y	Y	N	N	N	N	N	N
Create/manage Procurement Unit	Y	Y	N	N	N	N	N	N
Create/manage Tracer Category	Y	Y	N	N	N	N	N	N
Create/manage Technical Area	Y	Y	N	N	N	N	N	N
List/view Country	Y	Y	N	N	N	Y	N	N
List/view Data Source	Y	Y	Y	N	Y	N	Y	N
List/view Data Source Type	Y	Y	Y	N	Y	N	Y	N
List/view Funding Source	Y	Y	Y	N	Y	N	Y	N
List/view Organization	Y	Y	Y	N	Y	N	Y	N
List/view Procurement Agent	Y	Y	Y	N	Y	Y	N	N
Create/manage/view Supplier	Y	N	N	N	N	N	N	N
List/view Alternate Reporting Unit	Y	Y	Y	N	N	Y	N	N
List/view Planning Unit Category	Y	Y	Y	N	Y	N	N	N
List/view Tracer Category	Y	Y	Y	N	Y	N	Y	N
List/view Region	Y	Y	N	N	N	N	N	N
List/view Technical Area	Y	Y	Y	N	Y	N	Y	N
Program Management								
View Program Dashboard	N	Y	Y	Y	Y	N	N	N
Setup/create a Program	Y	Y	N	N	N	N	N	N
Update program info	Y	Y	Y	N	N	N	N	N

Update/add planning unit to program	Y	Y	Y	N	N	N	N	N
Create/manage Budget	Y	Y	Y	N	N	N	N	N
List/view Budget	Y	Y	Y	N	Y	N	N	N
Import / Export Program	Y	Y	Y	N	Y	N	N	N
Load Program	Y	Y	Y	Y	Y	N	Y	N
Commit version	Y	Y	Y	N	Y	N	N	N
PipeLine Program Import	Y	Y	N	N	N	N	N	N
View supply plan version & review	Y	Y	Y	Y	Y	N	N	Y
Review/Approve a Version	N	N	N	Y	N	N	N	N
Supply plan data								
View supply plan data (consumption / inventory / shipments) in datay entry screen	Y	Y	Y	Y	Y	N	Y	N
Add/edit supply plan data (consumption / inventory / shipments)	Y	Y	Y	Y	Y	N	N	N
ERP shipment linking and delinking	Y	Y	Y	N	Y	N	N	N
Import Quantimed data	Y	Y	Y	N	Y	N	N	N
Supply planning								
Manage/edit Supply Plan	Y	Y	Y	Y	Y	N	N	N
View Supply Plan	Y	Y	Y	Y	Y	N	Y	N
Scenario Planning	Y	Y	Y	Y	Y	N	N	N
View Supply Plan Report	Y	Y	Y	N	Y	Y	N	N
Reports								
View QAT Problem List report	Y	Y	Y	N	Y	N	N	N
View Program Catalog Report	Y	Y	Y	N	Y	Y	N	N
Stock Status Reports								
View Stock Status Over Time report	Y	Y	Y	N	Y	Y	N	N
View Stock Status Matrix report	Y	Y	Y	N	Y	Y	N	N
View Stock Status Snapshot report	Y	Y	Y	N	Y	Y	N	N
View Stock Status Snapshot (Global) report	Y	Y	N	N	N	Y	N	N
Consumption Reports								
View Consumption (forecast vs actual) report	Y	Y	Y	N	Y	Y	N	N
View Consumption (Global) report	Y	Y	N	N	N	Y	N	N
View Forecast Error (Monthly) report	Y	Y	Y	N	Y	Y	N	N

View Forecast Error by (by planning unit) report	Y	Y	Y	N	Y	Y	N	N
Shipment Reports								
View Shipment (Global) report	Y	Y	N	N	N	Y	N	N
View Shipment Overview report	Y	Y	Y	N	Y	Y	N	N
View Shipment Details report	Y	Y	Y	N	Y	Y	N	N
View Shipment Cost Details report	Y	Y	Y	N	Y	Y	N	N
View Shipment Cost Overview report	Y	Y	Y	N	Y	Y	N	N
View Budget report	Y	Y	Y	N	Y	Y	N	N
View Procurement Agent Lead Time report	Y	Y	Y	N	Y	Y	N	N
Inventory Reports								
View Expiries report	Y	Y	Y	N	Y	Y	N	N
View Cost of Inventory report	Y	Y	Y	N	Y	Y	N	N
View Inventory Turns report	Y	Y	Y	N	Y	Y	N	N
View Stock Adjustment report	Y	Y	Y	N	Y	Y	N	N
View Warehouse Capacity (by program) report	Y	Y	Y	N	Y	Y	N	N
View Warehouse Capacity (by country) report	Y	Y	Y	N	Y	Y	N	N

Annex 4: Business Functions

Business functions are a set of capabilities available to the user. They are used when creating roles (see **Roles (App Admin** only)). Each role has one or more business functions.
For master level data, the verbs used in the business functions are as follows:

- **List** – Allows user to see the table with the existing data for that master data element. If only "List X" is chosen, the user can only see "X" but cannot edit or add.
- **Edit** – Allows user to update or edit the master data element. Note: Always include "list" along with "edit" or the user will not be able to see the screen to edit data elements. **(NOTE: An entity cannot be deleted. Users can only 'Disable" entities.)**
- **Add** – Allows user to add a new record for the master data element. Note: Always include "list" along with "add" or the user will not be able to see the screen to add data elements.
- **Manage**: Allows user to perform all of the aforementioned functions

The above business function can be provided to users in any combination. For example:

- User A has only "List" access, so they can only view existing data ("read only")
- User B has only "List" + "Edit" access, so they can view and edit existing data, but cannot add 'new' entities.
- User C has "List" + "Add" access, so they can add new entities and view the list of entities.
- User D has "Add" + "Edit" + "List" (Manage) access that enables performing all 3 actions.

Sr No	Menu Option	Business Function	Business Function Description ("Allows enabled user/s to…")
1	Translations	Label translations	Input/update the "static labels" for QAT enabled languages – which are reflected during new releases
2		Database Translation	Input/update the "dynamic labels" for QAT-enabled languages - which are reflected immediately
3		View Translations	View the translations, whether label or database
4	Application Masters	Application Dashboard	View the application dashboard
5		View Application-level Masters	View the master CRUDs at Application level
6		Manage Country	Setup and manage the country
7		Manage Currency	Setup and manage the currency
8		Manage Dimension	Setup and manage the dimension
9		Manage Language	Manage the language setup and administration activities
10		Manage Role	Manage the role creation and assignments
11		Create Realm	Create new realms (this is restricted to Application Admin role)
12		Edit Realm	Update/edit data related to an existing realm to which he/she has been provided access

13		List Realm	view the list of realms to which he/she has been provided access
14		Show Realm Select	View the list of Realms available at the Application level
15		Manage Region	Setup and manage regions at country level
16		Manage User	View, add, and update users, as well has assign specific access and roles
17		Manage Unit	Setup and manage the units for the dimensions
18	Ream Masters	View Realm Level Masters	View all Master screens at Realm level
20		Manage Realm Country	Manage the country
21		List Data Sources	Manage data sources at realm level
22		Manage Data Source	
23		List Data Source Type	Manage data sources types at realm level
24		Manage Data Source Type	
25		List Funding Source	Manage funding source at realm level
26		Manage Funding Source	
27		Supplier	Manage manufacturers at the realm level
28		Manage Supplier	
29		Organization	Manage organizations at realm level
30		Manage Organization	
31		Manage Procurement Agent	Manage procurement agents and related data at realm level
32		Procurement Agent	
33		Alternate Reporting Unit (ARU) List	Manage product attributes as listed in the options
34		Manage Forecasting Unit	
35		List Forecasting Units	
36		Manage Country Planning Unit	
37		List Planning unit	
38		Product Category	
39		Manage Product Category	
40		Manage Planning Unit Capacity	
41		Procurement Unit List	
42		Manage Procurement Unit	
43		Tracer Category	
44		Manage Tracer Category	
45		Technical Area	Manage Technical area at Realm level
46		Manage Technical Area	
47	Program Management	View Program Level Masters	View all program level masters
49		Set Up Program	Manage a program, including updating program-level parameters (program name, lead time, freight %, etc.)
50		Edit Program	
51		List Programs	
52		Manage Planning Units	Manage Planning units, including updating parameters (AMC settings, inventory parameters, shelf life, etc.)
53		List Budget	Manage budget at the program level
54		Manage Budget	
55		Delete Local Programs	Delete local programs
56		Import Program	Import program

		Export Program	Export Program
57		Download Program	Load program data (user can load the program and also use the "Down arrow" icon on the top right-hand corner of the screen
58		PipeLine Program Import	Import pipeline data into QAT application
59		Commit a version	Commit a local version to the server
60		Supply Plan Version and Review	List and review the supply plan version list
61		Approve a Version	To approve a final supply plan (enables the user to also access the supply plan & review screen). The "Reviewed" check box function and "Resolved" status are also embedded in this Business Function
62	Supply Plan Data	Shipment Delinking	Link, delink and update ERP shipment data
63		Manual Tagging	
64		View Program Data Tab	View Supply Plan Data tab
65		Quantimed Import	Manage import of data from Quantimed
66	Supply Planning	Supply plan	View and edit access to the 'Supply Planning' Screen
		Scenario planning	Perform supply plan-based scenario planning
67		Supply plan report	View a supply plan report
68	Reports	View Reports	View all reports available
69		QAT Problem List	View the QAT Problem list and add new problem entries
70		Create Problem	Create & update a "problem" data in QAT Problem List
71		Edit Problem	
72		Program Catalog	View the program catalog report
73		Stock Status Over Time	View of Stock Status data over time
74		Stock Status Matrix	View the Stock Status matrix data
75		Stock Status Snapshot	View a snapshot of the stock status data
76		Stock Status Snapshot (Global)	View the global (across countries and programs) stock status data
77		Consumption (Forecast vs Actual)	View a comparison of the consumption (forecast vs actuals)
78		Consumption (Global)	View the global (across countries and programs) consumption data
79		Forecast Error (Monthly)	View a monthly forecast error list
80		Forecast Error (by Planning Unit)	View a planning unit based forecast error report
81		Shipments (Global)	View the shipments at global (across countries and program) level
82		Shipment Overview	View of all Shipments
83		Shipment Details	View the Shipment details
84		Shipment Cost Details	View the Shipment cost report
85		Shipment Cost Overview	View of the Shipments costs
86		Budget	View the budget

87		Procurement Agent Lead Time	View the procurement agent lead times
88		Expiries	View the expired inventory details
89		Cost of Inventory	View cost of inventory report
90		Inventory Turns	View the inventory turns
91		Stock Adjustment	View the manual stock adjustment data
92		Warehouse Capacity (by program)	View program-wide warehouse capacity
93		Warehouse Capacity (by country)	View the country-wide warehouse capacity

Annex 5: PipeLine Program Import

In certain cases, users will be granted a special set of credentials that can import PipeLine databases if they desire to set up their program this way (see Setting up a new program in Annex 1).

Step 1: Convert the .accdb file into a JSON file:

About the PipeLine Access DB to JSON conversion tool: Since the QAT system is only able to import program data in JSON format and PipeLine databases are in .accdb format, QAT has a downloadable tool for converting the .accdb file into a JSON file, thus allowing importation into QAT. Once installed, this tool does not require internet access to run. Also, this tool allows the user to choose their preferred language.

1. Confirm that you have the appropriate System Configuration Requirements:
   - Operating System: *Windows / Linux / Ubuntu*
   - Other Software : *Java JDK 1.8 and above.*
2. Confirm that your PipeLine data is fully updated
   - The database cannot have negative inventory values.
   - All the shipment, stock, consumption data must be updated.
3. Go to "Program Management" and click on "PipeLine Program Import".
4. On the top right corner click on the "Add" button. It will lead to a file input screen.
5. Click on the downward arrow button on the top right corner.
6. Click the "Download PipeLine Converter" will on the screen, then select your computer's operating system (Windows or Linux). The converter will be downloaded in zip file.
7. Open the converter file and run the tool (.exe file / .java executable file), the following screen will be displayed:

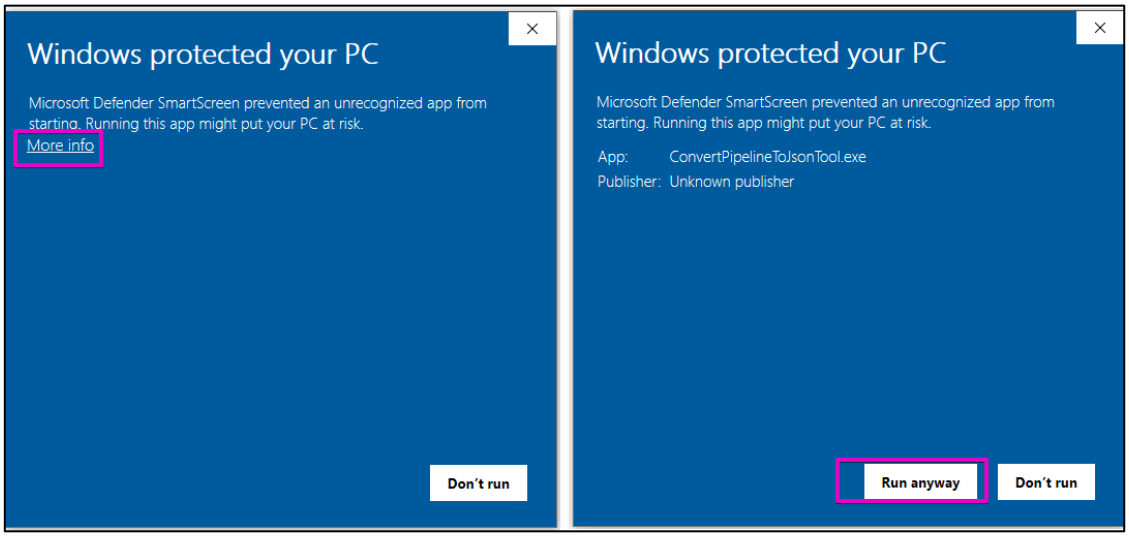


Figure 161: Caution Message during PipeLine Import

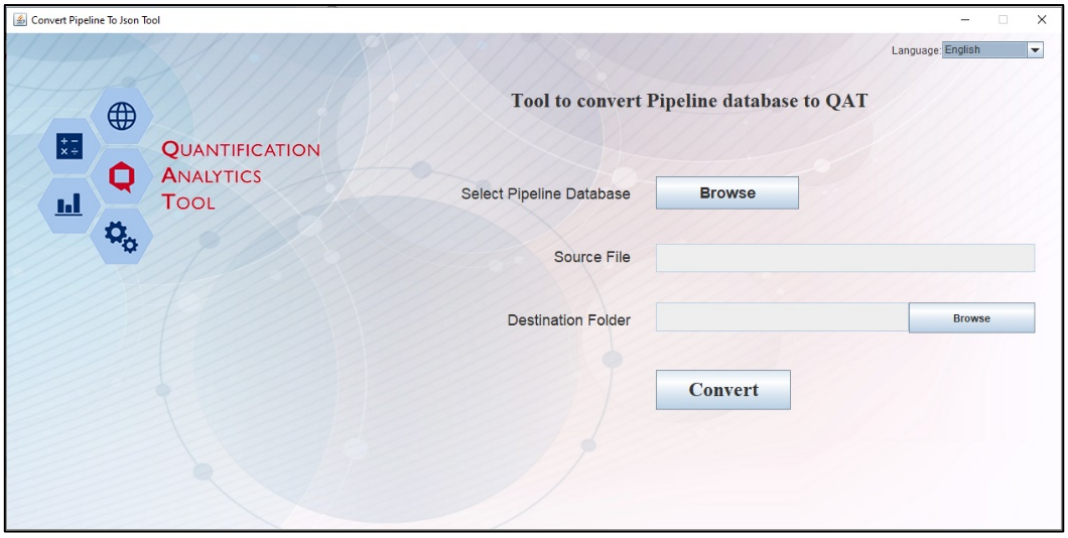


Figure 162: PipeLine Import Screen

8. Click on first Browse button to search for the desired .accdb file to import.

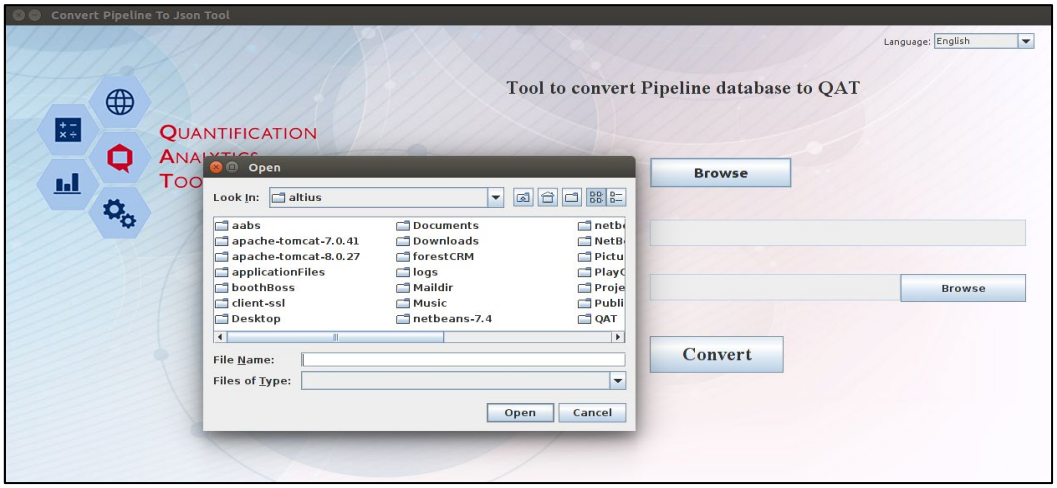


Figure 163: PipeLine Import Screen – Browse

9. Click the second Browse button to select the location where the converted file will be stored on the user's local machine.
10. Click on Convert. When the file is converted into. json format, you will receive the notification below:

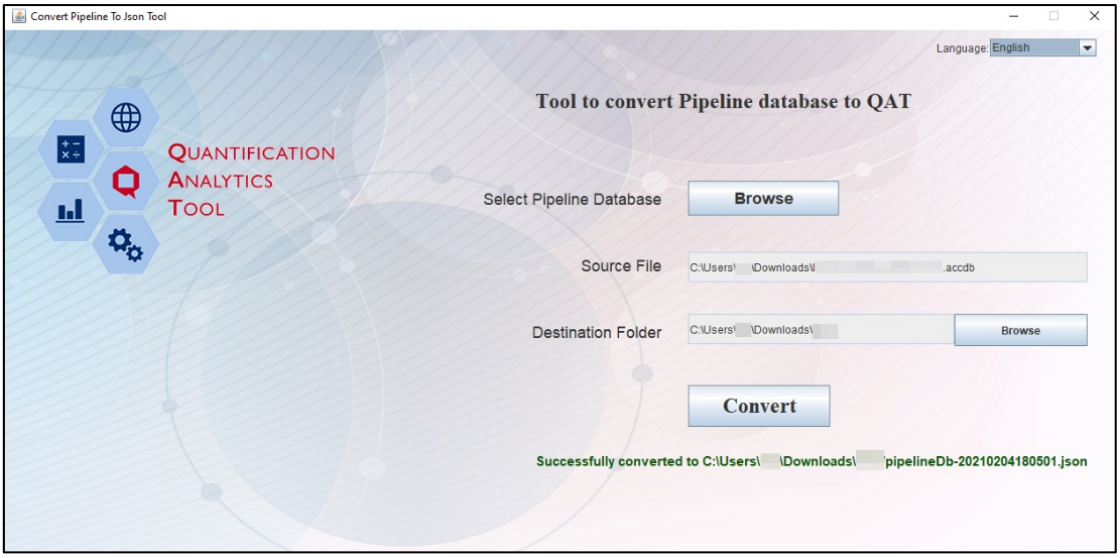


Figure 164: Successful Import PipeLine Screen

Step 2: Upload the JSON file into QAT:

11. In QAT go to "Program Management" > "PipeLine Program Import" menu item.
12. Click on the "Add" button, and a new screen will be opened. Browse to find the converted JSON file (from Step 1) from the local machine. Click on "Submit".
13. After completing the process, the user will get a message that the program is successfully imported.
14. This program will be shown as a row in the program list. Click on that row to continue to Step 3.

Step 3: Configure data for import into QAT

After importing PipeLine data, the user will navigate through a series of screens where there will be prompts to enter data. After editing data on one screen, the user should click "Next" to move to the following data entry screen. If needed, navigate to previous screens by clicking "Back". The user should navigate through the following screens: Program Info, Planning Units, Data Source, Funding Source, Procurement Agent, Consumption, Inventory, and Shipments.

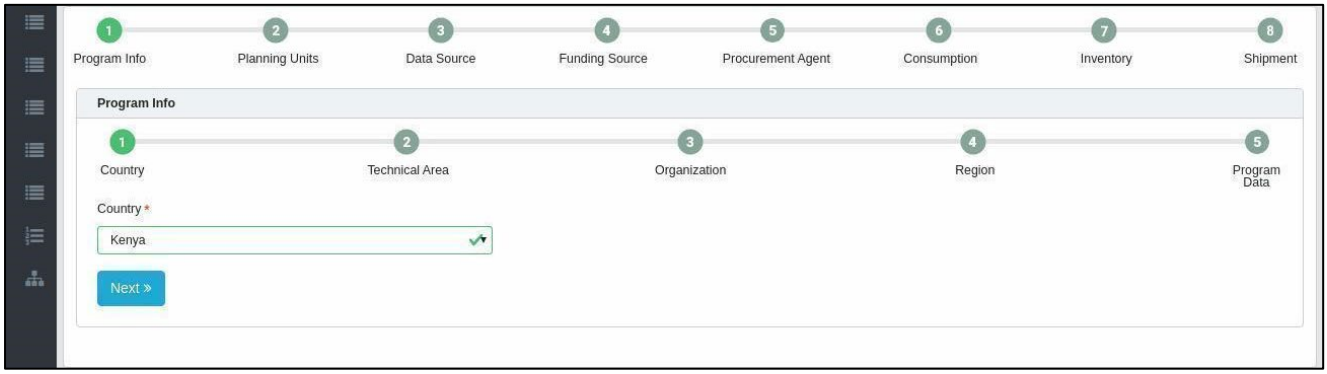


Figure 165: PipeLine Import - Country

Each of these major screens have sub-screens where users need to enter data and map current PipeLine data to QAT realm-level master data; for example, the PipeLine products need to be mapped to QAT's planning units. At the last step (Shipment screen) a pop-up will be displayed if any program contains negative inventory.

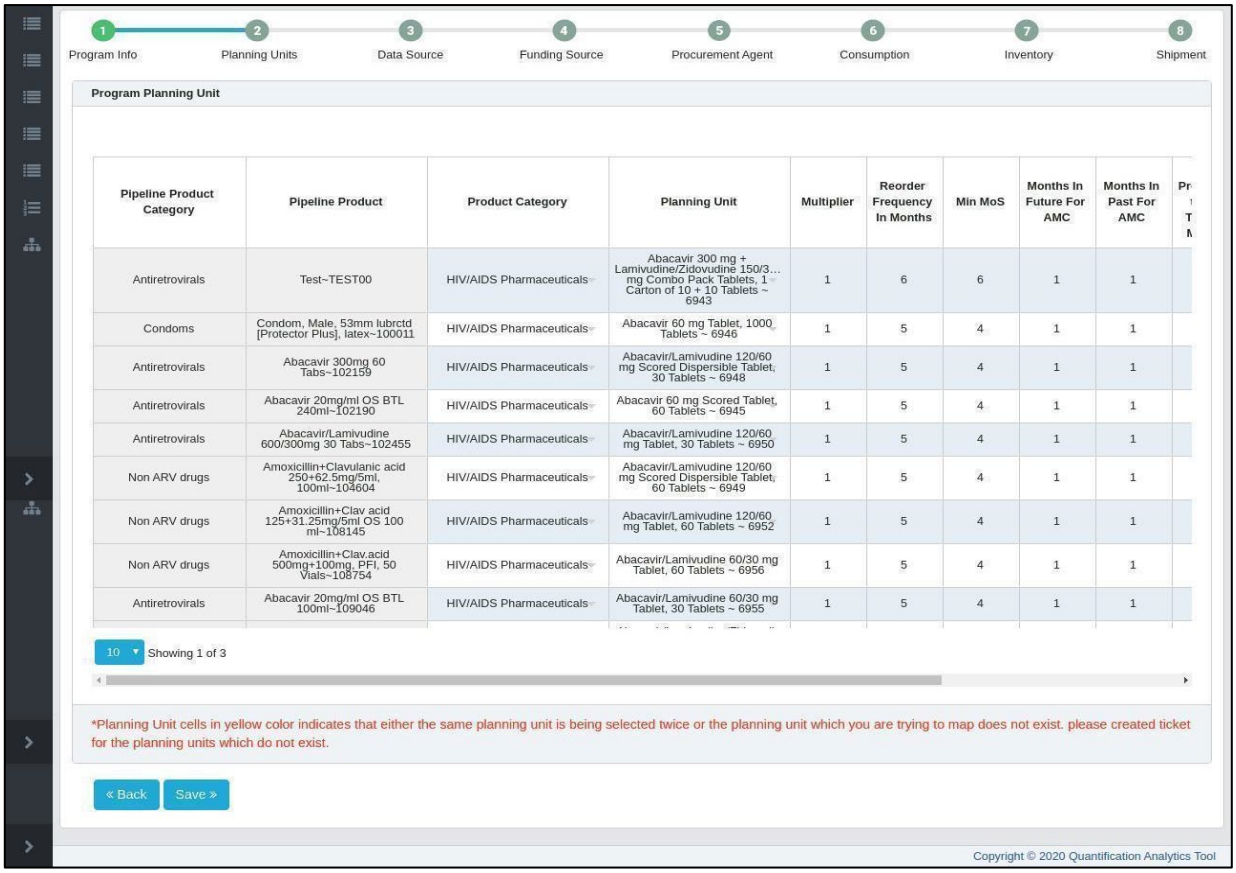


Figure 166: PipeLine Import - Planning Units

After the file is successfully imported to QAT:

1. The users can go to “Program Management”.
2. Click on the “Programs” menu item.
3. The program list will show the imported program.
4. Now the user can “Load”, “Import” and “Export” that program.