



TurboEngines Data Sync Summer 2020

Administrator Guide



Table of Contents

About This Guide.....	3
What's New	5
About TurboEngines Data Sync.....	6
About TurboEngines	6
About the TurboEngine Data Sync Flow.....	6
About Consumer Profiles.....	7
Data Sync Prerequisites	7
Key Terms.....	7
Navigating the Data Sync Admin User Interface	9
Navigating to Turbo Data Sync	9
About Consumer Profiles.....	9
Overview of the Data Sync Admin UI	10
Managing Sync Settings	11
Enabling and Disabling Data Sync.....	11
To enable or disable data sync for a consumer profile.....	11
Adding Objects and Fields for Sync	11
To add a simple object to the sync	12
To add a complex object to the sync.....	12
To update an object for sync.....	13
To delete an object.....	14
Running Data Sync On-Demand	14
To run data sync manually.....	14
Managing Data Sync Frequency	15
To set the initial data sync frequency.....	15
To change data sync frequency.....	15
Working with Data Sync Run History	17
To view object level details for a sync operation	17
Viewing and Evaluating Error Messages.....	18
To view and evaluate error messages in Run History	18
Appendices	20
Known Issues	20
Apttus Copyright Disclaimer	23

About This Guide

The *TurboEngines Data Sync Administrator Guide* is designed to provide Data Sync Administrators with the information required to manage master data sync for Apttus Commerce implementations that have enabled **Apttus TurboEngines** as the primary pricing and configuration engine.

Topic	Description
What's Covered	This guide provides information for administrators to manage Apttus TurboEngines Data Sync.
Primary Audience	<ul style="list-style-type: none"> • Apttus Administrators • Apttus Professional Services • Pricing Administrators • Customer Administrators
IT Environment	Refer to Getting Started for System Requirements and Supported Platforms.
Updates	For a comprehensive list of updates to this guide for each release, see the What's New topic.
Other Resources	<ul style="list-style-type: none"> • <i>Apttus TurboEngines Summer 2020 Administrator Guide</i> • <i>Apttus TurboEngines Summer 2020 Release Notes</i> • <i>Apttus CPQ on Salesforce Summer 2020 Administrator Guide</i>

This guide describes the following tasks:

- Managing Data Sync Settings
 - enabling and disabling data sync
 - adding objects and fields
 - adding sync actions and formats
 - running data sync
 - scheduling data sync
- Working with Data Sync Run History
 - viewing and evaluating run history
 - viewing error messages
- Troubleshooting Data Sync (known issues)

Before using TurboEngines Data Sync, you must be familiar with the following:

- Basic Salesforce administration
- Salesforce Lightning experience
- Salesforce and Apttus terms and definitions
- Basic understanding of Apttus TurboEngines
- Basic understanding or Apttus TurboPricing

What's New

The following table lists changes in documentation to support each release.

Document	Topic	Description
Summer 2020 (Rev. A)	Navigating the Data Sync Admin User Interface	Updated topic to reflect the name change to the "TurboEngines Admin" app.
	Adding Objects and Fields for Sync	Updated topic to reflect minor changes to the simple and complex object tasks.
	Working with Data Sync Run History	Updated topic to include details for in progress sync.
Summer 2020	All topics.	First release (internal only).

About TurboEngines Data Sync

TurboEngines Data Sync services is a critical component of the **Apttus TurboEngines** platform that provides a high performance mechanism to sync master data at regular, scheduled intervals (or on demand) between Apttus CPQ on Salesforce and specific consumer endpoints using **Apttus' Flexible Computing Platform**.

About TurboEngines

Apttus TurboEngines is a concurrent processing engine provided by Apttus that comprises various microservices that process product rules and configurations, pricing configurations and data, and other product-related business data. TurboEngine offloads the computation workload from the Salesforce platform to the Apttus Flexible Compute Platform to reduce the processing time on the cart. Processing the computation workload in the Apttus Flexible Compute Platform reduces the interaction costs and the quote turnaround time specifically during peak load or large transactions.

TurboEngines scales on 3 dimensions:

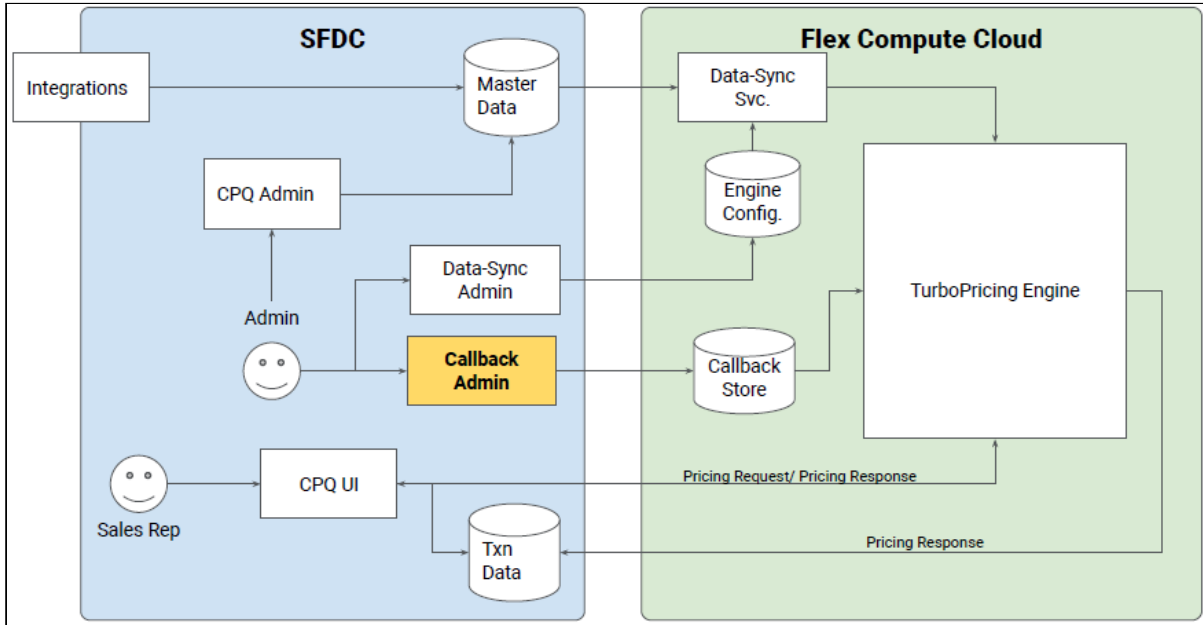
- number of users
- size of transaction
- The complexity of product and pricing configuration

For more information on how to get started with and configure **TurboEngines**, please refer to the *Apttus TurboEngines Summer 2020 Administrator Guide* on the Apttus documentation portal.

About the TurboEngine Data Sync Flow

TurboEngines Data Sync services comprises several components that work to pull data from Apttus applications in Salesforce to a staging database that is then delivered using consumer services to various consumer endpoints (Consumer Profiles) based on their need for data. The data sync service pulls data from Salesforce at regular, scheduled intervals (using scheduler) and as needed based on Salesforce Push Topic configuration. A user can also retrieve data by invoking on demand sync from the Data Sync Admin UI.

Refer to the following diagram for a high-level flow of the data sync process between SFDC and TurboEngines.



About Consumer Profiles

A Consumer Profile as defined in Data Sync is essentially a master list and format definition for objects, fields, and the related objects and fields to be synced to a specific consumer endpoint. In the Data Sync Admin user interface, the Consumer Profile is defined as **Sync Settings**, comprising object and field data to be synced, details or indicators related to the profile, and sync frequency settings.

For more information on Consumer Profiles, refer to [Navigating the Data Sync Admin User Interface](#).

Data Sync Prerequisites

Provisioning requirements for Apttus TurboEngines must be met prior to managing data sync. Refer to [Enabling TurboEngines in an Org](#) in the *Apttus TurboEngines Summer 2020 Administrator Guide* for more information.

Key Terms

Term	Definition
TurboEngine	A concurrent processing engine provided by Apttus that comprises various microservices that process and sync product configurations, pricing configurations and data.
Flexible Computing Platform	An Apttus-designed cloud platform built using microservices that offloads the computation workload from the Salesforce platform to reduce processing time on the cart, interaction costs, and the quote turnaround time specifically during peak load or large transactions.
TurboPricing	A pricing engine microservice on the Flexible Computing Platform that computes complex pricing computations and callbacks.
Data Sync	The process handled by TurboEngines Data Sync Services to sync master pricing data at regular, scheduled intervals or on-demand.
Run History	A log of all data successful and unsuccessful data sync executions that provides a means of troubleshooting sync operations using helpful error messages.
Consumer Profile	A master list and format definition for objects, fields, and related objects and fields to be synced to various consumer endpoints.
Consumer Service	The service that delivers synced data to the consumer endpoint.
Consumer Endpoint	The destination for synced data delivered by a Consumer Service and defined by the Consumer Profile.

Navigating the Data Sync Admin User Interface

The TurboEngines Data Sync administrator user interface allows administrators to manage, modify, and monitor data sync operations of master data between Apttus on Salesforce and various consumer endpoints. Administrators can make changes to data sync consumer profiles by adding, updating, or deleting objects and fields for sync. They can also monitor data sync jobs status and run history, as well as manually trigger data sync for any given consumer profile.

Navigating to Turbo Data Sync

To open the Data Sync Admin UI, go to the **Salesforce App Launcher > TurboEngines Admin**.

Go to the **Data Integration** tab. From the list of Consumers click **Manage Sync** to open the Admin UI.

i The **Callbacks** tab is used for managing TurboPricing Callbacks. Refer to the *Apttus TurboEngines Summer 2020 Administrator Guide* for information on setting up and managing callbacks.

About Consumer Profiles

The standard and custom objects that are synced from Salesforce to TurboEngines are defined as Consumer Profiles. Consumer Profiles are a master list and format definition for objects, fields, and the related objects and fields to be synced to a specific consumer endpoint. These profiles are displayed in the Consumer list under the Data Integration tab.

Refer to the following table for a description of available Consumers.

Consumer Profile	Data Sync Admin Access	Description
Pricing Master Data	Read / Write	Seeded master pricing data (Salesforce standard and Apttus custom objects). This consumer profile can be modified from Sync Settings.

Consumer Profile	Data Sync Admin Access	Description
Customer-Specific Data	Read / Write	Seeded consumer profile with no data. This consumer profile must be modified from Sync Settings to add customer-specific data.
Conversion Rates and Custom Settings	Read-only	Seeded custom settings for pricing. This consumer profile is read-only.

Overview of the Data Sync Admin UI

The TurboEngines Admin UI comprises two main tabs:

- **Sync Settings:** Manage objects and fields to sync for the selected consumer profile. You can view objects, fields and their hierarchy and make modifications as necessary. You can also define the frequency at which the data will be synced.
- **Run History:** View data sync run history and associated error messages. The tab displays a list of data sync ids and other information, including whether or not the sync was successful. You can click on an entry in the run history to view any error messages or other details that are provided.

Managing Sync Settings

Refer to the topics in this section for step-by-step information on enabling, configuring, and executing data sync from Sync Settings in the Admin UI.


- [Enabling and Disabling Data Sync](#)
- [Adding Objects and Fields for Sync](#)
- [Running Data Sync On-Demand](#)
- [Managing Data Sync Frequency](#)

Enabling and Disabling Data Sync

You can enable or disable data sync for a consumer profile from the **Sync Settings** tab.

To enable or disable data sync for a consumer profile


1. From the list of Consumers, click **Manage Sync** to manage data sync for the profile you want to enable or disable.
2. From the Sync Settings header, click **Sync Enable** toggle to enable or disable data sync. A message is displayed notifying you that the data sync is enabled or disabled.

-  When data sync is disabled for a consumer profile:
- The **Sync Now** button is disabled.
 - Any in-progress sync is not affected and completes as normal.
 - Any scheduled synchronizations are cancelled (note that the sync frequency setting for this profile is still set in the event the sync is re-enabled).
 - The admin can still modify objects and fields for sync.
 - The admin can still modify sync frequency.

Adding Objects and Fields for Sync

The initial list of objects to be synced is provided by the associated consumer profile and displayed on the Sync Settings page. When you need to add new objects or fields to the sync or update the existing data structure, you can do so from Sync Settings. You have the


option to add simple or complex objects. When adding new objects or managing existing objects, you can also select which fields to include or exclude from the sync operation.

 The Add Objects button is disabled for consumer profiles that are read-only.

To add a simple object to the sync

Add a simple object to the sync when you only need the object and its fields.

1. Go to the **Sync Settings** page.
2. From the object list at the bottom of the page, click **Add Object**. The Add Object dialog is displayed.
3. Select **Simple Object**.
4. Click **Next**.
5. Search and select the object to sync.
6. Click **Next**.
7. Search and select one or more fields to add them to the sync. If you want to sync all fields for the selected object click **Select All**.

 When you click Select All, the check box **Include all fields along with fields which would get added in future** becomes visible. Click the check box to include any fields added to the selected object after this object has been added.

8. Click **Save**. The object is added to the list of objects on the Sync Settings page.

To add a complex object to the sync

Add a complex object to the sync when you want to include related objects and their fields (reference, child, and nested relationships).

1. Go to the **Sync Settings** page.
2. From the object list at the bottom of the page, click **Add Object**. The Add Object dialog is displayed.
3. Select **Complex Object**.
4. Click **Next**.
5. Search and select an object to sync.
6. Click **Next**.
7. Enter the **Target Object Name**: Enter a user-friendly name for the object.


8. Click **Manage**. The Manage Object page is displayed for the object you selected. By default, only the top-level object is displayed in the list. To expand the list of fields for any reference field or child object, click the **chevron button (>)**.
9. Add objects from the list. Use the **check boxes** to the left of object and field names to selectively include objects and fields to the sync profile for this object:
 - To add just the object and its fields (including any reference fields), click the **check box** to the left of the object name. For example, click the check box next to Price List to select the object and all of its fields (you can verify this by clicking the **chevron button (>)** to expand the list of selected fields). No child fields are selected.
 - To add all fields for a reference object:
 - i. Click the **chevron button (>)** to expand the list of fields under the reference object. The reference object name is displayed on its own line at the top of this expanded list.
 - ii. Click the **check box** next to the reference object name to add all fields under the reference object.
 - To add a child object and all of its fields, click the **check box** next to the child object. No child fields are selected.
 - You can click the **Select All ()** button (to the left of the Field Name column header) at any time to select all currently visible fields in the list.
 - i. Before clicking Select All, click the **chevron button (>)** next to any object, or reference or child object to display all of the fields you want to add.
 - ii. Then, click the **Select All ()** button to add all fields to the sync profile.
 - To deselect all fields, click the **Select All ()** button again. Note: if you collapsed any of the objects that were previously selected using Select All, those fields will remain selected. To remove those fields, expand the object to view the list of selected fields and click the **Deselect All ()** button to clear the selection.
10. Click **Save**. The object and its selected fields is added to the list of objects on the Sync Settings page.

To update an object for sync

Update objects when you want to include or exclude fields from the sync.

1. Go to the **Sync Settings** page.
2. Search for the object you want to modify.
3. Click the row drop-down and select **Manage**. The Manage Fields page is displayed.


4. From the Available Fields list, navigate through the hierarchy and click the checkbox next to a field to include it in the sync (unchecked fields will not have their data synced).

 Clicking the check box next to the object name selects the object and all of its fields. This does not select any child or lookup objects or their fields.

5. Click **Submit** to save your changes and return to the Sync Settings page.

To delete an object

1. Go to the **Sync Settings** page.
2. Search for the object you want to delete.
3. Click the row drop-down and select **Delete**. A confirmation dialog is displayed.
4. Click **Yes** to confirm or **No** to cancel.

 Be careful when deleting objects. To maintain sync integrity, delete objects lower in the sync sequence first.

Running Data Sync On-Demand


In cases where you need to initiate data sync manually, you perform an on-demand data sync from the Sync Settings page.

Prerequisites:

- Data sync must be enabled for the given consumer profile.
- The consumer profile must include one or more simple or complex objects.

To run data sync manually

1. Go to the **Sync Settings** page.
2. Click **Sync Now**. The data sync process is begun and you are redirected to the Run History tab.
3. [Review Run History](#) to view sync details and any associated errors.

-  If a sync is progress when you invoke on-demand sync, the sync is queued and executes after the in-progress sync is complete.

Managing Data Sync Frequency

For a given consumer profile, you can set and schedule master data to be synced at specified intervals. You can manage the frequency of data sync operations and set a start date and time for the first scheduled sync to begin.

To set the initial data sync frequency

1. Go to the **Sync Settings** page.
2. Click **Set New Frequency**. The Set Sync Frequency dialog is displayed.
3. From the **New Sync Frequency** drop-down, select the sync frequency.
4. To specify a start date and time for the first sync, click the checkbox next to **Schedule start date and time**.
 - a. Select a date from the **Date** field.
 - b. Select a time from the **Time** field.
5. Click **Save**. The frequency for syncing the data for this consumer profile is set. If no date or start time was configured, the first sync is run. The Sync Settings page displays the newly configured frequency, any run currently in process, and also the date and time of the next scheduled sync.


Time Zone Settings

When you set a date and time for the next scheduled data sync, the values you select in the date picker match your time zone in *SFDC user settings*. However, when displayed on the Data Sync Admin UI Sync Settings page, they are always calculated to display the next data sync based on your *system time settings*. It is recommended to synchronize your SFDC user time zone with your system time zone prior to scheduling data sync to avoid any confusion.

To change data sync frequency

1. Go to the **Sync Settings** page.
2. Click **Manage Frequency**. The Set Sync Frequency dialog is displayed.
3. From the **New Sync Frequency** drop-down, select the sync frequency.


4. Click **Save**.

 You cannot schedule a specific date and time for the next sync when you are updating a previously set frequency.

Working with Data Sync Run History

After a manual or scheduled data sync is run, information about the sync is displayed in the **Run History** tab, regardless of whether or not the data sync was successful. You can view and interact with data sync run history to monitor the progress or status of the sync and any errors generated if the sync was unsuccessful.

The Run History table displays the following information.

Column	Description
Sync Id	The Id of a sync operation. Click the link to view object-level details.
Start Date and Time	The date and time the sync operation initiated. You can use the start date to get an understanding of how recently data was pulled from Salesforce to the consumer service.
End Date and Time	The date and time the sync operation completed or failed.
Duration	The duration of the data sync operation.
Status	<ul style="list-style-type: none"> • Queued: The data sync operation has not started and is in queue. • In Progress: The data sync operation is currently in progress. • Successful: The data sync operation was successful without any errors. • Failed: The data sync operation failed with one or more errors. <p>You can click on the error () icon to view a list of errors and suggested actions.</p>
Type	Indicates whether the sync was Scheduled or Manual .

Only the most recent syncs are displayed in the page on your screen. To view older syncs, scroll down and the list will refresh. You can also use the search function at the top to find a specific sync Id.

To view object level details for a sync operation

1. Go to the **Run History** page.

2. Locate and click the link to the corresponding **Sync Id**. The Details page is displayed.


The Run History Details page displayed the following information.

Column	Description
Object	The object of the record or records that were synced.
Status	<p>The status of the synced object:</p> <ul style="list-style-type: none"> • Yet to Start: The object has not yet been synced. • Successful: One more records were successfully synced. • No Change: No changes were made to records for that object. • Failed: The sync failed for the object – check for error message(s). • Cancelled: One or more objects failed to sync – the operation to sync this object was not run.
Number of Records Synced	Displays the number of records synced for that object.

Viewing and Evaluating Error Messages

Run History provides you with the means to investigate errors that occur during data sync operations. When you view error information for a sync operation, it displays the errors that occurred and suggested actions to take.

To view and evaluate error messages in Run History

1. Go to the **Run History** tab.
2. Locate a **Sync Id** with the status **Failed**.
3. Click the **error** () icon. A dialog is displayed with a list of errors and suggestion actions to take.

The following table summarizes errors that can occur during a sync operation and suggested actions to take to resolve these errors.

Message	Suggested Action (Consumer Admin)
Unable to sync data to the Consumer Database.	Click "Sync Now" on the Sync Settings page to retry data sync. If the problem persists, please contact Apttus Technical Support (you will need to provide the Sync Id).
An internal error has occurred with the Data Sync service.	Click "Sync Now" on the Sync Settings page to retry data sync. If the problem persists, please contact Apttus Technical Support (you will need to provide the Sync Id).
Unable to fetch Consumer Profile.	Contact Apttus Technical Support with the Sync Id.
Unable to create bulk job on Salesforce.	Click "Sync Now" on the Sync Settings page to retry data sync. If the problem persists, please contact Apttus Technical Support (you will need to provide the Sync Id).
Unable to get initial results from Salesforce.	Please check that all objects in Sync Settings have read access. If the problem persists, please contact Apttus Technical Support (you will need to provide the Sync Id).
Error occurred while retrieving the records from Salesforce.	Please check that all objects in Sync Settings have read access. If the problem persists, please contact Apttus Technical Support (you will need to provide the Sync Id).
Unable to sync data to the target endpoint.	Click "Sync Now" on the Sync Settings page to retry data sync. If the problem persists, please contact Apttus Technical Support (you will need to provide the Sync Id).
Unable to fetch Data using the target object	Please contact Apttus Technical support with the Sync Id.
Unable to sync data to the target endpoint.	Please contact Apttus Technical support with the Sync Id.
Unable to delete data from the target endpoint.	Please contact Apttus Technical support with the Sync Id.

Appendices

Refer to the following appendices for additional important information about TurboEngines Data Sync.

- [Known Issues](#)

Known Issues


The following known issues apply to TurboEngines Data Sync up to the current release (Summer 2020). Please contact Apttus Technical Support with any additional questions.

Issue: Adding Existing Fields to Consumer Profiles

There is a limitation in the current release of the data sync services that can sometimes cause a field that is added in Sync Settings after the initial sync to not sync to the TurboEngines database on subsequent sync. Here we provide an explanation of the issue and the available workaround.

Best Practice: The scenario as stated can be entirely avoided provided that as soon as a new field that is added on an object that it also be added to the sync in Sync Settings before any data is populated. This ensures that the records that contain the new field are considered modified since the last update in Sync Settings and any value they contain for the new field will be synced to TurboEngines. In the event that this is not possible, please move to the Workaround.

Workaround: To ensure that all field values on all records sync, you must delete the object in Sync Settings and add it again. When you perform the next sync, all fields for that object across all existing records are synced from Salesforce to TurboEngines.

 This limitation only applies specifically when an **existing field** on an object is added in Sync Settings when it was not previously present. When a new field is added to the object itself in Salesforce and the field is added in Sync Settings, all records that contain the new field will be synced to TurboEngines (nothing will be ignored).

Issue: Adding a New Formula to a Consumer Profile

Scenario: When a new formula field is added to a consumer profile, only the values added or changed after the field was added are synced.

Workaround: Delete and add the entire object that contains the formula field in Sync Settings to trigger an initial sync.

Issue: Adding Cross-Object Formula Fields

Data sync only supports up to eight levels in a cross-object formula field. Any levels beyond eight will be ignored.

Issue: Some Out-of-the-box Objects and Fields Can Cause Sync to Fail

Assumptions: Some objects exist in the list of objects to add that do not support Salesforce "PK chunking" for bulk data queries.

Scenario: Some SFDC out-of-the-box objects in the "Add Objects" list under Sync Settings could cause the data sync to fail if they are added to the consumer profile. There is no effect on custom objects (Apttus and customer-specific) as they all support "PK chunking."

Workaround: As a workaround Apttus can add objects as they are needed from the back end. Please contact Apttus Technical Support if you have any questions regarding this limitation.

Issue: Deleting a Consumer Profile Field in SFDC

ade to the data model for a consumer profile object in SFDC.

Scenario: When a field or related field of an object that is part of a consumer profile is removed, data sync will mark that field as inactive. If it is added back again with the same name, the status of the field remains inactive.

Workaround: Contact Apttus Technical Support.

Issue: Manage Sync Screen Default View Does Not Display Complete Complex Object Sync Details

Scenario: When a complex object is added in Sync Settings, in addition to the object's fields, fields from any reference or child object may also be selected, including any references or children of those objects, up to nth level. When a user clicks "Manage Sync" to make changes to sync settings for a specific object, some fields added to the sync may not be visible even though they are selected. This is because each node of the Manage Sync screen can be expanded or collapsed—any reference or child object list that is collapsed but contains selected fields is not automatically expanded when a user chooses to manage the sync. Therefore there may be some confusion as to exactly which fields are included and which are not included in the sync.

Workaround: When managing an object for sync, after clicking Manage Sync, expand reference and child object lists as needed to check for additional objects and fields included in the sync for that object.

Apttus Copyright Disclaimer

Copyright © 2019 Apttus Corporation ("Apttus") and/or its affiliates. All rights reserved.

No part of this document, or any information linked to or referenced herein, may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written consent of Apttus. All information contained herein is subject to change without notice and is not warranted to be error free.

This document may describe certain features and functionality of software that Apttus makes available for use under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not, in any form, or by any means, use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part of the software. Reverse engineering, disassembly, decompilation of, or the creation of derivative work(s) from, the software is strictly prohibited. Additionally, this document may contain descriptions of software modules that are optional and for which you may not have purchased a license. As a result, your specific software solution and/or implementation may differ from those described in this document.

U.S. GOVERNMENT END USERS: Apttus software, including any operating system(s), integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency- specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

Neither the software nor the documentation were developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail- safe, backup, redundancy, and other measures to ensure its safe use. Apttus and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Apttus and X-Author are registered trademarks of Apttus and/or its affiliates.

The documentation and/or software may provide links to Web sites and access to content, products, and services from third parties. Apttus is not responsible for the availability of, or any content provided by third parties. You bear all risks associated with the use of such content. If you choose to purchase any products or services from a third party, the relationship is directly between you and the third party.

Apttus is not responsible for: (a) the quality of third-party products or services; or (b) fulfilling any of the terms of the agreement with the third party, including delivery of products or services and warranty obligations related to purchased products or services. Apttus is not responsible for any loss or damage of any sort that you may incur from dealing with any third party.

For additional resources and support, please visit <https://apttusportal.force.com/community>.

DOC ID: TDSSUM20AGEREVA20200821