

**APTTUS<sup>®</sup>**

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**Intelligent Workflow and Approvals on Salesforce Spring 2018 SOAP**

**API Guide**

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## About this Guide

Apttus provides Application Programming Interfaces (API) for you to extend the features offered by Apttus. These extensions add more functionality to the features available through configuration on Salesforce.

The Apttus Intelligent Workflow and Approvals SOAP API Guide describes the APIs provided to work with Intelligent Workflow and Approvals objects.

## Overview

- [API Supported Packages](#)  
This guide covers CPQ, CM, Merge Service, and Configuration and Pricing APIs.
- [Document Setup](#)  
The Apttus CPQ and CM API reference Guide is divided into two sections: *API Reference* and *Scenarios*.
- [API Standards and Development Platforms](#)  
Apttus APIs are based on Salesforce APIs and use the same standards and platforms.
- [Field Types](#)  
Apttus APIs use a subset of the supported data and field types on Salesforce.

## Document Setup

The Apttus CPQ and CM API reference Guide is divided into two sections: *API Reference* and *Scenarios*.

<a href="#">API Reference</a>	The <i>API reference</i> section details the APIs that you can use to manipulate Apttus objects through API calls and passing parameters. The API reference section also includes some code samples.
<a href="#">Scenarios</a>	The <i>Scenarios</i> section details examples of the APIs you require to complete a specific task such as, adding products and constraint rules to the cart. The scenarios are classified by theme. You can refer to the generic examples of scenarios to identify the calls you can use to achieve your objective.

## API Standards and Development Platforms

Apttus APIs are based on Salesforce APIs and use the same standards and platforms.

## Standards

Name	Reference
Simple Object Access Protocol (SOAP) 1.1	<a href="http://www.w3.org/TR/2000/NOTE-SOAP-20000508">http://www.w3.org/TR/2000/NOTE-SOAP-20000508</a>
Web Service Description Language (WDSL) 1.1	<a href="http://www.w3.org/TR/2001/NOTE-wsdl-20010315">http://www.w3.org/TR/2001/NOTE-wsdl-20010315</a>
WS-I Basic Profile 1.1	<a href="http://www.ws-i.org/Profiles/BasicProfile-1.1-2004-08-24.html">http://www.ws-i.org/Profiles/BasicProfile-1.1-2004-08-24.html</a>

## Development Platforms

Apttus SOAP API works with standard SOAP development environments. For a list of compatible development platforms, see [Salesforce Developer Force API](#) details.

 **Note**  
A later version of this content will contain sample code.

## Field Types

Apttus APIs use a subset of the supported data and field types on Salesforce.

The following table lists the APIs that Apttus provides. For a comprehensive list of all field types supported by Salesforce, see [Salesforce Data Types](#).

Type	Description
Boolean	The <b>Boolean</b> field has a true (or 1) or false (or 0) value.
Data object	The <b>Data Object</b> field is an ID type and is represented by <code>CPQ.nndoin</code> in this document.

Type	Description
Date	The <b>Date</b> field contains date values only and do not contain relevant time values. Time in a date field is always set to midnight in the UTC time zone. If you want a timestamp you must use a <b>dateTime</b> field.
Decimal	The <b>Decimal</b> field provides an exact numeric value and you can arbitrarily size the precision and scale of the value.
ID	The <b>ID</b> field is an alphanumeric field that acts like the primary key for a specific record associated with an object. The ID value includes a three-character code that identifies which object the record is associated with. The ID for a specific record does not change. For some objects, this field may also be a <code>referenceType</code> value, which contains the ID value for a related record. They are identified by field names ending in 'Id', such as <code>priceListId</code> . The ID field acts like foreign keys and their values can be changed using an <code>update()</code> call.
Integer	The <b>Integer</b> field contains whole numbers only. There are no digits after the decimal.
List	The <b>List</b> field includes a fixed set of values from which you must select a single value. Picklists are available as drop-down lists. If a picklist is unrestricted, the API does not limit entries to only currently active values.
String	The <b>String</b> field contains text and may have differing length restrictions based on the data you store in the specific field. For instance, <code>city</code> may be limited to 50 characters, while <code>addressLine1</code> is limited to 255 characters.

## IWA Web Service

### Enabling auto re-approvals on Proposal and Proposal Line Items

This API takes several parameters and updates the reapproval data in the process instance so that proposal line items can be automatically reapproved when resubmitted after finalizing new items in the cart. Note that this API is available in the base Approvals package and can be used with the optional unmanaged custom package "Apttus Proposal Auto-Reapprovals" available on request with Apttus Release Management. This package contains the complete sample code that can be used along with the API in the base package to make auto-reapprovals work with Proposals and Proposal Line Items.

#### updateApprovalData

Request Parameters			
Name	Type	Required?	Description
instanceId	ID	Yes	The process instance id that is being currently executed in the system.
sObjectType	String	Yes	The sObject type that is used to identify the object type.
contextObjId	ID	Yes	The ID of the context object.
oldContextObjIds	List<ID>oldContextObjIds	Yes	The list of old approval data context object ids that are to be replaced with the new ones.
newContextObjIds	List<ID>newContextObjIds	Yes	The list of new approval data context object id store place with.

Response Parameter			
Name	Type	Required	Description
Ok	Boolean	Yes	Defines if the operation was successful. Returns <i>true</i> if yes, otherwise <i>false</i> .

#### Code Sample

The sample below enables you to execute auto re-approvals over Proposal Line Items by considering the input parameters, such as process instance, sObject type, context object, and lists of old and new context object ids. These IDs represent the Proposal Line Item IDs before and after the cart is finalized. You can use this API in a scenario where a Quote/Proposal is approved but the Approvals Manager decides to change the discount from 10 to 15% on a Proposal Line Item, you can resubmit the approval request for this for re-approval. The system honors the auto-reapproval criteria, using which a request once approved by certain assignees are auto-approved.

See the complete code included in the package to understand how this works, especially `CustomProposalLineItemSupport.cls`. Note that the code in this package is based on a trigger on the Proposal Line Item object which saves the old ids of the Proposal Line Items before they are deleted as well as the new ids of the Proposal Line Items that get inserted after the cart is finalized. You can extend this concept for other custom child objects to the proposal object by creating a trigger on them and using the same pattern in the sample code to save ids before and after new items are created.

```

/**
 *Apttus Approvals Management
 *CustomProposalLineItemTrigger
 *@2017 Apttus Inc. All rights reserved.
 */

trigger CustomProposalLineItemTrigger on Apttus_Proposal__Proposal_Line_Item__c (before delete,
after insert)
{
    if (Trigger.isBefore && Trigger.isDelete)
    {
        // save map of old line items to attributes before they are deleted
        CustomProposalLineItemSupport.doBeforeDelete(Trigger.old, Trigger.oldMap);
    }
    if (Trigger.isAfter && Trigger.isInsert)
    {
        // update reapproval data with new line items after they are inserted
        CustomProposalLineItemSupport.doAfterInsert(Trigger.new, Trigger.newMap);
    }
}

/**
 *Apttus Approvals Management
 *CustomProposalLineItemSupport
 * @2017 Apttus Inc. All rights reserved.
 */

public with sharing class CustomProposalLineItemSupport extends CustomApprovalsConstants
{
    // line item types
    private static final String LINETYPE_PRODUCT = 'Product/Service';
    private static final String LINETYPE_OPTION = 'Option';

    // proposal
    private static final String PROPOSAL_SUBJECT_TYPE = 'Apttus_Proposal__Proposal__c';
    private static ID quoteId = null;

    // associated process instance
    private static Apttus_Approval__ApprovalProcessInstance__c quoteProcessInstance = null;

    // map of old line item ids to attribute key
    private static Map<ID,String> oldLineId2KeyMap = new Map<ID,String>();

    // map of new line item attribute key to id
    private static Map<String,ID> newLineKey2IdMap = new Map<String,ID>();
}

```

```

// map of old line item ids to new line item ids
private static Map<ID,ID> lineOldId2NewIdMap = new Map<ID,ID>();

/**
 * Process old ProposalLineItems before they are deleted when a cart is finalized
 * @param oldLineItems - a list of the old versions of the sObject records
 * @param oldLineItemsMap - a map of IDs to the old versions of the sObject records
 */

public static void doBeforeDelete( List<Apttus_Proposal__Proposal_Line_Item__c> oldLineItems,
Map<ID, Apttus_Proposal__Proposal_Line_Item__c> oldLineItemsMap)
{
    // iterate over line items about to be deleted
    for (Integer i=0; i<oldLineItems.size(); i++)
    {
        Apttus_Proposal__Proposal_Line_Item__c oldLineItem = oldLineItems[i];
        // get quote from line item
        quoteId = oldLineItem.Apttus_Proposal__Proposal__c;
        // get line item attributes
        String lineNumber =
String.valueOf(oldLineItem.Apttus_QPConfig__PrimaryLineNumber__c);
        String lineType = oldLineItem.Apttus_QPConfig__LineType__c;
        String productId = null;

        if (lineType == LINETYPE_PRODUCT)
        {
            productId = oldLineItem.Apttus_Proposal__Product__c;
        }
        else if (lineType == LINETYPE_OPTION)
        {
            productId = oldLineItem.Apttus_QPConfig__OptionId__c;

            //productId = oldLineItem.Apttus_QPConfig__ProductOptionId__c;
        }

        String chargeType = oldLineItem.Apttus_QPConfig__ChargeType__c;
        // create attribute key
        String oldLineKey = lineNumber + ':' + productId + ':' + chargeType;
        // save in map
        oldLineId2KeyMap.put(oldLineItem.Id, oldLineKey);
    }
}

/**
 * Process new ProposalLineItems after they are inserted when a cart is finalized
 * @param newLineItems - a list of the new versions of the sObject records
 * @param newLineItemsMap - a map of IDs to the new versions of the sObject records
 */

```

```

public static void doAfterInsert(List<Apttus_Proposal__Proposal_Line_Item__c> newLineItems,
Map<ID, Apttus_Proposal__Proposal_Line_Item__c> newLineItemsMap)
{
    // iterate over line items about to be deleted
    for (Integer i=0; i<newLineItems.size(); i++)
    {
        Apttus_Proposal__Proposal_Line_Item__c newLineItem = newLineItems[i];

        // get quote from line item
        quoteId = newLineItem.Apttus_Proposal__Proposal__c;

        // get line item attributes
        String lineNumber =
String.valueOf(newLineItem.Apttus_QPConfig__PrimaryLineNumber__c);
        String lineType = newLineItem.Apttus_QPConfig__LineType__c;
        String productId = null;

        if (lineType == LINETYPE_PRODUCT)
        {
            productId = newLineItem.Apttus_Proposal__Product__c;
        }
        else if (lineType == LINETYPE_OPTION)
        {
            productId = newLineItem.Apttus_QPConfig__OptionId__c;
            //productId = newLineItem.Apttus_QPConfig__ProductOptionId__c;
        }
        String chargeType = newLineItem.Apttus_QPConfig__ChargeType__c;

        // create attribute key
        String newLineKey = lineNumber + ':' + productId + ':' + chargeType;
        // save in map
        newLineKey2IdMap.put(newLineKey, newLineItem.Id);
    }

    // create map of old line item ids to new line item ids
    Set<ID> oldLineItemIds = oldLineId2KeyMap.keySet();
    List<ID> newLineItemIds = new List<ID>();

    for (String oldLineItemId : oldLineItemIds)
    {
        // get attribute key
        String attrKey = oldLineId2KeyMap.get(oldLineItemId);
        // lookup key in new line items map
        String newLineItemId = null;
        if (newLineKey2IdMap.containsKey(attrKey))
        {

```

```

        newLineItemId = newLineKey2IdMap.get(attrKey);
        newLineItemIds.add(newLineItemId);
        // associate old key with new one
        lineOldId2NewIdMap.put(oldLineItemId, newLineItemId);
    }

}

// update reapprovals data by calling API in approvals package

List<ID> oldContextObjIds = new List<ID>(oldLineItemIds);
List<ID> newContextObjIds = newLineItemIds;

system.debug(LoggingLevel.INFO, 'sObjectType='+PROPOSAL_SOBJECT_TYPE);

system.debug(LoggingLevel.INFO, 'contextObjId='+quoteId);

system.debug(LoggingLevel.INFO, 'oldContextObjIds='+oldContextObjIds);

system.debug(LoggingLevel.INFO, 'newContextObjIds='+newContextObjIds);

if (!oldContextObjIds.isEmpty() && !newContextObjIds.isEmpty() && oldContextObjIds.size() ==
newContextObjIds.size())
{
    // get process instance associated with the old quote
    Apttus_Approval__ApprovalProcessInstance__c instanceSO =
getProcessInstance(quoteId);
    system.debug(LoggingLevel.INFO, 'instanceSO='+instanceSO);

    // call API to update reapproval data
    Boolean ok = Apttus_Approval.ApprovalsWebService.updateApprovalData(instanceSO.Id,
PROPOSAL_SOBJECT_TYPE, quoteId, oldContextObjIds, newContextObjIds);

system.debug(LoggingLevel.INFO, 'Apttus_Approval.ApprovalsWebService.updateApprovalData='+ok);

}
}

/**
 * Get process instance for the given proposal id
 * @param proposalId
 * @return process instance object
 */

private static Apttus_Approval__ApprovalProcessInstance__c getProcessInstance(ID proposalId)
{

```

```

        List<Apttus_Approval__ApprovalProcessInstance__c> instanceList = [select Id, Name,
LastModifiedDate, LastModifiedById, LastActivityDate, CreatedDate, CreatedById,
Apttus_Approval__Status__c, Apttus_Approval__StartTime__c,
Apttus_Approval__ReassignmentEmailTemplate__c, Apttus_Approval__PrevProcessInstanceId__c,
Apttus_Approval__NotifyOnlyEmailTemplate__c, Apttus_Approval__InstanceNumber__c,
Apttus_Approval__EscalationEmailTemplate__c, Apttus_Approval__EndTime__c, Apttus_Approval__Data__c,
Apttus_Approval__ConsolidationVersionNumber__c, Apttus_Approval__CancellationEmailTemplate__c,
Apttus_Approval__BusinessObjectType__c, Apttus_Approval__BusinessObjectLink__c,
Apttus_Approval__BusinessObjectId__c, Apttus_Approval__AssignmentEmailTemplate__c,
Apttus_Approval__ApprovalProcessId__c From Apttus_Approval__ApprovalProcessInstance__c where
Apttus_Approval__BusinessObjectId__c = :proposalId order by CreatedDate DESC limit 1];
        if ( ! nullOrEmpty(instanceList))
        {
            return instanceList[0];
        }

        return null;
    }

/**
 * Checks if the given string value is null or empty.
 * @param strValue the string to check
 * @return <code>true</code> if the string value is null or empty, <code>false</code> otherwise
 */
    public static Boolean nullOrEmpty(String strValue)
    {
        // check if null or zero length string
        return (strValue == null || strValue.trim().length() == 0);
    }

/**
 * Checks if the given list of objects is null or empty.
 * @param objList the list of objects to check
 * @return <code>true</code> if the list is null or empty, <code>false</code> otherwise
 */
    public static Boolean nullOrEmpty(List<Object> objList)
    {
        // check if null or empty
        return (objList == null || objList.isEmpty());
    }
}

```

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