Prodly™

eBook

The essential guide to

Reference Data Management

Salesforce CPQ Edition

This is no ordinary guide. It’s a guide for achieving Salesforce CPQ reference data nirvana. It’s a mouthful, we know. But this guide will awaken you to the fact that the pain you’re experiencing (or about to experience) when moving the reference data that underpins low-code applications is not a natural law. This guide will show that this pain can be overcome. Nay, it can be eliminated.

In the pages to follow, we will embark on a journey. We will examine the strategic and technical challenges of moving configuration data for Salesforce CPQ (Configure-Price-Quote), although our journey applies to other configuration data-based applications such as Billing, Advanced Approvals, Field Service Lightning (FSL), B2B Commerce, and other low-code apps developed by Salesforce ISVs.

We will also assess the impact that these challenges have on the broader business—an important topic too often ignored. And we will show you an easier, automated way to manage changes to the reference data that makes up low-code applications.

Let’s get going!

Configuration data defined

In this guide, we will be talking a lot about Salesforce reference data. We want to take a moment to explain what this term means.

Reference data, sometimes called configuration data, "define the set of permissible values to be used by other data fields. In CPQ, reference data include Custom Action, Block Price, Location, Price Book Entry, Price Dimension, Price Rule, Product, Product Feature, Product Option, Product Rule, Quote Template, Quote Term, and Solution Group.

To be clear, reference data are not metadata. Unlike metadata which is stored as code, reference data are records and stored in relational data tables. This means reference data is not accessible by Salesforce Change Sets. When companies move CPQ reference data between Salesforce orgs, they must take specific actions to move them separately from any metadata changes.

Here's a quick view of how reference data differs from other types of data from a Salesforce CPQ perspective:

Meta	Reference	Master	Transctional	Reporting
Objects	Custom Action		Account	
Fields	Block Price		Asset	
Apex Code (e.g., triggers)	Localization		Contract	
Validation Rules	Price Book		Opportunity	
	Price Book Entry		Order	
	Price Dimention		Order Product	
	Price Rule		Quote	
	Product		Quote Line Item	
	Product Feature		Quote Document	
	Product Option		Subscription	
	Product Rule			
	Quote Template			
	Quote Term			
	Solution Group			

The unspoken cost of CPQ adoption

Early on, things are great. Your company invests precious resources in customizing its Salesforce environment, gradually installing managed applications, such as CPQ, and driving adoption. Processes are established. You wisely consolidate critical information onto a single platform and streamline business workflows around it.

Salesforce becomes a critical growth driver for your company—a single source of truth everyone relies on. Everyone's happy.

But this growth comes with a price: As your team is adding managed packages that are configured with clicks not code, the reference data invariably becomes unreliable and outdated.

Possible symptoms that show up in these implementations include:

- Missing reference records: e.g. A price book may not contain recently released products. As a result, Sales reps do not have access to a new product or bundle.
- Duplicate reference records: e.g. Sales reps sees "duplicate field" errors in the CPQ quote line editor when configuring bundles.
- Errors in reference records: e.g. Reps may be using an old quote template that contains outdated terms and conditions.

Oh, where are those glory days of yesteryear?

The full business impact of CPQ

How do you gauge the return on your investment in Salesforce managed applications? Is it by examining how consistently your sales team uses them? Or maybe how much the team complains about them?

While it's important to study adoption and usage patterns of Salesforce managed packages, we must broaden our horizon of investigation and understand the impact these applications have on the business at large.

When implementations of Salesforce CPQ deteriorate, or take too long to keep in excellent working order, businesses may experience the following consequences:

- Lower customer satisfaction, as a result of misconfigured sales quotes
- Lower revenue, as a result of mispriced products or excessive discounting
- Missed sales opportunities due to delays in introducing new products and promotions

To quantify the drag that improperly configured CPQ can have on your business, use a calculator like the one shown below. Once you understand the impact, you can dig deeper into the causes of CPQ mis-configuration.

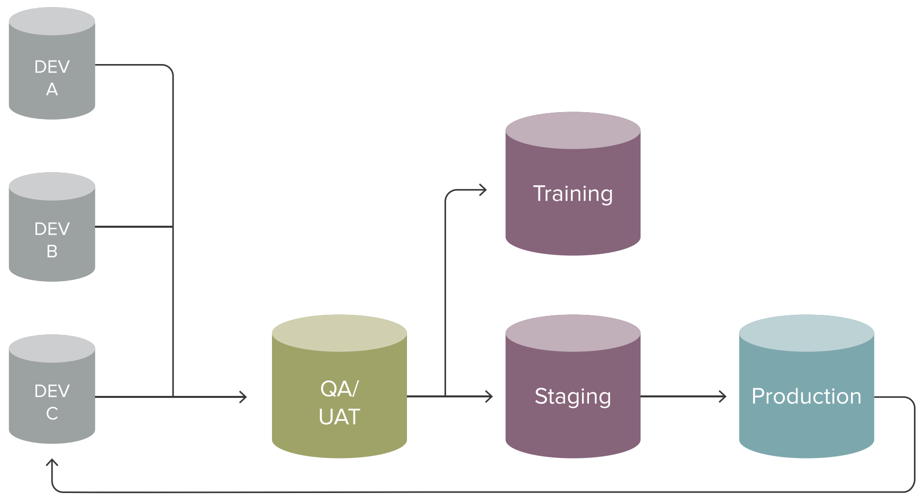
Quoting Errors Method	%	$	Comments
Annual Bookings	100%	$50,000,000	Quoting errors and delayed implementation of changes to CPQ have a major impact on bookings. Prodly has a dramatic impact on the accuracy of timeliness and of CPQ product catalog updates.
Quoting Error Rate	1%	$500,000	
Lost Opportunities from Uncommpettitive Quotes (slow CPQ updates)	1%	$500,000	
Total Lost Bookings	**2%**	**$1,000,000**	

IT/Sales Ops Hours Saved	W/O Prodly	With Prodly	Comments
Updates Per Year (Sprints X Updates per Sprint)	78	78	The laborious process of updating CPQ or other data represents a waste of specialized talent. It is also a source of job dissatisfaction and job burnout for your most experienced people. With Prodly, updating CPQ data is easier and can be accomplished by a less senior person.
Hours Per Update	20	2	
Labor Costs-Per-Hour	$100	$100	
Labor Costs	$156,000	$15,600	

The challenge of applying agile to CPQ

How do Salesforce CPQ implementations deteriorate? Much of it has to do with how their reference data move across Salesforce organizations.

Smart companies follow an agile development process that moves reference data across separate Salesforce orgs for development, testing, training, and release. This helps to minimize errors and to ensure that Sales reps are using accurate, reliable, and trustworthy information.



Agile reference data development process

But it's in these reference data moves that things go awry. Often, data deployments fail or silently introduce errors that go undetected. Errors are primarily introduced from inadequate testing (the Q/A stage in the image above) prior to moving data from a sandbox to production. Lack of separation of development and testing environments is one reason for failed testing. In this scenario, dev pushes new or updated configuration data records after testing is already done.

Another reason is failing to have sufficient time to move reference data or sample test records between orgs, so the team ends up cutting corners and works in a single sandbox. This is problematic because it is difficult to keep track of the status of the work performed by different admins and developers. Version control is difficult because development and testing is done in the same org.

A third reason for insufficient testing is lack of time for QA and UAT. Often, it takes so long to deploy data between orgs that there is not enough time left in the schedule to do testing.

The revenue impact of bad CPQ deployments

Earlier, we examined the drag that an improperly implemented CPQ application could have on business performance. We also looked at how insufficient testing fails to capture reference data problems that ultimately make their way into the production environment.

Let's look at three scenarios where CPQ implementations go astray. Each example includes a reference data issue that works its way into production, a resulting CPQ performance issue, and the subsequent business impact.

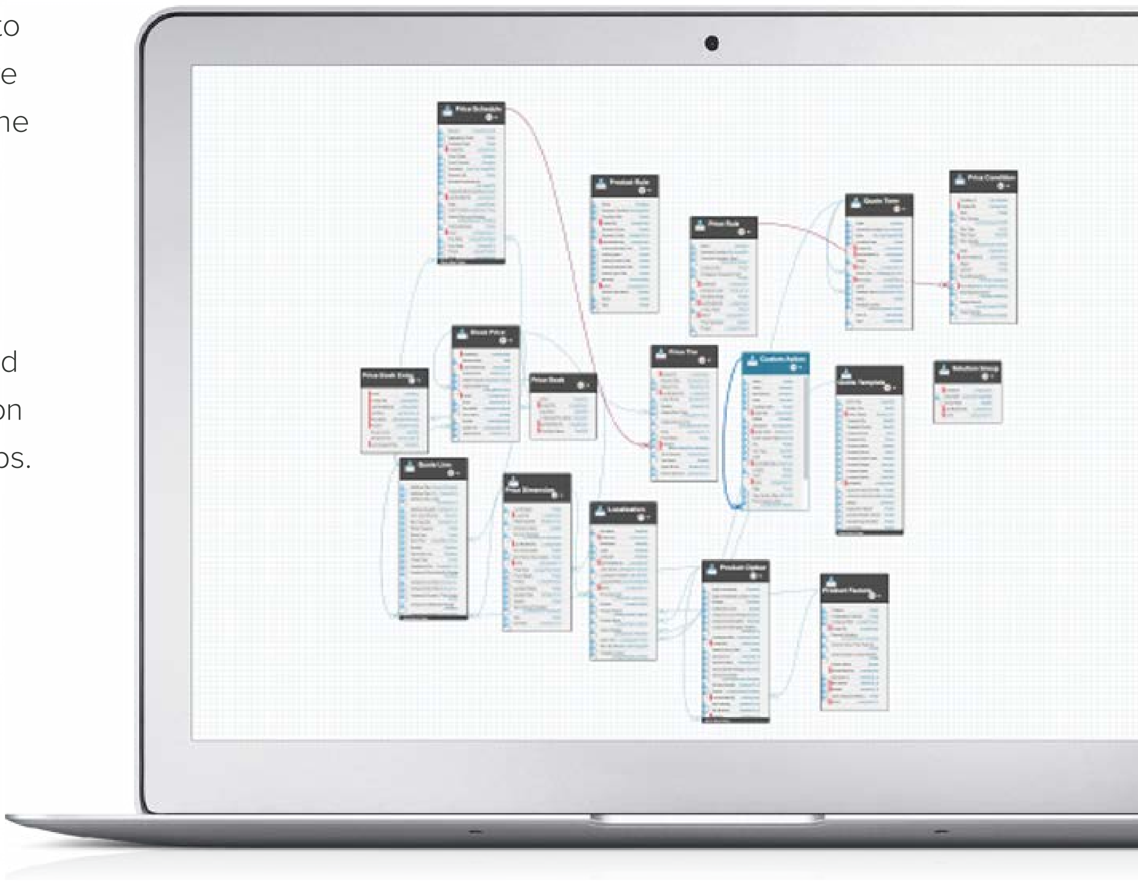
A reference data issue impacting production...	...resulting in CPQ mplementation issue...	...which lands the business in a swampy mess
Internal Salesforce IDs are not captured, or some source records aren't moved.	CPQ contains duplicate product bundles, and is missing price rules.	Salesforce users configure and extend incorrect sales quotes, making customers unhappy.
Bad configuration isn't detected during testing.	Some areas of CPQ are not functioning properly.	Salesforce users are unable to issue quotes, lowering monthly revenue.
Prolonged data move process causes delays in pushing config changes.	CPQ contains outdated information.	Missed sales opportunities due to delays in introducing new products and promotions.

Conventional change management goes astray

The chief reason why faulty CPQ configuration makes its way into production is that conventional data deployment tools used to move data between Salesforce orgs were never designed to handle the reference data model of low-code applications like CPQ.

The current CPQ data model now includes over 50 objects that would take a seasoned architect more than 20 hours to move between Salesforce orgs. The Product object alone has 26 related objects that customers typically need to include in their configuration data deployments and remap all of their parent-child relationships. It also has self-referencing fields to take into consideration.

The CPQ data schema incorporates complex relational data. It requires a reference data deployment between Salesforce orgs that maintains the parent-child relationship between multiple objects, multiple levels, multiple relationships per object, and self-referencing records. The image below conveys some of the objects in the CPQ data model and their interdependency.



Using Data Loader: The changing ID problem

Conventional data loaders, which move data for only one object at a time, require sequential data moves, or multiple passes, to remap record IDs across organizations and push out the data. This is an error-prone process that takes a long time to execute.

A major roadblock here is the simple fact that Salesforce record IDs are unique and assigned at creation time. When you move a data record from one Salesforce org to another, the record is assigned a brand new ID. It is, therefore, impossible to base record relationships on source org IDs—those IDs are replaced by other IDs in the destination org.

There is one exception: Product, Price Book, and Price Book Entry are considered standard Salesforce objects. When a Salesforce sandbox is created, the records in these objects are copied from production along with the metadata. The record IDs for these three reference data objects are actually the same as production. However, after the sandbox is created, any new records added to either org will have unique IDs and will require remapping when copying them to another org.

Check out the Prodly blog to learn more about the ins and outs of Salesforce record IDs.

One Step at a Time Takes a Really Long Time

The following steps show the process of manual configuration data moves. Recall that this sequence must be followed for any group of objects out of the 50+ CPQ reference objects that you wish to move any time you change your source org reference data. You will move these objects sequentially, one object at a time.

Assuming you don't have Salesforce external IDs defined, the sequential steps are:

1 Export to a spreadsheet the parent object records from the source org with the source record IDs.

2 Manually search for and remove any existing duplicate parent records.

3 Use the data loader to import these records into the destination org.

4 Export parent records with their new and old (source) record IDs from the destination.

5 Export child object records with their parent lookup IDs from the source org to a spreadsheet.

6 Manually search for and remove any existing duplicate child records.

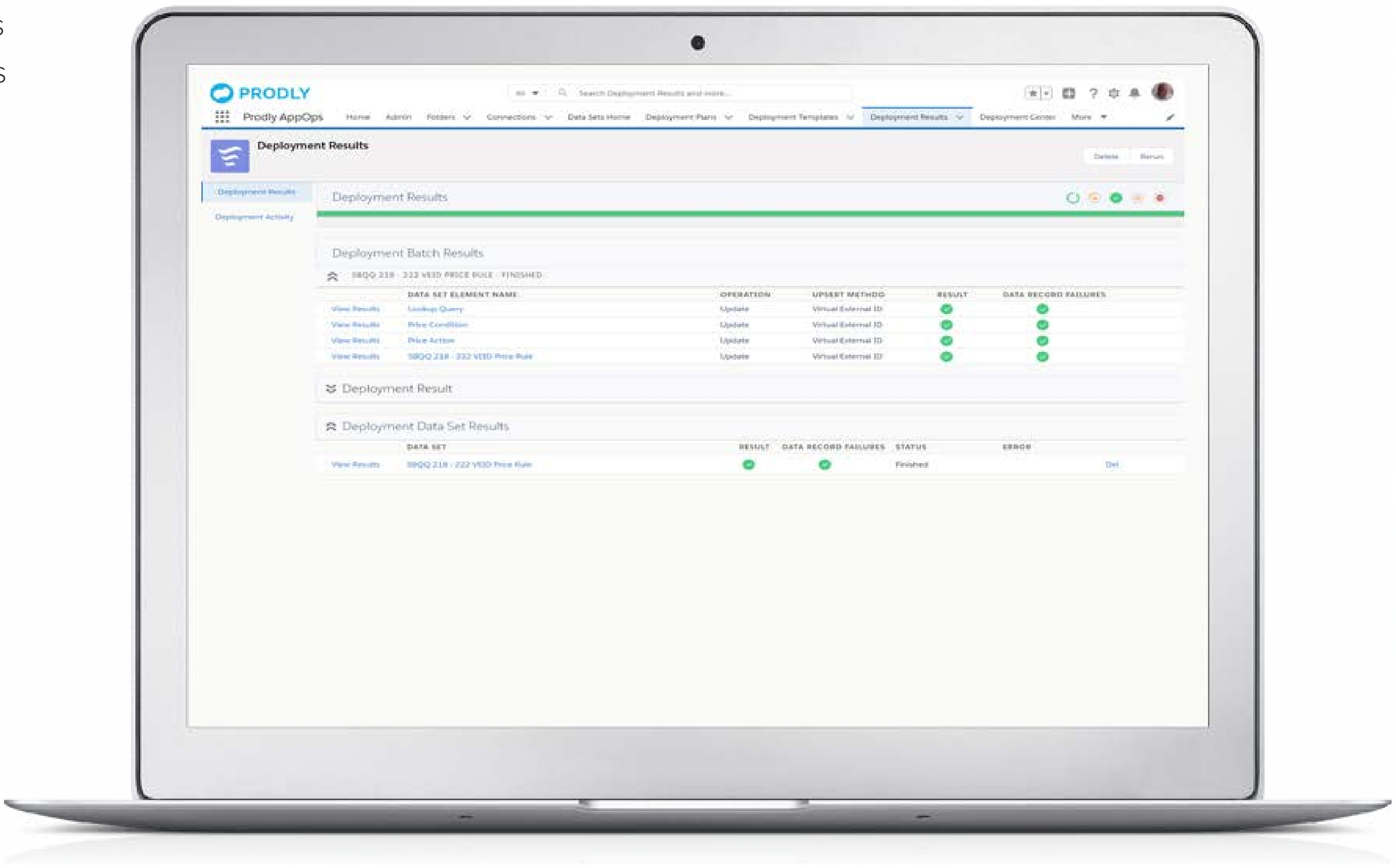
7 Map parent lookup IDs for children from the source to the new record IDs for the parents using a spreadsheet VLOOKUP formula. This can be quite involved when you have multiple parent lookups for a child record.

8 Use the data loader to import the child object records with their new lookup IDs into the destination org.

Automate the full CPQ development lifecycle with AppOps

Repeatedly moving complex CPQ objects using conventional data deployment tools is simply too arduous a journey to take. This mind-numbing, labor-intensive, and error-prone task calls for automation.

Meet Prodly AppOps, a platform to completely automate the full lifecycle of low-code development. AppOps Release makes building and iterating Salesforce applications easy and automates the manual process of transfering reference data between Salesforce orgs. With AppOps Release, you can maximize your return on investment in Salesforce CPQ, Field Service Lightning, Billing, B2B Commerce, and other reference data-driven native Salesforce applications by ensuring they always use accurate and trustworthy configuration data.



Deployment Results

Deployment Results

Deployment Batch Results

SBQQ 218 - 222 VEID PRICE RULE - FINISHED

	DATA SET ELEMENT NAME	OPERATION	UPSERT METHOD	RESULT	DATA RECORD FAILURES
View Results	Lookup Query	Update	Virtual External ID	✓	✓
View Results	Price Condition	Update	Virtual External ID	✓	✓
View Results	Price Action	Update	Virtual External ID	✓	✓
View Results	SBQQ 218 - 222 VEID Price Rule	Update	Virtual External ID	✓	✓

Deployment Result

Deployment Data Set Results

	DATA SET	RESULT	DATA RECORD FAILURES	STATUS	ERROR	
View Results	SBQQ 218 - 222 VEID Price Rule	✓	✓	Finished		Del

AppOps Release is a Salesforce reference data deployment solution that is scalable, reliable, and repeatable.

Learn more about AppOps

“Prodly is such a great tool for data moves between orgs. We have two Salesforce instances, and both orgs require a huge amount of set up data to support an end-to end-testing. Now with this great tool we cut down our deployment time from days to hours, and once the initial data set creation is done it just comes down to minutes.”

Kirthi Sidulwar
CRM Application Architect at K12

“Prodly is a great tool for CPQ projects. When reference data is the life of your development, yet you want to commit code and metadata daily, how do you automate the finicky reference data? One answer, Prodly!”

Michael Marsh
Salesforce Product Development Manager, Johnson and Johnson

“Prodly has been a lifesaver for me, a lone Administrator responsible for four sandbox environments and Production. The ability to manage and move data across all of these environments without having the need to worry about scripting, data loaders or duplicating data has been an invaluable time saver. In addition, the setup and configuration was extremely easy, and the support provided is second to none.”

James Carey
Salesforce Administrator, Berkshire Hathaway Travel Protection

Pre-Built CPQ Data Sets:

Prodly's pre-built data sets for Salesforce CPQ provide a fully tested solution for deploying CPQ reference data between Salesforce orgs. Use our pre-made templates to auto-select the correct objects, fields, and relationships for deployments. The 16 data sets cover all 50+ Salesforce CPQ reference data objects. They are also modularized so that you can update specific aspects of your CPQ reference data. Or, you can use a Deployment Plan to run multiple data sets in the correct sequential order.

Template File	Data Set Elements (**bold** indicates the root element)
SBQQ Custom Action Data Set Template.json	Custom Action Condition, **Custom Action**, Search Filter
SBQQ Custom Script Data Set Template.json	**Custom Script**
SBQQ Discount Category Data Set Template.json	**Discount Category**
SBQQ Import Format Data Set Template.json	Import Column, **Import Format**
SBQQ Localization Data Set Template.json	Line Column, **Localization**, Price Dimension, Product, Product Feature, Product Option, Quote Template, Quote Term, Search Index, Template Content
SBQQ Lookup Data Data Set Template.json	**Lookup Data**
SBQQ Price Book Data Set Template.json	**Price Book**, Price Book Entry, Product
SBQQ Price Rule Data Set Template.json	Lookup Query, Price Action, Price Condition, **Price Rule**, Summary Variable
SBQQ Product Data Set Template.json	Additional Document Attribute Item (Winter '18 only), Attribute Set (Winter '18 only), Block Price, Configuration Attribute, Configuration Rule, Cost, Discount Category, Discount Schedule, Discount Tier, Error Condition, Lookup Query, Option Constraint, Price Action, Price Book, Price Condition, Price Dimension, Price Rule, Product Action, Product Attribute (Summer '17 only), Product Attribute (Winter '18 only), **Product**, Product Feature, Product Option, Product Rule, Upgrade Source, Summary Variable
SBQQ Product Rule Data Set Template.json	Configuration Rule , Error Condition, Product Action, Product, Product Feature, **Product Rule**, Summary Variable
SBQQ Quote Process Data Set Template.json	Process Input Condition, Process Input, **Quote Process**
SBQQ Quote Template Data Set Template.json	Additional Document, Line Column, **Quote Template**, Template Content, Template Section
SBQQ Quote Term Data Set Template.json	**Quote Term**, Summary Variable, Template Content, Term Condition
SBQQ Solution Group Data Set Template.json	**Solution Group**
SBQQ Theme Data Set Template.json	**Theme**

Pre-deployment Checklist

Whether you use Prodly AppOps Release or a data loader and spreadsheets, you can use this pre-deployment checklist to increase your success in implementing CPQ.

1. Ensure you have the same major version of the Salesforce CPQ managed package installed in your source and destination organizations.
2. Ensure that the schemas for all objects in the deployment exactly match in the source and destination organizations.
3. Ensure that the Salesforce CPQ global picklist exactly matches in the source and destination organizations.
4. Clean the data in your source and destination organizations as best you can to eliminate duplicate records.
5. When using a production organization for your source or destination, ensure you have a user with a CPQ license in your production organizations.
6. In Salesforce, whether production or sandbox, assign the Salesforce CPQ Admin permission set to the connection user.
7. If using multi-currency in your source organization, ensure multi-currency is turned on in your destination organization, and the currency ISO codes match in your source and destination organizations. Refer to the Salesforce Enable Multiple Currencies help page for details
8. In your Salesforce destination organization, disable CPQ triggers by navigating to Setup > Installed Packages > Salesforce CPQ > Configure > Additional Settings, selecting Triggers Disabled, and clicking Save.
9. In your Salesforce destination organization, ensure the Standard Price Book is active.
10. Determine the approach to avoiding creation of duplicate records appropriate for your use case.

We’ve reached our destination!

Wow, you’ve stuck with us throughout this guide and here we are at the end. Well done!

We hope that you enjoyed the journey, and that it was helpful to you in understanding that reference data deployments do not have to be difficult or painful or a drag on your business. Building up agile development processes for reference data has become an imperative today. We really cannot let manual reference data moves slow them down. It’s time to automate these tasks.

If you would like to learn more about Prodly AppOps and how it can help your organization email **info@prodly.co** or call us at **1-650-761-4876**.

Get a demo

About Prodly

Prodly helps companies build and continuously improve business applications faster, more reliably, and more frequently. We automate the full lifecycle of low-code development, empower more non-developers to configure applications, remove bottlenecks in the development process, and provide IT governance to mitigate risk of agile development.

For more information visit prodly.co.

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