# Reporting in project service automation capabilities for Microsoft Dynamics CRM

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Microsoft Dynamics CRM

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# Introduction

With project service automation capabilities for Microsoft Dynamics CRM, project-based organizations can efficiently manage the operations of their businesses. On any project, team members will need to manage the opportunity, quote the work, plan the work, resource the projects, manage the work according to the plan, and bill for the work—along with actually getting the work done. The ability to report on operations is key to being able to determine the health of the organization and take corrective action. The project service automation solution uses Dynamics CRM reporting methods and technologies for all its reporting. The solution introduces new entities into the CRM data model that are the basis of project service automation reports. This white paper will describe the data model and entities as they pertain to project service automation reporting, and also review the reporting options for Dynamics CRM.

# Working with the project service automation solution data model

The project service automation solution introduces a number of new entities into the Dynamics CRM data model. This section describes some of the entities you will encounter when working on common project service automation reporting scenarios.

## Reporting on opportunities

The project service automation solution extends the core Dynamics CRM opportunity entity by adding some new fields. These new fields are identified by their schema name prefixed with "msdyn_." One new field added to the opportunity entity that is key to reporting on project service automation opportunities is **Order Type**. The **Order Type** value **work based** indicates that the opportunity is a project service automation opportunity. Other fields added to the opportunity entity include **contracting organization**, which indicates the organization holding the opportunity, and **account manager**, which captures the name of the account manager responsible for the opportunity.

The opportunity line entity now includes fields related to project service automation. **Billing method** indicates whether the opportunity line is billed on a time and materials or fixed-price basis, and **project** indicates the name of the project backing the opportunity. Other fields you can report on capture costs and customer budget amounts for the line item.

## Reporting on quotes

The project service automation solution extends the core Dynamics CRM quote entity by adding extra project-related fields. **Order type** identifies project service automation quotes from non-project service automation quotes. Other fields that might come into play when reporting on project service automation quotes include amount fields, such as **chargeable costs**, **non-chargeable costs**, **gross margin**, **estimates**, and **budget**. Other useful fields show whether the quote is profitable, whether it will complete on schedule, and whether it meets the customer's budget expectation.

The core **quote product** (quote line) entity is now extended by the project service automation solution. One of the important fields that project service automation adds is **billing method**, which indicates how the quote line would be billed (time and materials or fixed price). Other added fields capture the related project backing the quote line, invoicing, cost, and budget.

The project service automation solution adds new quote-related entities to the Dynamics CRM data model:

- **Quote line detail** contains the project estimate details of the quote line. It contains two records for each quote line. One record stores the cost and cost details of the quote line, and the other record stores the sales amount and sales details of the quote line.
- The **quote line invoice schedule** contains the billing schedule for the quote line. It is generated based on the invoicing frequency assigned to the quote line.
- The **quote line milestone** entity contains the milestones for fixed-price quote lines.
- The **quote line analytics breakdown** contains financial details of the quote line that can be useful in reporting quoted sales and estimated cost amounts by various dimensions.
- **Quote line project price list**, **quote line resource category**, and **quote line transaction category** are other entities added to quotes in the project service automation solution.

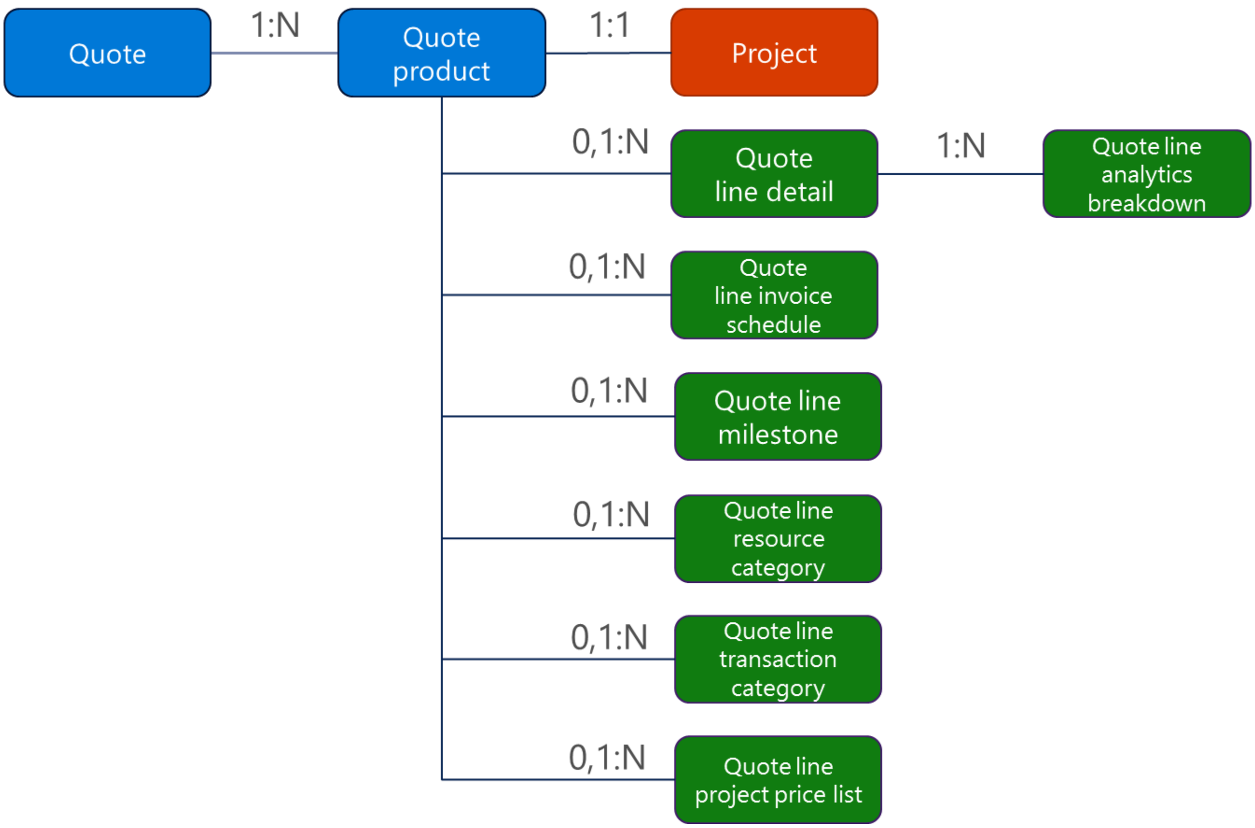


*Figure 1—Simplified quote entity data model*

## Reporting on contracts

The project service automation solution extends the Dynamics CRM order entity for use in recording project contracts. The solution adds a key field called the **Order Type** field, which identifies the contract as a project service automation contract rather than a core Dynamics CRM contract. Additional fields added to the sales contract entity capture details on costs, project service automation contract status, and the organization that owns the contract.

The core **Sales contract line** entity has also been extended. Other added fields capture the billing method (time and materials, fixed price), customer budget amounts, underlying project, and more.

There are also new entities designed for project contracts:

- The **Project contract line detail** entity contains the line-level details that roll up to the contract line amount. They can be as detailed as line items generated from a project Work Breakdown Structure (WBS) at the task level.
- The **contract line invoice schedule** contains the billing schedule generated from the invoice frequency assigned to the contract line.
- **Contract milestone** contains the milestones for contract lines with a fixed-price billing term.
- **Project contract line project price list**, **Project contract line resource category**, and **Project contract line transaction category** are other entities added to contracts in the project service automation solution.

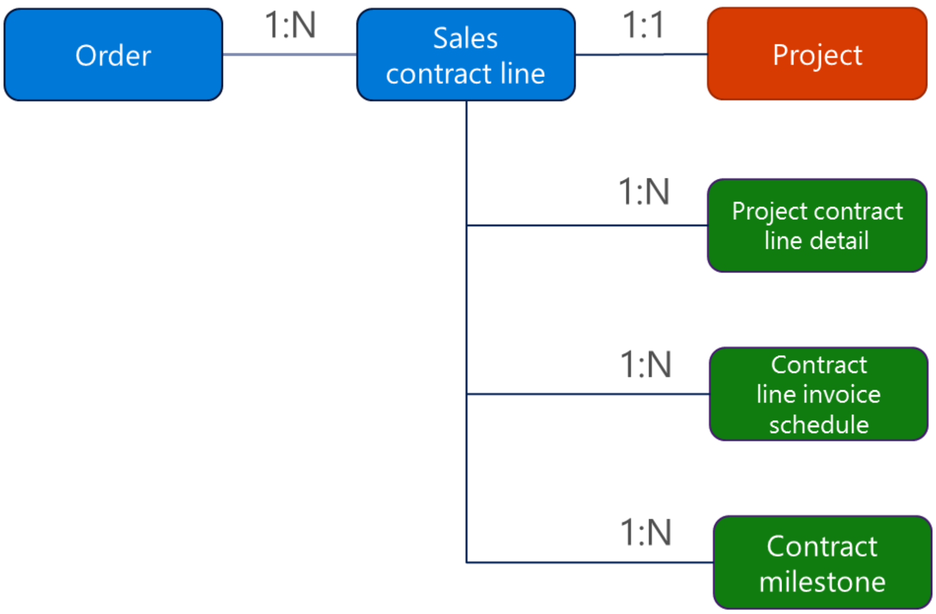


*Figure 2—Simplified sales contract entity data model*

## Reporting on projects

The **projects** entity and its related entities are new entities introduced by the project service automation solution. **Project** is the top-level entity used to capture the work and cost side of operations.

- **Project team member** contains the details on the bookable resources assigned to the project. They can be generic or named bookable resources entered by the project manager or generated from the project WBS.
- The **Project** task entity contains the tasks that make up the project plan or WBS.
- The WBS or project tasks are related to the **Estimate** and **Estimate Line** entities. These entities store the cost and effort estimates for each WBS task.

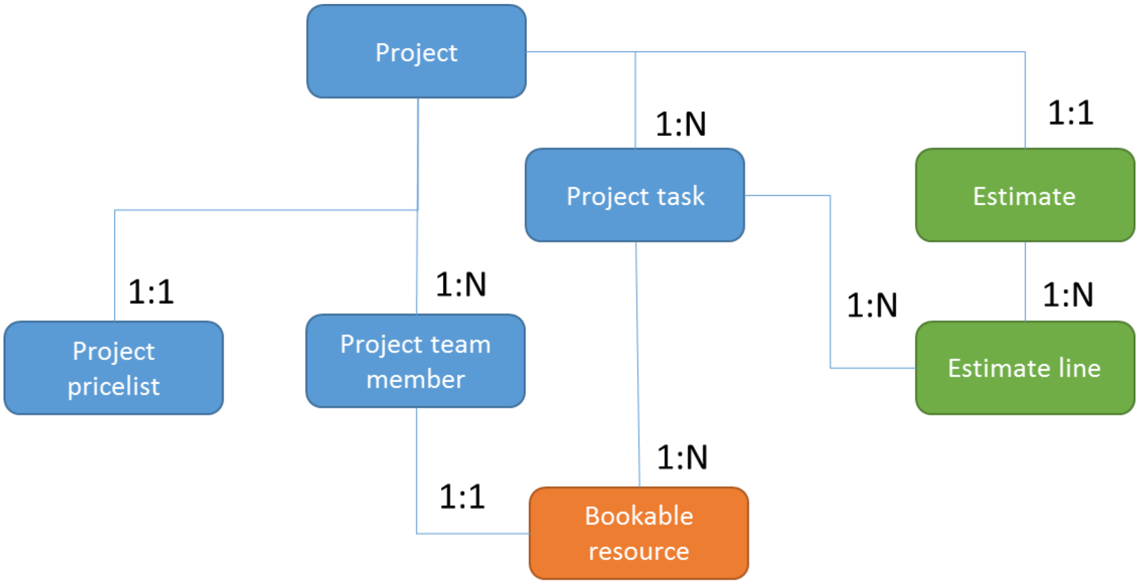


*Figure 3—Simplified project entity data model*

## Reporting on resources

Project resources use the new **Bookable resource** entities introduced into the core Dynamics CRM data model in the Spring 2016 release. They are shared with the field service solution. Entities you might need to use when reporting on project resources are:

- The **Bookable resource** entity, which represents the user, contact, generic resource, account, group, or equipment used on the project team.
- **Bookable resource characteristics**, which can be the skills, certifications, or education of the resource. The characteristics can have rating values that are defined by the rating model.
- The **Bookable resource category**, which represents the role of the bookable resource.
- **Bookable resource bookings**, which represents the time booked on projects for the resource. Each booking has both a header and line entities, and each line has a status that represents the status of the booking.

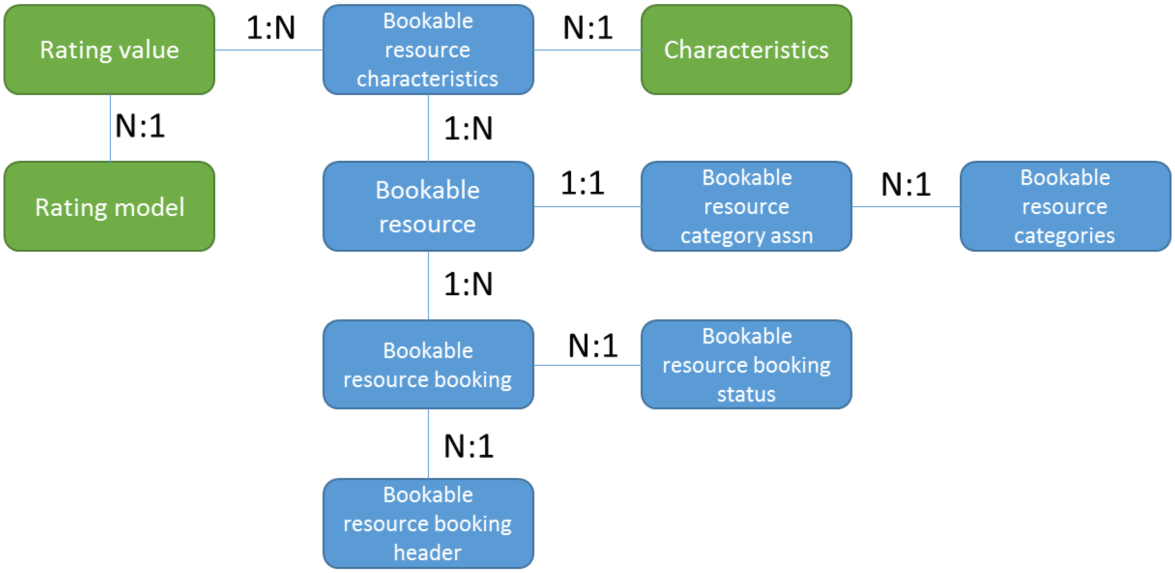


*Figure 4—Simplified bookable resource entity data model*

# Reporting on actual transactions

When you approve a timesheet or expense, or invoice a contract in the project service automation solution, the business transaction is captured in the **Actual** entity. This entity will serve as the basis for almost all financially related reports for project service automation. The **Actual** entity captures the sales and cost transactions for the business event, along with many relevant attributes.

The key thing to understand when working with the **Actual** entity is which transaction or transactions are recorded in the entity and when they are recorded. When working with a time entry, the typical flow is as follows (expense entries are much the same):

1. When the time entry is submitted, no records are created in the **Actual** entity.
2. When the time entry is approved, two records are created in the **Actual** entity. The first record stores the cost of the time entry. The second record stores the unbilled sales amount of the time entry. Note that these are two separate but related records and are not debits nor credits.

| Document date | Transaction type | Transaction class | Customer | Contract | Resource | Resource role | Billing type | Quantity | Unit price | Amount |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/3/15 | Cost | Time | Alpine ski house | Alpine CRM | Ashley Chinn | Project Mgr | Chargeable | 8.0 | 50.00 | 400.00 |
| 12/3/15 | Unbilled sales | Time | Alpine ski house | Alpine CRM | Ashley Chinn | Project Mgr | Chargeable | 8.0 | 100.00 | 800.00 |

3. When you invoice the time entry, two more records are created in the **Actual** entity. First, a negative amount for the unbilled sales record is created. This essentially reverses the unbilled sale. Second, a transaction for the billed sale is created. Again, these are separate but related transactions, not debits and credits.

| Document date | Transaction type | Transaction class | Customer | Contract | Resource | Resource role | Billing type | Quantity | Unit price | Amount |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/4/15 | Unbilled sales | Time | Alpine ski house | Alpine CRM | Ashley Chinn | Project Mgr | Chargeable | - 8.0 | 100.00 | - 800.00 |
| 12/4/15 | Billed sales | Time | Alpine ski house | Alpine CRM | Ashley Chinn | Project Mgr | Chargeable | 8.0 | 100.00 | 800.00 |

The **Transaction origin** entity records the origin of the **Actual** record, and the **transaction connection** entity records the related records for the **Actual** entity. Additionally, the **Actual** record contains references to the project, order (contract), bookable resource, and customer related to the **Actual** record.

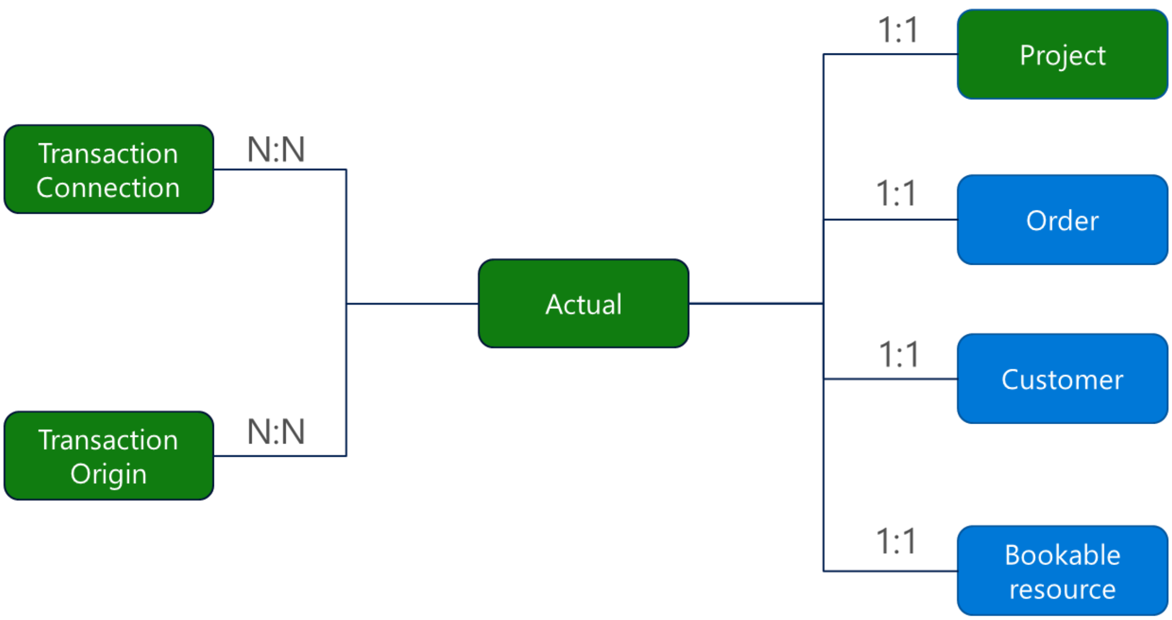


*Figure 5—Simplified actuals entity data model*

# Reporting with SQL Server Reporting Services reports

## Out of the box reports

The project service automation solution adds new project-focused reports from SQL Server Reporting Services to Dynamics CRM. You can access the reports under **Tools > Reports**. If there is a report that you think the project services ecosystem could benefit from, you can use the **Connect feedback** tool to send us feedback about what you'd like to see.

## Reports from the Report Wizard

With the Report Wizard, non-developers can make simple reports in Dynamics CRM. Because the project service automation solution is built on Dynamics CRM, the experience is the same as documented in the Dynamics CRM Help Topic [Create, edit, or copy a report using the Report Wizard], although you will use the project service automation entities as described earlier.

## Custom SQL Server Reporting Services reports

If your business needs a specific report that cannot be created with the Report Wizard, you can create a custom report. You will need to have Visual Studio 2012 installed, along with the Business Intelligence Development Studio and the Microsoft Dynamics CRM Report Authoring Extension. Custom report development is the same as in core Dynamics CRM. You can look at the Developers guide to reports for Microsoft Dynamics CRM on MSDN and Report writing with CRM 2016 for online and on-premises on TechNet for further information about creating custom reports.

# Reporting with Excel templates

The Dynamics CRM Online 2016 update release introduces Excel templates to Dynamics CRM. With Excel templates, you can easily create and share your customized analysis with others in your organization. The project service automation solution includes sample templates for **project**, **contract**, **quote**, **opportunity**, and **actuals** entities. You can use these templates as starting points to build your own reports, or you can build reports from scratch with any of the project service automation entities. See the Dynamics CRM help topic Analyze your data with Excel templates for further information about how to build and deploy templates.

# Dynamics CRM dashboards

The project service automation solution adds two new system dashboards to Dynamics CRM.

## Practice manager dashboard

The practice manager dashboard provides the practice manager a graphical dashboard experience to track costs, sales, gross margin, and utilization. Project managers can slice these measures by various dimensions such as customer, project, and resource role. For more information on creating and customizing dashboards, see the Dynamics CRM help topic Work with, create, or customize dashboards, which includes the e-book on working with system dashboards.

## Resource manager dashboard

The resource manager dashboard provides the resource manager a graphical dashboard experience to monitor resource requests, resource demand, and utilization. The resource manager can slice these measures by various dimensions.

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