Community Experience Distilled

Using CiviCRM

Second Edition

Develop and implement a fully-functional, systematic CRM plan with CiviCRM

Erik Hommel
Joseph Murray
Brian P. Shaughnessy

[PACKT] open source* community experience distilled
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BIRMINGHAM - MUMBAI

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First published: August 2016

Production reference: 1290816

Published by Packt Publishing Ltd.
Livery Place
35 Livery Street
Birmingham B3 2PB, UK.

ISBN 978-1-78328-145-9

www.packtpub.com

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Erik Hommel has been an active member of the CiviCRM community since 2009.

He is one of the founders of CiviCooP (`http://www.civicoop.org`) and one of the partners in EE-atWork (`http://www.ee-atwork.nl`). With both organizations, he has supported CiviCRM implementation and customization projects with customers such as MAF Norge, Amnesty International Flanders, De Goede Woning, PUM Senior Experts, Wikimedia The Netherlands, and many more, as a project manager/developer/consultant.

Erik has hosted sessions at CiviCon in London and Amsterdam, and several CiviCRM Developer Training workshops. He has taken part in the development of a number of extensions for CiviCRM and has taken part in several CiviCRM sprints in Europe.

You can find Erik regularly on the CiviCRM Stack Exchange site, the IRC channel, and at CiviCRM events in North West Europe.

Joseph Murray is the owner and principal of JMA Consulting, specialists in e-advocacy, e-consultation, and citizen engagement for progressive organizations. He has extensive experience on nonprofit boards, at senior levels of government, and in running electoral, referendum, and advocacy campaigns. JMA Consulting has provided CRM systems to hundreds of political campaigns, tracking interactions with tens of millions of voters, as well as providing CiviCRM, Drupal, and Wordpress strategy, implementation, development, and training services to numerous nonprofits, associations, and advocacy groups. JMA Consulting has published extensions for CiviCRM integrating it with mail, social media, chat, and other services, as well as enhancing the core functionality for grants and other areas.

Joe is an active contributor to the CiviCRM ecosystem, and assists the CiviCRM core team in areas including accounting functionality, sponsorships, and community governance.

> I'd like to extend tremendous thanks to Brian for shouldering the burden of the rewrite for this second edition yet keeping me as co-author. Thanks to Donald Lobo and Dave Greenberg for founding CiviCRM and seeing it through its first 10 years. And thanks to Tim Otten, Coleman Watts, and Josh Gowans for taking over as the next generation of CiviCRM core team leaders as we begin 2016—you'll do a great job coordinating this amazing open source community.

Brian P. Shaughnessy is the owner and principal of Lighthouse Consulting & Design, a web development firm specializing in CiviCRM implementations for Joomla!, Drupal, and WordPress. Brian previously worked with a communication firm serving not-for-profit professional, trade, and charitable organizations for over 10 years. After starting his own business, he channeled that experience into effective implementations of CiviCRM for not-for-profits and government institutions. He has worked with organizations around the world, helping them to achieve greater efficiencies and expand functionality through CiviCRM.

Brian is very active in the CiviCRM community, regularly contributing code to the core software, speaking at CiviCon events, and helping to lead a local user group in the Albany, NY area. In the past he has worked with the core development team to provide end-user training and maintains a strong working relationship with the project leaders.

> He extends his appreciation to the core team—particularly the founders, Dave and Lobo—as well as the many other core team developers and community developers around the world who have helped make CiviCRM a powerful tool in the hands of not-for-profits, community organizations, and government institutions.

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Preface

Every non-profit organization looking for software to manage their relationships, events, memberships, donations, campaigns, cases, workshops, volunteers, or any data involving their stakeholders should consider CiviCRM. CiviCRM is an open-source CRM tool specifically targeted at non-profit and the third sector, and anyone thinking about CiviCRM should read this book. It is a comprehensive guide to the functional possibilities of CiviCRM, but also discusses the community and organizational aspects of using CiviCRM. This second edition of the book complies with CiviCRM version 4.6.

What this book covers

Chapter 1, *Achieving Your Mission with CiviCRM*, introduces CiviCRM and how it can help you as a non-profit in achieving your mission.

Chapter 2, *Planning Your CRM Implementation*, will help you to plan for your CRM implementation based on the experiences of the authors.

Chapter 3, *Installation, Configuration, and Maintenance*, explains about the installation using the CMS Drupal, Joomla!, or WordPress and guides you through the configuration steps.

Chapter 4, *CiviCRM Basics – Moving through the System and Working with Contacts*, explains about the basic navigation and tells you about contacts, the heart of CiviCRM.

Chapter 5, *Collecting, Organizing, and Importing Data*, focuses on where your data would be collected from, how it can be segmented, and how data can be imported into CiviCRM.

Chapter 6, *Communicating Better*, deals with how you can communicate with your constituents and stakeholders using email and SMS and use groups to make communication easier.

Chapter 7, *Campaigning with Petitions and Surveys*, explains how CiviCampaign and its Survey and Petition components can help you with your campaigns.

Chapter 8, *Fundraising for Your Mission*, explains how CiviCRM can support and administer your fundraising efforts. The topics covered include segmentation, benchmarking, payment processors, contributions, and pledges.

Chapter 9, *Growing Your Membership and Interacting with Members*, deals with administering and managing memberships and how CiviCRM can support you interacting with your members.

Chapter 10, *Managing Events*, guides you through all aspects of CiviEvent that will support you in your event organization and management and interaction with event participants.

Chapter 11, *Interacting with Constituents – Managing Cases*, discusses how CiviCase can help you with case management for different purposes.

Chapter 12, *Providing Support – Grant Management*, details the CiviCRM functionality for grant management.

Chapter 13, *Telling Your Story – Building Reports*, explains how the reporting facilities of CiviCRM can be used with default reports and how you can enhance these reports to suit your specific needs.

Chapter 14, *Customization, Community, and Cooperation*, Cooperation gives you an introduction to customizing CiviCRM, how the CiviCRM community operates, and invites you to cooperate!

What you need for this book

In addition to the CiviCRM software itself (freely available from `http://civicrm.org`), you will need either Drupal (`http://drupal.org`) or Joomla! (`http://joomla.org`) as the CMS framework in which CiviCRM will reside.

CiviCRM runs on an Apache/MySQL/PHP platform. It requires a fair amount of server system resources more than other web-based software, including Drupal or Joomla! running on their own. Virtual private servers available from commercial hosting providers are a good option for hosting, and dedicated servers with high-availability and high-performance server clusters can also be used in more demanding situations. While you may be able to run CiviCRM on shared hosting for small implementations, you will generally find the resource limitations problematic, particularly when your use of the software grows.

For testing purposes or in special circumstances where you want a personal instance, you can set up an implementation on a local machine running the following:

- XAMPP: `www.apachefriends.org/en/xampp.html`
- MAMP: `www.mamp.info`
- WAMP: `www.wampserver.com`

Throughout this book, we assume you are running CiviCRM on a Linux operating system. Some of the configuration tasks require different procedures when running under Windows, which are not documented here. Unless you are familiar enough with Linux and Windows that you can translate accurately between crontab and scheduled tasks, file and directory permission systems, and simple Command Prompt/command-line commands, you should avoid using CiviCRM on a Windows environment.

This book deals with CiviCRM and thus addresses the Drupal/Joomla! environment as it pertains to CiviCRM integration. Though occasional mention is made of the other technologies used to implement CiviCRM (including PHP, MySQL, Apache, jQuery, and Smarty), no prior knowledge is required to install and configure the software.

Who this book is for

The book is primarily for administrators tasked with implementing, configuring, maintaining, and updating CiviCRM and staff users who are looking to better understand the tools available in order to become power users. CiviCRM is software that may be used by advocacy groups, non-profit, and non-governmental organizations, elected officials, professional and trade associations, government entities, political campaigns and parties, and other similar organizations, and this book will prove useful to all such users.

Conventions

In this book, you will find a number of text styles that distinguish between different kinds of information. Here are some examples of these styles and an explanation of their meaning.

Code words in text, database table names, folder names, filenames, file extensions, pathnames, dummy URLs, user input, and Twitter handles are shown as follows: "We can include other contexts through the use of the `include` directive."

A block of code is set as follows:

```
.htaccess:
php_value memory_limit 128M
php_value register_globals off
php_value max_execution_time 600

php.ini:
memory_limit = 128M
register_globals = off
max_execution_time = 600
```

Any command-line input or output is written as follows:

```
/usr/bin/drush -u 1 -r /path/to/drupal @sites civicrm-api job.execute
auth=0 -y
```

New terms and **important words** are shown in bold. Words that you see on the screen, for example, in menus or dialog boxes, appear in the text like this: "All of your system configuration will be done through the **Administer** menu item."

> Warnings or important notes appear in a box like this.

> Tips and tricks appear like this.

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Achieving Your Mission with CiviCRM

Most people working in the non-profit sector would love it if their organization could do more with its existing staff and resources. We often care passionately about our organization's mission and the work we do, but lament the lost productivity spent with inefficient tools. Wasted hours, wasted money, wasted contacts, and wasted opportunities become the source of endless frustration! We want to make a difference — a bigger difference — and find the best tools to help us achieve those goals.

Why you need Constituent Relationship Management

Your organization probably has defined its mission and has a clear picture of what it wants to achieve. Obviously, constituents play a vital role in that mission and goal as you are reading this chapter. A plan of what needs to be done with those constituents would be the first thing to do before you do anything with software. We could call that plan a **Constituent Relationship Management** (**CRM**) strategy. For many non-profit, advocacy, government, and membership-based organizations, CiviCRM is the best tool to support you in achieving your goals and to ultimately help you in your mission.

Does your organization lack a unified and integrated system for managing contacts? Do you spend your energy simply trying to keep track of who your constituents are, without ever understanding how they have interacted, and will continue to interact, with your organization? These are common issues for non-profit organizations, be they large or small, centralized or distributed, more or less organized. Can you answer yes to any of the questions below?

- Does everyone keep their own Excel sheet with constituent data?
- Do you have several systems that essentially store the same data?
- Do you have a system developed by a volunteer or staff person who left some time ago?
- Do you spend a lot of time reconciling lots of data from different areas in a progress report?

At the heart of any constituent relationship strategy and the tools that support it is the need to manage contact records. Yet CiviCRM is much more than just a contact management system. As an integrated online system that handles contacts, donations, pledge commitments, event registration, bulk e-mail, case management, grant distribution, campaign tracking, survey collection, and other functions, CiviCRM provides the tools required to dig deeper, and collect more, from your constituents. And with a proven track record, consistently receiving top ratings from non-profit technology user surveys, you can rely on this toolset to help you deliver results.

By referring to a CRM strategy, we intentionally seek to include the broader management and mission goals along with the technology solution. Tools alone are not enough to achieve success. There must be organization-wide support, and a holistic viewpoint, to manage constituents effectively. Furthermore, the implementation of any tool must begin with an analysis of needs and objectives. We need to have a clear vision of what we are seeking to do and where improvements should be made, before we pick up the tool and start working with it.

A successful CRM strategy can help your organization in many concrete ways. Here are some examples:

- Improving the frequency of donations; increasing the average donation amounts; improving the retention rates of your donors.
- At a more basic level, enabling supporters to donate online through your website instead of mailing checks, or calling to submit a credit card transaction. Reducing how much manual data entry is required of staff, and eliminating double entry into multiple systems (such as a contact database and accounting software).

- Automating the registration process for members attending an upcoming conference.
- Increasing the likelihood of your existing subscribers becoming more involved with your organization and its mission. Encouraging commitment by empowering constituents to better self-manage their involvement in your organization.
- Ensuring that more of your members show up to volunteer through automated reminders.
- Identifying contacts already interacting with your organization who have the right skill set and interests to be worth approaching about an open board position, or committee leadership.
- Making information easily available that quantifies what a great job you've been doing, including the number of hours volunteers gave to your organization last year, the number of cases managed, and the number of new viral signups from your latest urgent action e-mail.
- Improving year-to-year membership retention rates by communicating the renewal process more effectively and providing better tools to simplify the renewal steps.
- Providing a voice to existing constituents through online surveys that shed light on their greatest desires and hopes for your organization.
- Empowering volunteers to work on your behalf by sharing your message through their social circles.

CiviCRM can help in all these areas, providing the building blocks and tools for constructing your constituent strategies.

What is Constituent Relationship Management?

Let's take a step back and begin by better understanding what is meant by Constituent Relationship Management. Constituent Relationship Management is the set of processes and supporting technologies used to initiate and improve relationships with constituents. It's important to realize that CRM is not just a technology that is brought into your organization. Managing relationships with constituents involves all of the workflows, processes, and reporting that your organization uses to get things done, achieve your mission, and realize your vision.

Constituent Relationship Management is the non-profit equivalent of Customer Relationship Management in the business world. By comparing and contrasting these two concepts, we will understand the purpose and scope of this book (and the CiviCRM software) better.

Customer Relationship Management versus Constituent Relationship Management

In the business world, Customer Relationship Management systems are used to optimize a company's sales by focusing its resources on those who are likely to buy. They are also used to improve customer satisfaction and lower costs by providing self-service options. In most cases, businesses are looking to sell more by reaching new customers or expanding business with existing customers.

In order to do this properly, CRM systems track, automate, and personalize all aspects of client interactions across all communication channels, including website, phone, in-store, e-mail, and social media such as Twitter, forums, and blogs. Every time a customer *touches* the organization in any way, the interaction is logged. This information is used to better understand the relationship with the client, to ensure that all interactions are designed to maximize the long-term profitability of the client to the business, and to attract new customers. Typically, Customer Relationship Management systems focus on tracking and enhancing customer interactions in the marketing and sales funnel workflow for new and returning customers, and later improving after-sales support. Depending on the industry and the company, CRM systems and techniques might also be used for tracking and enhancing relationships with other stakeholders, such as regulators, shareholders, or media.

The ideas developed for Customer Relationship Management systems in the business world have been adapted to the needs of the non-profit world in Constituent Relationship Management systems. While increased donations may parallel higher business sales, there are generally differences in terminology and processes. For example, good Constituent Relationship Management systems are designed to account for pledges, recurring donations, soft credit donations, and the portion of ticket or product prices eligible for political or charitable tax receipts.

More importantly, Constituent Relationship Management will go far beyond mere financial goals and measurements. Most non-profits measure success in non-financial ways, such as the following:

- How well their message is communicated (and embraced) by a certain audience
- How their influence on a particular industry is realized (and increased)
- Whether their candidate won an election
- How many constituents are helped and how many issues are resolved

These organizations will have critical non-monetary measures of success beyond increased revenue and lower costs. They may include metrics based around education, service, advocacy, participation, case resolution, or other outcomes relevant to non-profit missions. Consequently, tools for managing constituents must go wider and deeper than financial metrics alone.

Despite these differences, Constituent Relationship Management systems are still fundamentally similar to Customer Relationship Management systems as they aim to support the growth in numbers and depth of engagement of contacts with an organization.

In the business world, one way this is done is by keeping existing customers happy, in order to avoid the high costs of new client acquisition. Similar strategies and techniques apply in the non-profit world, given the generally higher cost of acquiring new donors, activists, volunteers, or members, as compared to retaining existing ones.

Another good strategy in business is to aim to increase the volume of business received from existing clients. For example, you might identify one-time purchasers or low-end customers and seek to communicate the value of more expensive products (up-selling), or why they would want additional related products (cross-selling). It may also be achieved by focusing on increasing repeated business from customers who return more frequently for the same product (for example, to watch movies more frequently).

Non-profit organizations benefit from this same strategy, both in fundraising and in non-monetary appeals. For example, fundraisers typically aim to increase the recency (that is, how recently each donor has donated), frequency, and monetary value of gifts from their donors.

For non-monetary contributions, non-profit organizations generally measure constituent activity and communication. For example, they may seek to increase the actions of existing organization activists, such as appeals sent, educational programs attended, or shut-ins voluntarily visited. They also benefit by encouraging constituents to undertake actions that require more co-operation with the organization, or result in more impact, such as calling a radio call-in show to support a legislative position, in addition to signing a petition, visiting their elected representative as well as sending him or her a letter, and so on.

Increasing the number and depth of interactions can often involve targeting clients with shared characteristics, such as those who have made several recent low-cost purchases, or small donations for a special treatment such as an offer, a special ask, or other follow-up communication.

Another objective may be to ensure that those best suited for a product or service receive such a great experience interacting with your organization that they recommend it to others.

In the for-profit sector, this may involve sales personnel or systems using the purchase history of an individual or a company to respond strategically by offering appropriate discounts, cross-selling or up-selling suggestions, and so on. For example, a long-term customer might be offered a discount when he shows up at a website, a computer buyer might be offered small items at checkout time, including games for a previously purchased game system, or a client who has made premium purchases might get a more expensive range of products. After-sales support personnel would be provided with the whole record of attempts an individual might have made to resolve a problem, as this often helps narrow down an issue and avoid irritating requests to repeat actions. A complete customer record might show that an individual with a tough problem is considering a major purchase, or that they have had a history of making unauthorized technical changes to the product that might have impaired its functionality and voided its warranty.

In the non-profit world, parallel examples would include the following:

- Encouraging a regular attendee at events to come to an upcoming breakfast seminar using a discount coupon
- Asking users who sign petitions to make a donation in support of a cause
- Inviting those who volunteered more than twice in the past year to consider becoming a board member or committee chairperson

Similarly, technical support has parallels in non-profit case management. Imagine how much a non-profit serving *at-risk* youths could benefit from being able to easily pull up the records of someone calling in about depression, when those records reveal a caller has a history of suicide attempts? The extent to which you can capture, and later retrieve, such data for a constituent may significantly impact your ability to serve them effectively.

In all of the preceding business and non-profit examples, a tiny organization with a single staff person, serving a small constituent base, would be challenged to recognize the individual, remember the history of interactions with them, and act appropriately by providing a discount. More difficult challenges would include calling up someone who had stopped coming in, going the extra distance for someone who needs it, or curtailing resources dedicated to a relationship not related to the mission of the organization. Technology helps to scale these appropriate behaviors to situations where many staff members and volunteers have been involved in the interactions with the client or customer. It can help in situations where some of the staff members or volunteers may not have the best memory, and may not have the best judgment as to how to respond to the situation. The proper tools also help your organization retain institutional history through the inevitable staff turnover.

Who are your constituents?

We've made an assumption so far that you have a clear concept of your constituents, but it is worth taking the time to define this clearly for your organization. A constituent is any person, household, or organization that has some relationship with your organization. Depending on your organization, they may include the following:

- Donors
- Funders
- Elected officials you seek to engage, educate, or influence
- Newsletter subscribers
- Broadcast e-mail and action alert subscribers
- Members of your organization
- Coalition members
- Participants in your petition, e-mail, and letter writing campaigns
- Participants in your face-to-face events
- Volunteers
- Clients

- Website visitors
- Board members
- Staff
- Organizations or individuals who are not staff members, but help you deliver programs and services (for example, lawyers volunteering for a pro bono legal services clinic)
- Users or purchasers of your products or services
- Media outlets and/or personnel your organization contacts
- Advertisers or sponsors of your organization, its events, or publications
- Voters
- Government agencies that influence policies impacting your organization

In some cases, your relationship with one constituent may need to be through another. For example, a parent might be the constituent who signs up their child for a program, or a staff person might be the contact person for the organization they work for.

Which constituents your organization needs to focus on—individual donors, volunteers, granting agencies, newsletter subscribers—depends on your mission and situation. It's usually good to keep in mind that one person often has many hats and may fall into several categories of constituents. It's also a worthwhile exercise to periodically brainstorm your list of constituent types. There may be audiences you've not effectively reached because they have fallen out of your peripheral vision — and yet may in fact be very valuable to your cause.

It's often most effective to gather information about a relationship when the constituent can understand why it is needed. For example, explaining that a mailing address is needed to provide a charitable tax receipt when a donation is being made, asking about food preferences only when someone is purchasing tickets for dinner, or requesting policy interests when signing up for a newsletter helps reduce the burden in any particular interaction, and makes for a more natural deepening of the relationship.

While designing your CRM strategy, you will need to balance the benefits of having information about your constituents with the costs of acquiring, maintaining, and using it. As you develop your strategy, you should ensure that it focuses on gathering data that will help your organization act effectively, and know that it is acting effectively, in the constituent relationships that are most important to achieving its mission. These are often the constituents with the most transactional encounters with your organization—donors, volunteers, members, event participants, and so on. However, sometimes, a small number of constituents can provide a breakout value—a game-changing, qualitative improvement. For example, investing in some research and wooing a few key media contacts, potential coalition partners, or swing legislators, may help your organization realize its mission more than great gains in number and efficiency at other levels.

When is CiviCRM the best CRM?

So far, we have discussed CRMs generically, comparing how they are used in the business world with the non-profit sector. There are many options available for implementing a CRM, which prompts the question—when is CiviCRM the best CRM for your situation?

Perhaps more than any other factor, what sets CiviCRM apart from other CRM solutions is that it was built from the ground up with non-profits in mind. While other products exist that are geared toward the non-profit audience, many are either a modified version of a product originally built for commercial sales, or target a very focused slice of the non-profit world, such as soliciting donations or managing members. Very few other options provide as complete and robust a solution, tailored to the common workflows and terminology of non-profits.

For organizations managing contact records, but needing to track both monetary and non-financial interactions, CiviCRM provides a powerful set of tools. These uses may include the following:

- Donations and pledges
- Event management
- Membership management
- Case management
- Bulk e-mailing

If your organization requires functionality in a couple of these areas, then it is very likely that you would benefit from CiviCRM. CiviCRM's integration with Joomla!, Drupal, and WordPress (popular open source content management systems that are excellent for running your website) also distinguishes it from a number of competing CRMs. By integrating directly with your website, information collected from your constituents will immediately be part of your contact database. Furthermore, you can expose real-time data to site visitors, or logged-in users, through searchable directories and self-service profile forms.

That said, we want to acknowledge upfront that CiviCRM isn't the right tool for every non-profit to manage its constituent relationships. There is no perfect *one size fits all* solution. Depending on your needs and resources, you may find CiviCRM unable to meet the unique demands and workflows of your organization. This section provides some general guidelines for situations where you might want to consider an alternative to CiviCRM.

As a low-end cut-off, your organization needs to have resources to set up, host, and maintain CiviCRM, either by paying a hosting provider and consultants, or by using internal staff resources. Tiny community groups with no budget or IT resources will not be able to afford these costs even though CiviCRM itself is free open source software without any upfront or ongoing license fees. While the public-facing pages are easy to use, administering CiviCRM does require a certain amount of tech-savviness. You may be constructing searches, setting up templates that will be merged with contact data for e-mail blasts, deciding on the fields to put in forms, and performing other similar activities. More advanced skills are necessary for some initial setup tasks such as configuring e-commerce connections to payment processors and designing how to store information among fields representing contacts and their contributions, participation in events, memberships, relations with other contacts, and so on. Not all organizations have these skills available internally, or can afford to outsource for them.

Thinking through alternatives

If your organization is small and your needs are focused on a particular task, it might be better to use a single-purpose tool, whether free, purchased, or available through paid subscriptions. Best-of-breed single-purpose tools can provide superior usability, desirable flexibility, lower cost, lower administrative burden, and higher-end features for that particular functionality.

For example, Google, Yahoo!, and other providers of free group e-mail list and discussion software is one example. EventBrite is one example, in the event management area, where the narrow task of managing event registrations may be accomplished more easily. There are a multitude of applications that can help you with bulk mailing, organizing and managing events, and memberships.

You will find that many single-purpose tools have started to expand functionality into other areas, but are primarily focused on one area. If your needs align in one of those focused areas, the limitations may not be problematic and the solution more appropriate.

Where each of these single-purpose tools may be very strong in one area and weak (or completely absent) in other areas, CiviCRM is generally very solid, if not exceptional, in all. It's CiviCRM's superior capabilities across the many diverse functionality areas needed by non-profit, advocacy, and membership-based organizations that sets it above competitors with even moderate CRM functionality.

Too often, many organizations find that they start using one of these targeted services to meet one need, and then adopt a second for a requirement in a different area, and soon end up with multiple data silos— systems that won't talk to each other, or require complex data-syncing protocols. Migrating to CiviCRM at that point is common, but the additional hassle of the migration and change in tools and procedures can be avoided by choosing CiviCRM from the start.

Customizing CiviCRM to match your needs

A different type of problem confronts organizations that have significant and well-defined needs that are not met by CiviCRM out of the box, even if it is functionally pretty rich. In these cases, the decision is often between building an in-house application from scratch, or customizing an application such as CiviCRM to do the job. CiviCRM as the basis for a custom solution makes sense in a number of situations. (See the *Chapter 11*, *Interacting with Constituents – Managing Cases* for more information and background.) These include the following:

- When you have the in-house skills and resources to work with the various technologies used to build CiviCRM, or have the budget to hire those who can do that
- When you are willing to invest initially in more general and customizable software, in return for getting the services of other users who will report bugs, improve documentation, submit patches, and enhance the functionality you have contributed

- When you can work with the core team and community effectively, which usually involves more time and a willingness to take other viewpoints and interests into account, but which often includes the benefit of others sharing the costs of development

Before continuing, let's pause to note one of the most significant aspects of CiviCRM that sets it apart from many of its competitors. Unlike most commercial CRM solutions, the CiviCRM software itself is free and open source. By open source, we mean the code (written primarily in PHP) is freely available and may be modified and customized to whatever extent you need.

When we discuss using CiviCRM as the base of a custom solution, we are suggesting that CiviCRM's out-of-the-box functionality may meet a certain threshold of your needs, and through custom development, you can tailor it to fully meet your needs.

There are still scenarios when using CiviCRM as a base for your custom solution doesn't make sense. If you find the base-level functionality only minimally meets your organization's needs, it is likely worth looking for a more complete solution to start from.

The advantages of building functionality into a full-fledged CRM also sometimes need to be balanced against the cost of extending CiviCRM. Significant changes or additions may require a significant investment of time and resources.

CiviCRM is built using PHP, Smarty templates, jQuery and pure JavaScript, and connects to a MySQL database. The variety of libraries and technologies, and the sheer size of the code base, have presented barriers for some developers hoping to modify or extend the core software that the CiviCRM team distributes and maintains. Even for experienced developers, there is a learning curve to understanding how the code is constructed and how various libraries are implemented. That requires a certain investment of time for your in-house developers as they acquire a knowledge base of the software. Of course, the CiviCRM community doesn't leave developers to wander in the dark without assistance. There are online resources for developers, an IRC chat channel, a CiviCRM Stack Exchange forum, additional support forums, and periodic developer training events.

Depending on the nature of your custom requirements, and the extent to which they are of potential value to the broader CiviCRM community, you may find it easier to extend CiviCRM through native CiviCRM extensions, Drupal modules, Joomla! plugins, or WordPress plugins. We will discuss the tools available through third-party extensions throughout this book, and touch on some of the underlying developer tools that make many aspects of customization quite easy in the last chapter. For now, understand that many customizations may be accomplished using extensions without the need to radically alter or expand the core software.

CiviCRM is an open source project that is quite responsive to community needs and contributions to address areas it does not currently cover. Indeed, the project generally extends its functionality by working closely with organizations that can sponsor new functionality or contribute new features back. Instead of hacking the core just for your own implementation, you can improve the core code so that it handles your own needs and those of others with similar needs.

If you search the CiviCRM wiki (`http://wiki.civicrm.org`) and forums (`http://forum.civicrm.org`), and communicate with the core team and the community via the forums, or the CiviCRM Stack Exchange site, you may find that there are others who are interested in the same functionality, and may be able to contribute something to having it built. Even if your needs are unique, there may be ways to generalize them so that they can be met with software that addresses the needs of others at the same time.

One successful way organizations began collaborating to build new functionality into CiviCRM is through **Make It Happen** (**MIH**) initiatives. Started in August 2010, MIH initiatives have helped aggregate support from many users and consultants for several new pieces of functionality. The program works when one organization defines specifications for a project and works with the core team to refine the specs and determine the budget required. The organization must seed the sponsorship and can then invite other organizations to donate to the project. Once fully funded, the core team will begin work and incorporate the functionality into the core software for all to benefit from. The MIH program has proven a successful way to crowd-source specific improvements to the software.

Alternatively, your forum post or question on CiviCRM Stack Exchange may result in suggestions for simple or ingenious workarounds that can suffice in addressing an oddity in your requirements that was holding your organization back from going with CiviCRM. In this way, you learn from other organization's users how to use the software in more creative ways without requiring code customizations.

While the burden of maintaining your own code in sync with changes in the core is significant, well-resourced organizations sometimes find that it makes more sense to develop custom versions of open source software containing features that are not shared back with the community. Usually, this is because the needs are quite unique, such as integrating with a custom in-house legacy application.

Other CRMs

When deciding on a CRM tool, there are many existing CRM offerings that could be considered. The **Nonprofit Technology Network** (NTEN; `http://NTEN.org`) conducts periodic surveys of technology use in the non-profit sector and publishes the results. Though they are heavily focused on North American non-profits, they provide a good indication of CRM market penetration and user satisfaction, with common solutions in this very large and influential region.

CiviCRM, Salesforce, and Convio are the three most used systems in the most recent surveys. Other providers or tools widely used, or acceptably rated, in these surveys include Antharia, Blackbaud, SugarCRM, Kintera Sphere, DemocracyInAction, and Organizer's Database. Although the cost and functionality is significantly different, Microsoft Dynamics CRM is another notable CRM in the larger non-profit sector, while Salsa sometimes crosses over from its focus on small and medium-sized businesses.

Needs will vary from one organization that uses a CRM to another. For example, Salesforce has tended to do better with large organizations (those with greater than $3M budget), as has Blackbaud's Raiser's Edge. As you evaluate a CRM tool for your organization, you should take into account the current and expected needs of your organization, as well as the current and anticipated functionality in possible CRMs. In other words, to the extent you are able, try to get a sense of where the CRM development is headed, and who is the core audience they are seeking to cater to. Given this caveat, the next section will outline common reasons for adopting CiviCRM over the other alternatives.

Why CiviCRM?

Every organization should do its own evaluation of CRM options using criteria appropriate to their particular needs, weighing each suitably to provide the right overall balance. This section summarizes some of the reasons why CiviCRM is right for many non-profit, advocacy, government, and member-based organizations.

Focused on needs of non-profits

More than anything else, what sets CiviCRM apart from other competing programs is that it is designed specifically to meet the needs of non-profits, and provides a well-integrated platform that addresses all their basic needs. This avoids or alleviates the complexities, problems, time, and expenses associated with running separate systems for things such as donations, e-mailing, events, and membership, or trying to programmatically integrate them.

CiviCRM is well suited to the needs of many kinds and sizes of organizations:

- Non-profits
- Non-governmental organizations
- Government agencies and the offices of elected representatives
- Membership-based organizations
- Advocacy organizations
- Grant-giving organizations
- Fundraising organizations
- Service-providing organizations
- Neighborhood associations
- Political campaigns and organizations
- Business associations
- Government entities
- Unions
- Sports clubs
- Co-operations

Many CRMs are built around common workflows in for-profit businesses that don't always map well into the non-profit world. The sales funnel model, and terminology underlying sales force automation, for example, may not map well to the activities in an awareness-raising campaign. Substituting some terms, and adding some non-profit specific tools, as Convio Common Ground does with Salesforce, doesn't always overcome the issues with the underlying model.

User satisfaction

NTEN's 2007 CRM Satisfaction Survey determined the following:

> *The three systems that were most commonly used by all organizations – CiviCRM, Salesforce, and Convio – were ranked first, second, and sixth, respectively, in willingness to recommend.*

NTEN's 2009 Data Ecosystem Survey reinforced this result by finding that the overall happiness of organizations was similar, with grades of *B+*, *B*, and *B-* going to the top three tools: CiviCRM, Salesforce, and Convio, respectively.

No vendor lock-in

A significant problem with many proprietary CRMs is the difficulty organizations face in moving to a different vendor. As a free and open source software system, CiviCRM places no restrictions on the ability to export and migrate your data. It resides in a MySQL database which may be accessed through your hosting provider at any time. That ability, to directly access and work with your data for customizations, advanced database queries, data migration, and so on, is often quite important. Most significantly, it guarantees that you, the organization, owns your data.

Some proprietary systems are only offered by a single vendor. Service outages, poor help response times, or unhelpful technical support responses, may leave your organization with no option but to switch to a different CRM just to deal with vendor issues. By contrast, the growing pool of integrators, trainers, and consultants for CiviCRM (`https://civicrm.org/experts`) enables organizations to shift from one provider to another without having to change CRMs.

Unlike with some proprietary systems, there is no vendor lock-in with CiviCRM.

Integration with Drupal, Joomla!, and WordPress

Drupal, Joomla!, and WordPress are the big three most commonly used Content Management Systems (CMSes) in the world. CiviCRM integrates with all three systems. This is important because it allows your CRM to easily present public-facing forms and listings on your website. Easy configuration of donation and event signup forms, and self-serve functionality for membership signup and renewals, are incredibly important to many organizations. By centralizing your database and integrating directly with your website, you remove or reduce data entry and data syncing between different systems.

If you are building a new website while implementing CiviCRM, you will need to spend some time comparing the features and tools available in each of the three CMSes to determine which is best for your organization. At a very high level, Drupal is the best in terms of providing a robust rapid application development environment, for programming highly customized sites, using numerous user-contributed modules that integrate well with each other. WordPress, by contrast, tends to earn top scores for usability for administrators. Joomla! tends to be in the middle. But such evaluations are hotly contested, benefit from being more fine-grained, and need to be updated through evaluations of the latest versions. In many ways, the three have converged significantly in terms of the tools and experience they provide. There are less distinct strengths and advantages of one over the other than there used to be. You should evaluate each against your particular needs using third-party reviews.

One factor to consider when comparing options is to research the types of third-party extensions available that may be specific to a certain CMS. For example, you may find the organic group integration module that is available for Drupal to be a persuasive argument for working with that CMS. The webform, views, and workflow integrations for Drupal developers are particularly strong. Or you may need to have membership-based authentication rules that are only available through the Joomla! CiviAuthenticate plugin. Then again, the shortcodes feature that is unique in Wordpress might be the deciding factor in your choice.

Each CMS has a growing list of extensions available, most of which are listed in the CiviCRM extension directory (`https://civicrm.org/extensions`).

In recent versions of CiviCRM, significant work has been done to expand the capabilities of CiviCRM's native extension-handling tools. A native CiviCRM extension installs and operates similar to how a Drupal module, or Joomla!/WordPress plugin works, but it is CMS-agnostic — it will work in any of the three CMS environments.

In any case, CiviCRM lets you take advantage of a powerful open source content management system, integrating your contact database directly into your organization's website.

Total cost

The common saying that free and open source software is free like kittens rather than free like beer applies to CiviCRM. The total cost of ownership of a software system is an important metric for deciding which is more appropriate. Open source software costs for a system such as CiviCRM are different from those of proprietary systems. The absence of an upfront purchase cost is not the end of the story. The costs of maintaining the system over its whole life need to be calculated. Instead of one-time purchase costs, or annual or monthly software license costs, there are likely to be additional expenditures on installation, training, and support. As you use the system, and your needs begin to change, you will likely have costs to customize and adjust things. And as new versions of CiviCRM are released, you should anticipate ongoing costs to upgrade the software. Depending on an organization's CRM needs, number of CRM users, and staff competencies, CiviCRM may be more or less expensive than the other alternatives. Support (upgrading, maintaining, and customizing) of a software tool such as CiviCRM can be done by your own staff or volunteers, if the knowledge is available; you can work with a developer or CiviCRM partner, which might be expensive in one way, but save you time when users need to work with the system; or you can get a support contract with a partner or an SaaS CiviCRM offering, which then gives you a flat monthly cost. What is important is to consider these costs when examining your CRM options so that you can meaningfully compare your proposed solutions.

Dynamic open source development

The *free* in *free and open source software* is primarily the freedom to modify the software to meet one's needs (see `http://wiki.civicrm.org/confluence/display/CRM/Developing+with+the+CiviCRM+team`). This is certainly an advantage for many organizations with resources that are unable to get proprietary systems adapted as they require, or that are unwilling to let another organization drive the feature development roadmap and time frame of their enterprise CRM system.

CiviCRM has a strong, growing, international open source community and software ecosystem. CiviCRM averaged over 8,300 downloads per month in 2013. There have been over 500,000 installations since version 2.0, with around 3,600 known active CiviCRM installations in the winter of 2014. Total downloads per month tend to vary significantly from month to month, with jumps reflecting windows of time when new versions are released. But, over the course of the project, there has been a steady increase in usage, based on these download stats. If you're interested in viewing more recent stats in an interactive view, visit the newly released statistics portal: `https://stats.civicrm.org/`.

In addition to **Make It Happen** contributions, CiviCRM receives a large number of contributions from the community in the form of code patches for new features, including the following:

- BC Physician Health Program
- MAF Norge
- Front Line International Foundation for Human Rights Defenders
- Greater Manchester Centre for Voluntary Organisation
- International Mountain Biking Association
- Alpha International
- New York State Senate
- Progressive Technology Project

The number of issues reported and patches submitted by the community has increased significantly over the years. But along with the reporting has come increased contributions from the community to help provide patches and new functionality.

This has grown further since the migration of core code to GitHub (`https://github.com/civicrm`). Git provides a distributed version control system model, which encourages code contributions from the community through pull-requests. While the bulk of the contributions are made by the core development team, an increasing number of contributions come from members of the community.

While some might perceive more issues being filed by the community as a problem (people are finding the product buggy), it is very healthy from another perspective. For example, it's not uncommon to see a spike in issues filed when a new version is released through the alpha/beta cycles. During that time, community members are encouraged to download, install, and test pre-production versions in order to provide feedback on features, usability, ease of upgrading, as well as identify bugs before the new version is released. This push is generally very successful and leads to a spike in patches submitted, and ultimately results in a better and more bug-free release. In recent years, there has been an increased effort to get consultants and better-resourced users to contribute patches, in order to allow the core team to focus on enhancements for new releases. Furthermore, many of the issues created in the CiviCRM tracker are feature improvements and suggestions, which over time will make their way into core.

One unique aspect of CiviCRM, that sets it apart from many other open source projects, is the presence of a core development team working full-time on project development. While community involvement is a great sign of project health, the presence of a core development team has ensured steady releases, an aggressively planned project roadmap, and more responsive support patching bugs and supporting users.

In addition, the presence of a core team provides resources for helping new developers in the community get up to speed on CiviCRM development practices. Through training programs, forum support, and the IRC channel, new developers have ready access to the core development team when working through projects.

Documentation

Extensive administrator, user, and developer documentation is available at `http://wiki.civicrm.org` and through an online book (`http://book.civicrm.org/user`). The wiki is maintained in a version-specific format, allowing you to access past versions of the wiki that reference older versions of the software, if needed. The online book is generally updated on an annual basis, and provides the best starting place for general users. Newer, fast-changing, and rarely used functionality is better covered in the wiki.

In addition, inline help is found throughout the software, in many cases providing both a description of the tool or feature, and a link to the online book or wiki for more information.

Responsive community support

One of the challenges faced by users of some open source software, compared to proprietary software, has been the difficulty of assuring that support will be available when needed.

Often, when an issue arises in your installation, others have tried to tackle the same or similar challenge, and a record of how they were helped to solve their issue can be found by searching in the CiviCRM Stack Exchange site at `http://civicrm.stackexchange.com/`. If you find that you're stuck and can't find documentation dealing with the specific problem or use case you are experiencing, begin by asking questions and searching related answers on Stack Exchange. Quite often, you will find tips, workarounds, or debugging steps that will lead you to your solution. The CiviCRM community and core team are renowned for their quick and generous replies to questions on Stack Exchange. It is here where the community really shines. We can't guarantee every question or problem will be solved there, but it is the best place to start when you are stumped.

For those developing in CiviCRM, there is also a #civicrm IRC channel on `http://freenode.net`, where one can usually find the core team and other knowledgeable community members responding to more challenging inquiries. IRC provides the benefit of real-time conversation over the forums, where there may be some lag time while you wait for others to respond. However, the IRC channel also tends to go through high and low traffic periods. If you stop by, ask a question, and receive no response, you may need to come back at another time, or proceed with posing the question on the forums.

CiviCRM events

The best way to benefit from community knowledge and experience is by attending a CiviCRM event. There are several different events hosted by the core team or by community leaders:

- Several CiviCon conferences and user summits are organized all over the world, and are held every year. These one-day or two-day events are packed with sessions geared toward different types of users —end users, implementers, developers, and so on —and cover a breadth of topics, from site security and code architecture to case studies and practical *how to* recipes.
- The core team and quite a few of the CiviCRM partners host several training programs each year, held in various locations around the world. There are two types of training: developer training, providing new developers with a crash course in CiviCRM code structure and tools; and administrator and end user training, providing both a broad overview of CiviCRM functionality and basic use, along with important configuration and planning considerations for system administrators.
- Throughout the globe, there are an increasing number of CiviCRM Meet-up groups. These regionally located, community-led groups will typically meet monthly or bi-monthly, and use the time to learn about new features in CiviCRM, have a round-table discussion about working with particular tools, or make it a working meeting, where attendees break open their laptops and work on some aspect of their own site implementation. Meet-ups frequently include case study presentations, which provide a valuable way to learn about how other organizations are using the software, which in turn may inspire you to use it in new and creative ways.
- Once a year, CiviDay is announced, which sees CiviCRM meet-up groups meet all over the globe on the same day.
- The CiviCRM community also offers a wide variety of online and in-person training sessions and quite a few webinars can be found on the Web.

Depending on where you are located, it's not always easy to allocate the time and resources to travel to a CiviCRM event. But if you are able to, it's well worth the effort. Aside from the presentations, which may help you understand and utilize the software more fully, you will benefit from building relationships with other users and tapping into their experience.

How CiviCRM will help your organization

Good CRM implementations facilitate better outcomes and improved relationships with your constituents, which may be measured by such things as increased donations or volunteer time. They also improve staff efficiency and automate workflows, reducing the average cost and time involved in interactions with the constituents. This allows you and your organization to do more. CiviCRM will improve the relationship your constituents have with your organization through various features, including the following:

- Easier online event registration
- Self-serve membership renewal
- More complete record of history of interactions available to the entire qualified staff
- Automated workflow improvements for case management
- Personalized communications
- E-mail communication self-management (subscribe/unsubscribe tools) and mailing result statistics

Improved relationships also result from deeper changes to the underlying work of an organization. Segmentation of constituents can enable more targeted and effective communication and interaction. For example, sending a text version of your newsletter rather than the normal HTML version to those who have not opened three HTML issues in a row can improve deliverability. Cross-marketing action alerts to frequent donors, or donation appeals to frequent activists, can be more effective than sending these appeals to all donors or activists, since the latter may end up filling people's inboxes too frequently, leading many to unsubscribe. Surveying those who immediately return for more service on their case can reveal systemic issues in case of management protocols, or quality assurance issues.

Organizations with well-focused and right-sized CRM strategies properly balance the costs of acquiring and updating constituent information against the benefits of having and using it. Staff effort and constituent inconvenience mean that it is often better not to force, or even encourage, the entry of less important information. Nonetheless, CiviCRM will provide quantitative and qualitative information that can guide actions, inform executive decision-making, and allow balanced scorecard types of reporting to boards and external funders.

Summary

In this chapter, we looked at the reasons that organizations develop a CRM strategy, the importance of considering the work processes as well as the supporting technologies when developing your Constituent Relationship Management strategy. We also saw the ways in which non-profit constituent relationship management is similar to, but different from, business Customer Relationship Management in objectives and techniques. We learnt to identify and prioritize the constituents and interactions to be managed by your CRM, when CiviCRM is more appropriate as a tool to support your CRM strategy rather than single-purpose tools, custom software development, or other CRM systems. The common advantages that CiviCRM provides include the following:

- Better focus on non-profit needs
- Greater user satisfaction
- Avoidance of vendor lock-in
- Excellent integration with popular and powerful Drupal, Joomla!, and WordPress content management systems
- Lower total cost of ownership
- A strong and active development community
- Extensive documentation for all kinds of users
- Good free and paid support
- The benefits your organization will likely see when it adopts CiviCRM

It might be tempting to jump in and start installing and configuring CiviCRM and migrating data from your existing systems. However, our experience is that there are great advantages in developing a CRM implementation plan that identifies, at a minimum, your team, your requirements, and the major tasks that will need to be accomplished. The next chapter will walk you through how to develop a CRM implementation plan that is suited to your organization's size, culture, and needs.

2
Planning Your CRM Implementation

Obviously, you are now convinced your organization will be in a better position to accomplish its mission using CiviCRM. This chapter will help you plan your implementation of CiviCRM so that your **Constituent Relationship Management** (**CRM**) initiative has the best chance to achieve greater organization success.

In this chapter, we will do the following:

- Identify potential obstacles and challenges to success and learn how to overcome them
- Introduce background on development methodologies
- Build a project team
- Get started by measuring baseline metrics, creating a vision, and creating a plan
- Itemize elements of a good implementation plan
- Review how to calculate the total cost of ownership of CRM systems and their alternatives

This chapter is aimed at people who have the responsibility for initiating, scoping, and managing development and implementation for the CRM project. The first several sections of the chapter are very IT management-oriented. The material on improving constituent relationships is often non-technical, and not specific to CiviCRM. We have written it to primarily address executives, directors, and managers at medium and large-sized organizations. Personnel in smaller organizations should also benefit, though they may need to scale down the suggestions to better fit their organization resources and goals. For readers who are technical and/or do not have managerial or executive responsibilities, these sections should provide a good context for your work, and may help you advise managers and executives who do not have experience with CRM strategy development and implementation.

The latter parts of the chapter focus on identifying your organization's requirements for CRM functionality in different areas such as communication, membership, fundraising, and events. These sections are intended to help with brainstorming techniques that could be a part of your organization's overall CRM strategy.

Of course, you might be a semi-technical person who's trying to solve the database problem, at a small non-profit, with a three-member staff. If this sounds more like your situation, then the initial parts of this chapter may provide inspiration on where you would like to aim, while the latter parts will provide useful ideas and suggestions that will be more immediately and practically relevant as you plan your work.

If you are already using CiviCRM, but feel it is not linked to a strategy or vision, you might want to use this chapter to get some ideas.

Challenges on your way to success

CRM initiatives can be difficult. They require change, often impacting processes and workflows that are at the heart of your staff's daily responsibilities. They force you to rethink how your organization operates to support its mission. They may require you to restructure external relationships even as you are rebuilding internal processes and tools. Externally, the way your constituents experience the interaction with your organization might change. Internally, business processes and supporting technological systems may need to change in order to break down departmental operations' silos, increase efficiencies, and enable more effective targeting, improved responsiveness, and new initiatives. The success of the CRM project often depends on changing the behavior and attitudes of individuals across the organization, and replacing, changing, and/or integrating many IT systems.

To realize success, as you manage the organizational culture changes, you will bring change to the daily processes for a lot of staff at your organization. As a result, it is often very challenging to align the interests of the staff and organizational units with the organization's broader interest in seeking improved constituent relations, as promised by the CRM strategy. This is why it is important to get someone influential and important involved directly with the project. They must help staff see beyond their immediate scope of responsibility, and buy-in to the larger goals of the organization.

On the technical side, CRM projects for mid- and large-sized organizations typically involve replacing or integrating other systems. Configuring and customizing a new software system, migrating data into it, testing and deploying it, and training the staff members to use it, can be a challenge at the best of times. Doing it for multiple systems, and more users, multiplies the challenge. Since a CRM initiative generally involves integrating separate systems, you must be prepared to face the potential complexity of working with disparate data schemas requiring transformations and cleanup for interoperability, and keeping middleware in sync with changes in multiple independent software packages.

Any of these challenges can make it hard to achieve your project goals. Reasons why projects of this kind often fail:

- Lack of executive-level sponsorship resulting in improperly resolved turf wars.
- Too much focus on the IT side of things. IT is there to support your mission and processes. It is an instrument, not a goal in itself.
- Too little thought on how to deal with data that is used at all levels of the organization.
- Lack of buy-in, leading to a lack of use of the new CRM system and continued use of the old processes and systems it was meant to supplant.
- Lack of training and follow-up training causing staff anxiety and opposition.
- Customizing the new system to look like (a combination of) the old systems.
- Incomplete, low-quality, or invalid data.

This does not mean that there is no way you can successfully implement CiviCRM. Planning at the start helps. Building in room for adaptation of the plan, as we learn from each step as we go along, helps too.

Perfection is the enemy of the good

CRM systems and their functional components such as fundraising, ticket sales, communication, event registration, membership management, and case management are essential for the core operations of most non-profits. This makes a CRM implementation project a scary one. Planning is a good idea, but be careful of the perfectionist pitfall. You will not know everything in advance, and trying to create the perfect plan that ensures success will lead to overkill in planning and procedures. While planning is good, perfection may not be good, as perfection is often the enemy of good.

CRM implementations often risk erring on the side of what is known as the MIT approach. The MIT approach believes in, and attempts to design, construct, and deploy, the *Right Thing* right from the start. Its big-brain approach to problem solving leads to correctness, completeness, and consistency in the design. It values simplicity in the user interface over simplicity in the implementation design.

The other end of the spectrum is captured with aphorisms such as *Less is More*, **Keep it Simple, Stupid (KISS)**, and *Worse is Better*. This alternate view willingly accepts deviations from correctness, completeness, and consistency in design, in favor of general simplicity, or simplicity of implementation over simplicity of user interface. The reason that such counter-intuitive approaches to developing solutions have become respected and popular is the problems and failures that can result from trying to do it all perfectly from the start.

Neither end of the spectrum is healthier. Handcuffing the project to an unattainable standard of perfection, or over-simplifying in order to artificially reduce complexity, will both lead to project failure? Value and success is generally found somewhere in the middle.

It will be the responsibility of the project team to set the tone, determine priorities, and plan the implementation and development process. One rule that may help achieve balance and move the project forward is *Release early, release often*. This is commonly embraced in the open source community, where collaboration is essential to success. This motto does the following:

- Captures the intent of catching errors earlier
- Allows users to realize value from the system sooner
- Allows users to better imagine and articulate what the software should do through ongoing use and interaction with a working system early in the process
- Creates a healthy cyclical process where end users are providing rapid feedback into the development or configuration process, where those ideas are considered, implemented, and released

There is no perfect antidote to the two extremes of the MIT approach and the *Less is More* approach—only an awareness of the tendency for projects (and stakeholders) to lean in one of the two directions—and the realization the both extremes should be avoided.

Thoughts on development

There are a lot of organizations that can achieve their goals with CiviCRM out of the box. Some organizations though will want to, or need to, customize CiviCRM to their needs. If you do want to customize CiviCRM there are two aspects to think about:

- Can we customize CiviCRM ourselves or do we need to get external help? And if so, where do we get it?
- What development methodology would suit us best?

Where to get help?

As CiviCRM is open source, anyone with the right skills can customize CiviCRM. Luckily, the community helps: CiviCRM has partners that are part of the community and have proven their CiviCRM capabilities. You can find the CiviCRM partners on the CiviCRM website at `https://civicrm.org/experts`. If you do not want to be limited to CiviCRM partners, make sure that whoever helps you is an active community member that posts blogs, answers forum posts, takes part in CiviCRM events, and so on.

Development methodologies

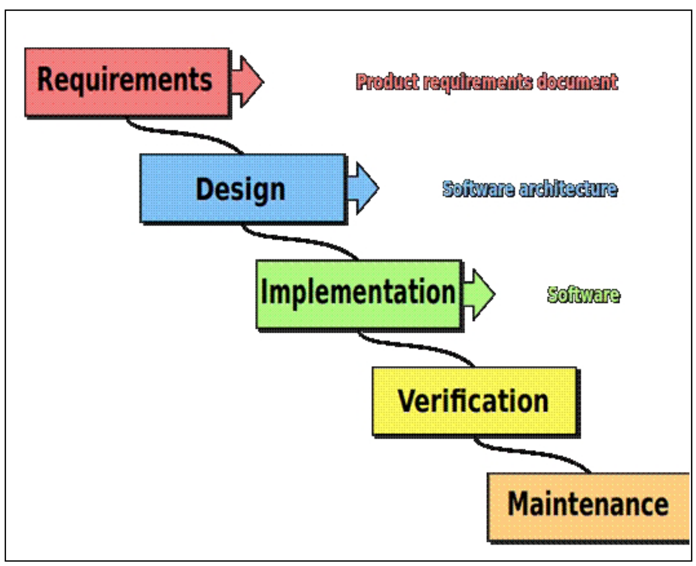
If you are customizing CiviCRM, you need to think about what development methodology you want to use. If you want to involve a CiviCRM partner, they will possibly have an opinion on the development methodology as well. If you are not customizing CiviCRM, you are certainly developing your CRM processes, so a development methodology will probably have value for you anyway.

Whatever approach your organization decides to take for developing and implementing its CRM strategy, it's usually good to have agreed upon your process and methodology. Your processes define the steps to be taken as you implement the project. Your methodology defines the rules for the process, that is, the methods to be used throughout the course of the project. The spirit of this problem-solving approach can be seen in the **Traditional Waterfall Development** model and in the contrasting **Iterative and Incremental Development** model.

> Projects naturally change and evolve over time. You may find that you embrace one of these methodologies for initial implementation and then migrate to a different method or mixed-method for maintenance and future development work. By no means should you feel restricted by the definitions provided, but rather adjust the principles to meet your changing needs throughout the course of the project. That being said, it's important that your team understands the project rules at a given point in time so that the project management principles are respected.

The conventional waterfall development methodology

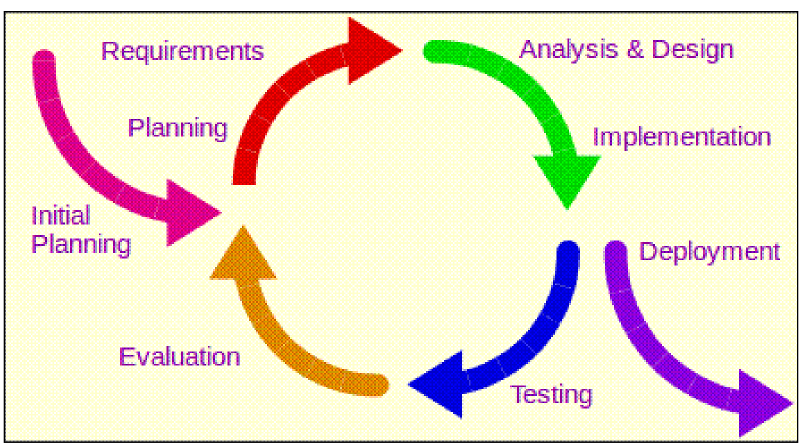
The traditional waterfall method of software development is sometimes thought of as *big design upfront*. It employs a sequential approach to development, moving from needs analysis and requirements, to architectural and user experience, detailed design, implementation, integration, testing, deployment, and maintenance. The output of each step or phase flows downward, like water, to the next step in the process, as illustrated by the arrows in the following figure:



The Waterfall model tends to be more formal, more planned, includes more documentation, and often has a stronger division of labor. This methodology benefits from having clear, linear, and progressive development steps in which each phase builds upon the previous one. However, it can suffer from inflexibility if used too rigidly. For example, if during the verification and quality assurance phase, you realize a significant functionality gap resulting from incorrect (or changing) specification requirements, then it may be difficult to interject those new needs into the process. The *release early, release often* iterative principle, mentioned earlier, can help overcome that inflexibility. If the overall process is kept tight and the development window short, you can justify delaying the new functionality or corrective specifications for the next release. If you do not embrace the *release early, release often* principle—either because it is not supported by the project team, or because the scope of the project does not permit it—you should still anticipate the need for flexibility and build it into your methodology. The overriding principle is to define the rules of the game early, so your project team knows what options are available at each stage of development.

Iterative development methodology

Iterative development models depart from this structure by breaking the work up into chunks that can be developed and delivered separately. The waterfall process is used in each phase or segment of the project, but the overall project structure is not necessarily held to the same rigid process. As one moves further away from the waterfall approach, there is a greater emphasis on evaluating incrementally delivered pieces of the solution, and incorporating feedback on what has already been developed into the planning of future work, as illustrated in the loop in the following figure:



This methodology seeks to take what is good in the traditional waterfall approach—structure, clearly defined linear steps, a strong development/quality assurance/rollout process—and improve it through shorter development cycles that are centered on smaller segments of the overall project. Perhaps the biggest challenge in this model is the project management role, as it may result in many moving pieces that must be tightly coordinated in order to release the final working product.

Agile development methodology

Agile development methodologies are an effective derivative of the iterative development model that move one step further away from the waterfall model. They are characterized by requirements and solutions evolving together, requiring work teams to be drawn from all the relevant parts of the organization. They organize themselves to work in rapid one-to-four-week iteration cycles. Agile centers on time-based release cycles, and in this way, differs from the other methodologies discussed, which are oriented more toward functionality-based releases.

Implementation with an Agile methodology highlights short daily Scrum status meetings, a product backlog containing features or user stories for each iteration, and a sprint backlog containing revisable and re-prioritizable work items for the team during the current iteration.

A deliberate effort is usually made in order to ensure that the sprint backlog is long enough to ensure that the lowest-priority items will not be dealt with before the end of the iteration. Although they can be put onto the list of work items that may or may not be selected for the next iteration, the idea is that the client or the product owner should, at some point, decide that it not worth investing more resources in the *nice to have, but not really necessary* items. But having those low-priority backlog items is equally as important for maximizing developer efficiency. If developers are able to work through the higher priority issues faster than originally expected, the backlog items gives them a chance to chip away at the *nice to have* features, while keeping within the time-based release cycle. They also allow for developers to be aware of easy features that can be added while you are working on related stuff.

As one might expect, this methodology relies heavily on effective prioritization. Since software releases and development cycles adhere to rigid timeframes, only high priority issues or features are actively addressed at a given point in time; the remaining incomplete issues falling lower on the list are subject to reassignment for the next cycle.

While an Agile development model may seem attractive (and rightly so), there are a few things to realize before embracing it:

- The process of reviewing, prioritizing, and managing the issue list does take time and effort. Each cycle will require the team to evaluate the status of issues and reprioritize for the next release.
- Central to the success of this model is a rigid allegiance to time-based releases and a ruthless determination to prevent feature creep. Yes, you will have releases that are delayed a week, or see must-have features or bug fixes that enter the issue queue late in the process, but the exceptions must not become the rule or you lose your *agility*.

Food Pantry Association of Greater Metropolis

Throughout the rest of this book we will use a case study to help introduce concepts and explain how to configure, customize, and use CiviCRM. While the organization and names are entirely fictitious and not intended to refer to actual organizations or people, the organization's needs and how it operates are intended to reflect common patterns in the non-profit and advocacy sector.

You are in charge of all administrative functions including computer systems and finances for the **Food Pantry Association of Greater Metropolis** (**FPAGM**). FPAGM is the central organization in the food pantry system in the city of Metropolis, and its surrounding areas. The pantries range from small faith-based groups to a few larger not-for-profits in the center of the only large city in the area. The pantries disseminate food to needy families and individuals to be taken home for consumption later, and are kept particularly busy during the winter months in this city of approximately 2.1 million people.

FPAGM envisions a community where no one suffers from hunger. As a trade organization serving the needs of the pantries and advocating on their behalf before city and state government, they have become a voice for the needy throughout the region. Their primary mission is to provide cost-effective shared services to food pantries in the region. Operationally, FPAGM does the following:

- Provides wholesale food pickup from business donors and the regional food bank, storage at a depot, and regular delivery of needed supplies to pantries
- Shares best practices amongst food pantries and food pantry donors

- Begins assisting pantries in dealing with problematic individuals who abuse the system or staff
- Represents the concerns of the pantries to local and state advocacy efforts, often by undertaking research and developing policy recommendations

The FPAGM Board of Directors consists of four officers and five members-at-large. Your boss, the executive director, oversees the work of five full-time staff. In addition, the organization receives regular volunteer support to assist with daily operations.

Most staff resources are taken up with providing food distribution services for the pantries. Affiliate members and other food providers contact the FPAGM when they have surplus food available for pickup. The association owns three vans for transporting food from the providers to a warehouse attached to the FPAGM offices, and then distributing it to the pantries on a weekly basis.

The FPAGM staff also handles distribution to the pantries. The pantries place requests for food and the costs (measured by weight) are tracked against their accounts.

This system allows the pantries in the region to focus on providing food and services to clients, needy members of the community, without needing to identify food supply sources. The association also benefits from economies of scale, particularly with warehouse space, staff, and vehicles required to distribute food to the pantries. By serving the collective needs of the area food pantries, and realizing operational efficiencies, they are able to help the pantries maximize their limited financial resources by focusing on getting food to clients.

The association hosts two training events and an annual conference that draws attendees from the entire state who are involved in food pantry support. Additionally, they have member services staff who provide daily, 9-5 phone support for pantries seeking information or operations assistance.

Right-sizing the process

It's important to ensure that the process and methodology you adopt for your CRM initiative is appropriate to your organization's culture and size, the complexity of its existing systems, and the scale of your CRM effort. This goal of *right-sizing* the process to fit your needs is essential, both for you as the project manager/decision maker, and for any consultants you engage in the process. Besides having familiarity with your methodology of choice, the project team (organization leaders, staff, and consultants) should understand and appreciate how you have right-sized the project. For example, if you represent a small organization with 2 to 5 staff members, a volunteer board and committee structure, and 3,000 contact records, building too much structure and process into your project will impede efficient progress rather than helping it. You need enough structure to make sure that the project is well defined, well-managed, effectively tested, and implemented on time and within budget; but not so much structure that you spend all your time managing the methods instead of implementing a CRM.

If your organization is able to adapt, you will be able to benefit from a more Agile methodology. If you do need the more formal waterfall process, be sure that it does require you to know what you are going to need in advance in order to be successful.

Tiny organizations, or initiatives, may not need to iterate because the scope of work is too small—as issues are identified, they can address, test, and implement a fix very quickly. A project intending to replace a single existing CRM system with CiviCRM may find it better to proceed in a single product rollout to reduce the effort involved in running old and new systems in parallel. By contrast, replacing a number of separate siloed systems with CiviCRM can be grouped into one or more iterations for each system being replaced.

Sometimes, it can be useful to pilot CiviCRM in an important, urgent, or easy area. You might want to reach the low-hanging fruit by automating event registration for the first time. Another strategy would be to tackle the toughest area first, so that you don't get halfway down a path of converting to a new CRM before you realize there are some aspects of your needs that will require more customization than originally envisioned.

So what happens if you are knee-deep in your project implementation and realize you wrong-sized your process? Hit the pause button! Re-evaluate what is working and not working and fix things now. It's often tempting to stick with the program, at least until you complete the initial rollout phase, but if you are truly *wrong-sized*, delaying a process fix will only harm the project and increase the risk of failure. It's better to identify the problems and either scale back the project structure or implement new methodologies, depending on which side of *wrong* you have fallen.

Building the team

A critical factor in the success of your CRM initiative will be deciding who is on your team. The size of the team will obviously vary among differing organizations; those with 3 staff members will have to do things differently than those with 300. While this section is oriented towards larger organizations, the principles apply to any size.

The implementation team should include the people who will play a direct role in the ongoing project development. Not everyone affected by the CRM initiative needs to be on this core team tasked with driving the strategy and implementation. A good working group is seldom larger than six to eight people, and very often, a smaller group can be more effective. To get where you want to be, it is a good idea to have a representative project team where the different voices of the organization will be heard. Apart from representation, it is also good to have a mix of talents in the team. Some tasks will require extrovert communication skills, while others will require introvert detailed analysis.

Usually, it is immediately clear that the involvement and cooperation of some individuals in the organization will be necessary for the success of the initiative. In addition, it is important to have a variety of people representing different roles on the team. The team members must bring the right mix of expertise and experience to the project, be willing to work together to effectively accomplish what needs to be done, and work in order to ensure that the perspectives and needs of all the affected parts of the organization are heard and weighed appropriately. If you have close links to external stakeholders, involving them in your CRM strategy development, and testing before roll-out, can dramatically improve the success of your initiative.

As representatives for the initiative inside and outside the organization, the team members are ideally placed with the goal to advocate and evangelize for their own sub-constituencies in support of the overall CRM vision. What do we mean by that? Each member of the team should represent a voice in your organization—management, front-line staff, communication, accounting/bookkeeping, event coordination, advocacy, end user constituents, developers, different kinds of external stakeholders, and so on—each with their own expectations, goals, and concerns with the CRM implementation. The combined diversity of perspective is essential in order to achieve a well-balanced and effective team.

A key role in your project will be the project manager. He, or she, will lead the project process on a daily process, report to the directors or management team about the process, take decisions within the boundaries of the project, and is the face of the project in the organization. In an ideal world, the project manager manages the process of the project, not the contents. The project manager needs to have enough body to take decisions. It is probably better to have someone who can lead a team and inspire others, than someone who knows all the details and wants to control all aspects in all the details.

As a project manager, you will also need to judge whether people who are likely to be resistant to change, or to the initiative in general, should be brought into the tent early or late. Their opposition, or reluctance, may be due to their personality, a pattern of conflict with a team member, fear of change, institutional factors such as loss of control of data or budget, or perceived criticism as systems and work in their area of responsibility are targeted for improvement. Our experience is that it is usually better to bring them in early, so that their voices can be heard and their concerns addressed during the implementation. Accept that initial resistance to change is human, is required to be able to really make the change, and has value. Acknowledge and incorporate as many positive aspects from the existing ways of doing things as possible, and ensure that there is adequate opportunity for familiarization and training with the new system in order to encourage that buy-in. Skeptical voices are valuable when they help to provide a reality check on optimistic ambitions, but can become poisonous if they veer towards unreasonable negativity.

The ideal team may include the following:

- An executive or board sponsor of the initiative who is able to articulate the vision, allocate adequate resource, resolve issues, and inspire the project team
- Process owners in functional areas such as communication, event management, fundraising, and membership management
- One or more key staff users, who know about how things are done now, and the details of the processes
- Technical expertise, in-house and/or consultant, covering CiviCRM, your CMS (Drupal, Joomla! or WordPress), legacy systems, databases, and server management.
- External stakeholders, especially when their stake in your organization's success is significant.

> The executive director at FPAGM, Mojan Ahmed, undertook a systematic review of the organization and its processes, 3 months into her tenure. The 6-month exercise included the board of directors, staff, key players from the food pantries, food donors, volunteers, staff from local politicians' offices, and a bureaucrat from the city. A key outcome of the review was the decision to invest in a new information system. Her judicious selection of stakeholder representatives has resulted in early assurances that the city government and a local philanthropic foundation will provide grants that will cover the anticipated cost of the CRM implementation and associated training together.

Your team needs to think about how to facilitate feedback from other parts of the organization on the existing system, the new system, the project, and all aspects of your CRM goals.

As you construct your team and consultation/feedback mechanisms, it's important to keep in mind that the best CRM initiatives involve systems, processes, and behavior patterns. Communication about the CRM initiative will need to occur at all organizational levels. The efforts expended on consultation and involvement of staff and volunteers throughout the process can lead to worthwhile results with respect to organizational change, even if few technical changes take place. Your aim should be to facilitate proper organizational alignment with the CRM vision and objectives, which will help people feel more responsible for things they have contributed toward, approved, and shaped.

> Suggestion: As your team and methodology fall into place, consider using a project management tool to help track issues as they arrive, document every step of the process, define milestones and release targets, and keep your team members honest. This is particularly important if you are a large organization with many stakeholders involved in the process. Having an electronic paper trail to reference is critical as you work through the decisions, define specifications, and roll out the software. There are a number of excellent web-based project management tools that can be used for this purpose.

Getting started

At the beginning of a CRM project, you will need to do some planning, whether this means creating a feature backlog for the discovery phase of an Agile process, pre-planning for an iterative process, or the initial work in the planning phase for a waterfall process. What planning you should do, and when you do it, will vary depending on the process adopted for your CRM project, the general management practices for approving and analyzing projects in your organization, and possibly the requirements of external funders such as foundations and other grant-giving organizations.

The following outline of preliminary activities includes some items that may not be required by less formal and less structured organizations. Even if you're treating your CRM project as limited exclusively to the technical implementation of one or more CiviCRM components such as online donation processing, we encourage you to review this section for ways to make it a success.

While the list is arranged according to the general order it should be done, you will want to expect and plan for an iterative process. Planning is a process of refinement, learning and adjusting as the project takes shape. The later portions of this section will expand on requirements for specific components of CiviCRM, but first we will look at getting started from a broader view.

Creating a baseline

Assuming that you are implementing a new CRM because improvements to your current system are desired, begin by developing an inventory of the current state of customer relationship management in your organization:

- Create a list of the main types of constituents that interact with your organization, such as volunteers, donors, attendees, board members, staff members, website visitors, and so on. And remember they do not have to be mutually exclusive!
- For each type of constituent, list the important types of interactions they have with your organization.
- Identify actionable metrics that measure the quantity and quality of relationships.
- Create an inventory of all systems that interact with or about the constituents in some shape or form.

FPAGM memberships

FPAGM begins its planning process by reviewing its membership structures, as they essentially form the backbone of the organization. Members drive the organization mission, provide a significant portion of the organization revenue, and are the front-line service providers to the community.

FPAGM is simplifying its organizational structure in various ways, including moving from nine to three membership categories. Historical differences between the small rural church pantries and the larger urban, secular, non-profit organizations, and between the small restaurants and large food distributors, will be dealt with through board representation, program operations, and fees. The new membership categories are as follows:

- **Regular**: Food pantries in the region are eligible to become regular members of the Association, and all but one has already done so. Pantries who join the Association agree to adhere to a code of conduct, which includes statements concerning non-discriminatory practices and a willingness to work collaboratively with other pantries towards the goal of fairly and charitably reaching the needs of the area's poor. FPAGM currently has 43 regular members. The annual fee is $250.

- **Affiliate**: Organizations that donate food to pantries in the region are eligible to become affiliate members of the Association. 127 have done so, including a produce distribution center, two food wholesalers, a grocery store chain, several other independent grocery stores, and a large number of restaurants. These businesses support the Association through their involvement in the organization, as well as through providing surplus food for distribution to the pantries. The annual fee is $100.
- **Supporting**: Individuals or organizations that embrace the mission of the Association and support it through monetary donations and through service or in-kind donations may choose to become supporting members. FPAGM currently has 56 supporting members. While the minimum annual fee is $50, some have given considerably more.

The regular and affiliate categories operate on 1-year membership periods from January 1 through December 31. Supporting members operate on a 1-year rolling period by default, though the size of the gift may dictate a longer membership period at the discretion of the executive director and board of directors. Employees of any member organizations inherit membership benefits by virtue of the parent organization.

Developing the vision

We've talked a lot about the need to build a well-represented team and to spend time identifying the full extent of your constituents. Now, encourage organizational unity by developing a shared vision for your CRM and its place in your organization:

- The vision can be the basis of planning goals and metrics for measuring success.
- Focus on the mission of the organization and how it is realized through relationships with constituents.
- List some functional possibilities that you need in the future, such as online event registration or contributions.
- List possible ways of overcoming current pain points. For example, data silos between staff or departments that currently result in data duplication and lack of sharing.

- Focus on the user experience with your organization in typical interactions. Alternate between big picture identification and examination of constituent segments (either analytically through data analysis or anecdotally through staff and expert exposition), and close-up details of specific users and incidents.
- Pay attention to the funnel(s) of prospects for high-value types of constituents. Depending on your organization and mission, these may be volunteers, activists, donors, new members, or others, such as the public your organization is trying to educate about something. Clarify the levels of engagement for these types of constituents (for example, website visitor, newsletter subscriber, online activist, event attendee, donor, in-person volunteer, or board member), and the value proposition at each step. Consider new business activities such as creating a free monthly newsletter to acquire prospects, or premium members-only pre-event meet-and-greet gatherings to help with volunteer recruitment.
- Spend energy brainstorming the following:
    - Ways to reduce time-consuming and repetitive tasks of staff and volunteers, for example, making more processes self-serve online
    - Eliminating some tasks altogether if they do not adequately help the organization realize its mission
    - Imagining new ways to accomplish your mission, for example, beginning to use viral marketing and social media
- Optimizing business processes for external experience, internal efficiency, and general usefulness before automating them
- You may want to consider articulating the desired goals and metrics using Specific, Measurable, Attainable, Relevant, Time-bound (SMART) project management criteria for more controlling and formal organizations, or Doable, Understandable, Manageable, Beneficial (DUMB) ones for less management-heavy ones (visit `http://en.wikipedia.org/wiki/SMART_criteria`).

The food pantry needs of the greater Metropolis community have grown significantly over the last few years, and FPAGM seeks to find ways to increase the operational efficiency while providing greater levels of service to its members.

Furthermore, their members have expressed a desire to increase networking and cooperation among each other. In particular, they want to learn from shared experiences and find ways to discourage people from abusing the services provided (pantry hopping). Recent resistance from the city government has forced the Association to take a more aggressive role in state and local advocacy, such as ensuring that laws and regulations that support the mission of the organization are put in place. This means that FPAGM must look for ways to present its issues, concerns, vision, and constituents in a more public fashion.

All of this has led your organization to begin the process of rebuilding their website and implementing constituent relationship management software. You chose Joomla! as the content management system for your website because of its ease of use for administrators and the variety of extensions available for building the site functionality. You've selected CiviCRM for your contact management needs because of the diverse toolset it will provide, both for your immediate contacts, members, event management needs, as well as your future goal to begin case management tracking.

You anticipate using online membership forms to solicit new members, expose profiles for member contact detail management, provide event registration forms for training events and the annual conference, and promote contribution forms for members to place orders for food delivery. They also plan to have online donation pages and may begin having periodic campaigns for more focused fundraising efforts.

You plan to develop appropriate metrics as your next step in developing FPAGM's CRM plan.

Creating a project plan

Create a preliminary project plan as follows:

1. Determine the project scope.
2. Estimate a timeline for software release(s), major stakeholder communication, training, and other project milestones.

3. Estimate the monetary, human, and technical resources required, providing the basis for a preliminary budget of the total cost of ownership for all phases of the project, including both the implementation and ongoing annual costs. You might not know all the detailed figures at this point in the process, so you can have estimated figures here. Do make sure, though, that it is clear that the budget will be subject to revision.
4. Estimate the benefits in terms of the following:
    - Cost saving through efficiencies (staff time able to be redeployed, switching some communications from postage and printing to e-mail, and so on)
    - Increased revenue generation (donations, ticket sales, and so on)
    - Mission-oriented success metrics
5. Sample metrics may include the following:
    - Clients served (number of cases, time to resolution, number of repeat clients, client evaluations of service and organization, and so on)
    - Number of events offered
    - Ticket sales (number and value)
    - Donations (number of donors, frequency of giving, recency of latest donation, and average amount of donation)
    - Bequests arranged and received
    - Memberships (number, geographic, sectors, or other coverage of target audience)
    - Volunteers (number, frequency, recency, average number of hours, higher-value kinds of volunteering, and so on)
    - Grants (applications received processed, average time of processing, number approved)
    - Newsletter subscribers (number, churn rate, opens, click-throughs, completions of calls to actions)
    - Media (number of mentions, reach, and tone of coverage)
    - Web traffic (number of unique visitors, repeat visitors, length of stay, forwards to friends, number of Facebook fans, number of Twitter followers, number of retweets, and so on)
    - Search engine (page rankings for various key terms)

6. Set out the assumptions underlying the plan.
7. Identify risks to the project success that will need to be reduced, mitigated, or otherwise managed.
8. Combine the budgeted costs with the estimated benefits to develop a projection of the financial and non-financial return on investment.

Depending on the scope of your project, and how you view it with regard to your overall mission, a more extensive environmental analysis (such as the SWOT method: strengths, weaknesses, opportunities, and threats) could prove useful during this stage. Though you may look at the CRM initiative as largely an IT function, the reality is that it will impact every facet of your organization, and thus should be viewed from this macro level. A review of business process re-engineering could also be considered as an early activity because of its general importance and opportunity to think cross-functionally.

Total cost of ownership

We just mentioned, in the previous section, the need to calculate the total cost of ownership in order to provide a sense of the expected return on investment in a CRM initiative. The initial cost of acquiring and deploying software systems is usually a fraction of their total cost of ownership. This is especially true for enterprise systems such CRMs that tend to have longer effective lives. Considering the full extent of project costs, over the life of the software, will help you allocate resources and budget finances more effectively.

Although CiviCRM, Drupal, Joomla!, and WordPress are free open source software projects, they do have costs associated with them. In addition to training for users, administrators, and any in-house developers you may have, there is a need for ongoing maintenance and support of your software and data and hosting.

Security upgrades or patches need to be applied regularly to both your CMS software and CiviCRM. We recommend upgrading at least a few times a year as new major versions are released, but not necessarily for each minor revision release. Keeping current with upgrades allows you to take advantage of new features as they are released, while also ensuring you are addressing security issues that may have been identified. If you have customized or overridden CiviCRM functionality, you should expect there to be some costs associated with modifying the customized files on your site during upgrades.

A major reason why software costs are ongoing for organizations is that organizations are not static. What your organization does and how it does it will change, both as you implement your CRM initiative, and after it is actively in use. The interlinked nature of work processes and software systems means that you will need to continue to adapt, reconfigure, and re-customize CiviCRM for as long as your organization uses it.

A second area where organizations need to plan for ongoing resources for a CRM system is keeping their data clean. Depending on the nature of your constituents, and the ways you collect data from those constituents, you may find issues with incomplete, incorrect, and duplicated constituent information. Automated merging and elimination of duplicates is useful, but rarely meets the extent of your data-cleaning needs. Manual work reviewing potential duplicate records is time consuming, but essential.

A properly conceived CRM initiative will yield benefits that more than cover the total cost of the system in terms of improved relations with constituents and cost efficiencies realized from labor-saving automation. Actually, the costs should no longer be IT costs, but an integral part of the budgets of the respective areas of the mission and the parts of your organization that use the system heavily.

Focusing on constituents and mission

Now that we have a plan in place, we can move from *how to set up the project* to *how to do CRM.*

Many non-profits have processes and activities with certain types of constituents that are analogous to those in the marketing and sales areas of for-profit business. Two metaphors that are common in the for-profit arena have crossover value for non-profits. The first one is a sales funnel, which envisions a large number of unqualified (or semi-qualified) prospects entering at the top of the funnel in order to create a sufficient number of sales realized at the bottom. The second metaphor is the picture of a ladder of engagement, with contacts classified according to how many steps they have taken, such as revealing more information about themselves, or increasing involvement on the path toward becoming a client, donor, or volunteer.

In both these metaphors, the overarching goal is to increase commitment and involvement. You want the casual newsletter recipient to eventually become a donor; the first-time event attendee to eventually become a member. Climbing higher in the analogy, you eventually would see the constituent become so committed and engaged in the organization that they lead a committee, sit on the board, or spearhead a new initiative.

These two analogies provide ways to think through this process. For example, it's a good idea to think carefully about the value proposition —the benefits realized for each step up the ladder of engagement, both for the constituent and the organization. By analyzing metrics such as the number of contacts at each level on the mountain, you can identify possible stumbling blocks that could impede that deeper engagement.

Do you find that you have no trouble recruiting subscribers and online activists, but can't convert them into online organizers or donors? Perhaps more incentives are needed, or maybe the signup buttons need to be more prominent. Do you have success with online organizer signups, but find they are not doing much to actually fulfill that role? Perhaps the recruitment forms for organizers are too complicated, entering e-mail contacts manually is too much of a burden, or maybe the canned recruitment text that the system provides them to send to people needs to be made more compelling.

From an organizational perspective, the investment in each step needs to be commensurate with the expected return. Are you investing heavily in white papers that no one reads? Maybe you should repurpose the content of each one after it has been written into a series of newsletter articles or Facebook posts and Twitter tweets. If they are seen as highly valuable, but only to significantly interested parties, perhaps you can sell them to interested organizations or organize panel discussion events around their publication. Are you putting a lot of effort into fundraising event planning without much in the way of monetary return? Perhaps you need to shift to direct-ask fundraising, or reduce the cost of food and entertainment at your events by shifting from dinners to after-work wine-and-cheese parties.

Ideally, business processes are designed so that whenever the organization or one of its constituents initiates an interaction, the interaction is likely to be of value to both parties. For example, the newsletters should be edited to provide useful and interesting information for their target audience within the constraints of available resources. By providing this information, the organization comes to be trusted in various ways associated with its mission, for example, spending wisely on deserving initiatives. This hopefully leads a large enough proportion of subscribers to deeper involvement with the organization, for example, attending one of its events or donating to one of its projects or programs. In return, the constituent benefits from the content of the event and from feeling that they have helped support a worthy initiative.

In many cases, constituent interests will not be aligned so neatly, but it should nevertheless remain the goal of this value-oriented planning. For example, permission-based marketing tries to ensure that people do not receive e-mails, phone calls, or letters that they do not want. While unscrupulous marketers may spam, and not respect do-not-call requests and lists, those that follow the best practices will find that there are efficiency gains: eliminating contacts from lists which are likely to be poor prospects increases the relative yield and lowers the marginal costs.

Warning

Be very careful when deliberately designing processes that make it hard for constituents to do something they want to do, but the organization doesn't want them to do. Processes which are designed to make it difficult for a constituent to get something from an organization (such as access to staff time, which may be expensive to fund) need to make sense, given your business model. *Voice-mail hell*, the damage it does to an organization's brand, and its ability to deliver to its constituents and partners in collaboration, is an example of a misguided or a poorly-executed effort to reduce the cost of providing information. In contrast, a purely online service, with online forums and contact forms, that do not purport to offer phone support, may better meet constituent expectations while providing lower service levels. If your organization is devoting large amounts of resources to activities that do not significantly advance its core mission, consider ways to leverage that activity to better achieve your mission, re-engineering it to require fewer resources, or even eliminating it. Rationing a service by making it hard to access is not the first alternative to consider, but one of the last.

Are you frustrating people by setting up false expectations? It is better that people know it will take a few days for the organization to respond to an online query before they start filling it out, since they might choose to work harder at doing a search of your site for the answer. Work to anticipate constituent questions and needs. For example, you could set up auto-responders for your Contact Us form to send out a link to frequently asked questions on your website. This serves the dual purpose of collecting e-mails for further educational outreach efforts (permission-based, of course!) while providing contacts with information likely to be of use.

For these kinds of strategies to work well —lowering costs and improving outcomes for both constituent and organization through automation—it is necessary to know your constituents well enough to understand the types of questions they ask or information they are looking for.

As part of your planning, you should analyze the types of constituents interacting with your organization, the ways they interact with it, and how well those interactions serve their needs. Conversations (on Facebook, in forums, or in person), surveys with open-ended text responses, or more structured focus groups with constituents or prospective constituents can suggest ways of segmenting constituents and useful places to focus on introducing innovations and reducing irritants. More quantitative and thinner feedback can be acquired via surveys with multiple-choice responses, more informally via Twitter, or by simply asking for a show of hands at an event. As the communication channel(s) you use will affect who receives your query, as well as their likelihood of responding, you should consider which methods are appropriate given the characteristics of your current constituent segments, as well as the ones you would like to develop. Don't rely on a single method either; diversify the ways you solicit input to ensure you are reaching a broad and representative audience.

CiviCRM is particularly well-suited to supporting the transactional side of your CRM initiative, including not only website and e-mail interactions, but also tracking meetings, phone calls, and even direct mail interactions. However, your overall CRM strategy needs to extend to social media and non-transactional interactions in forums and in person. Just as many for-profit companies have found that their results and brands can be strengthened by warm smiles, engaging manners, and a customer service orientation, your civic sector organization will realize benefits to incorporating these elements into your CRM strategy.

Rethinking organizational processes

We've already underlined the centrality of orienting analysis and discussion of business processes towards accomplishing the mission of your organization. We've also emphasized the importance of putting the constituent at the center of your thinking about business processes. Throughout this discussion, we've communicated the benefits of brainstorming new ways to do the same things by reaching outside the box and considering new ideas. We've also touched on the important but difficult topic of identifying processes that should be abandoned, as they no longer provide benefits commensurate with their cost. Resistance to change is strongest when existing processes are removed, but that can be overcome when you are able to identify better solutions that adequately replace the old.

There isn't space in this book to cover all of the issues involved in organizational design and business process re-engineering. We'd like to just touch on a few topics at the process and content levels.

First, the cost of organizational change means that there needs to be significant benefits before deciding to proceed. In any reorganization, there will be disruption as people worry about what the change will mean to them, as teams work through all the details, and as people are asked to learn new responsibilities.

Second, ensure you set the objectives clearly—responsiveness, cost efficiency, meeting new needs, and so on—and the criteria for evaluating the organizational change before evaluating the alternatives and selecting a solution. There will always be winners and losers in terms of budgets and desirable assignments. These will affect the perceptions and behavior of participants in the process, even among those with the best of intentions.

Every organizational design has its pros as well as cons. Problems often arise when there isn't a good alignment between functional units that cross organizational unit boundaries. The processes here need particular attention. Mismatched or inappropriate metrics may result in unnecessary friction in the prospect funnel, with constituents falling off the ladder of engagement due to poor experiences.

Take a website mailing signup form, for example. Every additional field, and every additional required field, on a signup form reduces the number of users who will complete it. There is almost a direct relationship between the rate of form abandonment and the number of fields requested. But tensions may develop if one unit designs a signup form with only name and e-mail fields in order to optimize the number of signups, while other units see the need for more data collection points. This overly simplified form may encourage signups, but wouldn't provide sufficient information to the staff responsible for mapping the contacts to cities or regions, or eliminating duplicates in the database. Inter-organizational tension along these lines is common; creating a clear system for addressing competing interests is the challenge.

The second content-related issue meriting attention is the need for changes in roles, training, compensation, and so on as part of the transition. Specifically, there may be some new online organizing as well as CRM administration responsibilities that require skill sets not currently found in the organization. The ability to administer various aspects of CiviCRM is not so different from what would be required for other information management systems. However, online organizing for fundraising, events, membership, volunteer recruitment, or just broadcast communications such as blast e-mails is different from the more traditional forms of these activities. Social media outreach, if a part of your CRM strategy, has very specific needs for effective and timely decision-making, as well as skill in projecting both personal tone and organizational themes. Your organizational plan should include not only initial training, but also ongoing training to reinforce the skills after they have been used.

But even more important than ensuring staff are adequately trained and prepared to implement these more advanced tools is the need to strive for organizational unity. With a growing set of tools at your staff disposal, and sufficient training to empower them to use the tools, you may find a rapid increase in communication and use of new methods that begins to create competition between different departments and roles. Perhaps the membership support staff prepare a membership recruitment e-mail scheduled to be delivered tomorrow morning, while the advocacy staff prepare a timely legislative memo to be delivered at the same time. Suddenly, you're competing with yourself for the attention of your constituents instead of working collaboratively to ensure a unified communication plan. Build bridges between departments and staff and encourage a global organizational perspective, even as you encourage the creative use of technology to deliver results.

After your plan is in place, you will need to pay attention to implementing the more organizational side of CRM strategy. We will not be discussing that in detail in this book, but some important points include the need to communicate the plan and intentions behind it clearly and repeatedly. Create a venue for discussion and be willing to respond to difficult questions. Don't present the plan as cast in stone; incorporate valuable suggestions into the plan as they are presented.

In an effort to make your constituents the focal point of your CRM strategy, we've deliberately discussed the technology that CiviCRM provides without emphasizing specific CiviCRM functions or methods of implementing a particular function. As a general rule, technology solutions should follow rather than lead; you first identify your needs and goals and then find the technology solution that best addresses those objectives.

That said, the real world often presents a more muddied process. Organizational maturity and resource constraints may mean your organization is identifying needs at the same time potential solutions are presented—which, in turn, help you better identify your needs and goals. The lesson can be illustrated by a car: while parked, it is very difficult to turn the wheels; once you start moving, it becomes much easier to steer. In real life, we don't always have a perfect understanding of what we need or what we should be aiming for. We need to set out in a direction and then adjust the wheel as we begin to see the landscape better.

Although we haven't spoken specifically about CiviCRM in this chapter, most of what we have covered has been presented with the software in mind.

CiviCRM provides tremendous flexibility and opportunity in how it can be used by organizations. It supports a wide range of business processes, and if anything, challenges you to think wisely about your internal workflows in order to standardize how the software will be used. CiviCRM processes are based on requirements from leading (and small) civic sector organizations and usually are the result of extensive community consultation. That's not to say there is no room for improvement or that your organizational needs will not require alternate process structures. However, the time-tested effectiveness of CiviCRM's workflows will warrant consideration as you consider your own organizational processes.

If you do find that you have a business process that does not seem well supported by CiviCRM after reviewing the documentation, it is usually best to post a question at CiviCRM Stack Exchange (`http://civicrm.stackexchange.com/`). You may find you just missed something obvious, or that there is a different but better way to accomplish your objective. Alternatively, you may find yourself advised to adopt a workaround or to help in developing new features, if you have available resources.

Determining your needs

Depending on your process—Agile, or more traditional—you will determine your needs in a less or more formal way. Whatever your process, some approaches are always appropriate.

First of all, it's useful to review the functionality, data structures, and data in your existing systems. Functionality is the easiest to discuss. Define the data fields and collection forms in your current system—custom data and profiles in CiviCRM's terminology—that may be needed in the new system. As you analyze existing systems, don't be limited to your primary contact database alone. For example, if you use paper sign-up sheets at events or have other paper, e-mail, or web-based data collection forms that are not part of your primary system, be sure to include them in the discovery analysis. If you use third-party web-based tools for broadcast emails or advocacy-related engagement, consider how those datasets will by migrated into or integrate with your CiviCRM data. Begin listing, in detail, your data structures and start mapping out how you will migrate data from the existing system(s) to the new system. As part of this process, identify the custom fields you will need to create and configure in the new system, and determine those that are no longer needed and can be ignored. Enduring information such as constituent interests is worth keeping, while transient information such as their food preferences at an event is less useful. Depending on how much data you have, and how clean it is, you may decide to lose some data during migration for the sake of starting with a cleaner system. But if you begin to lean in that direction, take the time to thoroughly consider if the data you are planning on leaving truly is not needed.

As difficult as data migration can be, it's much easier to invest the time up front to migrate everything you need than be in the position of trying to reimport data months down the road.

But, with that caution in mind, don't swing the pendulum too far in the other direction. Resist the urge to just dump everything into the new system thinking that it will be sorted out later. Clutter appears on every system over time, bogging down the system, its interface and its users. Now is the time to pare back unnecessary complications, making the system easier to use and easier to train people to use. It will also help to reduce the scope of the data migration effort, which is often a costly part of a CRM initiative.

Looking at the data will often provide a sense of the scope required in the cleanup effort. You'll need to do some cleanup just to get the data into the new system (for example, dates have to all be in the same format and addresses need to be formatted consistently), and removing garbage in your system while you're at it is usually a good idea. You'll find when you are looking at the data and deciding how to clean it up that it can be useful to have some standards in place. For example, examine how addresses are entered, whether honorifics like Ms. or Mrs. are used, and standardize values in some freeform fields so the data can be more easily retrieved and entered from a select drop-down field.

Interviewing users at the data entry, operational reporting, and executive levels gives a useful and diverse insight into the most important data and process needs. You'll benefit from knowing the strategy in the executive director's head, the important and unnecessary elements in reports, and the workarounds regarding system use and data entry currently employed by front-line staff. When people experienced with CiviCRM do these interviews, there can also be good trade-offs negotiated, such as balancing what is easy or hard to implement against its relative importance to users. And remember that you can use fairly simple spreadsheet functions to transform unstructured data into something the CiviCRM import process can use or a developer can work with.

Using the existing system as a reference helps to ground solicitation of other needs. It is a good idea to ask users about the important new things the new system should do, what they would like to see included in the new system, and what is really problematic and irritating about the old system. Some nice-to-have features can be included with little effort in CiviCRM. Identifying pain points in using the current system provides valuable information on how the new system will be evaluated.

To get organizational buy-in for the CRM initiative, and create project momentum, plan to provide short-term deliverables. This could include wire frames (a visual representation of a website). There are a lot of helpful tools online that do wire frames (such as `www.balsamiq.com`), screenshots, and flow diagrams that demonstrate how the functionality discussed in the discovery and specification phase will (roughly) translate to forms, pages, and workflows. Important new functionality, nice-to-have features, and eliminated pain points are all fertile quick-win areas where you can demonstrate a commitment to improving user experience.

Asking everyone for feedback on possible implementation timelines is also useful, though be cautious about inadvertently making implied time-based commitments without first gaining a complete picture of the project scope. Reporting deadlines to funders, having functionality in place for certain events, and knowing crunch periods when it would be problematic to run old and new systems in parallel should all be reflected in your plans.

Functional requirements

In this section, we're going to delve more deeply into the functional areas supported by CiviCRM. We'll be reviewing the kinds of questions to ask, often of a more technical nature that will help in planning your implementation. These topics and questions, in our view, are the top-level broad-stroke issues that should be sorted out before specific workflow matters are examined.

Contact record management

CiviCRM has three basic types of contacts: individuals, households, and organizations. The fields and kinds of relationships that can be created may vary by the type of contact. For example, individuals have first and last names, current employer and job title, while organizations have an organization name, a legal name, and employees. CiviCRM's rich model for storing address, phone, and e-mail information is shared by all three types of contacts.

Contact subtypes

In some cases, it is possible to identify unique constituent subtypes. Contact subtypes in CiviCRM extend the three basic contact types, allowing you to further segment your constituent records. A contact may only be assigned a single primary contact type (for example, individual), but may have multiple subtypes assigned. Most organizations using subtypes will make them relatively exclusive, meaning only one subtype generally applies for a given contact. For example, students at a primary school are never teachers, though at a university it is possible for an instructor to also be a student. In the latter example, you might find yourself applying two subtypes to a single contact.

Try to identify subtypes early in your process, as it will help structure relationships and keep your data organized. Special relationship types can be set up that only allow a contact subtype at one or both ends of a relationship, such as teacher and student subtypes being the only ones allowed in a teaches/is taught by relationship. Custom data fields may also be created that apply to a single or multiple subtypes, such as the classroom of a primary student return. This is actually the main reason for setting up contact subtypes. It is recommended to set up a contact subtype if you are sure you want to track custom data for the type of constituent. These fine-grained approaches to data fields and relationship types help reduce clutter (the field and relationship types are not visible unless they apply to the contact type) and help improve data consistency (staff are not able to record information that doesn't apply for a certain contact type).

Custom data

After identifying the types of constituents your organization interacts with (for example, granting agencies, staff, clients, volunteer lawyers, and donors at a free law clinic), determine the data to be tracked for each type. At this point, we're primarily interested in identifying the kind of information that the organization tracks for the individual, organization, household, or any subtypes you've constructed. Since this data is attached directly to the contact record, it will generally consist of attributes about the contact, such as their expertise or volunteer interests, rather than their interactions with your organization, such as what they did the last two times they came in to volunteer.

Let's take a moment to drill home that last point. As you begin using CiviCRM, you will find there are lots of ways to store data about constituents. At first, the different methods and storage places may seem duplicative or outright confusing. Should I store this information in a custom field in the contact record? Or create a new activity? Or save it in a note? Or does it belong someplace else?

When creating custom fields (which will be discussed in more detail later), the important question to ask is: what type of data am I extending? Is this an attribute of the contact himself/herself, or about the communication I had with him/her? Is this data type common to most contacts or unique to this one, and consequently should I create a field to segment and store it for all records, or simply add it as a note to a single record? And most importantly, what would be logical from the user perspective, where would the user look for this data?

Different groups of constituents will often need to have different types of custom fields used to track information about them. For example, whether donors prefer a single annual tax receipt, or one per donation, the policy area interests of an organizational contact, and what an individual's volunteer interests are. Before trying to capture these needs, either through interviews or examining existing data, it may be helpful to review the material in later chapters where we discuss where the data should reside and how you may want to structure the field itself (for example, as text or integers, Yes/No checkboxes, single or multi-select fields, and so on).

E-newsletters and bulk e-mails

Your organization probably sends, or could benefit from sending, blast or bulk e-mails, such as newsletters and appeals. CiviCRM is good at sending e-mails to lists and tracking which ones are opened, clicked through, and forwarded. Ask the following questions about your bulk e-mail needs:

- What bulk e-mail lists exist, and are planned?
- How are contacts added to the list? Ensure that appropriate authorization is being acquired for every bulk e-mail sent to every e-mail address. Also, make sure there are appropriate mechanisms in terms of prominent website blocks and subscription enticements so that you have enough list growth to feed your contact funnel.
- How many custom templates with graphics are required for each e-mail list? Sometimes, different communication products are mailed to the same list, with each requiring its own template.

- How big is each list and how often is it mailed? This may affect server sourcing in terms of CPU resources, bandwidth, or perhaps e-mail caps.
- Spend some time on determining how mail servers are blacklisted and what this means for your configuration.

Beyond the mechanics of configuring the system and designing the mailings, discuss how the different departments or office roles will coordinate mass e-mail scheduling.

Payment processing

Will your CiviCRM installation need to accept online payments? If you want to accept online payments for events, memberships, or donations you will need to set up arrangements with an online payment processor such as PayPal, Authorize.net, or any of the other processors CiviCRM supports integration with.

One important consideration when selecting a payment processor is whether you need recurring payment support. Getting donors to set up recurring monthly payments provides a steadier and generally larger donation revenue stream, but not every payment processor supports that functionality. If recurring support is something you require, be sure to research the processor options available with regard to this feature. You will also need to check that the popular payment methods in your area are supported.

There are a number of different service charge models employed by different payment processors. You will be able to compare and shop better if you know the average number and amount of transactions you process. You may be able to get a better deal if you consolidate payment processing with a single provider. For example, including a Point of Sale (PoS) terminal already used and potentially dealing with a credit union or bank that handles your checks may result in significant savings.

> If you are just moving into electronic payment processing, be clear about your needs for accepting payment at the door of events. You may need a PoS terminal if there is no Internet connectivity.

Development and fundraising staff will be pleased to know that CiviCRM supports pledges of future gifts. When soliciting CRM requirements from staff, make sure to determine how they view their prospect funnel and what their needs are for segmenting contacts into different groups. They will probably have the most sophisticated needs in these areas in your organization, and may have techniques that can be deployed successfully for volunteer recruitment and event marketing.

Larger and older organizations are more likely to have direct mail and telemarketing campaigns. Gather information on the data export and import requirements for their systems (such as transfers to accounting software) as you work through your planning process.

Memberships and subscriptions

A membership can be defined as time-defined access to organization benefits. In traditional member-based organizations, a contact demonstrates support for the organization and alliance with the organization through membership, and will generally receive benefits and services as a result of that relationship. However, the CiviCRM membership model can also be used in organizations that sell subscriptions or other service-type offerings where the member receives access for a defined period of time.

Existing membership and subscription forms should be used when developing your statement of requirements. Ask if there are any changes desired in the information collected on the form. These fields, some of which will be custom-defined, will make up the profile used on the membership signup form. The form will generally list all available membership types, their costs and benefits, and their terms (who can sign up, how long they last, and so on). Pay particular attention to benefits that are to be automatically provided, including access to special areas of the website, free newsletters, discounts for events, premiums such as calendars or mugs to be delivered, and so on. Also note when special functionality is available only to certain membership categories, such as a youth newsletter or more communications to Platinum members.

You may also need to define what contact types are eligible for a given membership type, which in turn may influence how your signup forms are constructed. For example, if you have three membership categories available to organizations, and three available for individuals, you may decide to create two separate signup/renewal forms so you can target each respective audience more directly. When working through membership type configuration, consider whether there are any inheritance rules to consider. For example, do employees of a member organization inherit membership by virtue of their employment?

Some membership types may not be available for purchase, such as lifetime members earned through long service. Find out if these exist, and who would need to manage them. Ask about special workflows, such as membership application review steps, revocation of memberships, subscription refunds, or new subscriptions.

Events

As you review event management requirements, use signup forms from recent events to reveal the kind of data collected about participants and options required, such as breakout session selections and food preferences. Try to get forms for several events. If events are supposed to be the same, are there variations in the information collected on the form? Are they at different locations or times? Event templates can create similar events, but aren't worthwhile if there are too many variations.

More generally, are some events paid, and if so, can people pay at the door, by check, or online? Are ticket prices for different events the same? Complex price systems that are used repeatedly can be set up as easy-to-reuse price sets. Is space limited for the event, and how do you manage a wait list? Can someone be allowed to register multiple people at the same time? Do certain events require prerequisites or an approval process?

Many logistical requirements with an impact on CiviEvent won't be found on signup forms. For example, how are speakers for the event registered and are provisions required to give special guests free passes? What are the procedures to be followed at the door? Do people have to have a printed receipt or a mailed ticket in order to get it, or just be on a list of registrants? Are nametags provided?

Are blast e-mails used to invite registrations? Do your registrants often come to more than one event? If so, do you need to pre-populate the registration form used as a landing page for people's click-throughs with their name and other data? What reminders need to be sent prior to the event?

Do you need to provide a way for registrants to contact each other before, during or after the event? Is it important to protect their e-mails while providing this access? Should only names and organizations be shared? Is it okay if non-participants see the personal information being shared among participants?

Grant management

Does your organization provide grants or disbursements to individuals or organizations? Examples could be a grant for 2 month's rent, fellowships for artists, or program grants to organizations working in an environmental policy. The CiviGrant component helps organizations like yours by recording when applications are received, the decision to approve or turn down the application, when payments are made, and whether follow-up reports on the grant have been received.

You'll need to know what information is tracked about your grants. The fields in the application form are the best starting place; they are supplemented by internal forms, such as fields to record reviewers' ratings.

Although the CiviGrant component was not designed for tracking your organization's application for grants, some CiviCRM users have found it can be used for this purpose with only minor tweaking of field names. If your organization needs to track its grant applications, review the typical fields that are tracked, starting with application closing dates. Some may need to be supported through custom fields. If your needs extend beyond the structures provided in CiviGrant, consider using the CiviCase and/or CiviCampaign tools for this purpose.

Activities

CiviCRM uses the term activity to indicate any engagement of constituents or other actions related to your interaction with the contact. CiviCRM automatically records a number of activities, including donations received, registrations for events, memberships purchased, membership renewal reminders, and event reminder emails. You can also use it to manually record interactions such as meetings, phone calls, and e-mails sent from your normal e-mail client.

A robust use of activities within your organization will build relational depth into your data. If the goal of your CRM is to manage data for your constituents with a view toward understanding them better and interacting with them more knowledgeably, then activity records form a critical piece of the puzzle, providing the tools to track every piece of communication you have with the contact. While the full use of activities does require an administrative commitment (it takes some discipline to log every phone call or discussion against the contact record), the benefits are significant, as you will be creating a history of contact interactions that can be consulted later. Being able to pull up details of a call taken a few months ago, by a different staff person, can help quickly resolve an issue rather than forcing it to be addressed from scratch. Furthermore, that detailed history of communication is invaluable when you experience staff turnover or lack institutional history.

As you configure your system, ask if there other kinds of activities you would like to record about your constituents beyond the types preconfigured in the system. For example, will you use activities to track mail correspondence, speeches given by legislators on topics of concern to your organization, or media stories published by particular journalists or outlets, or integrate with Twitter to record tweets, including hash tags of interest?

Determine which activities and custom activities are to be tracked, and also what additional custom fields are needed to record details about the activity, such as a hardcopy correspondence file number, URLs to a speech, or a description of action items that should flow from the interaction.

Case management

Whereas activities record single specific actions or interactions, such as a meeting, phone call or e-mail, cases pull together multiple activities dealing with the same issue or concern, and allow them to be managed as a unit. Cases are very useful when it takes multiple steps over different days or months, perhaps involving multiple people, to resolve the problem or finish the work. In addition, a case can be configured in a structured timeline, where the full set of steps are defined and created as activities when the case is first opened.

Many organizations need to manage cases for clients or constituents. These cases may involve requests for a legislator to attend a speaking engagement, assisting a homeless constituent to find housing, or providing a client with treatment referrals of various sorts (mental health, addiction recovery, emergency income assistance, job placement, and so on).

The requirements for a case management system are much more complex than just supporting the activities involved in the cases. You will want to determine the following:

- The different types of cases your organization handles
- The kinds of custom activities each type requires besides standard ones such as opening cases and changing their status
- The workflows for different case types in terms of various kinds of activities (for example, intake, screening, referral, follow-up, and so on) that may occur at pre-defined or ad hoc times
- What statuses are used to track your cases
- What roles are involved in each kind of case activity
- What custom data is required for the case and its various activity types

- What resources, such as career counseling services available in your area, are needed for different case types
- What relationships clients may have with individuals or organizations external to your organization that need to be tracked in the system, such as with their physician, social worker, or parole officer
- What terms may need to be redacted during reporting, such as client names and e-mail
- What permissions are granted to individuals in different roles to view and edit information about their own cases or all cases

For those requiring structure and detail, it's worth investing the energy to define your requirements before you begin configuring the case type. Start by categorizing the types of issues or extended workflows you have with clients. Then outline the specific steps typically required to bring that issue to a resolution. Identify who the key players are, both within the organization (staff and management) and outside your organization (affiliates, partners, local agencies, etc.) who are potentially involved in the case process. Once you have these puzzle pieces together, begin the process of configuring the case. Remember to test thoroughly, and solicit feedback from staff, to ensure the case configuration strikes the necessary balance between structure and flexibility.

Campaigns

Does your organization create campaigns where there is a specific, focused fundraising effort which may be combined with a membership outreach program or special series of events? Do you define fundraising goals for periods of the year and build your communication plan around that effort? Are you involved in an annual election cycle, either trying to support certain candidates or seeking to promote specific issues and influence the public?

CiviCRM's campaign tools provide connections between other resources (such as a contribution page and an event, or a membership initiative and online survey), and your constituents. During your initial implementation of CiviCRM, you may not have the immediate need to build those links, as they are more likely to become useful once the system is implemented and actively in use. But take the time to ask questions about the links that could and should exist between your different organizational units as they collaborate to reach constituents more effectively.

Volunteer management and human resources

CiviCRM has a growing set of tools that can be implemented as optional extensions to the core software. These include tools for managing volunteers (specifically, at events) and human resources (your staff). Are either of these areas something you will use? If so, plan to install these extensions early in your implementation process and think through how they will be used. And note that your CiviHR system is usually separate from your main CiviCRM system because HR data is usually only accessible for a small part of the organization.

Roles and permissions

We will not get into all the details of technical configuration, but it is important that you determine what roles you should have (back office support, fundraiser, project manager, volunteer manager) and what data they should be able to access and manage. It is a good idea to create a matrix based on the permissions that the combination of CiviCRM and your CMS supports.

CMS integration

Integration between CiviCRM and Drupal, Joomla!, or WordPress involves people and content. Because CiviCRM is implemented directly in your website CMS, it bridges the gap between raw data in your database and the end user interacting with your organization through your website.

But not all contacts in CiviCRM will need to have user accounts in the CMS used to power your website. For example, your CRM may include all voters in a jurisdiction while your website is not designed to support logins for anyone but site administrators. However, in many cases, actions in CiviCRM, such as buying a membership, will lead to login access and extra permissions in your CMS. These may include access to member-only pages, a discussion forum, or self-serve contact profiles where users can update their address and phone details.

You should anticipate possible content crossover between your CMS and CiviCRM. One common case is sending newsletters with CiviMail containing teasers of articles in your CMS with links driving people to the full articles on your site. Another common crossover point is restricting access to the secure areas of your site based on the user's membership status, which will require additional extensions. If a person's membership has expired, you want to block their access and encourage them to renew in order to benefit from the member-only content. A third example is to use online event registration as a way to solicit interest areas for an individual. You can use that data to follow up at a later time and recruit for committee involvement.

While CRM systems are good at managing contacts and relationships, CMSes are good at managing content. In some cases, the strengths of CMS content management need to be applied to CRM contacts. For example, members of visual arts, music, or video artist organizations may need to have rich media associated with those contacts as well as have all of their dues and grant application transactions tracked. In these cases, the CRM contacts will need CMS user accounts and those accounts will have CMS profiles with rich media associated with them.

The growing number of Drupal modules, Joomla! extensions, and WordPress plugins that integrate with CiviCRM—particularly those that expose CiviCRM data to the CMS—provide increasing opportunities to develop cost-effective custom websites based on contact and relationship data. For example, an activist organization may want to display a mash-up of contact information, such as their photos, quotes on a topic, or a map, in which case the information is all coming from the CRM and the functionality driving it is coming from the CMS. In-house or external consultant resources will be able to assist in gathering your custom CRM requirements in these areas.

Implementation plan

After conducting interviews and soliciting input through surveys, and other means, with key users and stakeholders, you should be in a good position to develop a phased implementation plan that schedules the delivery of chunks of functionality over the life of the CRM rollout. Depending on your process and methodology, you might start working on some easy low-hanging fruit with users in one area, while the scope and requirements in other areas remain vaguely stated in a one-page plan. Alternatively, you might choose to have a multi-year plan with significant specifications for all phases in a set of documents.

In any case, your organization should recognize that its CRM initiative is not just a technology project. For each segment of constituents, the CRM plan should have a strategy targeting the number of constituents involved, the level of their involvement, the quality of their experience in the organization, and a clear sense of how this will help achieve the mission of your organization. Ideally, it will specify 10 to 15 metrics that will be used to measure how well the initiative assists in realizing the organization's objectives.

As part of this process, the organizational structure should be examined, and possible organization restructuring plans and processes considered. The engagement strategy for each segment of the constituents will be translated into work processes for Communications, Membership, Events, Fundraising, Volunteer Organizing, Grant Management, and Case Management. Where processes are automated, use cases will ensure that strategic objectives of the organization are kept in focus as user experiences are optimized.

The people side of the project should ensure that staff and volunteers are communicated with effectively, in light of your organization's culture. Engagement and involvement mechanisms should be used to address inevitable fear, uncertainty and doubt, and assist with initial and on-going matters of motivation. Where job responsibilities change and people need to begin using new systems such as CiviCRM, appropriate initial training and ongoing reinforcement training should be planned. Your goal, over time, should be to encourage consistent use of the most essential areas of the system, and progressive growth with the more advanced and scenario-specific needs.

The technology side of the project will include more or less formal plans covering the following:

- Installation
- Configuration
- Customization
- Data migration
- Graphic design
- Theming
- Testing
- Deployment
- Verification of the new system

The deployment plans may involve a phased rollout of new features or a big bang introduction to the new way of doing things. Particularly in the case of financial systems, consideration should be given to operating the old and new systems in parallel, for a reporting period or more, in order to make sure that the new system is operating correctly, and to determine the ways in which old and new reports differ in terms of the data they present.

Development environment and best practices

We discussed some considerations regarding your server environment and required resource levels. Closely related to that topic is the matter of determining the development environment and code management practices.

In almost every situation, you will want to create a development environment where you can safely implement and test your CiviCRM implementation without impacting your production site. Even if you are not planning to customize CiviCRM in any way, it is still worth creating that development environment where features can be tested, data imports can be reviewed, and you can safely explore different configuration options without risking disruptions to your production site.

Larger organizations, especially those that have planned a phased rollout of their CiviCRM implementation, will likely want three environments:

- **Development**: This is where all active code development takes place and where new features are first implemented and tested
- **Testing/staging**: As the development space is the sandbox for developers and may sometimes get *dirty,* it is useful to have a testing or staging server where non-technical staff can be involved in feature testing and quality assurance review
- **Production**: Once features have been developed and tested, they can be implemented on the production site and become actively used

In addition to determining how your site environments will be structured, you will want to give some thought regarding how your code is maintained. Unless you are a small organization with no significant code customizations, you will almost certainly want to manage your code in a **version control system** (**VCS**).

Currently, the most popular VCS in the open source world is Git. Git is a distributed system, which means each code repository is independent of the others. In other words, there is no rigid central repository that code must be checked in and out of. For this reason, it is attractive for development projects where there are multiple contributors who may or may not be located in the same location. The distributive nature provides more flexibility than a more centralized system.

The benefit of a VCS such as Git is the ability to track the history of every change in the files maintained in the repository. If you implement a new custom feature today, you would add the changes to the repository and commit them. Two months from now you might expand those features and commit the updated files. A month later you realize there was a conflict with another area of the site created by those changes. Because your code was maintained in a VCS, you can review the history of changes and more easily identify where the problem may have crept in.

Even if your customizations are minor and changes are infrequent, it is worth considering placing your code in a VCS. Work with your developer to devise an effective plan for managing the code as you move forward with the project.

Summary

This chapter outlines how to create a successful CiviCRM implementation project.

The chapter lists common barriers to the success of CRM initiatives that arise because of people issues in an organization, or technical issues getting systems and tools supporting disparate business functions to provide integrated functionality.

We advocate a pragmatic approach to implementing a CRM strategy for your organization. We encourage the adoption of a change in approach and associated processes and methodologies that works for your organization: wide ranges in the level of structure, formality, and planning all work in different organizations. Your implementation plan should include a schedule and a realistic budget that anticipates on-going costs.

Choosing the right people for your team is crucial to the success of the endeavor. Ideally you'll include an executive or board sponsor, one or more key functional managers, one or more key staff users, and appropriate technical expertise for your team, all with good personal effectiveness and an ability to get along.

Start your planning by segmenting your constituents into groups, listing the important interactions each group has with your organization, and identifying actionable metrics that measure those interactions. Create an inventory of existing systems involved in these interactions and their data. Develop a shared CRM vision for the organization, and then articulate how it would be translated into the user experiences at various levels in the funnel(s) of prospects for high-value constituents.

For requirements, iterate between a broad and tight focus. Use existing systems and paper forms to solicit feedback in interviews from executive, management, and staff perspectives. User surveys also provide good quantitative results.

In each functional area, list the known pain points, important new functionality, deadwood or cruft to be eliminated, and possible quick wins. Recurrent and important functional requirements include custom fields, organizationally specific groups for mailing lists and access control, fields required for forms in different processes, user permissions, and custom activities and workflows. Take time to brainstorm how to be more efficient in internal processes and accomplish your mission in new ways.

Anticipate the need to increase server resources to account for the processing load required by CiviCRM. Build a development, and possibly a staging, environment where the project can be safely tested and played with before implementing in your production environment. Embrace a version control system such as Git to manage code changes throughout the life of the project.

In our next chapter, we'll start getting our hands dirty with technical matters installing and maintaining CiviCRM.

3

Installation, Configuration, and Maintenance

By now, you should have a good understanding of what CiviCRM and constituent relationship management tools can do for your organization. You should also have taken the time to plan your implementation, including thinking through your existing data sources, and mapping out how they will translate to CiviCRM. Don't underestimate the importance of the planning process—while you may be anxious to install CiviCRM and begin working with it, your project will be better positioned for success if you invest more of your time in preliminary planning.

In this chapter, we will cover the following topics:

- Installing CiviCRM
- Walking through the initial configuration of the system
- Discussing advanced configuration options you need to be aware of, including access control permissions
- Reviewing the upgrade process
- Outlining recommended maintenance procedures
- Planning a backup strategy

Since CiviCRM may be implemented in Joomla!, Drupal, or WordPress **content management systems** (**CMS**), there will be aspects of this chapter that are specific to each environment. We have sought to clearly indicate where the guidance is environment-specific. As you work through this chapter, be sure to take note of the context in which it relates to your implementation.

Aspects of this chapter may get more technical as we provide basic troubleshooting steps and address hosting environment considerations; don't be scared off by the technical discussion. For most implementations, the installation and configuration process is quick and painless. It's also worth noting that the installation, configuration, and upgrading of CiviCRM are the most technical aspects involved in using CiviCRM, and you can outsource some or all of this work to professional services such as those listed at `http://civicrm.org/experts`.

Installing CiviCRM

We've got a handle on what CiviCRM does, we've mapped out our system, and then planned our implementation; now let's get things up and running!

> The following instructions assume that you have a working installation of Joomla!, Drupal, or WordPress. If you have not yet set up your CMS environment, you should do so before continuing with this section.

Begin by visiting the CiviCRM website, `http://civicrm.org/download`, or going directly to `http://sourceforge.net/projects/civicrm/files/` to select a version of CiviCRM to install. We always recommend using a stable version for production sites. For the browser-based methods of installing (using the CMS extension installer), you need to download the installation package onto your local machine, and then upload it to your server. The advanced command-line installation method discussed for Drupal allows you to skip this step by retrieving the package directly to your server.

> You may note multiple recent major version releases listed toward the top of the release page in Sourceforge. This is because in recent years, CiviCRM has introduced the idea of a **Long Term Support** (**LTS**) release, in addition to the ongoing stable releases. Largely supported by the community, the idea is to support critical bug fix and security issues in a selected release for longer than usual. In general, once CiviCRM moves to a new stable release, support for the previous version ceases. The LTS model extends support for that particular version through subsequent new stable versions. For example, currently, v7.66.10\ is the current stable release and v4.6.154.4.20 is the most recent LTS release. Typically, every other version is selected for LTS.

Be sure to always visit the download site when implementing a new installation of CiviCRM, as the project releases minor revisions on a regular basis. Decide whether you want to stay with the latest version and have all the latest functionality, or if you would like a more defensive release policy and plan for upgrades to the latest LTS versions.

> When you visit the download page, take the time to read the information about becoming a supporter of the project through membership. Although CiviCRM is free to download and install, it is not free to develop and support. Your membership helps ensure the ongoing sustainability of the project.

There are several installation packages available for CiviCRM, depending on your environment. Let's review them briefly:

- **Drupal**: This package is a standard package for Drupal 7 installations.
- **Drupal 6**: This package is a standard package for Drupal 6 installations.
- **Joomla!**: This package is a standard package for Joomla! 3.x installations.
- **Joomla-alt**: This package is an alternate package for Joomla! 3.x installations. This package differs from the standard package in that it does not include embedded compressed files. If you were to examine the standard Joomla! installation package, you would find that it contains a series of installation files and a large `.zip` package. In contrast, unpacking the `-alt` version shows all the application files (that is, there is no subpackage inside the main package). Generally, the standard package will work for most installations. But if you have problems, you might try using the `-alt` version, as it is larger, but requires less resources to install.
- **WordPress**: This package is a standard package for the WordPress installations.

In addition to the preceding versions, you will also see a language package file (`-l10n`) and MD5 hash files (`MD5SUMS`), which can be used to verify the package integrity.

CiviCRM has a strong multilanguage support. The language package contains translation files for all the languages supported in the current version of CiviCRM.

Note that some of these translations are not complete and should be reviewed and tested thoroughly before implementing in a live environment. Generally, the strings in public user-facing pages are translated first, with administration strings and rarely-used functionality lagging.

In some cases, you may find that you can combine existing language resource files for different regions to extend their coverage. For example, separate translation efforts for Canadian French and French in France were combined into a new Canadian French file that used Canadian terms when there were translations available in both language files. This allowed **State/Province** to be rendered as **Province**, rather than **Department**.

For more details on CiviCRM's translation and localization efforts, visit the following links:

- **Online Translation Tool (Transifex)**: `https://www.transifex.com/civicrm/civicrm/`
- **Localization Forum**: `http://forum.civicrm.org/index.php/board,10.0.html`

To view the status of any translation, visit the translation tool referenced in the preceding list, where details about the percentage completion and number of text strings yet to be translated are reported.

There are translation teams for Arabic, Bosnian, Catalan, English (Canadian), Norwegian Bokmål, Persian, Tamil, and Ukrainian. This usually means that a translation was produced for that language in an earlier version, which is likely to provide some useful materials for a new translation. If multilanguage support is something you are interested in, consider participating in translations using the preceding tools.

> Before proceeding, ensure that your hosting environment meets the minimum requirements, as outlined in the previous chapter. Though you may have success installing CiviCRM in an environment that does not meet those base technical requirements, you are likely to find that certain functions do not work correctly if those requirements are not met.

CiviCRM maintains a current list of requirements and installation/upgrade guidance on the CiviCRM Wiki at `http://wiki.civicrm.org/confluence/display/CRMDOC/Installation+and+Upgrades`. We will walk through the basic installation process for all the three CMS environments that are covered in the next section. If you run into difficulties or need more detail, visit the preceding Wiki page.

Installation in Joomla!

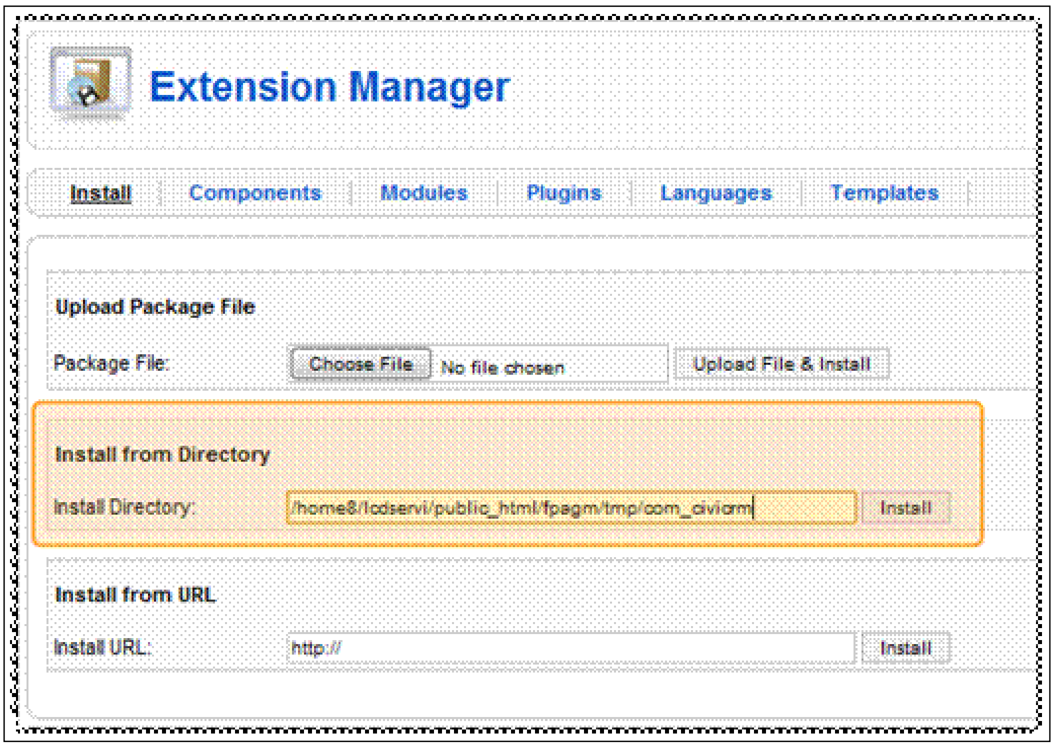
CiviCRM is installed using Joomla!'s extension installation tool, available at **Extensions** | **Manage** in your Joomla! website's administrative interface. However, unlike most Joomla! extensions, you may not be able to install the software using the **Upload Package File** option because CiviCRM is a very large piece of software—over twice the size of Joomla! itself. Most hosting environments are not configured to accommodate the resources required to upload the package and run the installation script in a single process. You may certainly try installing the traditional way, but if your browser times out or you experience other issues, you will need to use the alternative method, which we will detail in this section: **Install from Folder**.

> Follow the installation instructions carefully, as they differ from the installation process for many other Joomla! extensions.

Proceed with the following steps to install CiviCRM in Joomla! using the **Install from Folder** method:

1. Upload the installation package to your website using the FTP software. We recommend that you upload the package to `/YOUR_JOOMLA_ROOT/tmp/`. This folder is created by Joomla!, and is the most appropriate place to store installation packages prior to installation.
2. Unpack the installation package. You may do this using the command line or a web-based file browser hosted on your server (such as **cPanel File Manager**). There are various extensions available for Joomla! that let you work with the filesystem from within Joomla!, which may also be helpful. If you have difficulty unpacking the installation package online, you may need to unpack it on your local computer and use the FTP software to upload the unpacked set of files to `/YOUR_JOOMLA_ROOT/tmp/`. After uploading and unpacking, you should see `/com_civicrm/` inside `/YOUR_JOOMLA_ROOT/tmp/`.

3. Browse to **Extensions** | **Manage** in the Joomla! administrative interface and click on the **Install from Folder** tab. Enter the full file location of the unpacked `/com_civicrm/` directory. In most cases, Joomla! will prefill that field with the proper location of `/YOUR_JOOMLA_ROOT/tmp/` and you will only need to add `com_civicrm`.



4. After clicking on **Install**, you should be directed to a screen, confirming a successful installation. Click on the link provided to enter CiviCRM and confirm that it is installed and working.

> Upgrading will be discussed later in this chapter, but while we are here, note that upgrading CiviCRM in Joomla! will happen exactly as described in the preceding steps, except that after the installation, you will be presented with a link to trigger the database updates pertaining to that upgrade version. It is critical that you run this script or your codebase will not be in sync with your database. Be sure to backup your database before doing so in case there are problems and you need to revert.

If you experience problems installing CiviCRM, review the *Installation troubleshooting* section for a general review of possible server and environment-related issues. With the Joomla! installation, the most common problem arises from unfamiliarity with the **Install from Folder** method we just described. Most Joomla! users are used to the more common **Upload Package File** method of installing extensions.

Two critical things to remember are as follows:

- The CiviCRM installation package must be unpacked on the server. You should be referencing a folder location, and not the `.zip` file you downloaded from `www.civicrm.org`.
- The folder location must be the full filesystem path, and not the path relative to your web directory. For example, it may look something like `/home/user/public_html/tmp/com_civicrm/`. If you received the error message, **Please enter a package directory**, it is because you are not referencing the correct path to the unpacked installation files.

If you continue to experience problems during installation, search CiviCRM's StackExchange site (`http://civicrm.stackexchange.com/`) to look for existing answers or ask a new question.

Installing in Drupal 7

CiviCRM uses an automated installer to configure the software for use in Drupal. The directions that follow address setting up an implementation of CiviCRM within your existing Drupal installation.

As most Drupal developers will know, Drupal supports using a single codebase to operate multiple websites (see `https://www.drupal.org/documentation/install/multi-site`). Site-specific data is stored in site-specific directories under `/path_to_docroot/sites/`, with each site's domain name typically used as the name of its subdirectory. This site-specific information includes the database name unique to each site and other connection information stored in the `/path_to_docroot/sites/yoursite.org/settings.php` file. CiviCRM supports this multisite shared codebase and separate databases approach transparently during the installation process. If you are using a multisite environment, make sure to create a separate CiviCRM database for each site before starting its installation process.

Although this multisite approach is still very popular, there are some countervailing trends in favor of single site installs. There are dependency, complexity, and timing issues, when attempting to upgrade multiple sites sharing a codebase in a single directory simultaneously. More importantly, Drush (`https://github.com/drush-ops/drush`) and Aegir (`http://community.aegirproject.org/`) have made it increasingly easier to manage a single codebase for multiple single site installs using multiple copies of the same code files.

The CiviCRM installation procedures in the following sections work if your Drupal site is either a single-site or a multiple-site configuration, as we just described. Different procedures are required if you want to use advanced techniques for sharing database tables between different Drupal sites in order to provide a single sign-on capability or for sharing a database across several CiviCRM sites in order to share contacts and/or administrators between sites (visit `http://wiki.civicrm.org/confluence/display/CRMDOC/Multi+Site+Installation`).

Depending on your skill and comfort level, you can choose to install CiviCRM in different ways. The first one uses a browser and a client application for FTP. The second one uses SSH, a secure command-line shell, and may be faster and more convenient for those with basic Linux skills.

Browser/FTP procedure

Before you begin the installation process, take a note of the database settings for your Drupal installation. If you do not know the values, you can view them at `/path_to_docroot/sites/default/settings.php` (the default location).

Locate the `$db_url` variable:

```
$db_url = 'mysqli://dbuser:dbpassword@localhost/drupal_dbname';
```

The database connection elements are as follows:

- **Database server**: `localhost`
- **Drupal database name**: `drupal_dbname`
- **Database user name**: `dbuser`
- **Database user password**: `dbpassword`

> Note that older sites may still be using the `mysql` driver, rather than `mysqli`.
>
> If this includes your site, you should definitely consider upgrading to `mysqli`, as it provides performance improvements over the `mysql` driver. Changing the driver specification from `mysql` to `mysqli` in the `$db_url` variable is all that is required for Drupal to gain these benefits.

You may now begin the installation process. Follow these steps:

1. If you haven't done so already, download the latest stable CiviCRM installation tarball for Drupal to your local machine from `http://sourceforge.net/projects/civicrm/files/` (using the **Download Now!** button is the best way to ensure you get the right tarball).
2. Upload the CiviCRM installation package from your local machine to `/path_to_docroot/sites/all/modules/` in your Drupal installation. Installing CiviCRM and other modules under this directory will keep the files separate from core Drupal modules and facilitate any future Drupal core upgrades. If you don't want CiviCRM to be available to other sites running off this codebase, you can create a `modules` subdirectory under your `sites` directory at `/path_to_docroot/sites/default` or `/path_to_docroot/sites/yourdomain.org` and install it there instead. If necessary, adjust the permissions for `/path_to_docroot/sites/` to provide write access to the account that is running the web server process (and return it to the original permissions when complete). This can normally be done using your FTP or SFTP client applications, or by using the following command:

   ```
   $ cd /path_to_docroot/sites/ ; chmod -R 666 ./*
   ```

3. Unpack the installation package. You should now have the following directory in your site: `/path_to_docroot/sites/all/modules/civicrm/`, with other subdirectories contained within it.
4. Create a separate MySQL database for CiviCRM using an appropriate tool such as `phpMyAdmin` or your hosting panel. The installer will create a new database for CiviCRM automatically if you enter a database name in the next step that doesn't already exist on your database server, and the database user you enter has permission to create databases. We don't recommend granting that privilege to database accounts that don't need it, such as the ones used by your Drupal site.

> Although not required, we find it to be good practice to keep Drupal and CiviCRM in separate databases for backup and upgrade purposes. Consider using a naming convention where the domain name is used for the database username, and `_dru` and `_civ` are appended to the databases to indicate Drupal and CiviCRM.
>
> Note that if you plan to use the Drupal `Views` module to display CiviCRM data within your Drupal pages, and if you are going to use separate database users for Drupal and CiviCRM, you need to ensure that your Drupal database user has the `SELECT` permissions for your CiviCRM database. Using the same database user for both Drupal and CiviCRM as described meets this requirement.

5. The next step is to run the installer, which will confirm that you've downloaded the correct version of CiviCRM and ensure that your server meets the software requirements. The installer creates the necessary tables in your database and configures the `civicrm.settings.php` file with the required variables. To run the installer, log into Drupal as a user with administrator permissions and point your browser to the following URL: `http://yourdomain.org/sites/all/modules/civicrm/install/index.php`.
6. This opens the CiviCRM installation tool. Complete the form with the database details you noted down earlier for the Drupal database and the ones you created for your CiviCRM database, and then click on it to recheck the configuration and requirements. If there are any system settings that do not meet the requirements, you will be given a notification and a chance to resolve the issues. Return to this page and recheck until you have all the issues resolved. You may also choose to install sample data (which provides a good head start to understanding the system) and select an alternate language (if you've obtained and uploaded the translation files to the CiviCRM directory).
7. Click on the **Check Requirements and Install CiviCRM** button to proceed with the installation. If the installation script completes successfully, you will receive a green bar and a notification of success. During the installation, CiviCRM configures standard permissions for anonymous and authenticated users to access the CiviCRM tools and forms. You will want to review these settings to confirm that they suit your website's needs. We will discuss the Drupal roles and permissions as they relate to CiviCRM later in this book.

> Note that during installation, Drupal creates a `files` directory underneath `/path_to_docroot/sites/` for your site and makes it writeable. CiviCRM will create folders for temporary files under this directory by default, for example, `/path_to_docroot/sites/yoursite.org/files/civicrm`.

8. The installation script will enable the CiviCRM module automatically. If the module is enabled, you should now have a link in your menu for CiviCRM. Click on the CiviCRM menu item to enter and confirm a successful installation.
9. If you don't see the CiviCRM link on your primary menu when logged in as an administrator, browse to **Modules** to confirm that the CiviCRM module is enabled. If the module is enabled and you still can't see the CiviCRM link, visit the CiviCRM StackExchange site to search for answers or ask a new question (`http://civicrm.stackexchange.com/`).

Drupal shell procedure

The **Drupal shell** (**Drush**) procedure is a Linux shell utility, which can be used to perform actions on your Drupal installation, including multisite management. CiviCRM provides several commands that can be used with Drush to manage your site. Before using it, you must install Drush and the CiviCRM support file (detailed in this section). Details on installing Drush can be found at `http://docs.drush.org/en/master/install/`. The current Drush CiviCRM commands are as follows:

Command	**Description**
`cc civicrm`	This command clears the entire CiviCRM database and smarty caches.
`civicrm-api`	This command is used to access the CiviCRM API.
`civicrm-install`	This command installs a new instance of CiviCRM.
`civicrm-ext-list`	This command gives a list of CiviCRM extensions that are enabled.
`civicrm-ext-install`	This command installs a CiviCRM extension.
`civicrm-ext-disable`	This command disables a CiviCRM extension.
`civicrm-ext-uninstall`	This command uninstalls a CiviCRM extension.
`civicrm-upgrade-db`	This command executes the `civicrm/upgrade?reset=1` process from the command line.

Command	**Description**
`civicrm-update-cfg`	This command updates `config_backend` to correct the `config` settings, especially when the CiviCRM site has been cloned/migrated.
`civicrm-enable-debug`	This command enables CiviCRM debugging.
`civicrm-upgrade`	This command replaces the CiviCRM codebase with the new specified `tarfile` option and upgrades the database by executing the CiviCRM upgrade process: `civicrm/upgrade?reset=1`.
`civicrm-restore`	This command restores the CiviCRM codebase and database back from the specified backup directory.
`civicrm-rest`	This command provides the `rest` interface for accessing the CiviCRM APIs. It can return the XML or JSON-formatted data.
`civicrm-sql-conf`	This command prints the CiviCRM database connection details.
`civicrm-sql-connect`	This command provides a string for connecting to the CiviCRM DB.
`civicrm-sql-dump`	This command exports the CiviCRM DB as SQL using `mysqldump`.
`civicrm-sql-query`	This command executes a query against the CiviCRM database.
`civicrm-sql-cli`	This command opens an SQL command-line interface using CiviCRM's credentials.
`civicrm-process-mail-queue`	This command processes the pending CiviMail mailing jobs.
`civicrm-member-records`	This command runs the CiviMember status update job.

After you installed Drush and confirmed that it's working, you can proceed to use it to install CiviCRM:

1. If it doesn't already exist, create a directory for your Drupal modules either at `/path_to_docroot/sites/all/modules` (recommended) or in the directory for this site (for example, `/path_to_docroot/sites/yourdomain.org/modules`) to prevent CiviCRM from being available to other sites running off this codebase:

   ```
   $ mkdir -p /path_to_docroot/sites/all/modules
   ```

2. Locate the tarball to be installed by navigating in your browser to `http://sourceforge.net/projects/civicrm/files/` and choosing the correct version to use in the following command in the place of `VERSION` (note that the version number appears twice in the URL):

   ```
   $ wget -O /path_to_docroot/sites/all/modules/civicrm.tar.gz
   ```

   Refer to `http://downloads.sourceforge.net/project/civicrm/civicrm-stable/VERSION/civicrm-VERSION-drupal.tar.gz`.

3. Unpack the `tar` file in order to make the CiviCRM Drush commands available:

   ```
   $ tar –xvf /path_to_docroot/sites/all/modules/civicrm.tar.gz
   ```

   Refer to `http://downloads.sourceforge.net/project/civicrm/civicrm-stable/VERSION/civicrm-VERSION-drupal.tar.gz`.

4. Now, install CiviCRM with Drush using the following command, substituting appropriate values for `yourDbUser`, `localhost`, `yourCivicrmDbName`, and `VERSION`:

   ```
   $ drush civicrm-install --dbuser=yourDbUser --dbpass=yourDbPassword
   --dbhost=localhost --dbname=yourCivicrmDbName --tarfile=sites/all/
   modules/civicrm-VERSION-drupal.tar.gz --destination=sites/all/
   modules
   ```

5. In a browser, log into your site as a Drupal administrator.
6. Browse to **Modules** to confirm that the CiviCRM module is enabled.
7. You should now have a link in your menu for CiviCRM. Click on the **CiviCRM** menu item to enter and confirm a successful installation.

If you don't see the CiviCRM link in your primary menu when the CiviCRM module is enabled, visit the CiviCRM StackExchange site to search for answers or ask a new question (`http://civicrm.stackexchange.com/`).

Installation in Drupal 6 is almost identical to what is described in the preceding steps. See the Wiki document reference earlier in this chapter for more details.

Installing in WordPress

It under Drupal: `http://forum.civicrm.org/index.php/board,6.0.html`.

Begin by downloading the most recent version from the CiviCRM download page (SourceForge) cited earlier. Then, follow these instructions for installing CiviCRM:

1. Upload the `.zip` package to your WordPress installation's `/wp-content/plugins/` directory and extract (unzip) the package. This should result in a new `civicrm` directory.

   > If you are comfortable working in the command line, you can use `wget` to transfer the package from SourceForge directly to your website, and then unpack it.

2. Create `/wp-content/plugins/files`, which will be used by CiviCRM to store temporary and uploaded files.
3. Log in to WordPress with administrator level access and visit the **Plugins** page. Locate CiviCRM and activate it.
4. Visit **Settings | CiviCRM Installer**, which should direct you to the CiviCRM installation/configuration tool. Initially, you will see a red bar, indicating the database details are not correct. This is expected, as you've not yet filled in the configuration options. Fill in the database details for CiviCRM and WordPress, and then click to recheck the configuration settings. You may also optionally choose to install sample data, which can be helpful to get you up and running with the system.
5. Once you receive the green **You're ready to install** message, you can proceed with the installation.
6. After successful installation, back up the `civicrm.settings.php` file that was created in `/wp-content/plugins/civicrm/`. You will need to access this in the future when you perform upgrades.
7. In step 4, you need to enter the details for both your WordPress database and CiviCRM database. These could be the same database, or separate ones. In general, most developers prefer keeping the databases separate as it facilitates backups and the upgrade process. However, it also means you have multiple databases to maintain and manage. Consider the pros and cons of both configurations as you walk through the installation process.

Installing troubleshooting

A majority of installation problems are the result of a failure to meet the hosting server requirements, insufficient resources in your hosting environment, or misunderstanding of the installation steps detailed in the previous section. Let's review each of these steps.

As noted earlier, CiviCRM does have specific requirements for the hosting environment, which include the versions of Apache/MySQL/PHP used, InnoDB support for MySQL, and certain PHP extensions required for various functions. In some cases, CiviCRM will render an error along with guidance when you attempt to install the software without meeting the base requirements. However, at times you may be able to install CiviCRM without the presence of descriptive errors and may not notice issues until later. Be sure to review and confirm compliance with the server requirements prior to installation.

If you are unsure what versions of Apache/MySQL/PHP your hosting environment is running, create a file named `phpinfo.php` in your document `root` directory, containing only `<?php phpinfo(); ?>`. Ensure that it is readable by your web server, and then navigate to `http://yoursite.org/phpinfo.php`. In Joomla!, this information can be reviewed through **System | System Information** without the need for a separate `phpinfo` file. After creating a `phpinfo.php` file and reviewing your system details, delete the file from your web server as it presents a certain security risk by exposing system details.

The second common cause for installation problems is inadequate hosting resources. CiviCRM is a fairly resource-intensive application, and your ability to install and work within the system will be directly related to the resources available on your web host. For this reason, we strongly recommend running your CiviCRM installation on a virtual private server, cloud server where you have control over resource levels and configuration, or dedicated hosting. While it may be possible to run CiviCRM on a shared hosting environment, it will be more susceptible to resource-related problems.

Insufficient resources often result in the dreaded white screen of death. If you have carefully followed the installation steps outlined in the preceding steps, and after completing the installation have received a white screen, it's likely you lacked sufficient resources to complete the installation script.

> Insufficient memory may manifest in a number of other ways during an operation as well, such as explicit errors about insufficient memory and occasionally odd PHP error messages while doing memory-intensive operations. Unless you have tuned your Apache, or other web server, settings after increasing your PHP memory settings, insufficient CPU resources often manifest as insufficient memory. If Apache has been tuned to ensure that it does not spawn too many processes, insufficient CPU resources will result in users seeing timeouts on their page requests. Insufficient disk space manifests first as a slowdown in server responsiveness before the users start seeing errors about temporary files not being saved correctly.

The solution? Well, really the best solution is to look at moving your site to a new hosting environment better suited to CiviCRM. While it may be possible to install CiviCRM through a manual process, resource issues during installation are a good indication that you will experience other resource-related problems when actually working within CiviCRM.

> The CiviCRM website maintains a community-contributed list of hosting providers and comments about how CiviCRM runs in their environment. If you've not yet chosen a hosting solution, review this page to help with your selection process: `http://wiki.civicrm.org/confluence/display/CRM/Hosting+provider+information`. Note that this list is contributed and maintained by the community, and does not imply endorsement by the core development team. You can also find some hosting providers that have servers and options tailored to CiviCRM on the CiviCRM experts page at `http://civicrm.org/experts`.

Sometimes, the insufficient resources are due to the PHP settings and not the actual resources available on the hosting space. We recommend the following minimum settings, which can be altered through your `.htaccess` or `php.ini` file, depending on your server configuration. Refer to your hosting documentation for details on the preferred method for altering these settings, and to confirm that they will permit such modifications. Also note that these recommendations represent a standard minimum level—the size of your database, number of concurrent users, and other load factors may require higher values. Resource-intensive activities, such as large data imports may also require higher values for the temporary periods of time.

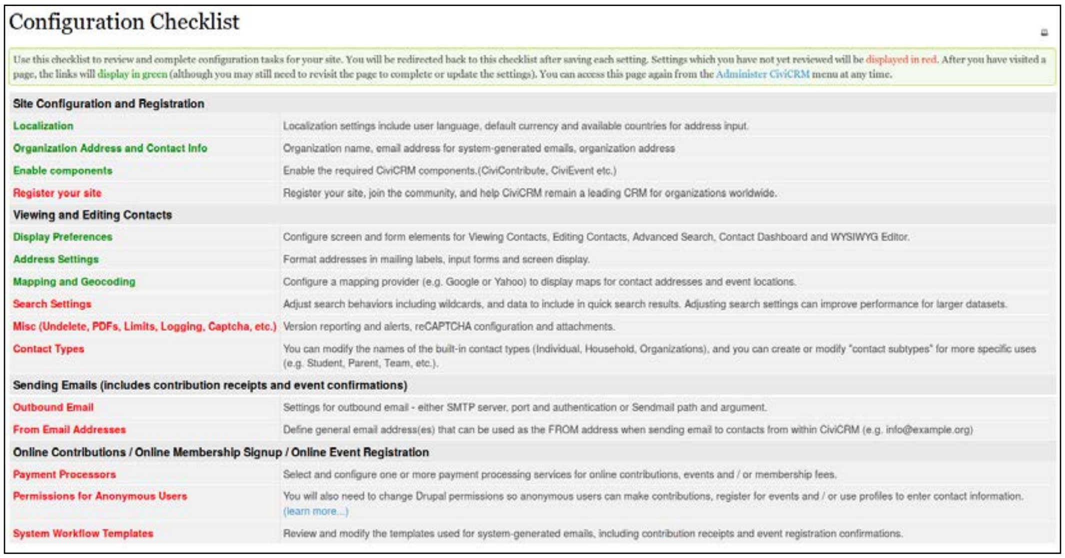
```
.htaccess:
php_value memory_limit 128M
php_value register_globals off
php_value max_execution_time 600

php.ini:
memory_limit = 128M
register_globals = off
max_execution_time = 600
```

The third common problem is simply a misunderstanding of the installation process. Take time to review the installation steps outlined in the previous section for your respective CMS environment, and ensure you have completed each step accurately. Search StackExchange or the online forums if your installation problems persist.

Configuring CiviCRM

After successfully installing CiviCRM, your next step will be an initial configuration of the system. We say "an initial configuration" because you will find yourself returning to configure different elements of the system throughout your implementation process. However, there are basic configurations that should be done at the outset. We advise you to agree to a structured method to try different configuration settings, so you ensure that you keep what you want and only throw away what has been tested but is not needed in the end.

All of your system configuration will be done through the **Administer** menu item. The first submenu item, **Administration Console**, provides a full listing of all configuration options. In addition, the software has a **Configuration Checklist** page that is helpful in walking through the initial settings. The checklist was provided as a link after your successful installation, and can also be found in the **Configuration** section of **Administration Console**.


Configuration Checklist

Use this checklist to review and complete configuration tasks for your site. You will be redirected back to this checklist after saving each setting. Settings which you have not yet reviewed will be displayed in red. After you have visited a page, the links will display in green (although you may still need to revisit the page to complete or update the settings). You can access this page again from the Administer CiviCRM menu at any time.

Site Configuration and Registration	
Localization	Localization settings include user language, default currency and available countries for address input.
Organization Address and Contact Info	Organization name, email address for system-generated emails, organization address
Enable components	Enable the required CiviCRM components.(CiviContribute, CiviEvent etc.)
Register your site	Register your site, join the community, and help CiviCRM remain a leading CRM for organizations worldwide.
Viewing and Editing Contacts	
Display Preferences	Configure screen and form elements for Viewing Contacts, Editing Contacts, Advanced Search, Contact Dashboard and WYSIWYG Editor.
Address Settings	Format addresses in mailing labels, input forms and screen display.
Mapping and Geocoding	Configure a mapping provider (e.g. Google or Yahoo) to display maps for contact addresses and event locations.
Search Settings	Adjust search behaviors including wildcards, and data to include in quick search results. Adjusting search settings can improve performance for larger datasets.
Misc (Undelete, PDFs, Limits, Logging, Captcha, etc.)	Version reporting and alerts, reCAPTCHA configuration and attachments.
Contact Types	You can modify the names of the built-in contact types (Individual, Household, Organizations), and you can create or modify "contact subtypes" for more specific uses (e.g. Student, Parent, Team, etc.).
Sending Emails (includes contribution receipts and event confirmations)	
Outbound Email	Settings for outbound email - either SMTP server, port and authentication or Sendmail path and argument.
From Email Addresses	Define general email address(es) that can be used as the FROM address when sending email to contacts from within CiviCRM (e.g. info@example.org)
Online Contributions / Online Membership Signup / Online Event Registration	
Payment Processors	Select and configure one or more payment processing services for online contributions, events and / or membership fees.
Permissions for Anonymous Users	You will also need to change Drupal permissions so anonymous users can make contributions, register for events and / or use profiles to enter contact information. (learn more...)
System Workflow Templates	Review and modify the templates used for system-generated emails, including contribution receipts and event registration confirmations.

Navigate to **Administer | Administration Console | Configuration Checklist** to begin the configuration process. The list is organized into sections, which we will review in the order presented, as we configure your system. After visiting a link, it will turn green in order to help you track your progress. In each section, make use of the inline help, or links to online help, for details about the settings and options. Our review will cover the primary settings you must be aware of.

Site configuration

The **Site Configuration and Registration** option includes several settings, impacting the overall system.

Localization handles your language, currency, default import, and internationalization settings. Further on in the **Configuration Checklist** page, you can change the address settings to your local requirements. Date formats can be set in **Administer | Localization | Date Formats**.

In the **Country** and **State/Province** sections within **Localization**, you choose the countries and their corresponding states/provinces that are available for addresses in your system. In most of the cases, you will select the same set of values for each field. If you have a site with multiple countries enabled, be sure to include the `countries` field in any forms (profiles) you create, and place it before the **State/Province** field. The **State/Province** field will generate a list of available values based on the user's selection of a country, which means that you want to encourage people to select the country value first. Failure to do this will result in a very long list of states/provinces for all the enabled countries, which will be cumbersome to work with.

CiviCRM has substantial multilanguage capabilities, including the ability to have multiple languages supported within the same site (allowing the user to select their preferred translation). You must install an appropriate language file if you want to use a language other than US English as your default. Refer to the discussion in the *Installing CiviCRM* section for details about the CiviCRM translation server.

Note that if you choose to make your site multilingual (where more than one language is available to users), it will require sufficient database user permissions, and will make modifications to your database that cannot be undone. If you are unsure if you want to use this capability, consider testing the functionality on one of the CiviCRM demo sites before implementing on your own site. You can also choose to keep the system single-language enabled initially, and then revisit at a later date if you choose to make it multilingual.

The **Organization Address and Contact Info** option is used to configure the name of your organization, the default **FROM Email Address**, mailing address, and other contact details. The settings here are important, as they will be used as the default **FROM** address for system-generated and mass e-mails sent from CiviCRM. Note that the e-mail address used generally needs to be a valid user on your hosting server in order for CiviCRM to send e-mails properly (this requirement will depend on your hosting environment configuration).

If you are planning to use CiviMail for broadcast e-mail capabilities from your site, be sure to complete the domain address fields so that it can be included in bulk e-mails. This is a good practice for any legitimate broadcast e-mailer, and is required by anti-spam legislation in some jurisdictions (for example, the American CAN-SPAM Act).

The **Enable CiviCRM Components** option is where you determine which of the major functionality areas in CiviCRM you plan to use.

CiviCRM is fairly modularized. By this, we mean you can turn on and off the main functionality sections (what CiviCRM calls components) in the system. This is particularly helpful for keeping a simplified, streamlined interface that only presents tools you are actually using. For example, if your organization doesn't host any events, you will not need the CiviEvent component and can disable it using this page. All of the menu entries for disabled components will disappear from the interface.

You can return and re-enable a component at any point in time. During this initial configuration, decide on the components that you know you are going to use and configure, and make sure that they are enabled.

Note that CiviContribute is less *independent* than the other components. CiviEvent, CiviMember, and CiviPledge all make use of the CiviContribute functionality. For example, if someone registers for an event with fees, the payment transaction is logged in CiviContribute, while the registration is logged in CiviEvent. If you plan to collect any type of payment on your site (events, donations, or membership fees), be sure to enable CiviContribute.

Lastly, **Register your site** will take you to the CiviCRM website where you can register your site. Registering does a few things that help the CiviCRM core team and project better understand who is using the system and how they are using it. In addition to basic details about your organization and whether you are evaluating or actively using the software, registration details what CMS you are using, how large your organization is, what sector your organization serves, what components you are using, and optionally, whether you are comfortable with CiviCRM using this information in marketing efforts. Please take a few minutes and register your site, as it will help the software better serve organizations like yours.

Viewing and editing contacts

The next configuration section, **Viewing and Editing Contacts**, handles settings related to contacts, including the contact record page, search settings, contact types, and address settings. We will walk through each of these areas.

The **Display Preferences** option controls what content areas are visible in different parts of the system. For example, if you are not planning to use tags as a categorization tool, you should remove it from your views. If you don't need to have immediate access to the changelog (which records a running list of when edits to a contact record were made, with the name of the user and timestamp), you can remove it from **Advanced Search** and **contact record view**.

The preferences are broken into four areas, with a few additional options throughout:

- **Viewing Contacts**: This option controls the tabs that appear across the top of the contact record.
- **Editing Contacts**: This option controls elements that will appear in the contact edit view (accessed from the contact summary tab). Note that some of these can be reordered by dragging and dropping the arrows icon.
- **Contact Search**: In this option, the advanced search groups fields by their type. You expand a group panel in order to access its respective fields. Use the options to disable panels you don't want to be displayed.
- **Contact Dashboard**: CiviCRM has a special page, which can be exposed to logged-in website users called the **Contact Dashboard**. The dashboard summarizes the user-related records, including their membership history, event registration history, donation history, and pledge history. In addition, users may see related contacts that they are permissioned to edit. Use the options here to configure the blocks that will be enabled.

As you initially configure this section, you may be uncertain about what options to select. Remember that you can always return at a later time to modify your settings. You will find whether you need, or don't need, certain elements listed here, as you progress through the site implementation and begin working in the system.

Additional configuration options on this page are included as follows:

- **Viewing Smart Groups**: Smart groups are saved searches; instead of simply collecting records into a *box* as with regular groups, this option saves the search parameters and reruns the search when the group contacts are retrieved. You can choose how to view these within the contact record with this setting. Generally, you will only want to list the contact's smart groups on demand, as the queries can be very resource demanding and should only be triggered when needed.
- **Check for Similar Contacts**: This option triggers a contact search as you fill out the new contact form, to alert you if there is an existing record that may match the contact you are adding.
- **Notify Activity Assignees**: This option determines if contacts assigned to an activity should receive an e-mail notification when the assignment takes place.
- **Include ICal Invite to Activity Assignees**: Choose this option to include an ICal invite when activity assignees are notified by e-mail. The ICal file can be used to easily add the activity to the person's calendaring system.

- **WYSIWYG Editor**: The editor toolbar will appear on any HTML text area in your site. CiviCRM is best integrated with the CKEditor toolbar, but you can choose from any in the list.
- **Enable Popup Forms**: This option will cause many of the forms in CiviCRM to open in a modal window rather than redirecting to a completely different URL. For example, when in a contact record, if you add a new membership, this option would open that form in a popup. Enabling this option can speed up the system and improve the experience for the end user.
- **Individual Display Name Format**: This option allows you to use tokens to configure how the individual's display name will be constructed.
- **Individual Sort Name Format**: This option allows you to use tokens to configure how the individual's sort name will be constructed. The sort name is what appears in search results, and is most often constructed using "last name, first name". If, for example, you want to include the middle name in this construction, you could modify the setting accordingly.

The **Address Settings** option provides similar functionality, allowing you to choose what is available for mailing label generation and the contact's address block.

Common changes to this page include removing `{contact.supplemental_address_2}` from the mailing label, adjusting the address viewing options (most organizations operate with two line addresses), changing the sequence of city and postal code for some countries, and hiding the **Addt'l Address 2**, **Latitude**, and **Longitude** values. Generally, you will rely on the geocoding function to populate the latitude and longitude values without the need for user involvement.

If you are interested in producing reports that are sorted by address elements, you should turn on **Street Address Parsing**. This turns on a functionality that attempts to automatically figure out the street number, street name, and unit number from the street addresses entered into the system. Currently, American, Canadian English, and Canadian French street addresses are supported. There are some extensions available that support other formats.

The last setting on this page handles address standardization. CiviCRM will integrate with the USPS web tools API to validate the address entered (this is for the United States only). Note that the tool only checks whether the address is valid; it does not determine whether the contact name is on record at that address. Before completing this section and enabling the tool, you must apply to the USPS and receive an ID and URL. This can be done at `https://www.usps.com/business/web-tools-apis/welcome.htm`.

The next configuration item in our checklist is **Mapping and Geocoding**. CiviCRM supports automated geocoding of addresses through Google and Yahoo!, and mapping through Google and OpenStreetMaps. If you are using Google for the mapping, you do not need to obtain a provider key, though you may choose to if you open an account to support higher volumes than Google provides for free.

When configured, CiviCRM will geocode the addresses as they are created or edited. When viewing a single contact record or search result list, you can view a map of the address or multiple addresses (if you are looking at search results), while taking the advantage of other functionality provided by the mapping service, such as plotting directions to the location.

- `http://code.google.com/apis/maps/signup.html`
- `http://api.search.yahoo.com/webservices/register_application`

Moving on in our **Configuration Checklist** page, the **Search Preferences** controls the fields that are searchable using the simple search tool, and how the search functions operate and display results. The options are as follows:

- **Automatic Wildcard**: This option enables the user to enter partial text and have search results return any matches in which that text appears, assuming wildcards before and after the search string. Larger databases may want to disable this option as it will slow the search performance and return a larger resultset.
- **Include Email**: This option searches both contact names and e-mail addresses for the search text.
- **Include Nickname**: This option searches contact names and nicknames for the search text. If you are a heavy user of nicknames, this is a very valuable feature. If not, you might consider disabling it as it slows down the search processing if you have a large number of contacts.
- **Include Alphabetical Pager** and **Include Order By Clause**: These options are useful features that facilitate navigation through search results. However, they can both impact performance on large databases. If you are experiencing poor response times while searching, consider turning one or both of these off.
- **Default Contact Search Profile**: After conducting a search, the result list table displays the contact name, address, phone, and e-mail. If you would like to set an alternative set of fields to be displayed by default, you must first build a profile (a collection of fields), and then select it from the **Default Contact Search Profile** option.

- **Smart group cache timeout**: This option controls how frequently the contact records in a smart group are cleared from the cache. A smart group is a saved search; caching improves performance when one is pulling the list of records from the search. By default, the cache is cleared every time a contact record is added or edited. This ensures that any changes to records are reflected in the dynamic search results. Recreating the cache, each time it is cleared, takes time, especially if you have a large number of contacts in smart groups. If you don't need up-to-the-second accuracy on smart groups, you can improve page load times on contact saves by increasing this value (5 minutes is recommended).
- **Autocomplete Contact Search**: At the top left of the horizontal navigation bar is a quick search field. As you type in the field, the system will display possible matches for the value typed. The possible match display will always include the contact name, but may also include e-mail, phone, and address fields. Use the **Autocomplete Contact Search** option to select the fields that should be included. Adding options can be helpful, as you can distinguish between contacts with the same name based on their e-mail, or any other value. Don't select too many options, however, as it will clutter the results drop-down menu and make it difficult to read the list.
- **Contact Reference Options**: Similar to the previous configuration setting, this option controls what fields are included in search results for contact reference type custom fields.
- **Autocomplete Results**: By default, any autocomplete fields (such as the navigation bar quick search) will only display 10 results. You can increase or decrease that count with this setting.
- **InnoDB Full Text Search**: One of the custom searches available with CiviCRM is a full text search. As the name suggests, this tool lets you enter a search term and search across multiple tables for the value. Let's say you are looking for all occurrences of a certain phone number, but realize it may not only be stored in the contact's phone number field, but also in the details field of several activities. The full text search will help you find all occurrences, regardless of where it was stored. By default, the full text search uses the standard MySQL queries to search through columns in various tables. While effective, it can be very slow, and may require significant server resources on larger datasets. This option will make use of the InnoDB full text search capability that was included in MySQL v5.6 to perform the search. This will drastically reduce load on your server, and also makes the search a bit *fuzzier*, as it seeks to locate all instances of the search text.

The next configuration page in our checklist, **Misc (Undelete, PDFs, Limits, Logging, Captcha, etc.)**, is a catchall for various options relating to system operations.

The dashboard is the CiviCRM home page displayed when you first enter the system. You may configure the dashboard to display reports, or *dashlets*, providing a helpful summary of system data on a single page. Since the dashlet reports may pull from just about any data in the system, depending on how you've configured it, it may take some time for the page to load. System caching improves this by taking a static snapshot of the report data, and only reloading from live data on a periodic basis. You can control how frequently the cache is emptied with the **Dashboard cache timeout** option.

One really valuable feature in the system is the ability to send certain links with a checksum token. The checksum is a unique value generated for a specific contact. When included in certain URLs and sent from the activity e-mail or bulk e-mail tool, it allows the recipient to click the link and view the form as if they were logged in. In other words, it provides a way for people to interact with their contact record directly, as if they had logged into the system. This is invaluable for membership renewal campaigns, or for encouraging people to log in and update their contact details in the system using a profile. Because of the potential security risks associated with having a link that can interact directly with the individual's data, the checksum is given a finite lifespan, after which it will expire and prevent the user from interacting with their contact record directly. You can configure when it will expire using the **Checksum Lifespan** option.

The **Contact Trash & Undelete** option is useful for organizations that need to have stricter control over the deletion of contact records, including their contribution information. It can be disabled to simplify workflows and improve performance, but generally, you will want to keep it enabled. When enabled, a contact that has been deleted is first trashed; this removes it from the search results (by default) but retains it in the system where it can later be deleted permanently or restored.

By default, whenever a contact record is created or updated, CiviCRM records that a change was made and will list it on the contact record's logging tab. However, that basic functionality only records the fact that a change took place, who made the change, and the timestamp. It is also limited to actions such as the contact details, e-mail, and phone—it does not take into account many of the linked records (such as memberships, and cases) connected to the contact. Enabling the **Logging** feature implements enhanced logging functionality that will capture every change made in the system and provide detailed reports of exactly what changed. For example, if you update a person's phone number, you will be able to see a report that clearly shows you what the change was.

The enhanced logging functionality is achieved by creating a second set of tables that correspond to the main database tables. Every time a change is made in the system, a snapshot is stored in these logging tables. This way, the entire history of changes can be stored and reported on. One important thing to note is that by default, enabling logging will create those tables in your main CiviCRM database. This will bloat the size of the database considerably (as you are essentially duplicating the number of tables present). In the `civicrm.settings.php` file, you have the option of setting an alternate location for the logging tables. We strongly recommend you create another database specifically for use with logging, and update your settings file accordingly before you enable logging.

The **Attach PDF Copy to Receipts** option, as the name suggests, will generate and attach a PDF file to e-mail receipts generated by the system.

PDF generation is available throughout the system in various places—you can: generate a PDF letter (a merge letter) from a contact record or search results; generate a PDF file from reports; and create PDF invoices and receipts. While these tools are all very useful, they suffer from one inherent problem: the PDF generation process is very resource intensive and consequently is very susceptible to browser timeouts. One way to reduce the likelihood of resource problems is to use the alternate `wkhtmltopdf` library. Use the **Path to wkhtmltopdf executable** option to designate the location of the `wkhtmltopdf` executable. Note that `wkhtmltopdf` must first be installed on your server, as it is run through the command line. Links and details are available from this configuration page.

The **Automatically Check for Updates** option helps you, as an implementer, to keep a track of the latest release of CiviCRM. If your installed version is older than the current stable release, CiviCRM will place a notification on the administration pages to alert you. If this option is turned on, basic statistics will also be sent back to CiviCRM, so the core development team has a basic sense of what version people are using, what environment it's being hosted on, and the size of databases. These statistics do not contain any data from your site—they only include the aggregate statistics of your data and system environment information. Wherever possible, leave this turned on, as it is very helpful for the core team to understand how the community is using the software, and often, it will inform the direction of future development. There are several other options related to the update check:

- **Ignore Updates Prior to**: Using this option, set a date in this field to ignore updates that were released prior to the date. This is a simple way to temporarily suppress the update notification if you do not wish to be reminded of it.

- **Security Update Alerts**: Using this option, designate where you would like to see update notifications for security releases.
- **New Version Alerts**: Using this option, designate where you would like to see update notifications for non-security related releases.

The **Display "Empowered by CiviCRM"** option will place a logo and tagline in the footer of any public facing pages of your site. This is a simple way to let people know that you are using CiviCRM and helps draw attention to the project.

While generating e-mails or creating activities, users are allowed to attach files. Set the **Maximum Attachments** option here to prevent too many from being attached at a time. You can also set **Maximum File Size (in mb)** to limit how large a file can be attached. Keep in mind that your PHP settings will also place limits on the maximum file size, and should be taken into consideration, or adjusted, when configuring this option.

Lastly, you may enable anti-spam tools for your online forms using **reCAPTCHA**. The **reCAPTCHA** option helps ensure the form is completed by a human and not a computer. It presents words, or an alphanumeric string in a graphical form, usually with some kind of warping or other visual obstruction that is hard for computers to decipher. If you plan to have publicly available forms on your site allowing users to enter data, you should consider implementing this.

First, sign up at `http://recaptcha.net/` to obtain a public and private key. Then, return to this page to complete the form. Once configured, you enable **reCAPTCHA** on a form-by-form basis in the **Advanced Settings** panel of your profile's **Settings** page. We will discuss this further when we cover profile forms and the process of exposing data to your website.

The last configuration page in this section is **Contact Types**. CiviCRM has three primary contact types—**Organization**, **Individual**, and **Household**. Contact types are used to distinguish the types of records you maintain. Each type will have some unique data fields, in addition to fields common to all. For example, the first name and last name fields are appropriate for individual records, but not for organization records, such as a business. In contrast, address fields are common to all.

Beyond the three primary contact types, you may create additional subtypes to categorize your records. You may also rename the existing primary types using this configuration tool. There are a few important things to remember when thinking through contact subtypes:

- There are several benefits in using subtypes to organize your records, but chief among them is the ability to create custom fields assigned to one or more subtypes. Consider a school that is using CiviCRM to track both parents and teachers. These are both individual contact types, but the data collected for each would be very different. The school may want to know the skill sets for parents who wish to volunteer, or track if either parent is an alumnus of the school; teacher records, on the other hand, would track information about their educational experience, history of classes taught, and employment-relevant human resource data. Creating subtypes allows you to segment the data you are collecting.
- Subtypes extend one of the three primary contact types. When creating your subtypes, first think through which of the three main types the subtype should be based on.
- A contact record may be assigned multiple contact subtypes. You can construct them in such a way that you anticipate scenarios where a contact is potentially assigned multiple types.

For a more complete review of contact subtypes and additional guidance on how to think through your system structure, refer to *Chapter 5*, *Collecting, Organizing, and Importing Data*.

Sending e-mails

Having addressed core configuration and contact-related settings, we now turn our attention to e-mails generated from the system. CiviCRM may be configured to automatically generate e-mails for end user actions, such as registering for an event or making a donation. Additionally, administrators can send e-mails to one or more contacts using activities or CiviMail, the mass e-mail distribution tool. Though you are not required to use e-mail sending capabilities in order to use CiviCRM, you will miss out on significant functionality if you choose not to.

First, set up your **Outbound Email** configuration at **Administer | System Settings | Outbound Email (SMTP/Sendmail)**, and then from one of the options present:

- **mail()**: This option makes use of the PHP `mail` function. It is generally sufficient for most transactional e-mail uses.

- **SMTP**: This option may provide more complete bounce headers for return mail processing, and provide the flexibility to optionally use external SMTP sending services. This may be something you want to consider if you are sending very large bulk e-mails, as it will reduce the responsibility you bear for maintaining good mailing reputation, as well as your server requirements. The **mail()** option is generally sufficient. Your hosting provider may also have a preference, or may only support certain options.
- **Sendmail**: This option is an alternative sending mechanism available on most `*nix` hosting environments.
- **Disable Outbound Email**: As the name suggests, this option will completely disable the sending mechanism. This option is most often used in a development environment where you want to ensure e-mails are not unintentionally delivered from the system.
- **Redirect to Database**: This option will prevent e-mails from being sent, but will capture the record of their intent to be sent in the `civicrm_mailing_spool` table. When this option is enabled, bulk e-mails will be archived when they are scheduled.

Regardless of the option you choose and configure, be sure to use the built-in testing function and confirm receipt of the e-mail. This quickly and easily ensures that the outbound e-mail is working.

Once the outbound e-mail starts working, configure the settings at **Administer | Communications | FROM Email Addresses**. When sending e-mails from CiviCRM, the logged in user's e-mail will be the default `FROM` address. However, you may configure the additional addresses available to the system and select them while sending an e-mail. These e-mails will also be available as the sending address for bulk e-mails.

For example, your organization might have service-based generic e-mails, such as `events@my.org`, `questions@my.org`, and `membership@my.org`. Depending on your hosting setup, the `FROM` e-mail addresses used may need to exist in your mail server as mailboxes or forwards.

Handling return e-mail traffic

The CiviMail component provides important functionality for processing inbound e-mails. These e-mails are received and processed by the system for three purposes:

- The first purpose is the **bounce** handling of invalid e-mails and temporarily undeliverable e-mails. Without this functionality, you increase the risk that ISPs will, at some point, label your server a spammer. Prevention is the best medicine, as it can be difficult to track whether you have been blacklisted, or to respond quickly and effectively if you have been. This isn't merely a reputation problem: when your e-mail is not being delivered, it can significantly impact donations, membership signups, renewals, and event attendance.
- Secondly, return mail processing provides support for e-mail-based **unsubscribes**, **opt-outs**, and **resubscribes**. When bulk e-mail is delivered to recipients, your e-mail should include options to unsubscribe from the mailing list, opt-out of all e-mails, and potentially a link to resubscribe (if they have unsubscribed). Depending on how you set that up, you can support those actions through e-mail, in which case they need to be processed by the system.
- Finally, CiviCRM supports the ability to receive e-mails and log them as **Activity** records associated with contacts in the **From**, **To**, and **CC** lines. As you generate e-mails from your web-based or desktop e-mail client, you can automatically attach a copy of the e-mail to existing or new contact records using this functionality.

Unfortunately, configuring the return e-mail channel can be tricky, and may be one of the more technically challenging aspects of installing and configuring CiviCRM. It is much easier now than it was a few years ago, but is still an area where you may want to obtain professional support to ensure proper functioning.

Alternatively, CiviSMTP (`http://www.civismtp.com`) is a paid service that takes care of most of the technical challenges involved in setting up and running CiviMail, and may help you overcome obstacles you run into setting it up on your local server. Note that it is not an official service offered by the CiviCRM project, but is owned and operated by a third-party provider.

Before walking through the configuration of the return channel processor, let's review the broader subject of maintaining a good mailing reputation.

Maintaining a good e-mail server reputation

Any broadcast e-mails sent by your system will be monitored by various spam detection systems operating on the Internet. While you do not have direct control over those systems, you do have the ability and responsibility to construct and manage your broadcast e-mail systems in such a way so as to minimize the likelihood that you will be flagged as a spammer. This process of reputation management involves domain record configuration, including sender details in your e-mails, providing unsubscribe and opt-out tools, and processing bounced e-mails so that you are not repeatedly mailing to bad e-mail addresses, and so on. Each of these things will help contribute toward lower spam scores and ensure you are able to continue reaching your constituents effectively through broadcast e-mails. In this section, we will take a look at **Domain Name System** (**DNS**) related considerations.

The first step is to set up an SPF record in the DNS for your domain, and ensure that it is correctly configured whenever you move servers. The **Sender Policy Framework** (**SPF**) identifies, to the world, hosts that are specifically allowed to send e-mail from your domain, those not allowed, and others about which nothing can be said. Your CiviCRM server and domain's outbound mail server (if different), should both be identified in the SPF as allowed to send (pass). The more specific and limited your SPF record is, the more effective it will be in contributing toward reducing CiviMail deliverability issues. Unfortunately, users who travel with laptops through various IPs while sending e-mails may make it difficult to lock down the sender policy framework tightly.

A second useful approach to improving your server's reputation is to set up a reverse DNS. In the *Sending e-mails* section, you should have configured and successfully tested your outbound e-mail settings. In order to determine whether everything is really working correctly, use CiviCRM to send an e-mail to an account you can access that is not on your server, for example a Gmail or a Hotmail account. Then, examine the e-mail header for a couple of things. In Gmail and Google Apps, you can do this by performing the following steps:

1. Opening the message.
2. Clicking on the other actions dropdown beside **Reply** or **Reply to all**.
3. Selecting **Show original**.

Look for a **Received-SPF** header record. It should indicate either **neutral** or **pass**. You may also find other records such as **Authentication-Results: spf=neutral**.

If you are having trouble with SPF, the issue can sometimes be traced to the identity that is provided by, or about, your server when it sends e-mails. Check through the **Received: From** header records until you get to your originating server, and perhaps beyond it, to your domain on a localhost. Raise any issues or questions you have with the tech support at your ISP.

Reverse DNS is the process of translating IP addresses to hostnames, the opposite of the forward DNS process, which takes the commonly-used domain name and translates it to an IP address. Setting up a reverse DNS record (if not done so already) can help improve your e-mail reputation as the sending IP is validated as a legitimate sender for your domain. If your server has multiple domains sharing a single IP, it may be worthwhile to spend the small amount of money necessary to purchase a dedicated IP (useful for SSL certificates for CiviContribute, as well) so that you can set up the reverse DNS for your domain. A shared IP environment may result in your domain being scored poorly if it resides in the same bank of IPs as spammers, or other accounts that are not as careful with their e-mail reputation management.

The third approach to improving your server's reputation is to monitor the DNS blacklists and to request organizations that maintain these lists to remove your server from the list, if it is present. You may find yourself listed for a variety of reasons, legitimate or not, including: you haven't been processing bounces properly; recipients of your e-mail may make mistakes in their complaints; or even other sites affecting your reputation. It is important to respond to blacklisting promptly, as it typically propagates from one service to another.

Configuring the e-mail processor

To process the inbound e-mails, you must have an e-mail account to receive the inbound e-mails and configure a scheduled job to periodically process the e-mails received (addressed later in this chapter).

Although not required, you will typically want the e-mail account used for bounce processing to be dedicated for this purpose. You also would not typically want it to be a publicized account that constituents would send e-mails to. It should be created and configured solely for the purpose of bounce mail handling.

CiviMail uses **Variable Envelop Return Path** (**VERP**) processing as the method for tracking bounces. The method adds a unique sender address to every outbound message. When a bounce is returned, this unique sender address is used to determine the message, e-mail address, and contact record that generated the bounce. Bounces are classified by type (whenever possible) and processed based on the rules configured in the system. Different bounce types will trigger a temporary or permanent hold placed on the e-mail, or record the delivery attempt for future processing, should there be additional bounces on the address.

The preferred setup for VERP is called subaddressing, which uses a local part format. If your invisible bounce processing e-mail address is `civimail@example.org`, the VERP address appends a unique value after the separator but before the domain, such as `civimail+12.234ka.241123@example.org`. While this is the preferred method, some ISPs deliberately prevent subaddressing on their servers because of its prevalent use in broadcast mailing.

In order to test whether you can use this approach, try sending an e-mail to the account you have set up, appending `+test` or `–test` to the account before the `@` symbol (`myemail+test@mydomain.org`). If you receive the message successfully, you've confirmed support for local part handling and are ready to set up the account for inbound message processing.

If subaddressing/local part handling is not supported, or you prefer not to use that method, you may still be able to process bounced e-mails using a catch-all e-mail account. A catch-all account is configured to receive all the e-mails not addressed to the other mail accounts set up on your domain—it catches any e-mails not caught by the other mail accounts. In general, catch-all accounts are less desirable as they will typically catch quite a few spam e-mails, which may be processed along with legitimate bounces. To determine whether your hosting environment supports a catch-all account, log in to the system that administers your e-mail accounts and look for the option to designate an e-mail as the catch-all, or contact the hosting support to determine the system capabilities. If your system supports catch-all addresses but not subaddressing, you'll have a slightly higher load on your server, but the system should function fine.

> In some cases, you may find a situation where the VERP-based processing does not work for your environment and needs. For example, if you are using an external service for SMTP delivery, they may require that all bounce processing be handled by their service—which means you will not receive bounce e-mails in your bounce account. In such cases, you may have two options (depending on their setup): you can integrate with their service via the API, retrieve/receive bounces, and then process those in CiviCRM. That will require a fair bit of custom programming, but may be worth it, depending on your usage. Another option, some SMTP processors provide, is to forward bounces to an inbox after they have been handled by the service provider. While this will help get the bounced e-mails to your inbox, it does not solve the problem. As those e-mails are being forwarded, the delivery address does not include the unique values that help CiviCRM identify the e-mail and mailing they originated from. One way to work around this is to include a `Message-ID` header in the mailing. Visit **Administer | CiviMail | CiviMail Component Settings** and enable this option. This will embed those e-mail/contact/mailing specific details in the e-mail header, which will be passed along when forwarded and made available for processing. Be sure to test this approach thoroughly to ensure it works as expected in your system.

Many CiviCRM installations run on virtual private servers. In most cases, the administrators of VPSs have the authority to configure their e-mail systems to their own needs and preferences. If you don't have the technical skills yourself, it's worth putting in a support request to have things set up the way you want.

The final way to support VERP, if your e-mail system can't support either subaddressing or catch-all addressing, is to use a third-party account such as Gmail. The processing time and resource load to support processing remote e-mail stores is higher, and there may be a slight hit to your reputation if the sender domain is different from the FROM e-mail domain; but this is still a viable and effective solution. Note that depending on the system used, you may need to configure filters so that bounced e-mails are not flagged and filed as spam. For example, Gmail accounts should have a filter created that redirects anything flagged as spam back into the inbox so that it can be processed by CiviCRM.

> Gmail (and other providers) may also place restrictions on your ability to remote connect to the account from the server. Be sure to log into the account and address any notifications you receive, and also monitor the processing logs to make sure they are returning a success response.

Configure CiviMail with the bounce processing account you have set up as follows:

1. Navigate to **Administer | CiviMail | Mail Accounts**.
2. Click on the **Edit** link on the default account row.
3. Alter the **Name** option as desired.
4. Enter the **Server**, **Username**, **Password**, and **Email Domain** fields for the account, along with any other configuration options appropriate for your setup.
5. If the account supports subaddressing, enter the e-mail address `name+` in the **Localpart** field (include the plus sign, such as `civimail+`).
6. If possible, configure the system to use IMAP in the **Protocol** field (preferred over POP3 or other options). Use your e-mail client to test whether the account is working properly before expecting CiviMail to talk to it.
7. Check the e-mail client to test whether the account is working properly before expecting CiviMail to talk to it.
8. If possible, set up SSL to improve the security. A locally issued certificate should be fine.
9. Select the **Bounce Processing** in the **Used For?** field.

Once configured, you can manually trigger the scheduled job by visiting **Administer | System Settings | Scheduled Jobs**, finding the **Fetch Bounces** job, and under the more popup select **Execute Now**. You can then select **View Job Log** to review the processing response. After you've confirmed it is working, you can enable the job and configure its frequency. It's typically sufficient to run it on an hourly basis. Remember that scheduled jobs must be triggered by a Cron job in order to run automatically (discussed later in this chapter).

Note that the configuration guidance outlined in the preceding steps covers the standard setup options for bounce processing. Other configuration options are available, such as return-path headers and alternate protocol options, which may be used if your server setup is nonstandard. For more details on how these options may be used, review the online documentation or search for guidance in StackExchange (`http://civicrm.stackexchange.com/`).

Payment processors

It's likely that one of the reasons you've decided to implement CiviCRM is to benefit from the ability to process payments through your website, and have it immediately recorded in your contact management system. Whether you are collecting donations, campaign contributions, sponsorship commitments, pledges, membership fees, or event registration fees, all of those transactions will flow through CiviContribute.

However, before you can collect and process payments through CiviCRM, you must configure a payment processor. Your payment processor or the payment gateway is a service you purchase to allow credit card processing either directly through your site or through redirection to the processor's site. The processor receives the credit card, authorizes the payment, and transfers the funds to your bank (either manually or automatically, depending on the service).

> To be more precise, you will need to set up a payment processor if you plan to receive and process transactions directly through your site. If you only receive offline payments (checks, cash) or process credit cards through other, nonintegrated means, you can still make use of CiviCRM contribution management tools.

Choosing what service(s) you will use can be challenging, as there are many options available. You will want to make sure that whatever service you choose has a corresponding CiviCRM payment processor support available; otherwise, you may need to develop a new extension to integrate with your selected service.

Currently, the following integrations were available in the core software:

- Authorize.net
- DPS Payment Express
- Elavon Payment Processor
- eWAY (Single Currency)
- FirstData (Linkpoint)
- Google Checkout
- Moneris
- PayflowPro
- PayJunction
- PayPal—Express
- PayPal—Website Payments Pro
- PayPal—Website Payments Standard
- Realex Payment

In recent years, there has been a shift to reduce what processors are supported through core and to begin to support them (and include community-sponsored development) through extensions. There are quite a few payment processor extensions available, including a few (such as iATS and Stripe) that are quickly becoming favorite options among many developers. If you do not see your extension in the preceding list, visit `https://civicrm.org/extensions` and view the options available there.

Not all payment processors are created equal. Some are only available in limited regions or have limitations on what currencies can be used. The structure and model for what fees are charged will also differ significantly. If you are planning to use recurring contributions, be sure to investigate whether the processor will allow such functionality and ensure that it has been built into the CiviCRM plugin.

> For more details about configuring some of the payment processors and the functionality they provide, visit `http://wiki.civicrm.org/confluence/display/CRMDOC/Payment+Processors`. Note that not all processor plugins are officially supported by the CiviCRM project, and not all are detailed in the preceding link. Some have been contributed by the community and rely on community support for ongoing updates.

Integrated versus redirection processors

There are the two basic types of payment processors, namely, those that allow you to collect and process credit cards directly from your site (integrated), and those that will direct you to the processor's site to handle the transaction (redirection). There are pros and cons to both:

- Those that allow credit card collection directly from your site provide a more attractive, branded solution. The user never leaves your site and the transaction process flows seamlessly from the collection form, to a confirmation page, and a final thank you/receipt page. However, the fees charged by the processing service are typically higher and you must have a dedicated IP with SSL installed in order to sufficiently secure the transaction.
- Those that direct you to the processing site (such as PayPal Standard and Google Checkout) do not require SSL (as the security is handled by the processing site), and can typically be implemented very quickly and may charge lower total fees. However, the redirection to the processing site means that visitors must leave your website to complete the transaction. This may discourage or confuse people from finalizing the payment.

> CiviCRM will not work with a shared SSL (commonly offered on many shared hosting environments). You must have the SSL installed on your domain in order for CiviCRM to work correctly. If you implement SSL on your site, be sure to visit **Administer | System Settings | Resource URLs** and enable the **Force Secure URLs (SSL)** option. This will redirect the contribution pages and the CiviCRM administration pages to SSL. You will typically also want to verify **SSL Certs** on that page.

If you are new to online payments, and are unsure how much your constituents will respond to the new functionality, consider starting with the off-site solution where you are directed to the processor's site to complete the transaction. At some point, you may reach a threshold where the additional cost for handling the transaction directly through your site is justified.

> The SSL certificates are domain-form-specific. A certificate purchased for `www.yoursite.com` will not validate for `yoursite.com`, as the `root` form of your domain and the `www` form are not considered the same.
> In addition, CiviCRM references some resources through the site URL and may not function consistently if the `root` and `www` form are used interchangeably. The easiest way to address this is by adding the Apache directives to an `.htaccess` file in your public website directory. For example, if you wish to redirect from the `root` form to the `www` form, add the following code (with your domain name):
>
> ```
> RewriteEngine On
> # Redirect root domain to www. form
> RewriteCond %{HTTP_HOST} ^yoursite\.com$ [NC]
> RewriteRule ^(.*)$ http://www.yoursite.com/$1 [R=301,L]
> ```
>
> Then, make sure all references to resources in your CiviCRM configuration use the `www` form of the domain. In addition to ensuring the proper function of CiviCRM and your SSL certificate, this will help create consistent domain branding of your website.

Configuring the payment processor

Once you've decided what payment processor to use and have gone through the necessary application process with the company you are using, you may set up the account in CiviCRM. From the **Configuration Checklist** page, select **Payment Processors**, or visit **Administer | System Settings | Payment Processors**.

The fields you must complete will depend on which processor you use. In almost all cases, CiviCRM will let you configure the credentials for your live processor and a sandbox (test) account. The sandbox credentials will be used when you use the **test drive** option in contribution pages. See your payment processor for details about creating a sandbox account.

> If you do not yet have a payment processor account but would like to begin setting up and testing contribution pages or other payment handling forms, use the **Dummy Payment Processor** option. You may then configure your forms and enable contribution handling (including events and membership forms). No transaction is triggered when a dummy processor is used—it should only be created for temporary testing purposes.

CiviCRM supports the configuration of multiple processors. At the time you create a contribution page or event registration page, you will be asked to select your desired processor to be used by this form.

After configuring your payment processor, be sure to test it by generating a live contribution record. Don't rely on the sandbox/testing tools alone; always run a live transaction with a real credit card to test the system before exposing live donation/pledge/event/membership forms that will process payments to the public.

The System Workflow Templates page

After completing the setup of your payment processor, return to the **Configuration Checklist** page and visit the **System Workflow Templates** page. As people visit the CiviCRM forms on your site, and you, as an administrator, work with contact records, there are various e-mails generated by the system and sent to your contacts. Each of these e-mails can be customized through this page.

If you edit any of these e-mails and save the changes, you will have the option of viewing or reverting to the original version.

The templates contain tokens and variables that are placeholders for contact and record-specific field values. For example, if you want the e-mail to be addressed to "Dear First Name," you would insert the **First Name** token. When editing the template text, you may use the **Insert Tokens** button to insert basic contact fields.

Take care when editing templates. Most of these contain a number of conditional clauses (the `if…else` statements) in order to ensure that the resulting e-mail is customized to the specific transaction. After making edits, make sure you test it with various options to confirm that it is functioning properly.

> CiviCRM uses the Smarty template engine (`http://www.smarty.net`) to render pages, including workflow e-mails. You may insert basic logic and make use of other Smarty functions when creating your e-mail template.

Organizing, customizing, and components

At this point, you've completed the most essential steps in your initial site configuration. The **Configuration Checklist** page includes three additional sections that we will briefly review here, and cover in more detail later, while walking through the full implementation of their respective functions. These additional sections are **Organize your contacts**, **Customize Data, Forms and Screens**, and **Components**.

Organize your contacts

As you begin importing and entering contacts you will begin looking for ways to organize and categorize them. There are many ways to do this in CiviCRM, but the two primary methods are with tags and groups. Tags can be constructed in two ways: a hierarchal categorization tree you create in order to classify contacts, or a fieldset where you enter free-text tags (as you type you can search/select existing tags or create new tags). Groups are the collections of records that may be dynamically created (**Smart Groups**, the equivalent of a saved search) or manually collected (for example, an opt-in mailing list). We discuss configuration and implementation of these in *Chapter 5*, *Collecting, Organizing, and Importing Data*.

Customize data, forms and screens

CiviCRM's core data fields cover all the basic contact and communication fields you would expect. Inevitably, you will have the additional pieces of data specific to your organization that you want to record in the database. The **Custom Data** tool of CiviCRM allows you to attach additional fields to almost any existing type of record. For example, you can add fields to a contact record, contribution record, event registration, relationship type, and so on. We will look at creating custom fields in *Chapter 5*, *Collecting, Organizing, and Importing Data*.

In many, but not in every case, the data fields you've created will be included in online forms and exposed to your site visitors. We use **Profiles** to select core and custom fields for inclusion in specific forms. We will begin to look at constructing and using profiles in *Chapter 5*, *Collecting, Organizing, and Importing Data*.

Components

As noted earlier in this chapter, CiviCRM components represent the major functional areas of the software. Your first configuration step was to enable/disable the components you plan to use. This last block in the **Configuration Checklist** page lets you access settings and options specific to each component. As we explore each of these functionality areas throughout this book, we will examine the configuration options specific to each.

Option lists

Although we completed a review of the **Configuration Checklist** page, there are several additional settings we want to explore. You may choose to configure these areas now, or simply make note of them, and return to modify them later in your implementation process, as the need arises.

As you work with CiviCRM, you'll quickly find that there are numerous option lists providing selection choices for fields. These lists include location types, phone types, individual prefixes and suffixes, activity types, and many more. A full list of configurable options is found by visiting **Administration Console** and selecting **Option Groups** from the **System Settings** section, and a partial list of the most frequently modified options is available at **Administer | Customize Data and Screens | Dropdown Options**.

The available settings for each of the options will be specific to the option type. In most cases, it will be self-explanatory or, otherwise, documented with help text. If the option contains both a name and a label field, the name field is used for the unique option value, and the label field is what will display in the option list.

> CiviCRM has begun to provide access to option lists within the areas where they are used (provided you have sufficient access). Look for the wrench icon, which indicates you can modify the list without navigating to the dedicated administration tool.

Synchronizing users with contacts

If your Joomla!, Drupal, or WordPress website has been in operation for some time, you will most likely have an existing list of website user accounts. These user accounts will not immediately have corresponding CiviCRM contact records unless the user has logged into the site and visited a CiviCRM page. As part of your initial system configuration, it is best to synchronize those CMS users with CiviCRM. Access this option by visiting **Administer | Users and Permissions | Synchronize Users to Contacts**.

Triggering this tool will create a linked contact record for each CMS user in your website. It should only be necessary to initiate this synchronization once. Thereafter, new CMS users will be linked to CiviCRM as they are created or visit a CiviCRM resource.

> There are various ways this will occur, depending on what CMS you are using, and based on what account creation tools you have implemented. We will review some of the available options later in this book.

Let's take a moment and understand exactly how CiviCRM contacts relate to the CMS users.

Your website (CMS) users are individuals with permission to log into the site using a username and password. CiviCRM contacts are records residing in your constituent database. CiviCRM creates a link between the CMS user and its corresponding CiviCRM contact record. When the user logs in to your site, you can then expose data fields specific to that contact. For example, you could enable your logged in contacts to edit their address and phone details.

While every CMS user should have a corresponding CiviCRM contact record, the reverse is generally not true. You will typically maintain contact records for individuals (and certainly organizations and households) that do not have a corresponding user account.

As you configure and plan your site, begin thinking through exactly who should have access to the site, what data fields you might expose to your website users for editing and updating, and what workflow you prefer for creating and granting permissions to new users.

Access control

One of the most important things you need to consider when configuring your system is to decide who will be allowed to access your contact data, and what tools they are permitted to use. This is handled with CiviCRM, in conjunction with your CMS, through access control settings.

All three integrated CMS's handle permissioning in a similar way—though there are a few differences between them:

- Users are assigned one or more roles/groups:
    - Drupal and WordPress use the term roles; Joomla! uses the term access control group
    - Drupal and Joomla! support assigning multiple roles to a user; WordPress only allows you to assign one
- Roles/groups are assigned permissions:
    - Drupal and WordPress assume the permission is denied unless it is explicitly granted. In Drupal, assigning multiple roles will result in the user being granted all permissions assigned to those roles.
    - Joomla! supports an access control group hierarchy, where groups further down the tree inherit from those higher up the tree. Permissions are assumed deny, and can be explicitly allowed or denied.

WordPress has several roles defined by default. You are not able to add additional roles unless you install additional tools to provide that functionality.

Access is provided to users based on their role/group that can be added or removed as a person takes on, or gives up responsibilities for accessing and administering functionality and content in CiviCRM.

Each CMS includes the concept of an anonymous or public user—someone who has not logged into the site (including those who do not have user accounts), and authenticated or registered user (anyone who is currently signed in). Additional roles are typically created for system administrators and for the groups of people who need to be allowed to do some things that others are not permitted to do, for example, moderating comments or other user-generated content.

We don't recommend creating an overly complex set of roles for CiviCRM. Ideally, you will set up permissions so that people are always allowed to do what they need to do, and aren't allowed to do things that are dangerous to the system, its data, or the organization's reputation for preserving the privacy of the personal data it holds. Often, you can get by with a single role called CiviCRM administrator, and perhaps with another one allowing users to view and edit financial information.

CiviCRM defines over 80 permissions used throughout the system. Many are used by specific components within CiviCRM, and so may or may not be applicable, depending on which components you are using. We will not list or detail the permissions here—most are fairly self-explanatory, though you will want to test your roles carefully to confirm they restrict or permit the desired functionality. You can access the permission administration by visiting **Administer | Users and Permissions | Permissions (Access Control)**, and selecting **WordPress/Drupal/Joomla Access Control**.

Broadly speaking, permissions fall into several functional grouping:

- Accessing the components of CiviCRM (for example, accessing CiviMember)
- Performing certain operations on the certain types of objects (for example, adding contacts)
- Accessing administrative interfaces (for example, administering dedupe rules)
- Accessing non-administrative functions (for example, making online contributions and registering for events)

Advanced access control

In addition to the permissions that CiviCRM exposes to the CMS access control permissioning system we saw in the previous section, CiviCRM has its own access control capabilities that provide finer-grained access control. These tools provide powerful ways to further segment and control who is able to view and work with your contacts and records. But that power comes with a price: using these tools will complicate your system and you should anticipate the need to be monitoring and adjusting these rules to meet your users' needs; and secondly, advanced permission does have an impact on performance. You are basically adding a potentially complex layer of access control to every function in the system—when a contact is viewed, certain data is accessed, and so on—which will have an inevitable impact on performance.

CiviCRM advanced access control is broken down into three components:

- Role
- Operations (**View**, **Edit**, **Create**, **Delete**, **Search**, and **All**)
- Data

This provides a very flexible structure for controlling access. Let's walk through how to use these tools. Visit **Administer | Users and Permissions | Permissions (Access Control)** and review the three options:

- **Manage Roles**: As with the CMS-based access control tools, we begin by defining roles that will represent the types of access to be granted.
- **Assign Users to CiviCRM ACL Roles**: With this option, we decide the contacts that will be granted the defined roles. This is done through CiviCRM groups—specifically, those that have been flagged as an **Access Control** type of group. Any contacts added to the selected group will be granted the access permissions attached to the linked role.
- **Manage ACLs**: With this option, we define the access rules for different roles. Multiple ACL rules can be defined and associated with the same role.

ACL rules are defined by an operation, a type of data, and the data selections (based on the type chosen). Operations define what the person can do with the selected data, and are fairly self-explanatory:

- **View**
- **Edit**
- **Create**
- **Delete**
- **Search**
- **All**

Four options are given for **Type of Data**:

- **A group of contacts**: After selecting this option , choose the group for the the operation that should be applied. Leave the selection set to **- select -** to create an ACL for **Role** and **Operation** that applies to all contacts.

- **A profile**: This option is useful to lock down the use of certain profiles to certain purposes. When this option is selected, you can select the profile or leave the value at **- select -** to create an ACL that applies to all profiles. Make sure that all the users that are expected to complete online contributions, event registrations, or other similar functions such as newsletter subscription signups have the **Create** operation permission for all profiles on those forms.
- **A set of custom data fields**: When selected, you can select the **Custom Data** group of fields or have the permission to apply to all the custom fields. Note that there is a known limitation with these settings: the **View** operation on custom data fields also permits editing, and the **Edit** operation also permits viewing.
- **Events**: This option is useful to restrict users from viewing the event information page, or from registering (using the **Edit** operation) for events.

ACL permissioning can be tricky, as you must make sure that the roles assigned to users don't conflict with each other. If you are using CiviCRM's internal granular permissioning, you must also be careful that you don't conflict with the CMS/CiviCRM permissions assigned to the user via the role/access control group. For example, a user with an **access all custom data** permission would override a specific custom data set permission defined in CiviCRM.

As a general rule, take the time to do sufficient testing for any roles you've created, be it in the CMS or CiviCRM—especially, if you have sensitive information to which you must be sure to restrict access.

In the case of third-party extensions, if a user is assigned three roles, the combined permissions from all three roles will determine what the user can do in the system. As permissioning explicitly allows the specified access, if any of the three roles have been granted permission, it will impact the users' access.

There are several extensions available for each of the three CMSes that have an impact on ACL handling. We will briefly introduce and review them here as they are applicable to the current discussion.

Drupal – the CiviGroup Roles Sync module

This module allows all the users in a particular Drupal role to be placed in a CiviCRM group, and vice versa. This allows CiviCRM to put contacts into groups and have that result in additional access privileges in Drupal. For example, signups on the CiviCRM profile forms can be automatically added to groups, which could then be used to enable access to parts of your website. Smart groups can also be created for all donors, or other criteria, such as geography, to provide differential access to parts of your site.

In order to enable **CiviGroup Roles Sync**, follow these steps:

1. In Drupal, visit the **Module** administration.
2. Click on it to enable the **CiviGroup Roles Sync** module in the **CiviCRM modules** fieldset.
3. Click on the **Save Configuration** button.

In order to configure **CiviGroup Roles Sync**, follow these steps:

1. Create one or more non-default Drupal roles.
2. Create one or more CiviCRM roles at **Administer | Users and Permissions | Permissions (Access Control) | Manage Roles**.
3. Create a group of users to assign to CiviCRM roles, if necessary, under **Contacts | Manage Groups**. Note that **Access Control** must be enabled as **Group Type** in the **Settings** for the group.
4. Assign users in an access control group to each CiviCRM role at **Administer | Users and Permissions | Permissions (Access Control) | Assign Users to CiviCRM ACL Roles**.
5. In Drupal, navigate to **Administer | Site configuration | CiviGroup Roles Sync**.
6. Click on **Add Association Rule**.
7. Select a CiviCRM group and a Drupal role from the selection lists.
8. Click on the **Add association Rule**.

Drupal – the CiviMember Roles Sync module

This module provides two-way synchronization between specific membership types with specific membership status and Drupal roles. For example, this allows you to provide all the current members with access to a site, and have that automatically removed if they don't pay their membership renewal fee.

In order to enable the **CiviMember Roles Sync** module, follow these steps:

1. In Drupal, visit the **Module** administration.
2. Click on it to enable the **CiviMember Roles Sync** module in the **CiviCRM modules** fieldset.
3. Click on the **Save Configuration** button.

In order to configure **CiviMember Roles Sync**, follow these steps:

1. Create one or more non-default Drupal roles.
2. Create and configure the CiviCRM membership types and statuses at **Administer | CiviMember | Membership Types and Administer | CiviMember | Membership Status Rules** (see *Chapter 9*, *Growing Your Membership and Interacting with Members* for more details).
3. In Drupal, navigate to **Administer | Site Configuration | CiviMember Roles Sync**.
4. Click on the **Add Association Rule** tab.
5. Select a CiviMember membership type, and select a Drupal role, in order to implement that every contact with a current status for that membership type has that Drupal role assigned to it.
6. Click on it to enable the appropriate statuses for both **Current Status** and **Expired Status**. If you are using the default CiviCRM membership status rules, you'll probably want to enable **New**, **Current**, and **Grace** for **Current Status**, and **Expired**, **Pending**, **Cancelled**, and **Deceased** for **Expired Status**. When the membership type for a contact is changed, these lists will be checked to determine whether the selected Drupal role should be assigned to or unassigned from the contact's Drupal account.
7. Click on **Add association Rule**.

Drupal – the CiviCRM OG Sync module

This module can ensure that the changes in the contacts in CiviCRM groups are reflected in associated Drupal organic groups. However, as the organic groups module does not provide an appropriate way to notify CiviCRM of changes in membership of organic groups, we find this module to be of limited usefulness.

Joomla! – the CiviAuthenticate plugin

The plugin is available at `https://github.com/lcdservices/CiviCRM-CiviAuthenticate`.

This Joomla! authentication plugin will replace the default Joomla! authentication plugin and provides the ability to perform the following tasks:

- Restricting login access based on membership status
- Redirecting expired members to a selected contribution page prefilled with their contact information
- Assigning the Joomla! access control groups to the user on login based on their membership status
- Assigning the Joomla! access control groups to the user on login based on their membership types

Joomla! – the CiviCRM Group Sync plugin

The plugin is available at `https://github.com/lcdservices/CiviCRM-Group-Sync`.

This component and plugin provides tools to create sync rules between the CiviCRM groups and Joomla! access control groups. Unlike the CiviAuthenticate plugin, these rules are applied whenever the person is added/removed from a synched group (in either Joomla! or CiviCRM). It does not sync with smart groups.

WordPress – the WordPress Member Sync plugin

The plugin is available at `https://civicrm.org/extensions/civicrm-wordpress-member-sync`.

This plugin keeps the WordPress users in sync with the CiviCRM memberships by granting either a role or capabilities to users with that membership.

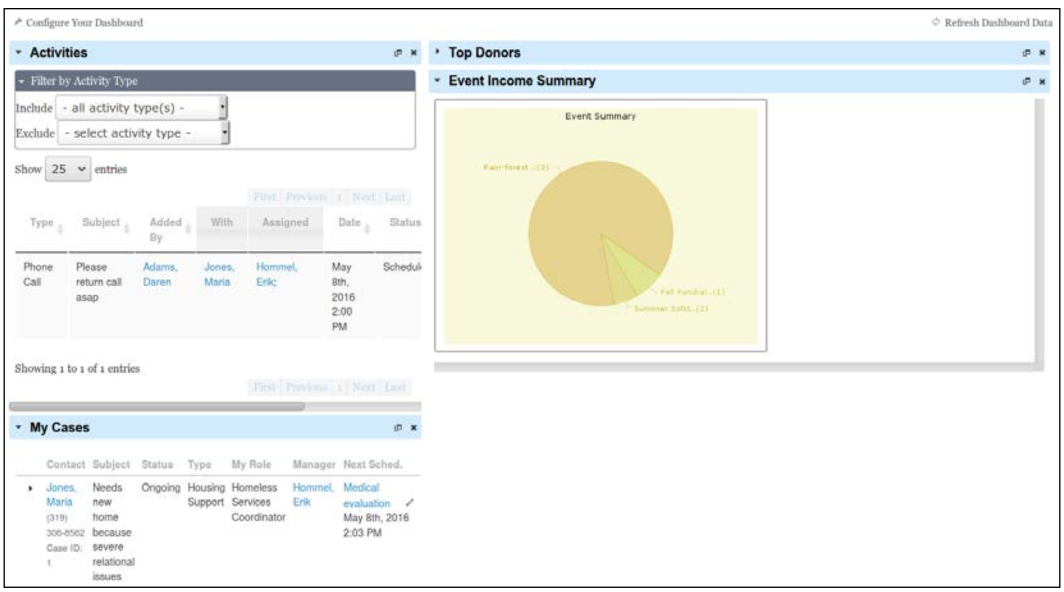
There are undoubtedly other extensions available that enhance access control options, so do not assume that the preceding list is complete. Search the CiviCRM extension directory at the time you are implementing CiviCRM to review the current options available.

Dashboard

When you first log into your CMS and visit CiviCRM, you land on the **Dashboard** page. This page can be configured to display reports from your system in two columns. It is configured directly from this page using the **Configure Your Dashboard** button.

Clicking on it displays a visual representation of two columns and a list of available reports. Simply drag and drop from the available reports block to one of the two columns, and click on **Done** to save your settings.

The available reports, or dashlets, come from the main reports list (the **Reports** menu). You must configure a report to be available as a dashlet before it will appear in the dashboard configuration page. In addition, there are a few dashlets built specifically for that use (that is, they are not generated from the **Reports** tool). As an administrator, one that is particularly helpful for remaining aware of what's going on in the CiviCRM community is the CiviCRM news dashlet. It pulls a current feed from the CiviCRM blog, which will include information about new releases, new features, case studies, and other content of value to the community.



Navigation

Throughout our review of CiviCRM, we referenced the default location of tools and options in the horizontal navigation bar. However, you may add, move, remove, or rename the menu options in your site as you desire. For example, if your organization is a heavy user of activities (used to track communications with constituents) you may want to move the **Activity Search** and **New Activity** menu items to the main header.

You may modify the navigation menu by going to **Administer | Customize Data and Screens | Navigation Menu**. The menu is displayed as an expandable tree. Click on the **New Menu Item** button to create a new option, right-click on an existing option to modify it, and drag and drop items to move them to a new location.

While creating or editing an option, you enter the full URL for the page (including `http://`), unless it is an internal CiviCRM page, in which case you only need to include the path (for example, `civicrm/dashboard?reset=1`). This means that you may create menu options to non-CiviCRM locations, including those outside of your site. Menu items can be restricted based on the selected permissions.

After making modifications to the menu, a notification block will appear at the top of the page. Click on the **Click here** link to reload the menu and review your changes. Right-click on menu items to edit/delete/rename the item, and drag and drop the item to change its location in the tree.

Setting up Cron jobs

A Cron job is a time-based trigger configured on your hosting server. You set up the Cron jobs to automatically run scripts on a periodic basis. CiviCRM ships with a job processing script intended to be run via a Cron job, which triggers **Scheduled Jobs** found in **Administer | System Settings**.

But before we continue, let's ask the question—why do we even need processes running in our site that are triggered from a Cron job?

CiviCRM and the CMSes it integrates with are all written in PHP. PHP is a scripting language that is available on your web server and lets you create websites and applications. But websites, and the scripting languages they are built with, are reactive by nature. By this, we mean that they only operate when a user visits the site and begins to perform actions—clicking on a link, entering data in a form, running a search, and so on.

It's not unusual with an application such as CiviCRM to have certain maintenance or operational tasks that you want to run on a periodic basis—not simply in response to users' interactions with the site. This is where a Cron job becomes useful. It lets you trigger a PHP script (or other applications) on a time basis—such as every hour, or every Monday at a certain time, or twice a year.

To facilitate managing and processing these maintenance and operational tasks, CiviCRM provides the **Scheduled Jobs** tool, which lists a number of *jobs* that can be enabled, configured, and used to provide time-triggered functionality to your system. You only need to run a single Cron job to trigger the main scheduled jobs tool, and it will run the enabled jobs based on the frequency settings you've selected. There may be some circumstances where you choose to set up additional Cron jobs to trigger specific scheduled jobs, but that is not typically necessary.

Most hosting services will provide a control panel tool where you can schedule the Cron jobs using a graphical interface. You may also set up the Cron jobs by using the `crontab` command over SSH. The different flavors of Linux may have locations you can place scripts in, in order to have them executed periodically. For example, the files in `/etc/cron.daily`, `/etc/cron.hourly`, `/etc/cron.monthly`, and `/etc/cron.weekly` are executed at appropriate periods on the Debian servers. You should contact your hosting provider or seek other resources if you need guidance with creating the Cron jobs on your server.

Running the Scheduled Jobs tool via Cron

Depending on how you run the CiviCRM Cron script, you may need to retrieve the key value in your `civicrm.settings.php` file and create a user account permissioned to run administrative tasks on your site. The combination of a site key value and username/password help ensure that your Cron jobs can only be run by a valid source. The key value should be a 16-32 character alphanumeric string. You may generate one using online services, such as `http://www.thebitmill.com/tools/password.html`. Note that your key value should not contain any reserved special characters, including `&`, `=`, `+`, `$`, `?`, `%`, `,`, `/`, `:`, `{`, `}`, `|`, `'`, and `#`. Typically, this is not necessary, however, as CiviCRM will create a site key value when you first install the software.

The `civicrm.settings.php` file will generally be located in the following directory, depending on your CMS:

- **Joomla!**: `/path_to_docroot/administrator/components/com_civicrm/`
- **Drupal**: Either `/path_to_docroot/sites/default/` or `/path_to_docroot/sites/yourdomain.org/`
- **WordPress**: `/wp-content/plugins/civicrm/`

Locate (or create) the site key definition line and add your configured key:

```
define( 'CIVICRM_SITE_KEY', 'your_key_value' );
```

The Cron job can be triggered in several ways. We will review them briefly.

PHP CLI

The PHP CLI method requires the username and password, but not the site key. It is run by triggering the Cron script with PHP. The command will look like the following line:

```
/path/to/php /path/to/civicrm/bin/cli.php -s site -u user -p password -e Job -a execute
```

The preceding command is explained as follows:

- `-s site`: This parameter is used to designate what site the script should be run on, which is most relevant for Drupal multisite implementations. Joomla! and WordPress users can set the value to default.
- `-u user`: This parameter is the username for the admin-level user you created.
- `-p password`: This parameter is the password for the admin-level user you created.
- `-e Job`: This parameter means the script should trigger the **Scheduled Jobs** tool.
- `-a execute`: This parameter indicates all enabled jobs should be run (or checked to see if they are ready to be run based on their frequency setting).

URL method

As the name suggests, the URL method lets you trigger the Cron from a URL. This can be used in your Cron settings with Wget or cURL, but also provides the flexibility to use an external Cron service, if desired. The command will look like the following line:

```
wget 'http://SITEROOT/PATH-TO-CIVICRM/bin/cron.php?name=username&pass=password&key=site-key'
```

The preceding command is explained as follows:

- `name=username`: This parameter is the username for the admin-level user you created
- `pass=password`: This parameter is the password for the admin-level user you created

- `key=site-key`: This parameter is the site key you retrieved from your `civicrm.settings.php` file

The URL method can be easily tested by simply constructing the URL with parameters and triggering it from your browser.

Drush method

Drush is a command-line utility used to manage the Drupal sites. If you are using Drupal and are comfortable working in the command line, take some time to learn about Drush—it is an incredibly powerful and useful tool to help with site management. To trigger the script with Drush, you would run the following command:

```
/usr/bin/drush -u 1 -r /path/to/drupal @sites civicrm-api job.execute
auth=0 -y
```

Here, `1` is the ID of the user who will run the script.

WP-CLI method

WP-CLI is a command interface used to manage the WordPress sites.

```
/path/to/wp --user=username --url=<http://example.com> --path=</path/to/
wp> civicrm api job.execute auth=0
```

The preceding command is explained as follows:

- `--user=username`: This parameter is the username admin-level user you created
- `--url=<>`: This parameter is the root website address
- `--path=<>`: This parameter is the path to CiviCRM

Other parameters

The preceding examples for running the jobs script are limited to when you would trigger all enabled scheduled jobs configured in the system. However, sometimes you want to trigger a specific scheduled job through the Cron system. In such a case, you would pass the script name and any parameters instead of the execute action. For example, if you wanted to run the update greeting job from the command line, you would use the following command:

```
php bin/cli.php -s site -u user -p password -e Job -a update_greeting
--ct=Individual --gt=email_greeting
```

This command gives you much more control over when a job is run, which can be useful in some circumstances. Visit the **Scheduled Jobs** page to retrieve the job name and any parameters it will accept.

Managing scheduled jobs

As described earlier, the whole point of setting up the Cron job is to trigger the script that will run scheduled jobs from the interface. The goal, in most cases, is to set up a single Cron job, and then be able to manage the specific scheduled jobs and options through the interface. Visit **Administer | System Settings | Scheduled Jobs** to review the available jobs.

From this page, you can add a new job, view the logs for all jobs, configure specific jobs, view the logs for a specific job, run a job, or manage whether it is enabled or disabled. Some of the jobs will accept parameters, which will be detailed in the listing. When you configure the job, you will select how frequently it should be run (daily, hourly, or every time the Cron is run). Keep in mind that the frequency is determined in part by how you configured the Cron job.

Let's review the jobs and discuss their purpose and usage:

- **Clean-up temporary data and files**: Use this job to remove temporary data and files, and clear old data from cache tables. This can be run hourly to help maintain a clean system.
- **Disable expired relationships**: When working with relationships, there are two ways to mark one as inactive—you can explicitly disable it, or you can set an end date that is in the past. The latter is a very useful way to record when a person retires, leaves a company, or in some other way ends their relationship with the related contact. However, it can make it cumbersome to search active relationships if you must be concerned with both the disabled status and the relationship end date. This job will search for any relationships with an end date in the past, and mark them as disabled. This facilitates search and general management. It is sufficient to run this daily in most cases.
- **Fetch bounces**: Use this job to process your bounce e-mail inbox (discussed earlier in this chapter). The job will poll the account, retrieve any bounces, and determine how they should impact records (based on whether it was a soft or hard bounce). Based on that determination, bounced e-mails may be placed on hold, so they are not delivered to again. The job will also process any e-mail-based user actions, such as unsubscribe/resubscribe/optout. Bounced e-mails will follow rules configured in the system to put the e-mail account on hold, giving you the opportunity to review and correct the e-mail through the system.

- **Geocode and parse addresses**: CiviCRM's geocoding functionality generates a latitude and longitude value for addresses when they are created or edited. If you have existing addresses that are not geocoded or have recently imported new address records, use this script to batch-generate geocode values. Typically, you would only run this job on demand (manually), though if you are importing records on a regular basis it may be useful to configure it to run daily. The job will also parse address records, splitting the street address line into separate element fields. This job accepts parameters to process geocoding, address parsing, and optionally, set a start ID, end ID, and throttle. These optional parameters may be useful if you have a distinct set of records you want to process. Also keep in mind that the geocoding tool you are using (such as Google) may have a daily rate limit on how many records you can process.
- **Mail reports**: CiviCRM reports can be configured to be e-mailed on a periodic basis. For example, you may want a contribution report with the last week's summary of payments e-mailed to your staff bookkeeper every Monday morning, or your membership committee chair may want a membership overview report on a monthly basis. Use this job to initiate mailings and configure the frequency in which they should be sent. This job is one that you may consider creating a separate Cron job for, as it's unlikely you will have reports you want to have e-mailed on a daily, hourly, or more frequent basis. Note that you must provide several parameters—the format desired (CSV, print, or PDF) and the instance ID of the report to be sent. You can retrieve the latter from the URL when viewing the report.
- **Process inbound e-mails**: Earlier in this chapter, we walked through the configuration of an inbox for bounced e-mail processing. That same interface is used to configure an inbox used for inbound e-mail processing. E-mail activity processing will poll the inbox and attach e-mails as an activity record to existing contact records (if the e-mail is found in the system) or have new contact records created (if the e-mail is not in the system). This is a powerful way to automate communication tracking. For example, you might create a special e-mail account that your staff can optionally CC while sending e-mails to constituents, automatically attaching a record of the communication with the contact.
- **Process pledges**: This job is used by CiviPledge to process pledge reminders and update pledge statuses. When a user pledges donations to your organization, they determine the total value of their pledge and the frequency of their giving. If configured, this job will send pledge reminder e-mails as the date for their next donation draws near. It will also update the status of pledge commitments. It is sufficient to run this job once a day.

- **Process survey respondents**: If you are using the **Campaign** tools with **Surveys** and have configured an expiration period where reserved respondents are made available to other interviewers, you will want to run this job. It is responsible for reviewing the reservation date and releasing records that have been locked beyond the expiration period. It should typically be run hourly.
- **Rebuild smart group cache**: Smart groups are saved searches. When you pull the contacts of a smart group, CiviCRM reassesses and runs the criteria saved in the system, not a simple list of contacts added to the group, as with regular groups. However, running a query to generate the contacts in a group can be resource intensive at times. To alleviate performance issues, CiviCRM caches the contacts of a smart group, allowing them typically to be retrieved much more quickly. However, it's important to not let that cache get stale, or you risk having inaccuracies in your lists. This job will rebuild the smart group cache on a regular basis, allowing you to reliably pull an accurate list of contacts, without experiencing a performance hit through the interface.
  We recommend running this job hourly.
- **Send scheduled mailings**: This job is used by CiviMail to process scheduled (queued) broadcast e-mails. You must implement this job if you are using CiviMail. Generally, you will want to set it to every time the Cron is run. Also note that you may need to review the **Mailer Setting** options to throttle the number of e-mails sent per batch (**Administer | CiviMail | Mailer Settings**). Using the Cron frequency and spool period/batch limits, you can safely regulate how many e-mails are sent per hour (which may be limited by your hosting provider).
- **Send scheduled reminders**: The scheduled reminder tool lets you construct rules to trigger e-mails to selected recipients. For example, you could notify a certain person every time an activity of a certain type is created; or you could send an e-mail to event registrants three days before the event; or you could send out e-mail reminders to members a month before their membership expires. This job reviews those rules and sends the e-mails. It is generally sufficient to run it daily.
- **Send scheduled SMS**: Similar to the send scheduled mailings job, this will trigger any SMS mailings that have been scheduled and queued for delivery. Generally, you will set it to run every time the Cron is run.

- **Update greetings and addresses**: Every contact record has greeting values, which can be used for e-mails, mailings, and other forms of address, such as exports for merge letters. When records are created through the interface, the default greeting values are constructed (for example, Dear Mr. Smith). If you change the default greeting or recently imported contacts with no existing greeting values, run this script to update the value for all contacts in your database. It is generally not necessary to set this job to run regularly; you can simply trigger it manually as needed. Note that there are several variables that must be appended to the script in order to control what records and fields are impacted.
- **Update membership statuses**: This job is used by CiviMember to update membership statuses based on the status rules defined in your system. This is a very important job if you are a CiviMember user. Member status rules define when a membership record is considered new, current, in grace period, or expired (or any other statuses you define). This script must be run in order to process the records against those rules and update them when they pass from one status to the next. It is sufficient to run this once a day.
- **Update participant statuses**: This job is used by CiviEvent if you enable waitlisting or require an approval for event registration. Waitlisting is a function available for events that have an attendance cap. Once the registration for the event has filled up, users will be given the option of being added to the waitlist, and if the available space increases or existing registrants cancel, you can allow waitlisted people to register. The script handles participant status updates. The **On waitlist** statuses are moved to the **Pending from** waitlist when space becomes available for the event. If you configure an expiration period for an event, the **Pending** statuses will be changed to **Expired**. In each case, the job will send an e-mail notification to registrants, alerting them of the status change. This job should be implemented only if you plan to use waitlisting or require approval for event registration. In general, it will be sufficient to run this script once an hour, though if you have high demand events, you may want to run it every time the Cron is run. Note that in order to use the waitlisting and approval features, you must enable the relevant participant statuses found in **Administer | CiviEvent | Participant Statuses**.

- **Validate e-mail address from mailings**: When an e-mail bounces, the **fetch bounces** job will retrieve the e-mail from the configured inbox and try to determine whether it is a hard bounce, which should be put on hold immediately, or a soft bounce, which typically would have a three strikes rule—it must bounce three times before it's placed on hold. One example of a soft bounce is when the mailbox is full. In such a case, it's certainly possible the user will get around to cleaning out their inbox, free up space, and will be able to accept new mail. This job looks for e-mails that have an existing strike, checks to see if a subsequent mailing was delivered successfully, and if so, resets the strikes to zero. It is sufficient to run this daily, unless you often schedule multiple bulk e-mails for the same day, in which case, you'll want to run it more frequently.
- `/path_to_docroot/administrator/components/com_civicrm/civicrm/bin/`, and in Drupal, they will generally be located in `/path_to_docroot/sites/all/modules/civicrm/bin/`. Let's review each of the scripts that can be run through a Cron job:
- `(select one, required)`: This script determines the contact type that will be updated.
- `(select one, required)`: This script determines the greeting value that will be updated.

This selects the option value for the greeting or addressee format. This is optional, and would only be used if you want to populate the field with a greeting format different from the configured default one. This updates all the records using the default greeting format, even if a value already exists. This updates only those records that have a greeting ID set, but the value of which has not been constructed. This is useful for contact record imports that may have had the default ID assigned, but need to have the greeting text constructed.

PHP: CiviCRM reports can be configured to be e-mailed on a periodic basis. For example, you may want a contribution report with the last week's summary of payments e-mailed to your staff bookkeeper every Monday morning, or your membership committee chair may want a membership overview report on a monthly basis. Use this Cron job to initiate mailings and configure the frequency in which they should be sent. This Cron job works differently from others—you will configure a Cron job for each report instance for this Cron job, unlike the others. The parameters are passed in the Cron URL (in addition to the user, password, and key values), `.../bin/CiviReportMail.php?sendmail=true&instanceId=3&reset=1`. To determine the report's `instanceId`, visit the report and note the value after `/instance/` in the URL.

This part of the configuration process is admittedly more technical than most other areas. However, if you take the time to understand the concepts, and seek assistance where necessary to wade through the technical pieces, you will find the resulting functionality very rewarding. As you can see from the list of jobs available, there are some very important functions offered.

As with anything else, be sure to test it thoroughly. The Cron jobs can generate logs that are sent to an e-mail address, which is a great way to ensure that they are functioning properly. You should also schedule periodic system reviews in order to confirm that your Crons are running as expected. The scheduled job logs are a good way to do a first round of analysis if you suspect things are not working correctly.

For additional information about scheduled jobs, visit the CiviCRM Wiki page: `http://wiki.civicrm.org/confluence/display/CRMDOC/Managing+Scheduled+Jobs`.

Upgrades and maintenance

As with any actively developed software project, you should anticipate the need to upgrade to the latest revisions and versions on a periodic basis, and perform regular maintenance on your system. Anticipating these needs and planning accordingly will greatly improve your long-term experience with CiviCRM.

Version and revision upgrades

The CiviCRM project follows conventional terminology for software releases:

- **Versions**: This terminology represents significant software releases with new functionality
- **Revisions**: This terminology represents minor releases and addresses bug, security, and functionality fixes

The core development team generally releases two major versions each year, and several minor revisions in between the major releases. The version number follows the conventional format as well: `4.6.4 = version 4.6, revision 4`. You may track bugs and issues reported for a certain version through the CiviCRM issue tracker (`https://issues.civicrm.org/`).

In addition to this standard versioning model and release structure, CiviCRM has maintained an LTS release for the last several years, mostly maintained by the community. The idea behind an LTS release is to provide ongoing critical bug and security fixes for a selected version beyond the release of the subsequent version. As resources are limited, the CiviCRM core team typically only supports whatever is the current stable release. At the point Version 4.6 was released, the core team stopped actively supporting Version 4.5 releases (no new patches would be released for that version).

But many organizations are not willing or able to keep up with two releases a year, particularly if they have a large number of customizations that must be maintained. The goal of an LTS is to extend support for selected versions and reduce the upgrade pressure for organizations using it. In general, you will probably want to plan to upgrade with each major release. However, the presence of an LTS release gives you additional options should you choose to delay upgrading. With the forthcoming 4.7 release, Version 4.6 will become the new LTS release.

Since revisions typically correct bugs or address security issues, you should ideally implement them as soon as they are released. Revisions generally require minimal modifications to your database structure or data; so, the potential risk of running into any issues is less. CiviCRM will notify you in the footer, and optionally, through a popup of the administration interface, if a new release becomes available. If the release addresses security issues, this will be highlighted in the notification popup.

Before conducting any revision upgrade, back up your database and filesystem and test to ensure the integrity of the backup files. It is particularly important to have a reliable backup of your database, as you will need to restore the database to this version, should there be any problems during the database upgrade script process. It is also recommended that you perform upgrades on a development server before implementing on your live server. We consider it essential to use a development or staging server for sites that have custom templates and code.

Finally, if you made any modifications to CiviCRM files, including template (`.tpl`) and the CSS files, be sure to have a good record of your changes. You will need to review the changes against the new codebase and may need to adjust them. This is particularly true for major version upgrades, as the files are more likely to have significant changes.

CiviCRM provides some helpful tools for maintaining custom development work:

- **Hooks**: These tools are placeholders in the CiviCRM code where you can inject your own custom code. The benefit of hooks is that you are not actually modifying core files—your custom code is maintained separately and is injected into the code in the appropriate place. For more details on using hooks, visit `http://wiki.civicrm.org/confluence/display/CRMDOC/Hook+Reference`.
- **Override directories**: These tools are folders located outside of the core files where you can have modified versions of core files. CiviCRM first looks to see whether the file exists in the override directory, and if so, uses it. Override directories can be used for both PHP and `.tpl` (template) files. The override directories are configured in **Administer | System Settings | Directories**.
- **Additional CSS**: You can optionally configure an additional CSS file reference in **Administer | System Settings | Resource URLS**. The file will be loaded after the CiviCRM core CSS files, enabling you to override them with your own styles.

More details about the development of best practices are provided in *Chapter 14, Customizing, Community, and Cooperation*. As it pertains to upgrades, the essential takeaway is to understand that your customizations should be reviewed, updated, and tested thoroughly when you are implementing an upgrade. How you implement your customizations will also have a significant impact on the ease of upgrading.

Upgrade process

We will not walk through the upgrade process in detail for each CMS, as the bulk of the process is very similar, if not identical to the initial installation process. However, there are several general and CMS-specific recommendations and best practices we will review:

- Backup before you upgrade. Yes, we already said this a few paragraphs ago, but it's important enough to deserve repeating. In particular, be sure to backup and review your database before running the upgrade process.
- After you upgrade the files, you must run the database upgrade script. The path can be accessed at `civicrm/upgrade&reset=1`. You can also navigate to **Administer | Administration Console** to trigger CiviCRM's database check, which will notify you and provide a link if your database version is not aligned with the code base.

- In Joomla!, the installation of an upgrade can be done by installing the component over the existing installation (using the extension installer). This is generally adequate for minor revision upgrades. However, upgrading in this fashion leaves all existing files in place—even those that may no longer be needed and are not part of the upgrade. If you are upgrading to a major release, it is recommended that you uninstall, and then install the CiviCRM upgrade package to ensure the codebase is clean. Note that you may need to rebuild menu items after doing this.
- In WordPress, be sure to make a copy of your `civicrm.settings.php` file before you implement the upgrade. The file resides in the main `civicrm` package directory, which is replaced with the new package as part of the upgrade process. You will want to restore the settings file after implementing the upgrade.

Additional guidance and troubleshooting tips for installation and upgrades can be found at `http://wiki.civicrm.org/confluence/display/CRMDOC/Installation+and+Upgrades`.

After you finished your upgrade, you should consider whether you need to enable any new components or configure any new CiviCRM permissions. And in general, it's worth reviewing your configuration settings throughout the system after an upgrade—both as a way to periodically audit your configuration, and in order to review any new options available.

Moving an installation to a new server

If you are planning to move your website to a new hosting environment or from a development server to a live server, you will need to follow several steps in order to ensure that CiviCRM is configured properly in the new environment. The following content represents the key issues to consider and address when moving your site; a full discussion of steps to move a site can be found online at `http://wiki.civicrm.org/confluence/display/CRMDOC/Moving+an+Existing+Installation+to+a+New+Server+or+Location`.

After transferring your site's files and database to the new location, you must update several files to reflect the changes. CiviCRM references the root directory for your files and the full URL for the site in several locations. Follow these steps:

1. Modify civicrm.settings.php with the new directory and URL locations (and possibly database access details, depending on the details of your migration). In Drupal installations, this is most often found at /sites/default/civicrm.settings.php. Joomla! maintains two versions of this file, both of which must be updated (and which have slightly different references). You can find them at /administrator/components/com_civicrm/civicrm.settings.php and /components/com_civicrm/civicrm.settings.php. WordPress locates the file at wp-content/plugins/civicrm/civicrm.settings.php.
2. Delete the cached template files, which will be found at the following locations:
    - **Drupal**: <drupal-root>/sites/default/files/civicrm/templates_c/*
    - **Joomla!**:<joomla-root>/media/civicrm/templates_c/*
    - **WordPress**: <wp-root>/wp-content/plugins/files/civicrm/templates_c/*
3. Update the CiviCRM menus, which may use full URLs and must now reflect the new location:
    - **Drupal**: http://<drupal_site>/index.php?q=civicrm/menu/rebuild&reset=1
    - **Joomla!**: http://<joomla_site>/administrator/index2.php?option=com_civicrm&task=civicrm/menu/rebuild&reset=1
    - **WordPress**: http://<wp-site>/wp-admin/admin.php?page=CiviCRM&q=civicrm/menu/rebuild&reset=1
4. If any of the resources in your site reference the full URL or file location, you may need to update these (for example, if your navigation menu has links to profiles).
5. If you are using override directories (PHP or .tpl) or extensions, you may need to reset them to reflect the new file location. Go to **Administer CiviCRM | System Settings | Directories**. Also visit the **Resource URLs** configuration page to confirm that the values are set correctly.

After completing the move, be sure to test the site! Click on CiviCRM and confirm that the pages load as expected, and that the URL remains on your new site (if any outdated links exist, it may send you to your old domain or subdirectory).

System maintenance

As with any database system, there will be ongoing maintenance steps that should be performed on a periodic basis. Our focus in this section will be on basic maintenance steps specific to CiviCRM. It is outside the scope of this chapter to address the broader topic of server and MySQL database maintenance. Depending on the size of your database, and whether you are using a managed hosting service, you should be aware of basic maintenance steps with your database and hosting environment. Also, we will not address scalability-related issues and maintenance. However, as your system grows, you should be aware of the impact on your MySQL database performance and size.

The most important maintenance step with your system is to keep it updated to the latest revision, and not fall too far behind in major version upgrades. As the steps for doing that have been addressed earlier in this chapter, we won't go into detail here; but, we repeat it here because it is significant:

- Revision releases may contain security-related patches that are critical for maintaining a secure and safe database.
- Revision releases may contain bug-fix patches that are critical for maintaining a stable and fully operational system.
- Major version releases contain new features and functionality. If the new features are not something you will need or use, you may decide not to upgrade when it is first released. That's fine, and certainly not uncommon. But the core development team will only actively develop and patch the current stable version and current LTS release, which means there may be security or bug issues found in older versions, which are not addressed. As a general rule, you should avoid falling too far behind in the upgrade cycle for major revisions. Besides, there's lots of great functionality available in the new releases you'll want to benefit from!

Another important periodic maintenance step is dealing with duplicate contact records that have a sinister way of creeping into your system. This is particularly true if you have multiple forms collecting information from your public website, such as event registrations and contribution forms.

Duplicate records usually result from existing contacts completing online forms using an alternative e-mail address or nickname. As a result of the alternate data, the record does not match the existing record, thus causing a duplicate.

Fortunately, CiviCRM has some excellent tools for de-duping and merging your database, found under **Contacts | Find and Merge Duplicate Contacts**. The full range of these tools is detailed later in this book. For the purpose of maintenance considerations, you should schedule periodic deduplication of your entire database. Size and usage of your system will determine how frequently that maintenance should take place. After implementing your system, schedule an initial de-dupe/merge for 1 month from the go-live date. Depending on how many potential duplicates your de-dupe rules uncover, you can schedule the next maintenance review accordingly.

> When covering the initial system configuration, we walked through the creation of the Cron jobs on your server to trigger automated events and actions. In most cases, these will continue to operate without the need for any intervention or maintenance. However, it is a good idea to periodically check in order to ensure that they are, in fact, running properly and the scheduled jobs are completing successfully. While creating the Cron job, you may choose to have a log sent to an e-mail address. The log does not contain much by way of detail, but will provide a verification that the script has completed successfully. You should make a habit of periodically checking the configured e-mail to confirm that your scripts are running properly.

Developing a backup policy and procedure

No chapter on maintenance would be complete without bringing up the topic of backup policies and procedures.

Regardless of where and how your contact database is being handled, it is pretty safe to say that the data stored in it is critical to the overall success of your organization and should be backed up regularly.

This consideration does not change just because your contact database now resides online. While you may have previously been content, relying on the standard backup policies of your hosting provider for your website, the inclusion of CiviCRM as a part of your website should now warrant a more robust plan and additional backup mechanisms to ensure your data is preserved and protected.

It is impossible to create a universal backup policy for all organizations. The traffic and usage of the system, nature of the organization, type of data you are maintaining, level of risk exposure, and other factors will all dictate what type of policy you should put in place. If you are uncertain what you should do, consider hiring an outside consultant to do a system and organization analysis for the purpose of developing a backup policy and procedure statement.

However, there are some universal rules and principles to consider:

- **Don't rely on your hosting provider as your sole backup solution**: Consider them a backup of the backup—should your own systems fail, they may be able to pull a recent backup and restore it. There are many reasons why you should not rely on them, but it all boils down to a lack of control. You don't have control over how they back up the database and files, when they do it, how frequently they do it, how long they keep the backup sets, how quickly they can provide you the files or restore it for you, or even if they decide to suddenly change their own policies without warning. The bottom line is: let the hosting providers perform their promised backups, but consider them your last line of defense.
- **Create a formal policy and procedure statement**: Yes, that's the main thrust of this section, and so it may sound repetitive. However, the point is to be intentional about creating a formal policy. This is important enough to go beyond a casual conversation with someone in the weekly staff meeting.
- **Backups should be automated**: Asking Jeff, the accidental in-house IT guy (who also wears six other hats) to run a backup every three days, is not a good policy. You need to know that the backup is happening without the need for human intervention.
- **Periodically check your automated backups and verify their integrity**: Nothing hurts worse than relying on, but never testing, your automated backup system. Suddenly, the server goes down and you discover that the `.tar` package is corrupt. Take the time to periodically unpack the backup, review the files, and actually import the database dump into an empty database to make sure it is complete and functional.
- **In general, the database backup is far more important than the filesystem**: Why? Most of your data, which is likely to be changing and worked on daily, is stored in the database. Your filesystem, that is, the application code, rarely changes. Understand that this is a general statement. If your website and CiviCRM makes a regular use of the file upload tools you will want to ensure those are backed up regularly as well. This statement is not to say that you shouldn't have a policy for backing up the filesystem; we are simply suggesting that you may not need the filesystem backed up as frequently as the database.

- **Back up to multiple locations**: Just as you don't want to rely on your hosting provider as the sole backup solution, you don't want to trust your office intranet or hosting server as the sole repository for backups. Wherever possible, create a system that will maintain regular backups in at least two locations.

Use these basic rules and invest your time and resources to ensure that your data is preserved in the case of accidental loss.

> Joomla!, Drupal, and WordPress each have several extensions that will generate a periodic database dump, save it to the server, and provide options for transferring/storing it. We recommend considering the following tools:
>
> - **Drupal**: Backup and migrate module is available at `http://drupal.org/project/backup_migrate`
> - **Joomla! and WordPress**: Akeeba backup is available at `https://www.akeebabackup.com/`

Summary

In this chapter, we walked through the installation of CiviCRM in Joomla!, Drupal, and WordPress, discussed the upgrade process and development cycle, completed an initial configuration of the system, and reviewed basic maintenance steps to keep your system running smoothly.

By now, you should have CiviCRM installed, configured, and ready to begin working with.

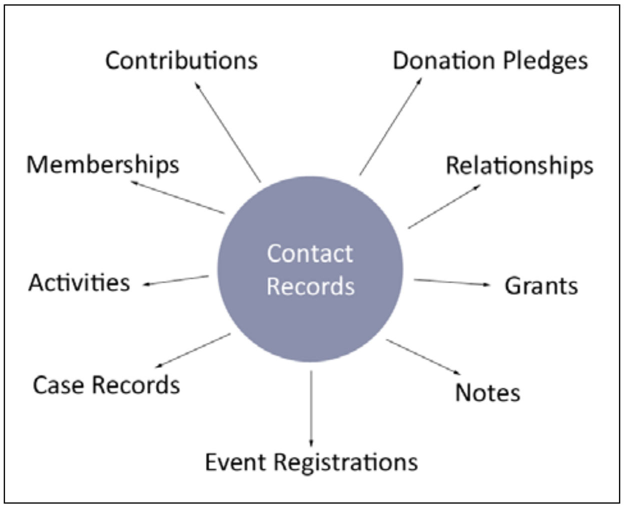
Before diving into the operation and functionality in CiviCRM, we will briefly review several fictional case studies in the next chapter that will be used throughout the rest of the book. CiviCRM is rich with features and possible use cases—so much so that it could be easy to get so caught up in what buttons to push that you miss the potential applications to your organization. Our hope is that the fictional case studies, which will weave their way into the functionality discussions throughout the book, will help you see the possibilities in pseudo-real life ways. So be sure to read through them as you journey through the rest of the book!

4
CiviCRM Basics – Moving through the System and Working with Contacts

At this point, you will have worked through the important steps of analyzing your organization's structure and processes as it relates to constituent management. You will also have installed and configured CiviCRM in your preferred CMS environment. In addition, you have also been introduced to the case studies that will be used throughout this book. It is now time to gain familiarity with the CiviCRM interface and begin working with the contact records.

Whether you are already in the process of implementing CiviCRM, simply seeking to learn more about the software, or seeking a more in-depth understanding of the tools it provides, you are ultimately here because you represent some type of organization with constituents. Those constituents may be members, volunteers, donors, event participants, or just people and organizations you come in contact with. However, at the core of your purpose and the heart of CiviCRM are contacts with which you interact and store information.

The contact record forms the central hub from which all related records are generated. You will collect, retrieve, and report on these related records in various ways, but ultimately, they all connect back to a contact.



In this chapter, we will cover the following topics:

- Becoming familiar with the CiviCRM interface and navigation tools
- Discovering the contact record, understanding how to work with contact data, and beginning to organize and categorize our records
- Learning about the powerful search functions available
- Taking action on multiple contacts from search results
- Reviewing alternate workflow options and performing maintenance on records

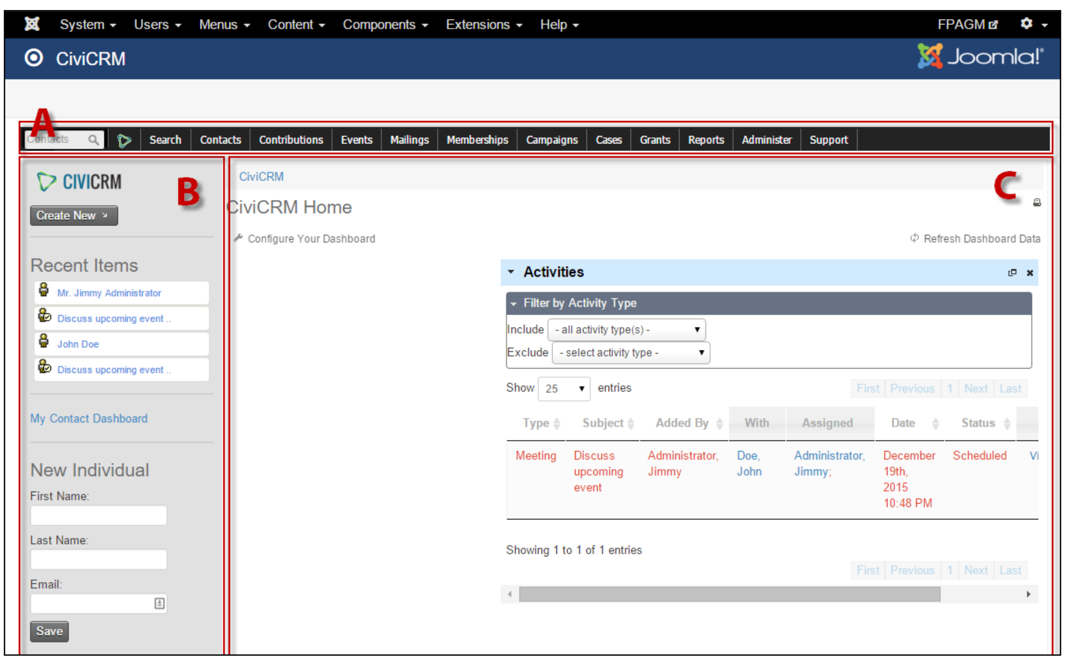
Introduction to the interface

Before we dig into the contact record, let's briefly review the CiviCRM interface. Navigate to your own installation of CiviCRM in Drupal, Joomla!, or WordPress, or use the online demos available at `demo.civicrm.org`, and begin exploring.

The CiviCRM interface consists of three primary regions, namely, the horizontal navigation menu, the left sidebar, and the main content region. Depending on the CMS that you are using, these three regions will look slightly different, though they are fundamentally the same and provide identical functionality. Note the following exceptions and comments:

- WordPress does not currently support the left sidebar.
- In Drupal, the horizontal navigation menu will be located at the top of the screen, replacing the standard Drupal admin menu bar, unless your installation has moved it from this default screen location. You can toggle between the CiviCRM and Drupal menu by clicking on the CiviCRM icon in the navigation bar.
- In Drupal, the left sidebar is implemented using the Drupal blocks, which means that they may appear in different locations based on the configuration, or be absent altogether, depending on what administration theme you are using.
- Joomla! and WordPress have a consistent administrative interface, whereas the Drupal interface inherits the website theme by default, or can be configured to use an alternate theme. You also have the option of configuring a theme specifically for use in CiviCRM administration pages. Consequently, the colors, fonts, width, and other design and layout elements in your installation will differ based on your setup.

The screenshots in this chapter are taken from a Joomla! installation. As discussed in the preceding points, Drupal and WordPress users will notice some differences from their implementations.



The horizontal navigation bar (labeled **A** in the screenshot) is configurable (from **Administer | Customize Data and Screens | Navigation Menu**) and will reflect the CiviCRM components that you enabled (and possibly items that were added by additional extensions or items that your own customizations added). The leftmost part of the bar contains a quick search box that will populate record selections as you begin typing. When you first click on the search box, a popup will display options for different fields you can search on. By default, you will search the name and e-mail.

> The left sidebar (labeled as **B**) will include a drop-down list to create new records, a list of recent items you've visited, your contact dashboard link, and a short form for creating a new individual record. For those using Drupal, these configurable blocks can be accessed through the Drupal **Administer** menu. The main contact region (labeled as **C**) is where all the action takes place as you navigate through the system.

If you're new to CiviCRM, take time to explore the navigation menu and familiarize yourself with the options available. You'll quickly see that this software is loaded with features. The quicker you become familiar with the terminology and tools, the more you'll be able to take advantage of the powerful functionality it offers.

Contacts

Simply put, a contact is any **entity** you interact with. It may be people, businesses, government institutions, households, organization chapters, regional districts, or anyone else you are collecting data for in your system.

Individuals, organizations, and households

Since all contact entities are not the same and the nature of how you interact with them will be different from one to the other, CiviCRM segments contacts into three main types, with the option of further segmenting them into subtypes:

- **Individual contacts**: These contacts represent people. As you work with the contact record, you will record things, such as first name, last name, date of birth, gender, and other types of data that is relevant only for interaction with people. In addition, individuals are the only contact type that may have a corresponding user account within your Joomla!/Drupal/WordPress website; after all, businesses don't log into websites, people who work for the business do. CiviCRM provides tools to allow sufficiently permissioned individuals to act on an organization record they are connected with, which we will discuss later. However, it's important to understand this unique aspect of the individual contact type.

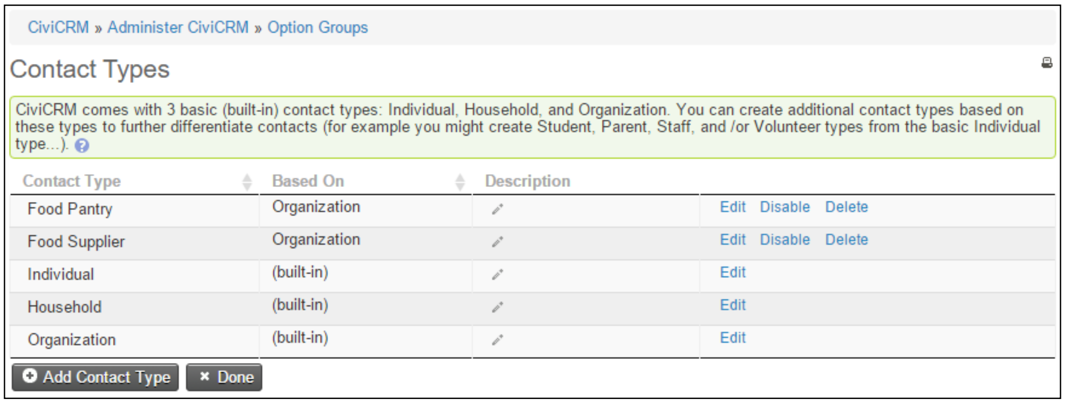
- **Organization contacts**: These contacts may represent a nonprofit, business, community organization, regional chapter of your organization, or any other *organized* entity. While working with organizations, you are recording the organization name, legal name, and other such data unique to this type.
- **Household contacts**: This type of contact is perhaps the most obscure, as they are intended to provide the ability to group individual records together under a single umbrella and track information that may apply to the group as a whole. The clearest benefit of this type is the ability to share a single address with multiple individuals. For example, if the contacts move, the shared address needs to be updated only once. If a married couple, along with their three children, are tracked in your system, you will want to create a household record with their home address. Each of the family member's individual contact records can then share the household address. In addition to reducing how many times you fill out the address fields and limiting the potential for typographical errors, you also will have the ability to combine the individuals under a single household record when you print mailing labels or export the list. This can be a significant cost saving as you reduce the amount of mail to be delivered.

Contact subtypes

In most cases, the three main contact types we just described are sufficient for organizational needs. When you need to collect and store different information about subgroups within these types or define relationships specific to a subgroup, you may consider further segmenting your record types into contact subtypes. Each subtype inherits its basic *entity identity* from one of the three main types, but otherwise, it can be treated as unique.

> The **Food Pantry Association of Greater Metropolis** (**FPAGM**) provides services and support for food pantries within the city of Metropolis and the surrounding area. On a daily basis, they interact with 30 to 40 food pantries that are members of the organization. In addition, they interact with restaurants, grocery stores, and convenience stores that donate food from their surplus for distribution to the food pantries.
>
> It is clear that the food pantries and businesses donating food are distinctly different entities. The nature of the data they collect, interaction through mail and e-mail, and the types of reports that will be run will be different, depending on whether the organization is a pantry or food supplier. Consequently, FPAGM has decided to create two contact subtypes under the main organization type.

Contact subtypes are created and managed through **Administer | Customize Data and Screens | Contact Types**. From this screen, as seen in the following screenshot, you can rename the existing types (including the three primary types), create new types, and assign icons to each type in order to help visually distinguish them while reviewing the records:



Planning your contact types

It is important to give careful thought to how you work with the different types of contacts when you configure and build out your CiviCRM implementation. Contact types may be viewed as the highest level of categorization in your system and the choices you make will have implications throughout the rest of the system.

Consider the following points as you plan your contact types:

- Don't overuse contact subtypes. There will be a plenty of other ways to categorize and segment your records. The subtypes are best used when you have distinct differences between contacts that strike at the core nature and role of the entity. As a rule of thumb, you can check whether you want to collect additional data only for a specific type of contact. If the answer is yes, it is useful to add a contact subtype.
- Contacts may be assigned multiple contact subtypes, so long as they derive from a common primary type. However, it is generally preferred to keep the subtypes distinct in scope—in other words, to define them so that they clearly identify a specific type of contact. What you don't want to do is create an unnecessary layer of complexity by expecting staff to distinguish between 15 different subtypes when creating a contact record. Also, keep in mind that when you configure profiles for collecting information from website visitors, a profile may only make use of up to one contact subtype.

- If you are planning to migrate data from an existing database, be sure you take the time to organize your existing records into the types and subtypes you plan to use in CiviCRM. The contact import tools provided by CiviCRM require you to import a single contact type at a time. You will want to make sure you've settled on your contact structure, and prepared your import data accordingly, before you begin importing.
- One of the primary benefits of contact subtypes is the ability to create the sets of custom data fields for one or more types. The custom data fields are those fields that you create to extend the core fields supplied by CiviCRM out of the box. This is a useful way to think through the planning process. Do I plan to collect data for this one type of organization that I don't need or clearly does not apply to another type? If so, it may warrant creating a subtype.

> While we are discussing contact types, there is another important consideration to think through, particularly, if you have a complex organization with multiple administrative users who will be working with CiviCRM.

As we will see shortly, a large part of working with CiviCRM involves connecting related records with the contact record. For example, you may track phone calls and meetings held with an individual, donations contributed by a business, membership from a household, or open a case for any of these contacts. Very often, there are connections built between related contacts and in each instance, you must decide where the contribution, membership, or other records should be attached.

> John Smith, the proprietor of ACME Convenience Store, calls FPAGM to arrange the donation of 50 lbs. of bread for distribution to food pantries. FPAGM staff will track this as an in-kind donation in CiviCRM. However, should the contribution be recorded with John Smith (after all, he is the owner and primary contact), or with ACME Convenient Store?

In most cases, it is very clear where the associated record should be attached. Where there is potential for confusion and ambiguity you will want to establish clear policies and procedures to help staff determine the proper location for the data.

Consider the following questions:

- Where is the official source of the data? If you receive similar data in the future, where will it be tracked? In the preceding example, we would record the donation with the organization (ACME Convenient Store), not with John Smith. It is really the business that is contributing, and not the individual.
- Who is actually involved in the activity? For example, who will be attending the event? Or to whom will the official tax receipt be made out? One common area of confusion is an organization that hosts trade shows as a part of a conference. Are your exhibitors the businesses themselves or the individuals representing the business? This can be tricky, because *businesses* don't attend events, people do, and yet a good argument could be made for recording exhibit-related details with the organization record.

Regardless of how you resolve those potential areas of confusion, it is important to strive for consistency. How you enter your data will have a direct impact on what you are able to pull from the system.

> Once you've defined your contact subtypes (if any) and thought through the policies you will put in place for the staff, take the time to manually create a few records with real data to test your structure and policies. This may help you identify and correct any unanticipated consequences of your configurations.

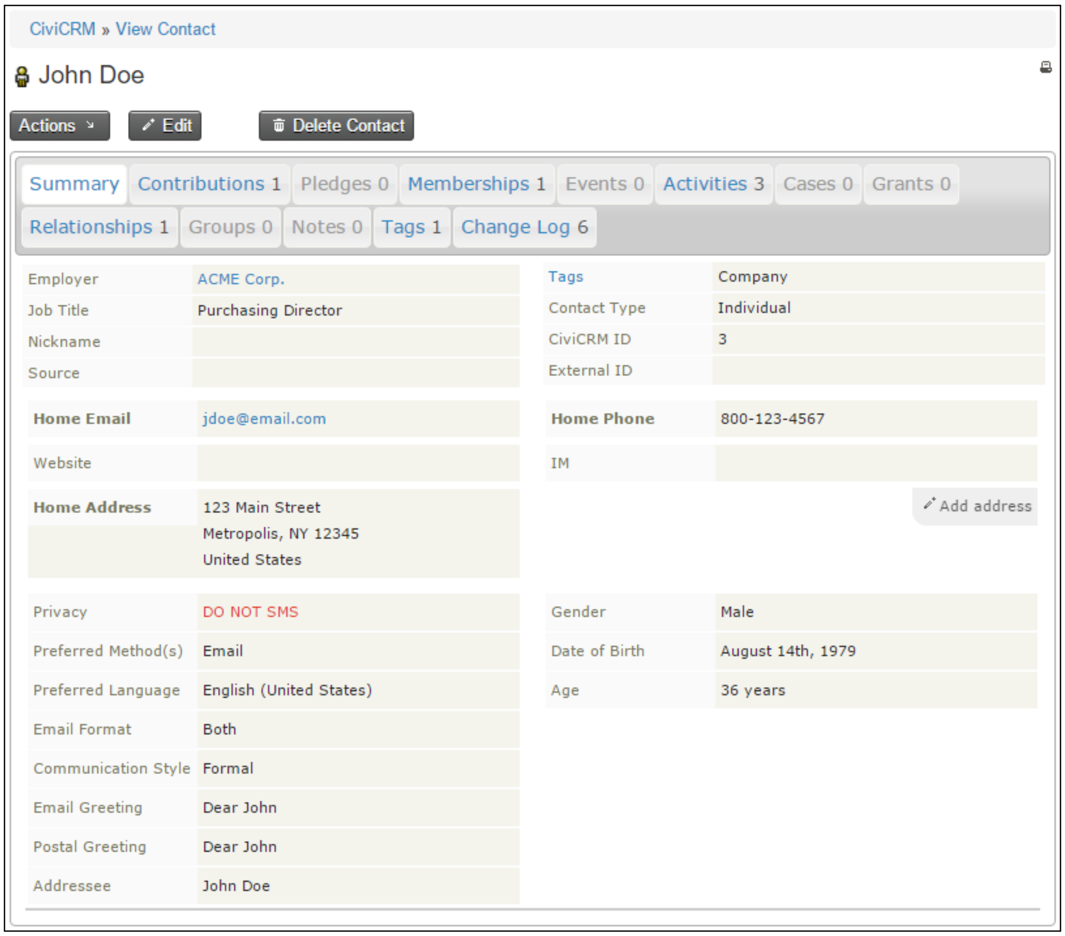
Core information fields

Let's get into a contact record and begin to see how this idea of a contact with related records takes shape in CiviCRM. If this is your first time in CiviCRM, place your cursor in the search box to the left of the CiviCRM menu bar, as seen in the following screenshot, and then click on **Enter** to view all the records:

At a minimum, you should see one record corresponding to your website user account (you may also have seen that record in the left sidebar recent items list). Click on this record, or any other one, to view the contact details.

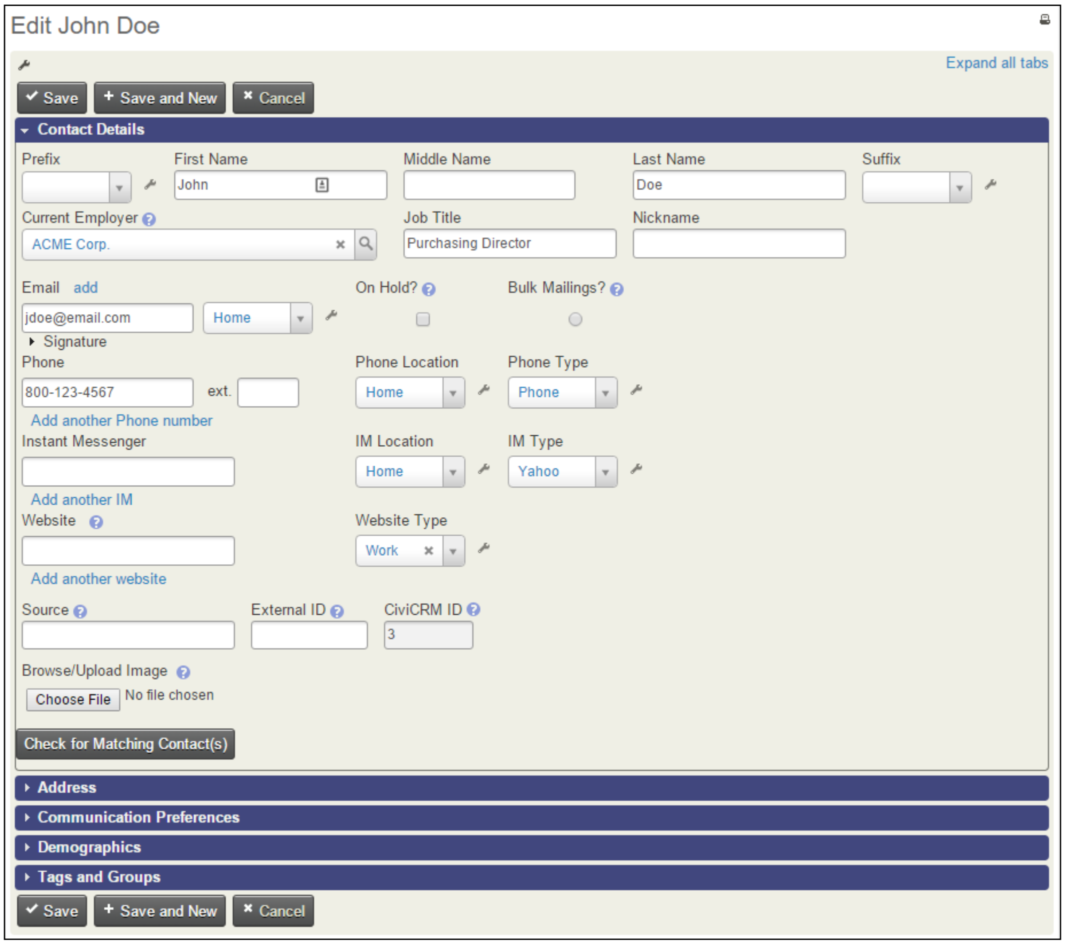
As you can see, the contact record is displayed through a series of tabs corresponding to the different types of data you may be collecting.

> The tabs displayed in a contact record depend on configuration settings in two places: enabled components (**Administer | System Settings | Enable CiviCRM Components**) and screen preferences (**Administer | Customize Data and Screens | Display Preferences**). If you do not see an expected tab, make sure that the component is enabled, and that you have indicated that it should be viewable on the contact record page.



We will not discuss all of the available tabs at this point, but only cover those that are related to communication tracking, relationships/connections with other records, and core categorization tools. The component related tabs will be discussed in the corresponding chapter in this book.

The default **Summary** tab is perhaps the most important tab, as it tracks the contact name, communication details and preferences, addresses, and demographics (if it is an individual contact type). Click on the **Edit** button at the top of the tab to view all the available fields for your contact. You will notice that the edit screen is broken into the grouped panes of fields corresponding to the different types of information you are collecting.



From the **Summary** view tab, you can also edit areas of the contact record using inline editing. As you hover over the page, you'll notice that the blocks are highlighted and available for editing. For example, you can hover over and click on the **Communication Preferences** block to edit those fields. Most users will find it is much easier to work with the contact record using the inline editing tools as it breaks the page and content into smaller, more manageable blocks.

Contact details

Looking at the full edit form (which roughly parallels how the inline editing blocks are organized), we see that the **Contact Details** pane contains basic information about an entity, including the following options:

- The contact name, including the nickname, may be useful as an alternative value for searching. For example, if the name of a certain not-for-profit organization in your database typically goes by an acronym, you may wish to spell out the full name for formal purposes and place the acronym in the **Nickname** field. It can then be easily exported with the record and found when using the search bar.
- Note that if any contact subtypes have been configured, they will be available for selection in this area (**Contact Type** drop-down menu). Only those subtypes corresponding to the primary type are listed. For example, if you are looking at an individual record, only the individual subtypes will be available.
- Individual records have a special **Current Employer** field that creates a relationship between the individual and organization with whom they are employed. The **Current Employer** field is displayed prominently in the **Contact Summary** tab and can easily be exported with the individual record. Note that the employer search block also includes an option to create a **New Organization**.

- Communication options include e-mail, phone, instant messenger, website, and open ID. Each of these fields allows you to add multiple values and categorize them. For example, a person may have a phone and mobile number for home, and a phone, mobile, and a fax number for work. Alternatively, someone may have a work e-mail and personal e-mail recorded with their record. If your site does not require tracking open ID, you may remove it from the interface through **Administer | Customize Data and Screens | Display Preferences**.
- If multiple communication values are entered, one of them will be marked as the primary one. The primary value can be more easily exported, regardless of its type. For example, some of your contacts may wish to have their home phone marked as primary, while the others prefer their work or mobile to be marked as such. The primary flag is not concerned with the source or type of the record; it simply indicates which their preferred option is.
- The **Email** field has two additional fields unique to its function—**On Hold?** and **Bulk Mailings?**. An e-mail address marked as **On Hold?** indicates that it may be a faulty address. While you can manually mark an address as such, it is more likely that the field was flagged this way as a result of the CiviMail return mail processor. The mail processor can be set up to retrieve any bounced (returned as undeliverable) e-mails and flag them as **On Hold?**. This provides you with an opportunity to review the records and determine the source of the problem. While they are tagged as **On Hold?**, they will be excluded from any future CiviMail mailings. The **Bulk Mailings?** flag designates one e-mail address as the preferred mailing address for any bulk e-mails generated through CiviMail. For example, a person may want their work e-mail designated as the primary address as they want to receive direct communication immediately. However, weekly e-mail newsletters generated to all members of your organization should be sent to the person's home e-mail so as not to clutter their work inbox. Note that you can enable the selection of multiple bulk e-mail addresses within a contact record by visiting **Administer | CiviMail Settings | CiviMail Component Settings** and selecting **Enable multiple bulk email address for a contact**. This will change that field from a radio button (where only one option can be selected) to a checkbox (where multiple records can be selected).
- The source field may be used to record how this particular contact came to be involved in your organization, or how they were added to the system. This may be particularly useful if your organization's growth is primarily due to word-of-mouth networking. For example, you might record that Jane Doe was introduced to the organization through outreach from one of your board members.

- **External ID** records a unique ID from some external source. If you are importing records from another database, such as MS Access, you may want to import the key ID field for the contact into this field. While you won't typically use it once you are working exclusively in CiviCRM, it provides a useful way to trace the record back to its original source in the previous database system. This may also be used for data integrity analysis after the initial import process. In larger organizations with more complex IT infrastructures, it may enable easier on-going data synchronization with the other software tools.

Custom data

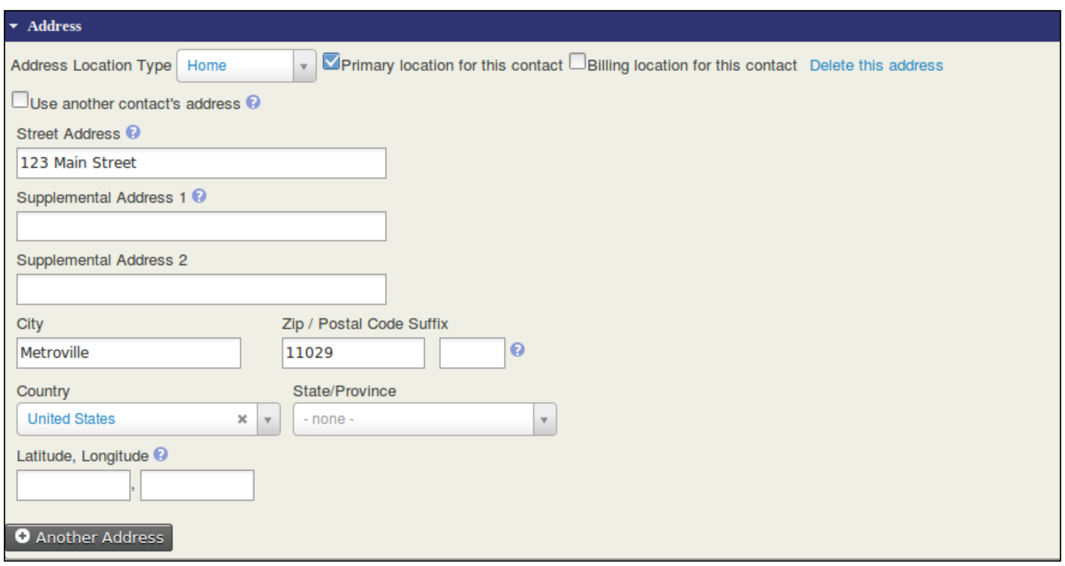
As we'll see in *Chapter 5*, *Collecting, Organizing, and Importing Data*, CiviCRM allows you to create the sets of custom fields, and (for custom fields linked to contacts) to indicate whether they should be displayed inline or in their own tab on the **Contact** form. If some custom inline fields have been defined for all contacts or the specific contact type you are editing, these fields will appear by default directly under the contact details pane (in the **edit** view).

Address

Similar to communication options, you may create multiple address sets, categorize them (home, work, and so on), and flag one of them as the primary address. There are a few important things to note:

- An existing address may be flagged as the billing address or you may create a new address and use the **Location type** option to designate it as a billing address. The former is useful if a single address is used for multiple purposes. The billing address will be used if the contact makes any online credit card payments for donations, events, or membership.
- Contacts may share an address with any other record in the system. Select the option to **Use another contact's address**, and then search/select or create the linked record.

- Each record may only have one address set for each address type. In other words, you can't designate three addresses as **Work** in a single contact record. This may seem somewhat limiting, as it would not be uncommon for an individual to have two work locations, or a home and second home address. However, the usefulness of this limitation becomes apparent when you export records, as you have the option of exporting a single address type with the record. Having multiple address sets with the same type would either require duplicate records or duplicate field columns, either of which will be difficult to work with. If you have the need for tracking multiple addresses of a similar type, consider adding option values labeled as **Home1**, **Home2**, **Home3**, and so on (**Administer** | **Customize Data and Screens** | **Dropdown options** | **Location Types**).
- When you first install CiviCRM, the **Address** pane contains all of the available fields, including some you may not want to display. Visit **Administer** | **Localization** | **Address Settings** to turn off elements in this pane. For example, you may only want to track two address lines, and so you would disable **Additional Address 2**. Likewise, it is unlikely that you would need to manually edit the latitude and longitude values for records, as that will typically be handled automatically if you enabled address geocoding for your site.

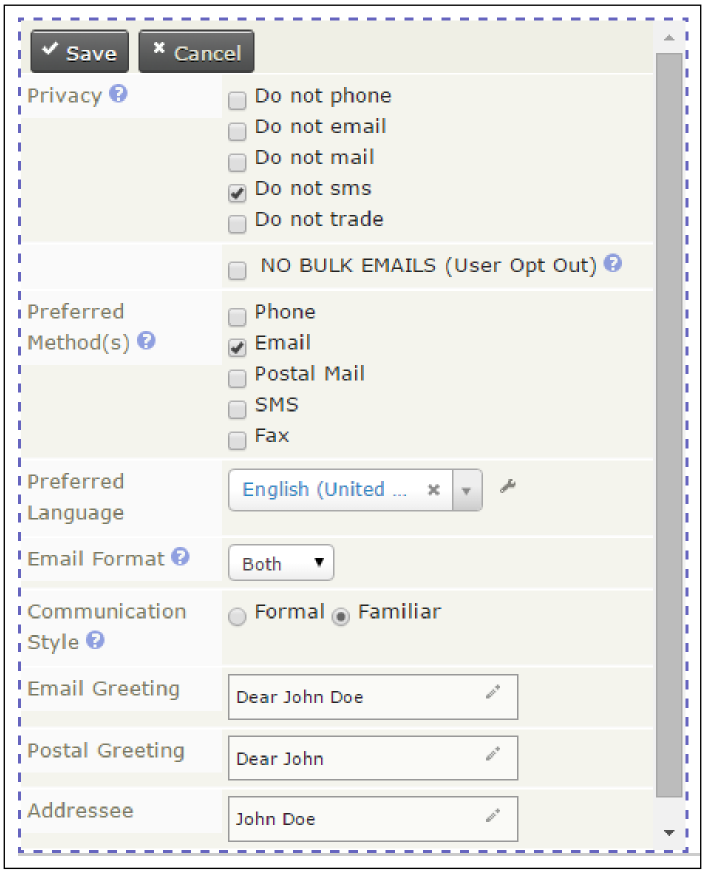


Communication preferences

Now that you have your contact record in place and have recorded all the various ways you might be communicating with them, CiviCRM provides tools for further classifying (and limiting) your communication methods. These preferences are broken into the following areas:

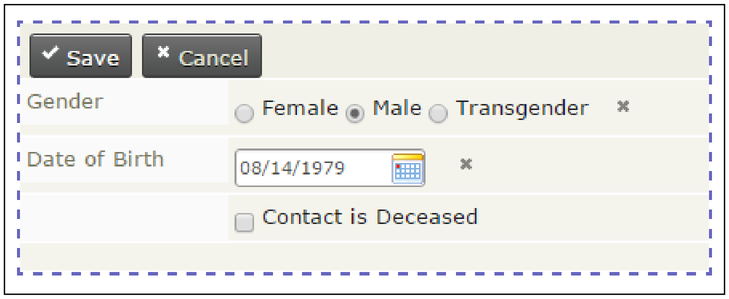
- Greeting preferences are used when e-mailing, generating labels, or exporting contacts, and can use fields from the record (tokens) or be fully customized.
- The **Privacy** settings reveal whether the person prefers not to be contacted through a certain method. The **Privacy** settings do not lock access to the communication details; they are simply a tool allowing CiviCRM users to quickly see that the contact has requested not to be contacted in the selected way. If selected, the **Privacy** settings generate an eye-catching **stop** icon next to the respective method in the **Contact Summary** tab. There is one exception: **Do not email** will prevent the user from receiving any automated e-mails from the system.
- Similarly, the **Preferred Method(s)** settings are used for your internal purposes in order to facilitate and improve communication with contacts.
- The e-mail settings provide an opt-out flag and format preference:
    - The opt-out flag complies with the CAN-SPAM Act in the United States and is typically only used if a contact specifically states they do not wish to receive bulk e-mails. Bulk e-mails generated through CiviMail are required to have an opt-out token (either by directing the user to a web page where they can choose to opt-out, or providing an e-mail address for automated processing). It is likely that you will very rarely select that option through the interface. If you do, be aware that it will automatically remove that user from any e-mails generated from CiviCRM.

- ◦ The **Email Format** field determines whether the user prefers to receive text or HTML-based e-mails. The default is both, which means e-mails generated with HTML and text versions will both be sent to the contact. Note that the user's e-mail client settings will determine the one that is actually displayed.



Demographics

Individual contact records will have a Demographics pane where the gender, date of birth, and deceased date can be recorded. While conducting a search to export contacts for a mailing list, you can exclude the contacts of people who are deceased in order to ensure that the mailing is not sent to their address.



Deleting contacts

When in the **Contact Summary** view, you will notice a **Delete Contact** button above the tabbed interface. CiviCRM has a contact trash function; when you click on this button to delete a contact it does not completely remove it (by default) or any related records from the system, but rather marks it as trashed. Trashed records can be searched for using the **Advanced Search** tool; an option to **Search in Trash (deleted contacts)** is found toward the bottom of the **Basic Criteria** pane. After searching for trashed contacts, you can delete them permanently or restore them.

This functionality is a powerful way to protect your data against inadvertent deletion. However, as with any safety net, you should not over-rely on it. Never trash a record with the intent of later restoring it. Trashed records should be viewed as fully deleted (and will be treated as deleted by the system when searches and reports are generated).

Note that you may disable the trash function on your system through **Administer | System Settings | Misc**.

Tags and groups

You may have noticed that we skipped the Tags and Groups pane found at the bottom of the **Contact Summary** page's edit screen. These records are also found in their own dedicated tabs on the contact view screen, and so we'll take a look at the functionality they provide in the context of their own tabs.

Tags and groups provide two powerful mechanisms for categorizing and organizing your contacts. However, it is not always readily apparent which of the two mechanisms is best suited for your specific needs.

> If you do not see this panel on the full contact edit screen, it's because it has been disabled from view. Visit **Administer | Customize Data and Screens | Display Preferences** to enable or disable that panel. Personally, we find the full contact edit form to be a bit cumbersome and long, and so prefer to disable this panel in that form and work with groups and tags in the **Contact** tab interface.

Tags

Tags provide a hierarchal categorization mechanism across all contact types. They are a categorization mechanism; you use tags to record information about the nature of your contacts, such as the type of services they provide, skills they have, areas of interest, or other such information. They can be hierarchal; you can build out your tag structure with categories and subcategories. When viewing and selecting tags from the **Contact Summary** page's edit screen, they appear in a simple list with indentations to visualize the hierarchy. Viewing them in the dedicated tab displays a similar structure, but uses an expandable/collapsible tree tool to better reveal the hierarchy and allows you to quickly navigate through the structure. Tags are applied across all the contact types, which means that you cannot create the sets of tags specific to a single contact type (for example, organizations). Keep this in mind, as you may want to consider other categorization tools, such as groups or custom fields, if your available options need to be contact type or subtype-specific. Tags can also be created and applied to contacts, activities, and cases; at the time the tag is created, you choose how the tag will be used.

In addition to the hierarchal tagging structure, CiviCRM provides tools for creating freeform tag sets. This tag feature differs from the hierarchal tree in several ways, as follows:

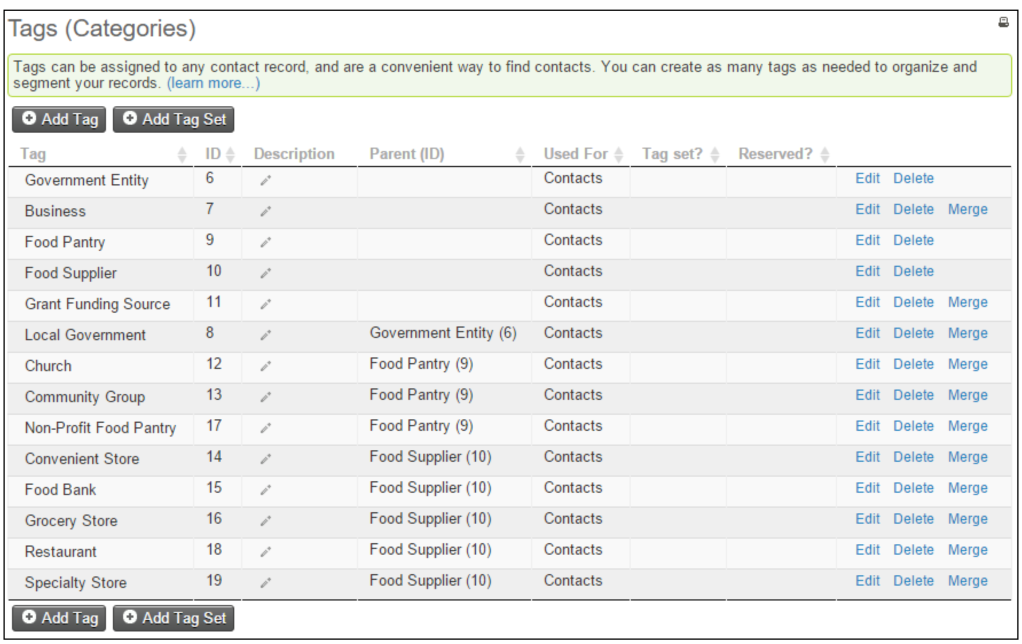
- The hierarchal tree displays the full list of available options, which you navigate through and select using checkboxes.
- Tags available in the tag tree must be created using the manage tags tool before you can navigate through and select them in a contact record.
- Tagsets present a single textbox, which you use to create tags as you assign them to a contact/activity/case/attachment, or use to search for existing tags and assign them. As you begin typing in a tagset field, CiviCRM will dynamically search for partial matches with the existing tags, which you can then select. If no existing tag exists, you will create the new tag on the fly. For example, if I start typing `trans`, it may pull up an existing tag called `transit`; if I continue typing `transp`, I can proceed to create a new tag called `transportation`.

- Freeform tagset tags can be created and managed using the **Manage Tag** tool as well; you would simply treat the tagset as the parent tag. Typically, you would not use the tag management tool to create new tags, as the primary benefit of freeform tags is the ability to dynamically create new tags as you are working in a record. However, you may find it helpful to clean up these tags at times, as they are more susceptible to clutter.
- In general, the hierarchal tags are better at classifying records in a very structured and orderly way, whereas tagsets are useful when you want to quickly and easily list keywords or other flat-list attributes about a record.

As indicated earlier, before using hierarchal tags with your records, you must define them in the system. Go to **Contacts** | **Manage Tags (Categories)**. Use the **New Tag** button to create new tags, and the edit/delete links to manage your existing tags. Note that while the administrative page lists all the tags alphabetically, the **Parent (ID)** column will help you track the hierarchy of the structure.

> FPAGM uses tags to track the types of services and nature of the contact entity. This includes several subcategories to further refine the information gathered about a contact. They define a single keyword tagset to further classify records beyond the hierarchal structure.

Refer to the following screenshot:


Tags (Categories)

Tags can be assigned to any contact record, and are a convenient way to find contacts. You can create as many tags as needed to organize and segment your records. (learn more...)

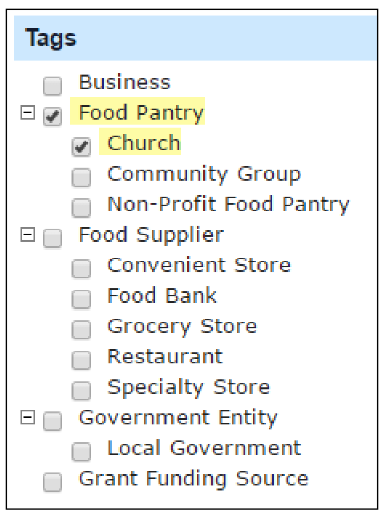
Add Tag | Add Tag Set

Tag	ID	Description	Parent (ID)	Used For	Tag set?	Reserved?	
Government Entity	6			Contacts			Edit Delete
Business	7			Contacts			Edit Delete Merge
Food Pantry	9			Contacts			Edit Delete
Food Supplier	10			Contacts			Edit Delete
Grant Funding Source	11			Contacts			Edit Delete Merge
Local Government	8		Government Entity (6)	Contacts			Edit Delete Merge
Church	12		Food Pantry (9)	Contacts			Edit Delete Merge
Community Group	13		Food Pantry (9)	Contacts			Edit Delete Merge
Non-Profit Food Pantry	17		Food Pantry (9)	Contacts			Edit Delete Merge
Convenient Store	14		Food Supplier (10)	Contacts			Edit Delete Merge
Food Bank	15		Food Supplier (10)	Contacts			Edit Delete Merge
Grocery Store	16		Food Supplier (10)	Contacts			Edit Delete Merge
Restaurant	18		Food Supplier (10)	Contacts			Edit Delete Merge
Specialty Store	19		Food Supplier (10)	Contacts			Edit Delete Merge

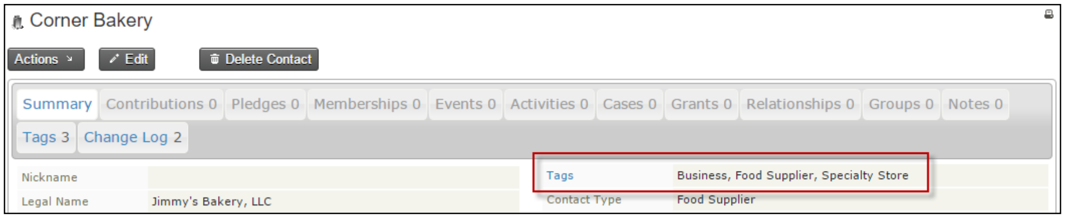
Add Tag | Add Tag Set

There are several additional fields to note on the create tag form. As alluded to earlier, tags can be associated with several different record types, including contacts, activities, cases, and attachments. The **Used For** field is multi-select: you can associate a single tag with multiple record types if desired. The **Reserved** tags are connected to the **administer reserved tags** permission: only users with that permission can modify them. This is an effective way to lock down certain tags to prevent them from being deleted by non-admin users. The **Selectable** field determines whether a given tag can be enabled/disabled for a contact. If a tag is set to not be selectable you would only interact with it through custom code using the API functions.

The **Tags** tab in the contact record presents the most user-friendly interface for tag selection. While you may optionally manage a contact's tags using the **Contact Edit** screen, the interface is a bit more limiting because of the other elements on the page. This is especially true if you have a long list of hierarchal tags in your system. The **Tags** tab represents the hierarchal form in a more visually appealing way and allows you to dynamically expand/collapse parent tags to view the child options.



To help you easily get a glimpse of how a contact has been tagged, CiviCRM provides a comma-separated list of all the selected tags on the **Summary** screen, as shown in the following screenshot:



Groups

Groups are simply a collection of records that may be defined statically or dynamically. Static groups are sometimes referred to as regular groups or simply groups, and dynamic criteria-based groups are called smart groups.

Think of a static group as a container in which you manually place your records. There are no specific criteria by which people become a part of a static group—they are added or removed based on their or your preference. For example, you might create a Board of Directors group and add the nine contacts in your system who currently are members of the group. Another example of a common use for static groups is opt-in mailing lists. As people visit your website, you might provide the option of signing up to receive a period e-mail newsletter. The signup form (and unsubscribe tools) will empower visitors to add or remove themselves from your newsletter group.

In contrast, smart groups are generated based on the criteria you have defined, and thus, are dynamic in nature. For example, you may have a group that retrieves all contacts in a certain area where the criteria you've defined is a specific city, state, or zip code proximity range. Smart groups store the criteria and not the static list of contacts at a given point in time, and thus, serve as a saved query in your database. If you return at a later date to view the contacts in a smart group, CiviCRM will pull a fresh list of contacts that meet the defined criteria.

> The recent versions of CiviCRM have introduced more aggressive caching with smart groups. This can significantly improve how quickly you retrieve contacts for a given group, but it also means the results may lag your data entry. Be sure to enable the **Rebuild Smart Group Cache** scheduled job to improve the accuracy of your smart group results and ensure the cache does not get stale.

Although you typically will create a static group, and then add your records to this container, smart groups are generated from search results. After running a search for contacts you may take certain actions on the results, including saving them to a smart group that can easily and quickly be retrieved at a later date. While retrieving a saved smart group later, you are given the opportunity to adjust the criteria and update the settings. Smart groups also have the flexibility to manually add and remove contacts so that those who may not fit the criteria can be added and others who do can be excluded.

Using groups

It is great that you have tools to collect and organize your contacts into groups, but how will you actually use them in the system? Here are some of the most common uses for groups:

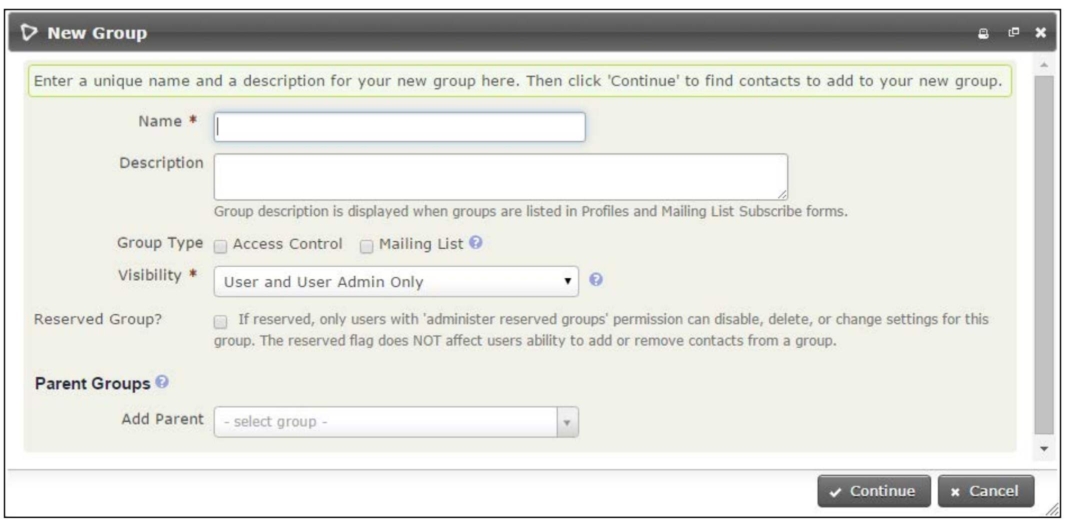
- Static groups are useful for the groups of records you wish to isolate and reuse, but do not meet specific criteria, such as the Board of Directors and the mailing list examples. Static groups can also be created when importing records, which may prove a useful way to track the source of your records. For example, if you receive a list of potential donors from a third-party organization, you might import them and add them to a group with the organization's name and import date.
- Smart groups will typically be created for saved searches that you conduct on a regular basis. Why go through the process of selecting several criteria options in an advanced search for a set of records you review regularly? Run your search, save the results to a smart group, and any time you need to retrieve the records, you will be pulling an accurate, real-time list of records meeting your defined criteria.
- Groups may also be used for **access control lists** (**ACL**). CiviCRM provides a number of fine-grained controls to limit who may view, edit, delete, or access certain functions in the system. These are controlled in part through ACL-type groups.
- While defining a group, you may designate it as a mailing list, which means that it will be made available to the broadcast mailing tools in CiviCRM. The bulk mailing process relies heavily on groups to generate the recipient list, providing the ability to include or exclude contacts based on their group status.

- Profiles, which are a collection of fields that can be exposed to your website visitors as search/listing forms, data collection/edit forms, or view-only pages, can restrict the records they display based on group status. For example, you may create a search and listing profile as a membership directory on your website. However, you want to ensure that only members in good standing are part of the search results, so you first create a smart group with the criteria, **membership status = current** in order to dynamically retrieve your members. While configuring your profile, you limit the search results to this group, and thereby, create your online member directory.
- Profile create forms (used while collecting information from site visitors) have the option of adding contacts to a group when the form is submitted. This provides a useful way to track the source of certain data submitted online and facilitate any follow-up process.

Creating groups

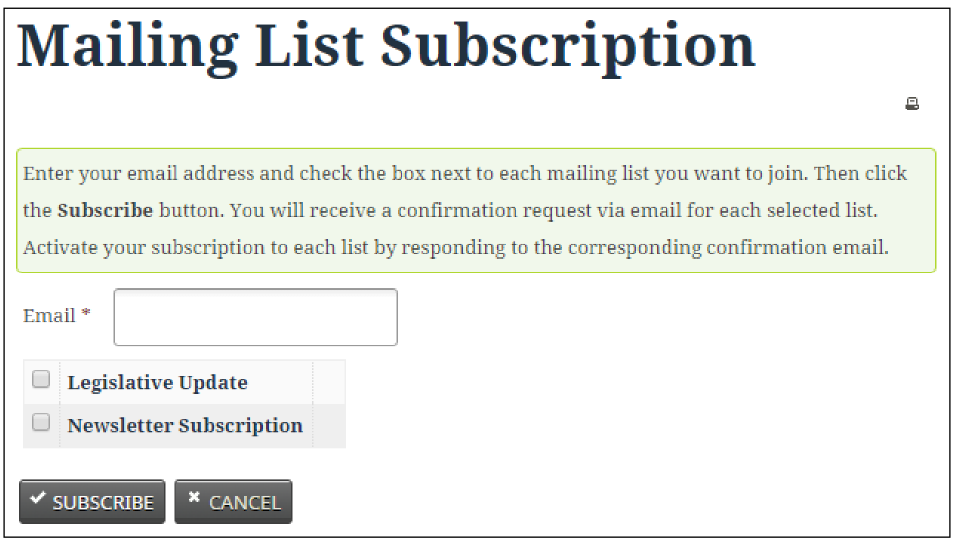
Groups are created and managed through **Contacts** | **Manage Groups**. Note that you only create static groups through this page, but may manage both static groups and smart groups. Since smart groups are criteria-based, they may only be created from search results.

When creating a new static group or editing an existing group, you are presented with the following form:



In addition to the group's **Name**, **Description**, and **Group Type** options, you'll notice three additional fields we have not yet discussed:

- **Visibility**: This field controls whether only administrators can use the group, or whether it may be available for public signup forms. For example, if you are using this group for opt-in mailing list signup, you will want to designate it as **Public Pages** visibility. You may then add the **Groups** field to a profile form and allow people to add themselves to the group. It also determines whether the mailing list groups appear to non-administrative users on the general mailing list subscription form at `http://yourdomain.org/civicrm/mailing/subscribe?reset=1` (for Drupal), `http://yourdomain.org/index.php?option=com_civicrm&task=civicrm/mailing/subscribe&reset=1` (for Joomla!), or `http://yourdomain.org/?page=CiviCRM&q=civicrm%2Fmailing%2Fsubscribe&reset=1` (for WordPress). In general, your groups will typically be assigned as **User and User Admin Only** unless you want to make them publicly available. An example of the mailing list subscription form referenced in this section is shown in the following screenshot:

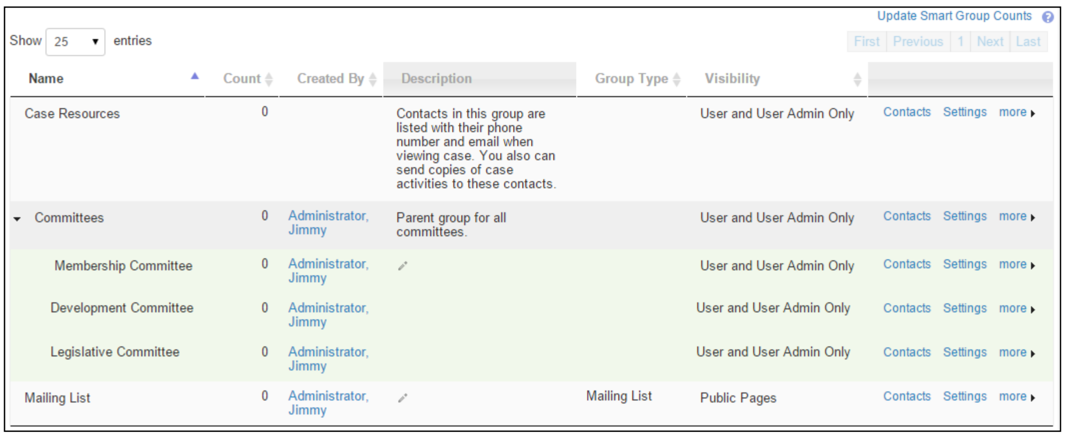


- **Reserved Group**: This field cannot be disabled, deleted, or its settings changed unless the user has the administer reserved groups permission. This is a useful way for system administrators to create groups and ensure that staff members that are not system administrators do not inadvertently delete or change them. Note that this flag does not impact the ability for users to add or remove contacts from the group.

- **Add Parent**: Groups may be hierarchal, which means you may create a parent group with a series of subgroups underneath it. Searching for group members in the parent group will include all members of any child groups.

> FPAGM creates a parent group for committees and a series of subgroups for individual committees. When they need to send communication that is relevant for all participants in committees they can easily do so using the parent group.

Refer to the following screenshot:



The potential capabilities for groups, and in particular, the dynamic nature of smart groups, are virtually endless. With some creativity and planning, you can capture just about any subset of records. For example, the ability to define searches and smart groups based on existing group membership allows you to build the complex collections of records using disparate and unrelated record subsets. Consider the following example in which FPAGM wishes to assemble a targeted mailing to potential donors:

1. Create a smart group for current supporting members.
2. Create a smart group for past contributors, who have made a donation larger than $500 sometime over the last 3 years.
3. Create and maintain a static group called `Donor Outreach` in which they manually maintain a list of organizations they are courting on for high-end donations.

4. Create a smart group that collects members of the preceding three groups, plus the existing Board of Directors group, and is entitled **Potential Major Donors**.

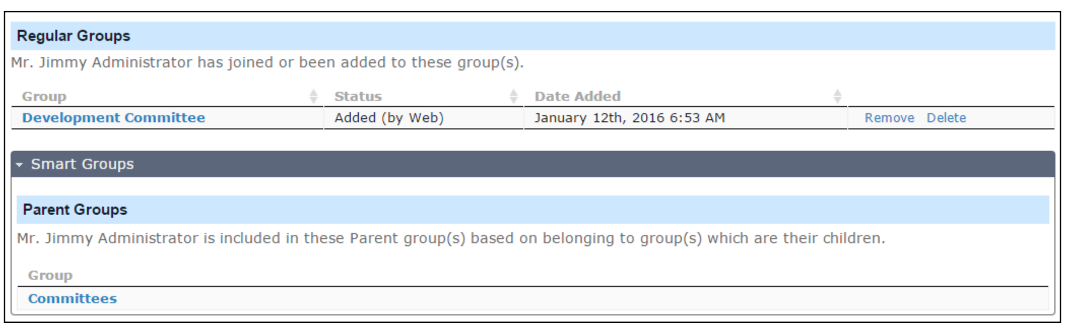
This final smart group, which combines records from several very different groups (one based on membership, one based on past contributions, and two that are static groups), now serves as their master list for targeted major donor solicitation.

Managing group membership

Contacts that are a part of a group are called members of the group. Don't confuse this group membership with your organization's membership functions; those are handled elsewhere. Group membership indicates whether the contact has been added to or removed from a given group.

You may add or remove contacts to/from a static group through the **Contact Summary** page's edit form, or on the contact's **Groups** tab. CiviCRM will timestamp the date and time when the record was added or removed. While smart groups are primarily defined by search criteria, you do have the option of overriding the criteria and manually adding or removing the members using these tools. The contact's **Groups** tab will always display the static group memberships for the contact. Below this listing is a panel where smart group membership is listed.

By default, this panel is closed and will only generate the listing of smart groups when opened. As smart groups involve running a search to determine membership, they can potentially be very resource demanding, especially if your system has a large number of groups in it. Consequently, this listing is only run on-demand. You can alter the setting for this by visiting **Administer | Customize Data and Screens | Display Preferences** and choosing to always show smart groups or hide them altogether (in addition to the default setting of showing on-demand).



From the **Manage Groups** screen, you can easily generate a list of all contacts in a group by clicking on the **Contacts** link. If you want to make sure that your smart group cache is up to date, click on the link, **Update Smart Group Counts**.

As noted earlier, there are other ways to automatically add contacts to groups, such as through profile signup forms or during the import process. In addition, you may add or remove contacts from groups after conducting a search using the actions drop-down options.

Relationships

We've already mentioned relationships several times when discussing grouping individuals with a household and recording the current employer for an individual. We now want to explore the full breadth of options and uses for relationships.

Relationship types

Relationships are used to connect two records to each other. When defining relationships, you may limit the types of contacts available to each side of the connection; for example, an employer/employee relationship would only exist between an organization and an individual. Other relationships may be more flexible with no contact type restrictions.

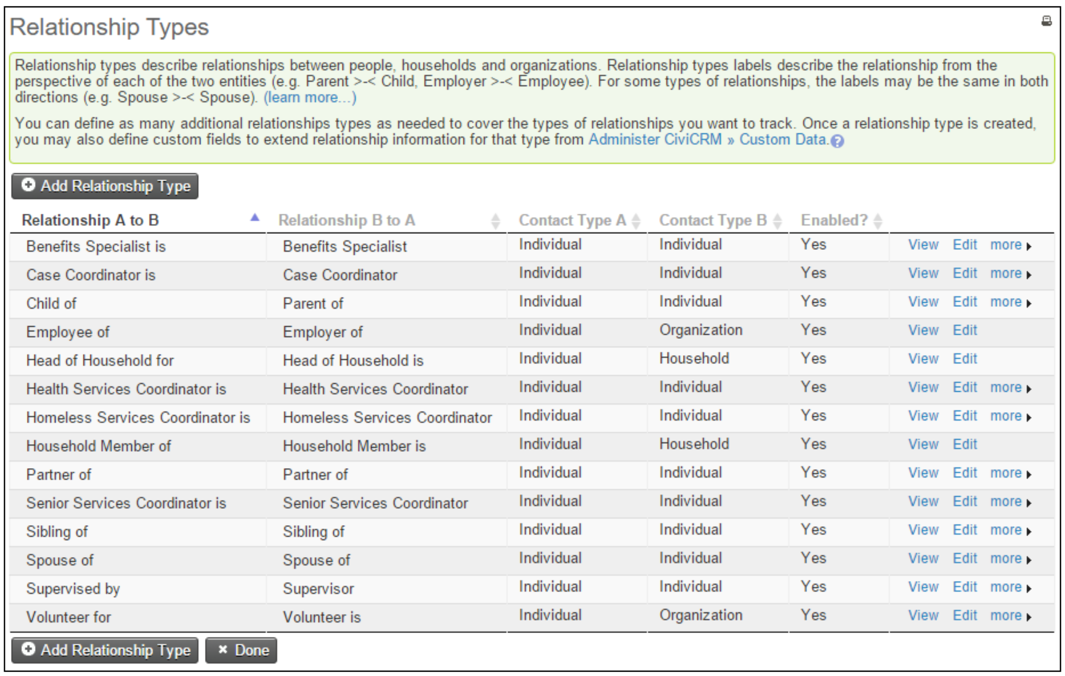
Relationships have labels to help distinguish the nature of the connection from each side of the equation. For example, John Smith may be an employee of ACME Convenient Store and ACME Convenient Store would be the employer of John Smith. Some relationships do not distinguish differences in each side of the connection, such as **Spouse of**.

The **relationships** tab in the contact record lists all the active (current) and inactive relationships. An inactive relationship may occur if an existing relationship is manually disabled (for example, if an employee of a company is on a leave of absence or laid off, and you manually mark the relationship as **disabled**), or if an end date is recorded for the relationship (for example, if you create a **Board member** relationship and record the start and end date based on a 2-year term). By default, relationships are assumed to have no explicit end date.

Entering end dates, or disabling relationships, rather than deleting them, provides a useful way of tracking the contact's history of involvement in various capacities. For example, it may be useful to see the employment history of an individual by reviewing the current and inactive **Employee of** relationships. You might use this information to identify influencers for major donors, or to find social networks that could facilitate potential strategic partnerships.

> It may be helpful to enable the **Disable expired relationships** scheduled job. This will cycle through all relationships and explicitly disable any with an end date in the past. Although a relationship with an end date in the past will be displayed as inactive in the contact record, there are other places where it can make searching for records easier if those relationships are explicitly marked as disabled.

Before working with relationships in a contact record, you should review the existing relationships types that are created when CiviCRM is first set up, and determine if there are any other types you will need to create. To do this, go to **Administer** | **Customize Data and Screens** | **Relationship Types**.



This table lists relationship labels for each direction (from **Relationship A to B** and **Relationship B to A**), and whether there are restrictions on the types of contacts allowed for each side of the connection.

If this structure is confusing, use the following statements when reviewing and creating relationships, replacing A and B with your labels:

- [**Contact Type A**] is a/an [**Relationship A to B**] a/an [**Contact Type B**]
- [**Contact Type B**] is a/an [**Relationship B to A**] a/an [**Contact Type A**]

It may also be useful to review a very clear existing relationship type, such as employer/employee, to understand how the label text is used. Using the preceding statements with the employer/employee relationship we would see the following results:

- [**Individual**] is an [**Employee of**] an [**Organization**]
- [**Organization**] is an [**Employer of**] an [**Individual**]

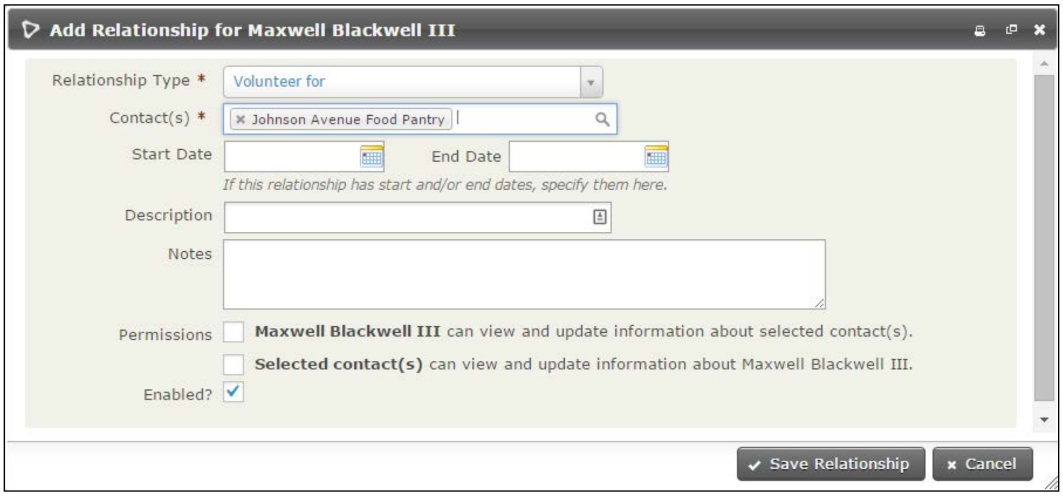
Note that if you select one of the primary contact types (**Individual/Organization/Household**) when creating a relationship the relationship will be available to all the associated subtypes. However, if you select a subtype for one side of the relationship, it will only be available to that specific subtype.

Adding relationships

Once you have your relationship types configured, you may begin to build connections between contacts. Navigate to the contact record's **Relationship** tab to view, create, and edit their connections.

> The two types of relationships may be constructed from an individual record's **Summary** edit screen:
>
> - An **Employee of** relationship will be constructed when you complete the current employer field
> - A **Household member of** relationship will be constructed when you indicate that an individual should share a household record's address

The relationship creation process consists of two steps, namely, selecting the related record based on the type chosen and filling out the relationship details.



In addition to the basic start/end dates, description, and notes, there is a basic permissioning function handled through relationships. Using the two options presented, you can allow either side of the relationship to view and modify the other side's contact details.

Where does this come into play? CiviCRM has a special **Contact Summary** page called the **Contact Dashboard**, which can be exposed to website users. The dashboard provides a snapshot of the user's interactions with your organization, including membership history, event registrations, contribution history, group membership, pledge history, personal campaign pages, assigned activities, and invoices/credit notes. In addition, the dashboard may contain a list of relationships defined for the individual, and if permissioned through this form, it will allow the logged in user to edit details for the related record(s).

One common use case for this functionality is when you want certain administrative contacts (individuals) to have the ability to edit their employer's records. Since organizations don't visit websites (people do), you would need to allow certain individuals the permission to edit the organization record. Other examples include allowing parents to edit their children's records, teachers to edit their student's records, or household members to edit the household record.

Activities

Up to this point, we have primarily focused on recording data that describes our contact records. However, the power of a CRM is fully realized with the ability to track and build an ongoing relationship with contacts. We want more than a glorified address book—we want tools that will help write a story about our constituents—what kinds of communication we've had with them, how they've chosen to support the organization financially or through active participation, how long they've been a member, how we've helped resolve issues and concerns they have brought to us, and other such interactions.

One critical way this story is preserved is through activities—recorded communication to and from constituents, or actions taken on behalf of constituents.

Activity records will be created in one of two ways: automatically by the system in conjunction with some other process, or manually by staff working with records.

Certain activity records, automated e-mails in particular, are created when other parts of the system trigger communication with the contact. For example, if a member renews his membership online, the form will send them a receipt by e-mail, detailing the membership record renewal, payment, and any other data fields completed as a part of the process. In addition to the membership and contribution records created by this transaction, CiviCRM records the e-mailed receipt as an activity, providing you with a complete picture of every piece of communication sent to the contact. Other examples of automated activities are:

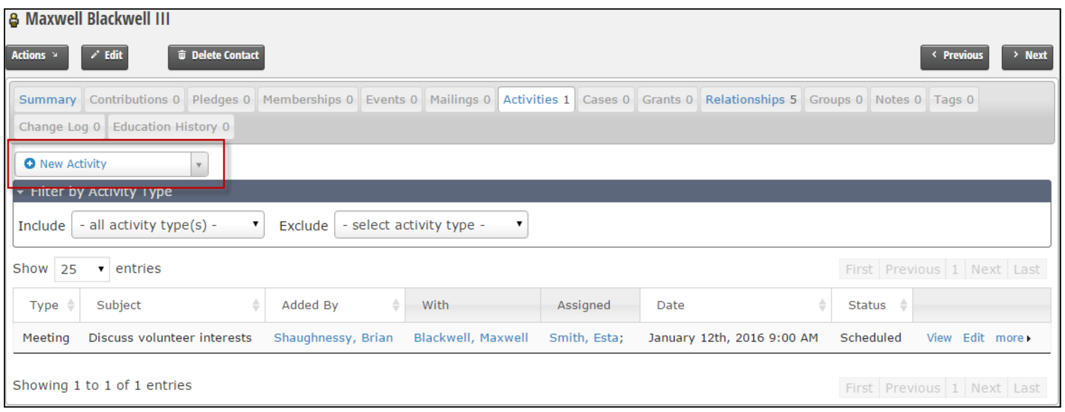
- Contribution receipts
- Pledge receipts
- Membership status updates
- Membership renewal reminder e-mails
- Bulk e-mails

Users with appropriate permissions can create certain activity records manually. The most commonly used are records of phone conversations, meetings, or manually generated e-mails. While creating an activity record, you may mark it as complete (a record of a past communication), or schedule it for the future, in which case it becomes a calendared to-do list item. In addition, activities may be assigned to the other users, providing a useful tool for managing communication among the staff members within an office while linking assignments directly to the constituent record.

Several standard activity types are predefined in CiviCRM; you may create new types through **Administer** | **Customize Data and Screens** | **Activity Types**. Activities are created using the **Actions** list in the contact record summary, the drop-down list in the **Activity** tab, or the **Create New** button. Activities may have associated sets of custom fields to extend the type of data you collect.

> Note that while creating activity types, you may designate them for use with **Contacts AND Cases** or **Cases Only**. The **Contacts AND Cases** activity types may be used directly with contact records or with case records, but the **Cases Only** types are only visible to case tracking. A full discussion of case management will be covered in *Chapter 11*, *Interacting with Constituents – Managing Cases*.

Refer to the following screenshot:



In addition to assigning and scheduling activity records, you can designate priority levels, schedule follow-up activities, and attach files to the record when creating it. Activities may also be set up to be repeated based on the desired schedule.

> Consider developing a written policy and procedure to encourage (or make mandatory) the staff to record every piece of communication they have with constituents. While the habit of looking up contacts and recording activities every time one communicates with a constituent may initially seem cumbersome, you will quickly realize the value of tracking a complete historical log of communications as you build relationships.

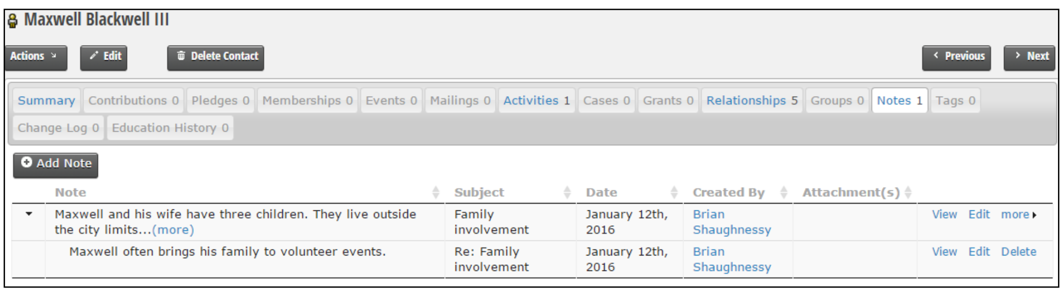
Note that the **Send an Email** activity is special; it does not simply record that an activity took place, but it will actually send an e-mail from the system to the specified contact(s). This activity will only be available in the contact record if you have an e-mail address on file.

Notes

Inevitably, your interaction with the constituents will include collecting personal details about their lives, running into unique situations or circumstances that impact how records were kept, or general information concerning their ongoing involvement with your organization. All of this information is easily stored in notes.

Accessible through a tab on the contact's record, notes provide a simple way to log general information about constituents. Each note includes a subject line, description, and is timestamped at the time of its creation. They may optionally include attachments, and may be flagged as private. A private note will only be visible to the person who created it, or to administrators with the view-all-notes permission.

Once you've created a note, you can create comments attached to it. A comment works like a threaded note and will appear in a collapsible panel below the primary note.



Be careful not to use notes as a catch-all for information better stored elsewhere. In particular, make sure your users understand that activities should be used for communication records with constituents, whereas notes are better used for miscellaneous information about the contact, such as personal details that don't fit into existing contact fields. As notes always contain unstructured data, you should realize that very little of what you store in notes can be used in searches or retrieved.

Search

As important as it is to understand and become familiar with the contact record interface, we also need to be able to quickly *find* records in the system. We started our exploration of CiviCRM by looking at the **quick search** field in the navigation bar. Navigate to **Search | Find Contacts**; this path extends to allow filtering by contact type, group, or tag. Beyond this basic search, CiviCRM provides four power tools for searching and providing additional diverse functionality through the reporting system.

Quick search

Quick search is found in the navigation menu and is best used when you are looking for a specific contact. The text entered into this field will search the contact name and e-mail address (by default). When you click on the search box, a menu will expand with additional options for searching various fields. This search will return results for partial matches as you begin typing. You have the option of configuring the tool to use full wildcard searches or only ending wildcards (**Administer | Customize Data and Screens | Search Preferences**).

> Full wildcard searches will look for the entered text in any part of the field(s). For example, entering `john` would find both John Smith and Mark Johnson. With **wildcard search** turned off, a search for `john` would only find Mark Johnson as the sort name field for individuals is constructed as `lastname, firstname` by default. **Full wildcard search** is very useful in small datasets as it provide greater flexibility. For large databases, you will typically want to turn this off as the result sets will become long and cumbersome to work with.

If the full wildcard option is turned off, you may still initiate a wildcard search using the percent symbol (`%`). You may even use the wildcard value in the middle of a search term; for example, `J%n` will yield John as well as Jones. This `%` character matches any number of characters wherever it appears in your search strings.

Basic search

Navigating to **Search | Find Contacts** brings up a form that allows you to search by name or e-mail as **Quick Search**, and also filters the results by contact type, group, and tag. Entering more criteria reduces the number of matches as the results must match all of the criteria entered. As with the contact **quick search**, you may use wildcards to extend how the search is conducted.

Advanced search

Don't let the term *advanced* scare you away—it's a commentary on the powerful capabilities of this tool, not a statement about how much experience with CiviCRM is required. In fact, the power of advanced search lies in both its flexibility and ease of use. To access this tool, navigate to **Search | Advanced Search**.

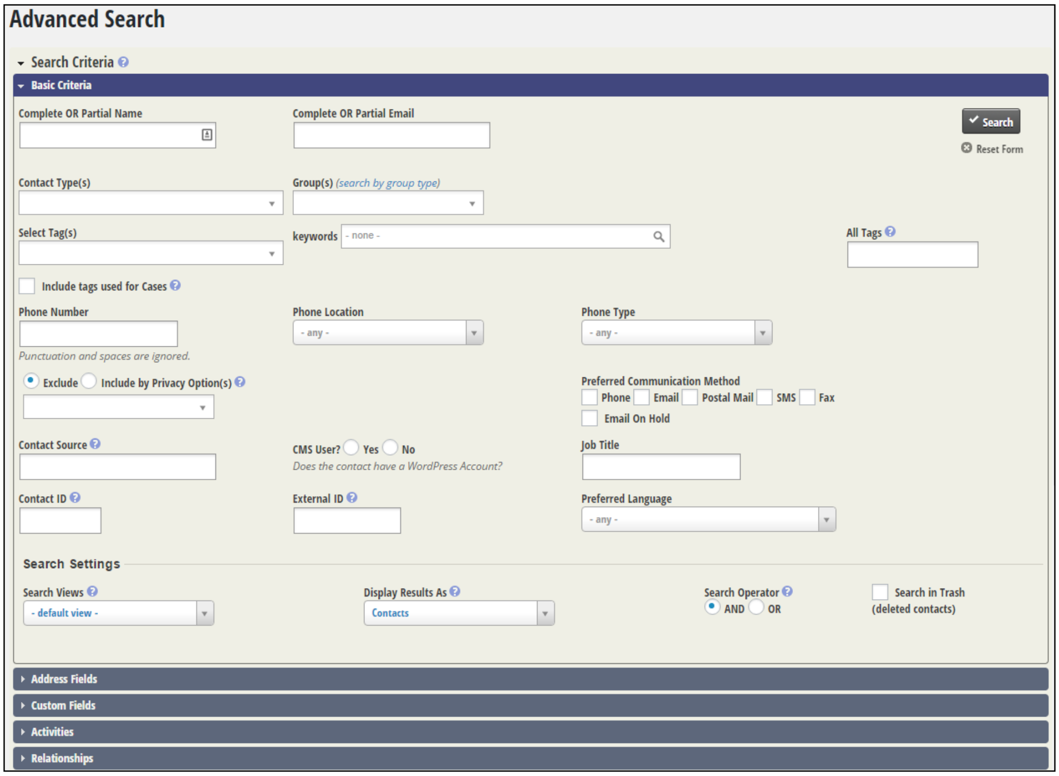
Advanced Search provides a window into just about every field in your system, grouped by their type. Using the paneled interface, you can build search criteria across address fields, contributions, membership, events, custom fields, and any other type of data you are managing.

By default, multiple criteria selections across the fields are joined by the `AND` operator. If you are familiar with any form of query building you will recognize the difference between joining multiple criteria with `AND` versus with `OR`. The `AND` operator joins are exclusive—as you add more criteria, your result list becomes smaller as the records must meet *all* of the criteria provided. The `OR` operator joins are inclusive—adding criteria expands the result list, as *any* record meeting *any* of the individual criteria will be included.

An exception to this rule in **Advanced Search** is the fields presented as a multi-select option list (including a set of grouped checkboxes). These will be joined with `OR` within that field. For example, selecting multiple tags will yield results matching *any* of those tags. You can alter this behavior using the **Search Operator** field found in the **Search Settings** area.

Be aware that a few special fields reverse the normal selection logic. For example, selecting any of the privacy options will *exclude* records meeting that criterion, rather than including them (reflecting the normal use of those fields). If you are looking to retrieve a list of contacts that have a certain privacy setting, check the option titled **Include by Privacy Option(s)** in order to reverse the default effect.

As always, inline help text (the question mark icon) will provide an explanation and example for nonstandard or potentially confusing fields.



Note that the preceding screenshot is only partial. Additional panels representing other data types extend below the captured image. You have some control over what panels are present in **Advanced Search by visiting Administer | Customize Data and Screens | Search Preferences**.

Full-text search

Have you ever had an experience where you interact with a constituent, perhaps at an event, and can only remember a fragmented snippet of the conversation? Perhaps you only remember their first name… or was that actually their street address?

CiviCRM's full-text search scours through contact and related records delivering a list of results grouped by the record type (contacts, contributions, memberships, and so on). In addition to serving as your partial-memory sleuth, full-text searches can help you find records where the location of the data you're looking for may not be in an obvious location. For example, you might recall recording details about the Smith family, but are unsure if it was part of an activity, note, or contribution record, or whether it was attached to Mr. Smith, Mrs. Smith, or their combined household record. Searching for the term, `family`, yields all instances of the text, allowing you to quickly browse through the search summary and find the information you're looking for.

A full-text search is accessed through **Search | Full Text Search**, and may be conducted across all major record types, or may be limited to a single type.

> Drupal users may enable **blocks** to provide convenient access to full a text search. In Drupal, go to **Administer | Site building | Blocks**, find **CiviCRM full-text search** in the **Disabled** section, use the icon to its left to drag and drop it in the region you would like the block to appear, and click on the **Save blocks** button. Like any block, you can configure when it appears by clicking on the **Configure** link beside the block name. For example, you might want to set **Show block** for specific roles, for example, a CiviCRM administrator role.

By default, CiviCRM uses the standard MySQL queries to target specific fields across the major system tables when running full-text search. For smaller datasets, this is generally effective and sufficient for their use. For larger datasets, this may impact system performance significantly. One option for improving the user experience and system performance is to enable **InnoDB Full Text Search** through the **Search Preferences** page. Note that this is only available if you are running MySQL 5.6+, and it changes the dynamic of the search to a fuzzier model.

Search builder

If **Advanced Search** doesn't meet your specific querying needs, CiviCRM provides a search builder to construct criteria sets based on logic statements. Most often, this is needed when your search criteria must include several statements joined with a mix of `AND` and `OR` operators.

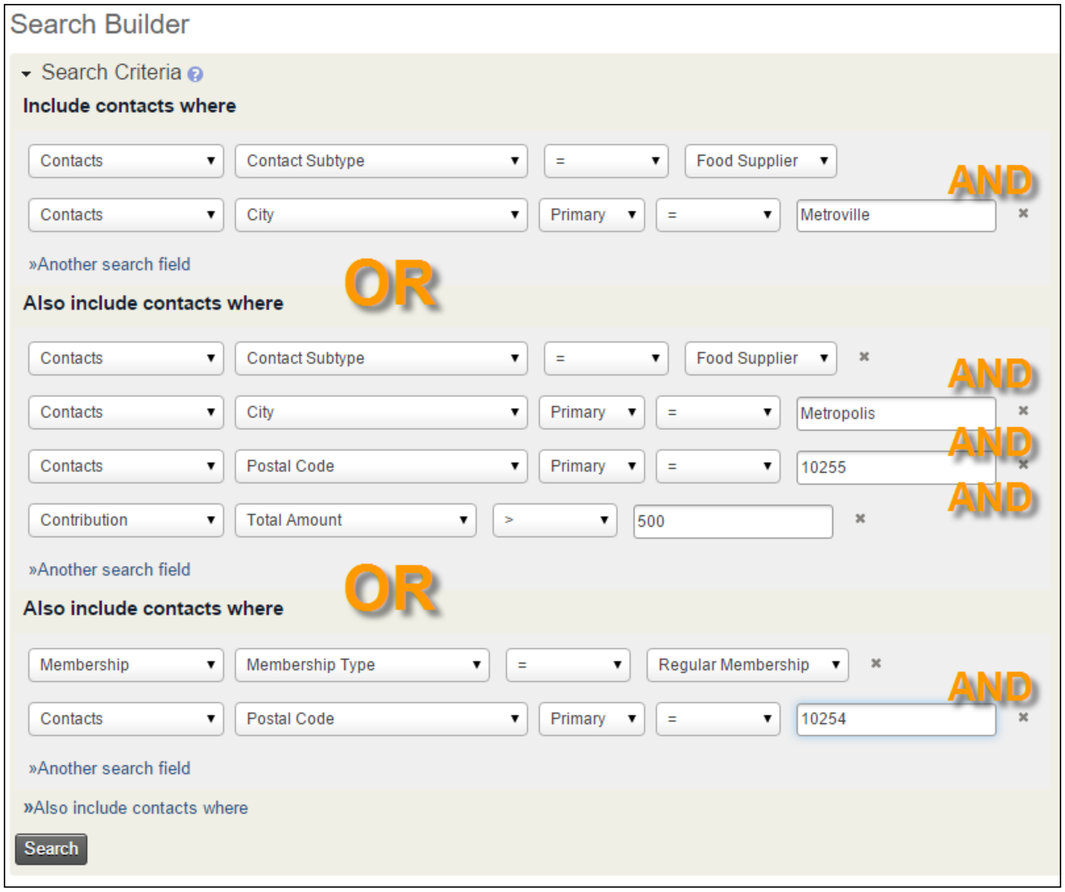
Querying… logic statements… operators… criteria sets… Huh? A search builder is powerful, flexible, and requires some advanced skill to properly construct a search. For most (if not all) of your searching needs, **Advanced Search** and other tools should prove more than sufficient. However, if not, you have the search builder as a powerful tool in your back pocket.

The builder lets you construct multiple sets of criteria. The criteria within each set is joined by `AND`. The sets are combined together with the `OR` statements. This allows you to create exclusive (`AND`) criteria and join them with the inclusive (`OR`) sets of criteria.

The **Search Builder** page is accessed through **Search | Search Builder**.

> FPAGM plans to do more regional outreach to food suppliers in the outlying areas of Metropolis and suburban areas surrounding the city. The outreach will be focused on soliciting more commitments for food donation support during the difficult winter months when demand at the food pantries increases significantly.
>
> The Executive Director has identified the following criteria to be used for the initial outreach letters:
>
> - All food supplier businesses in Metroville
> - Food suppliers in Metropolis with a postal code of 10255 who have donated more than $500 at one point
> - Regular members with a postal code of 10254

The resulting configuration in the **Search Builder** will look as shown in the following screenshot (the `OR` and `AND` text has been added for illustration):



As you can see, our selection consists of the three sets of criteria, which are joined together to yield the result. A contact meeting any of the three criteria sets (all of which have multiple restrictive criteria) will be included in the results.

There are several things to keep in mind when working with the **Search Builder**:

- Search criteria can be built based on contact (including type and subtype-specific fields), contribution, membership, event participant, pledge, case, activity, and grant fields.
- The following comparison operators are used for building criteria statements. Operators define the logical rules for the criteria, defining how the value you enter will be processed using the field selected:
  - The **=** operator means equal to, and represents an exact match.
  - The **≠** operator means not equal to.
  - The **>** operator means greater than and should only be used with number value fields, such as a contribution amount.
  - The **<** operator means less than and should only be used with number value fields.
  - The **>=** operator means greater than or equal to and should only be used with number value fields.
  - The **<=** operator means less than or equal to and should only be used with number value fields.
  - The **In** and **Not In** operators are used for groups, tags, and other lists of IDs. The value field will supply a list of available values you may choose from.
  - The **Like** and **Not Like** operators mean equal to (and not equal to) but unlike the equal sign, you may use wildcards with **Like** to create fuzzy criteria.
  - The **Is Null** operator indicates that the field is empty, containing no value. The **Is Not Null** operator indicates that the field is not empty.
  - The **Is Empty** and **Is Not Empty** operators are similar to null/not null, but are more inclusive. From a database standpoint, *null* has a precise meaning, which can sometimes be confusing. For example, a text field with no text value may be empty, but not null. If you are confused, defer to the empty/not empty options.
  - The **Regex** operator should only be used by developers and those familiar with regular expression language.
- Some fields, such as the **Several** field (such as the groups and tags described in the preceding list) take special values from an option list, or in the form of a date, and so on. In such cases, the value field will adapt to whatever is appropriate for that purpose.

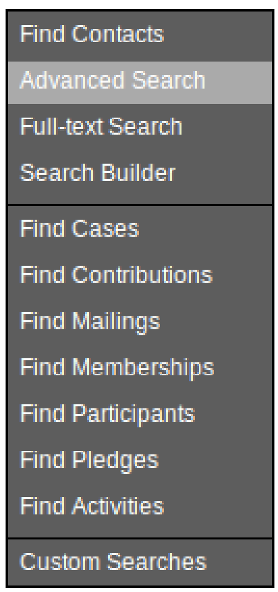
Understanding contact versus component searches

All of the search tools we've reviewed so far are contact-based. Regardless of what criteria you choose, the search will return a list of contacts.

What if I need a list of all contributions over $500 made within the last 6 months? If John Doe has donated more than $500 three times over that period, I would expect to see him listed three times; the fact that he is a regular donor is important information to see in this context. However, searching through **Advanced Search** (where I have access to the contribution fields) or the **Search Builder** (which likewise can use contribution fields) would yield a list of contacts with no duplicate values.

> The **Advanced Search** tool actually does provide the option of displaying different records after running a search, using the **Display Results As** field found in the **Search Settings** area. This has a similar effect to the component searches we will describe in this section.

Refer to the following screenshot:



Throughout CiviCRM, there are typically two *lenses* or perspectives through which you can search and view records—you can search for contacts, or you can search for their related records. We call the related record search a component search. These tools can be accessed through the main **Search** menu (designated in the second block of options) or in the respective main menu item (for example, **Find Participants** is found under **Events**).

Considering the preceding example, searching for this criterion under **Advanced Search** would yield one record per contact. Conducting this search using the **Find Contributions** form would yield three records, one per contribution.

We will investigate these tools further when we work with some of the components. For now, it is important to understand the difference in how you search and what type of results are being returned.

Custom searches

If you still find that you need to conduct a complex search that cannot be accomplished using one of the tools mentioned in the previous section, review the custom searches found in **Search | Custom Searches**.

The **Custom Searches** option was created as a way for developers to build customized, complex search options and result lists that could not easily be accomplished through the generalized forms. Let's face it—not every possible search option can be squeezed into a single interface without creating complexity and confusion that will render the tool unusable for the average user. Rather than leaving you to work directly in the database, CiviCRM created the custom search structure to provide an interface for developers to meet these specialized needs.

Existing custom search forms are often being improved and new ones are added to the system by the CiviCRM development community. Understand that to actually create a custom search form, one must have development skills (and access to the database and code). However, once built, sufficiently permissioned users may access the forms and run searches. If you build a custom search form, consider contributing it back to the project for inclusion in future releases. Also be sure to check the online extension library for new searches that might be useful for your implementation.

The full list of available custom searches can be accessed by going to **Search | Custom Searches**. (Note that installations, which began with the earlier versions of CiviCRM, may have a fly-out submenu that only displays a few of the available searches; click on the **Custom Searches** menu items itself to view all of the available tools.) Some of the more useful searches are included as follows:

- **Contribution Aggregate**: This option searches contacts based on their total giving over an amount range and date range. (For example, it searches all contacts who have donated between $500 and $1,000 in total contributions over the last year.)
- **Include/Exclude Search**: This option builds criteria based on whether contacts have (or don't have) certain groups or tags selected.
- **Proximity Search**: If you have geocoding enabled in your system, you may search an address or postal code and retrieve a list of contacts within a defined radius. This form can also be filtered by tags. For example, FPAGM wants to search for all non-profit food pantries in a 10 km radius of the postal code 10255. Note that proximity searching is also available through the **Advanced Search** tool, making this tool a bit less useful.
- **Price Set Details for Event Participants**: Price sets provide flexible options for configuring event fees. However, their flexibility creates some complexity when generating lists of event participants. This search will return a list of registrants for the selected event, broken down by the price set fields and options.
- **Contributions Made in Year X and not Year Y**: Charitable not-for-profits who rely heavily on donations for their revenue will want to identify past contributors who have not donated recently. This grid-based search form retrieves contributions for date ranges and amounts you've designated for inclusion (past years) and exclusion (not this year).

The preceding list is just a partial review of the custom searches available. Take time to familiarize yourself with the tools available as you may want to make use of them as you work in the system.

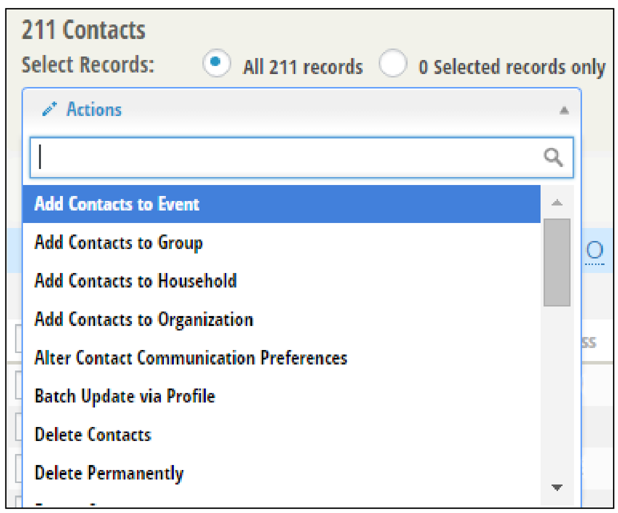
> By default, CiviCRM only includes a link in the navigation bar to the listing of **Custom Searches**. If you find that you are using certain custom searches frequently, consider modifying your navigation menu to include the desired page in the **Search** menu item listing itself. Visit **Administer | Customize Data and Screens | Navigation Menu**.

Search result actions

At this point, we have a good understanding of the contact record, can navigate through the system, and now can conduct searches to our heart's content. However, now that you've triggered a search and have the records you're looking for, what do you do next?

Sometimes, you'll conduct a search to find a specific record, and then navigate to the contact and perform some work on their data. However, more often you are searching for the groups of records and want to perform bulk actions on either the full or partial results list.

CiviCRM accomplishes this through the action drop-down options. After conducting a search, select the **All X records** radio button or **Selected records only** (if you want to manually choose records from the result to take action on). This will enable the actions' drop-down list. Choose your desired action from the list to continue.



As you can see from the list of options, there are quite a few actions you may take on your search results. We will review them briefly, organizing them by category.

Mail actions

CiviCRM provides two actions that are useful for postal mail, two that are useful for e-mail, and one used for SMS distribution:

- **Mailing Labels**: This option prints contacts to PDF using the mailing label options set at **Administer | Communications | Label Formats**.
- **Print PDF Letter for Contacts**: Use this option to generate merged letters directly from the system. You will likely want to create a basic template that mimics the layout in your word processor. Once created, you can generate letters, insert placeholder tokens as merge fields, save letters as templates, and print them to a PDF file.
- **Schedule/Send a Mass Mailing**: If CiviMail is enabled and configured, you may generate a bulk mailing directly from the search results. Choosing this option will trigger the bulk mailing wizard and walk you through each step.
- **Send Email to Contacts**: If you have a small set of records you're working with and don't need the full functionality of CiviMail bulk mailing, you may simply send the contacts a basic e-mail using this option.
- **Send SMS to Contacts**: Similar to sending a mass mailing, you can configure CiviCRM to send bulk SMS messages to contacts. Note that you must have first configured an SMS service in your system before using this.

Groups and tags actions

The following actions are provided by this set:

- **Add Contacts to Group**
- **Remove Contacts from Group**
- **New Smart Group**

  This action saves your search to a dynamic smart group so it can be retrieved later using the same criteria
- **Tag Contacts (assign tags)**

  This action adds a tag to the selected records
- **Untag Contacts (remove tags)**

  This action removes a tag from the selected records

Add relationship actions

The following actions are provided by this set:

- **Add Contacts to Household**: This action creates relationship with the selected household record using one of the relationship types defined for households
- **Add Contacts to Organization**: This action creates relationship with the selected organization using one of the relationship types defined for organizations

Add related record actions

The following actions are provided by this set:

- **Record Activity for Contacts**: This action creates an activity record and associates it with multiple contacts at once. One helpful use of this option is to record mailings. Let's say you run your search and want to export the records for delivery to a mail house. After running the export, add an activity to the same result list to record the details of the mailing, for example, `Volunteer Solicitation Letter`, with an attached copy of the document used for mailing. When creating an activity for multiple contacts, note the option to create a single activity record, which all the contacts are linked to, or to create separate activity records for each contact. You will choose the latter if you need the flexibility to modify the activity record specific to each contact.
- **Add Contacts to Event**: This action registers the selected contacts for an event. The only limitation of this action is that you have to select a single set of registration options to apply to all contacts selected. You are also not able to record payment details in bulk.

Update contact actions

The following actions are provided by this set:

- **Batch Update via Profile**: Profiles are the collections of fields that you've defined in the system. You may use profiles to edit up to 100 contact records at once.
- **Merge Contacts**: Trigger the **deduplication/merge** tool using the selected records. You will be redirected to a page where you can review the records and choose the fields that will be merged from one record to the other. Note that you can only select two contact records at a time when triggering this action.

- **Delete Contacts**: This action moves the contacts to the trash (if it is enabled).
- **Delete Permanently**: This action completely removes the contacts from the system.
- **Restore Contacts**: If you've searched for deleted (trashed) contacts, you may use this option to restore them in bulk.
- **Unhold Emails**: This action removes the **On Hold** e-mail status for selected records.
- **Alter Contact Communications Preferences**: This action adds or removes any of the privacy options for the selected records, such as **Do not phone**.

Export/map actions

The following actions are provided by this set:

- **Map Contacts**: If geocoding is enabled on your site, you may create a map with the selected records pin-pointed on it.
- **Export Contacts**: Inevitably, you will need to conduct searches and export the results to a `.csv` (comma-separated values) file to be used for various purposes—sending to a mail house, conducting calculations on the data, merging letters, transferring to someone via e-mail, and so on. The export records process consists of two steps:
    - Choose the export type—default primary fields or your own selection of fields. You may save export mappings (collections of fields) for reuse at a later time.
    - If you've chosen to select your own fields you will be shown a grid where you choose the contact type, field, and relevant field parameters. At the bottom of the page you can save the export mapping for future use, update an existing one, and export the list to `.csv`. When defining your field selections, remember that the field will only export data if it is appropriate to the contact types in your search results. For example, if your search results contain only individuals, any household fields defined in your export will be empty. Also note that there are options to export related records. For example, if you want to retrieve the `State` value for the organizations associated with people through the employer relationship, you can do so using the related contact info options toward the bottom of the field list.

- When exporting records, you may merge records with the same address or merge household records. The former option will identify contacts with the same address and merge them into a single record. The latter option will look for records in your result list that are part of a household and export the household record instead of the individual contact records. Both of these options will help prevent sending multiple mailing pieces to the same address, reducing your mailing costs. Note that these options do not impact the records themselves; they only impact how the export file is generated.
- Optionally, choose to exclude contacts flagged as **do not mail**, who have no street address, or who are deceased, using the **Postal Mailing Export** checkbox. If you need to append additional contacts found in a previously established group, you can do so with the **Additional Group for Export** option. You might use this if you want your office staff to receive a postal mailing to verify delivery, but don't want to worry about trying to fit them into your main mailing search.

- **Print Selected Rows**: Visit a printer-friendly version of the results listing, displaying only the selected rows.

Subsequent actions on the same selection

You will find in many cases that after triggering an action you can return to the search result list and trigger a follow-up action. The record activity example in the previous section is a good example of where this can be helpful—after exporting your records for a mailing, perform a second activity action to record the mailing details.

> FPAGM has an upcoming board meeting and must notify board members about the logistical details. They use the simple search to retrieve all contacts, which are a part of the existing Board of Directors static group. From the action list, they choose to send an e-mail to all the records in the results list. The e-mail contains information about the location, time, parking details, and a copy of the agenda as an attachment.
>
> In addition to the direct benefit of reminding the board about the meeting, FPAGM values the fact that a record of the e-mail is attached to each contact as a completed activity. This provides a historical record of communication with the board—available to all staff members—and may be helpful should one of the board members claim that they did not receive the reminder.

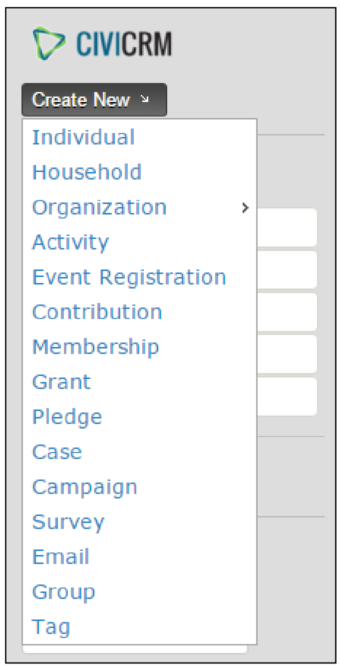
Working with contact records

Throughout this chapter, we've covered a lot of ground with regard to contacts. However, our emphasis has been on understanding the types of data collected, navigating through the system, and working with search tools and results. Let's wrap up this chapter by looking at alternate workflows and record maintenance through deduping tools.

Alternate workflows

We are working within a CRM, a **Constituent**, or **Contact** relationship management tool. So, it's natural to view your data through the lens of contacts. Just about everything we've covered thus far has done this; we've either been working inside a single contact record or we've conducted a search to take action on a group of contact records.

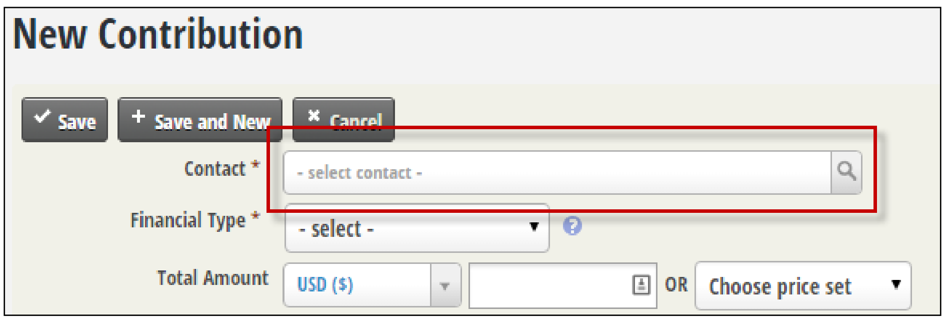
However, sometimes, it may seem more natural to start with the action itself. CiviCRM provides several options for this type of alternate workflow:



On the left sidebar, you will see a **Create New** button and a drop-down menu. This button is always visible in Joomla! and is available as a block in Drupal; WordPress currently does not have access to it due to the WordPress administrative interface limitations. Drupal users may configure it through **Administer | Site building | Blocks**. In addition to options for creating contacts, there are options available for creating an activity, contribution, e-mail, event registration, membership, pledge, campaign, survey, group, or tag.

Many of these options are also listed under the appropriate main menu item (for example, **New Contribution** is listed under the **Contribution** menu).

Choices that will be attached to a contact—such as a contribution record—will have a contact field on the form where you can begin typing an existing contact name or choose to create a new contact from the drop-down menu.



Creating a new record on the fly causes a pop-up window to appear with a few contact fields. These fields create contact forms and are configurable through **Administer | Customize Data and Screens | Profiles** under the **Reserved Profiles** tab. By default, they contain only a few required fields. You may want to expand what fields are included in order to ensure that the system users collect more information when they are entering records into the system.

The profiles used for on-the-fly contact creation are entitled **New Household**, **New Individual**, and **New Organization**, and are listed in the **Reserved Profiles** tab. Throughout CiviCRM, any records marked as **reserved** cannot be deleted (without special permission, and in some cases not at all), and will be used for special purposes in the system. It is recommended that you do not make any radical modifications to reserved records as it may have unintended consequences in the system. For example, we advise against renaming the **New Individual** profile, and then using it as a contact signup form.

Eliminating duplicates

Data is king. Even the most advanced CRM tools will be virtually useless if the data it is handling is incorrect, messy, or outdated. Your system will live or die based on the principle of garbage in/garbage out.

What steps can you take to improve the quality and reliability of your data? One important way is to reduce record duplication.

Record duplication is an unavoidable reality, especially once you begin to expose forms to the front of your website and invite constituents and site visitors to submit their own data. Fortunately, CiviCRM has several ways of dealing with record duplication.

Strategies for dealing with duplicates

There are three strategies we will use in the fight against duplicates:

- **Policies and procedures**: Yes, the first tactic is a human resource and management strategy. Anyone who is working in CiviCRM as an administrator must understand the importance of reducing duplication. You can start this is by enforcing a policy where every time a user is going to work on a contact record they begin by doing a search for the contact. Simple, right? How many times do people enter the system and immediately begin by creating a new record? CiviCRM's auto-fill search tools will help significantly, but they will only benefit you if they are used.
- **Inline deduping**: While creating or editing a contact record CiviCRM does a lookup to see if there is a potential match with an existing record. If so, you are given the option of visiting the potential duplicate record or continuing to save your current record. CiviCRM uses deduping rules (discussed in the following point) to define what potentially constitutes a match. The contact-type-specific supervised rule is used for inline deduping. You may also trigger a deduce check with the **Check for Matching Contact(s)** button. Understand that this functionality is a safety net—don't rely on it as your first line of defense. One potential loophole with this tool appears if the new contact has minimal data completed and consequently there is insufficient information to verify a duplicate match. For example, the default individual rule matches on first name, last name, and e-mail. If I add a record with the first name, last name, and address, it may not flag a potential duplicate because the e-mail didn't match.

- **Find and Merge Duplicate Contacts**: Available through the **Contacts** menu, this tool can be used to search your database for potential duplicates and merge them. Regardless of how well you adhere to the first two policies, you will need to schedule periodic maintenance routines where you manually run the **Find and Merge Duplicate Contacts** tool on your records. Depending on the size of your organization and where you are regularly obtaining new data (for example, through online forms), you may schedule regular deduping on a weekly, monthly, or semi-annual basis.

Finding and merging duplicates

When you first navigate to **Contacts | Find and Merge Duplicate Contacts**, you will see a list of rules organized by contact type. At a minimum, there will be at least two rules per type, designated as a supervised and unsupervised rule. Additional rules may exist marked for general usage.

The **supervised** rule for each contact type is used for the automated inline deduplication check we just described. When a contact record is entered, the appropriate supervised rule (based on the contact type) is used to determine whether there's an existing match. As a person is involved in the process of reviewing the potential match (thus **supervised**), the rule itself may be looser in its matching criteria. You can risk a rule that may generate some false positives because a person is overseeing the process and can make an informed judgment call.

The **unsupervised** rule for each contact type is used for automated deduplication, checking for frontend forms and bulk imports. For example, if you have a newsletter signup form using a profile and have chosen the option to update the record on a duplicate match, the **unsupervised** rule will be used to determine if the form submission matches an existing record.

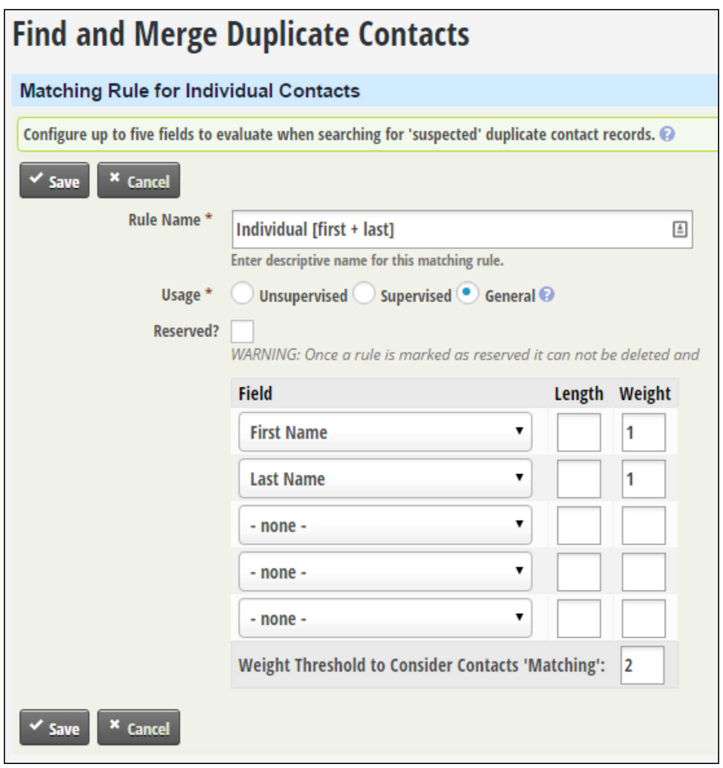
> When using the **Import Contacts** tool, you actually have the option of selecting a **Dedupe Rule** for use in matching the imported records. Typically, you will use the existing unsupervised rule, but you have the flexibility to create and choose other rules, which can be helpful if your import set has limited data, which would not reliably match the fields in your standard unsupervised rule.

The **unsupervised** rules are the most important ones in your system. They must be strict enough to ensure there are no false positives since there is no one overseeing the process to ensure an accurate match.

From the rule listing screen, you can initiate a manual deduplication check, can edit or create new rules for a contact type, or can use **View the Dedupe Exceptions**—contact pairs that have been whitelisted. Let's set up an example and walk through the process of configuring a new matching rule.

> FPAGM recently hosted their annual conference, drawing over 350 people from the state to learn more about food pantry management best practices and hear about other homeless action initiatives happening throughout the country. A majority of the participants registered online. While this significantly eased the amount of data entry work required by staff, it did generate duplicate records in the system as many participants were not careful while filling out the forms.
>
> The majority of the association's existing contact records (prior to the conference) did not have an e-mail address, so the default matching rules were too strict for their needs. They decided to create a new individual rule to match on first name and last name for the purpose of cleaning up their system.

Refer to the following screenshot:



Creating rules and finding duplicates

The matching rules form consists of three columns that may be configured: field, length, and weight:

- **Field**: This column indicates the data to be tested as a potential match.
- **Length**: This column indicates how many characters in the field value should be measured. A lower value will result in more matches, as more records are likely to find a match if a shorter value is used. For example, a length of four in the last name field would match Johnson and Johnston, whereas a length of six would not match (`Johnso != Johnst`). In the preceding example, we are seeking to have a fairly fuzzy match, so we've defined a fairly short length. Leaving the field blank will require a match on the entire field value. Note that for larger databases, setting a length value for rule fields may create performance problems as it makes the matching query much less efficient (and will typically return many more results).
- **Weight**: This column is used to calculate the likelihood of a match. Using the preceding rule, a match on both first name (1) and last name (1) yields a total score of 2, which meets the threshold value at the bottom of that column. The preceding example is very basic; we are simply requiring a match on all fields for the system to consider the contact a potential match. Consider an alternate configuration:
    - `First name (2), Last name (2), Email (1), City (1), Total threshold = 5`

In this configuration, a match on first name, last name, and e-mail or city would meet the threshold and return a potential match. With some creative configuration you can construct rules that require certain fields to match and treat others as optional.

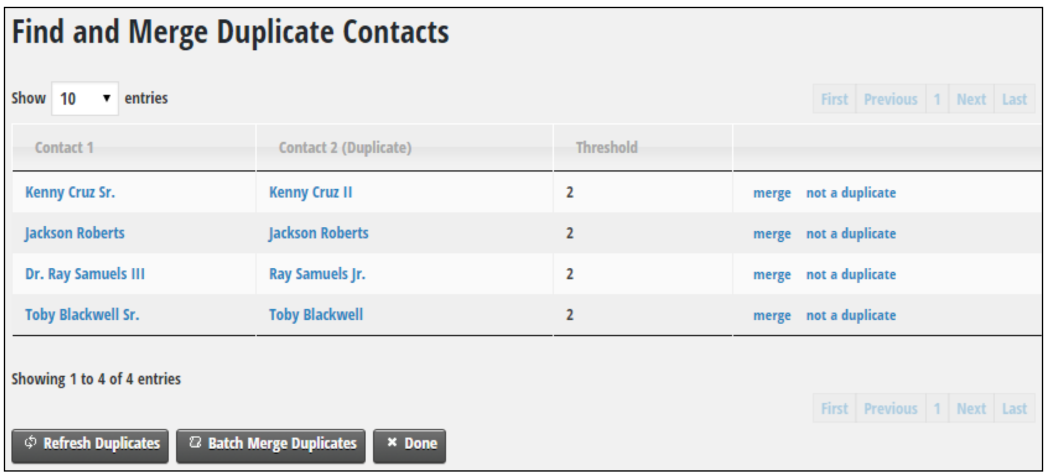
You will want to think carefully through your settings for the dedupe rules. Rules that are too strict may result in missing some valid duplicates and rules that are too fuzzy will yield long result lists that are cumbersome to work with.

Rules may be optionally flagged as **Reserved**. As we've seen elsewhere, a reserved rule can only be modified by users with sufficient permissions. As a system administrator, this gives you the ability to create and lock down certain rules, preventing staff from inadvertently modifying them.

Once you've configured your rule, click on **Save** to return to the rule list and click on **Use Rule** to run it. By default, a rule will be run against the entire database (with the contact type appropriate to the rule). However, you can choose to restrict the process to a group during the first step of the process. This is helpful if you have a very large database and want to process deduplication in smaller chunks of targeted records. Restricting the find duplicates process to a group will match the contacts in that group against the entire database.

Merging duplicates

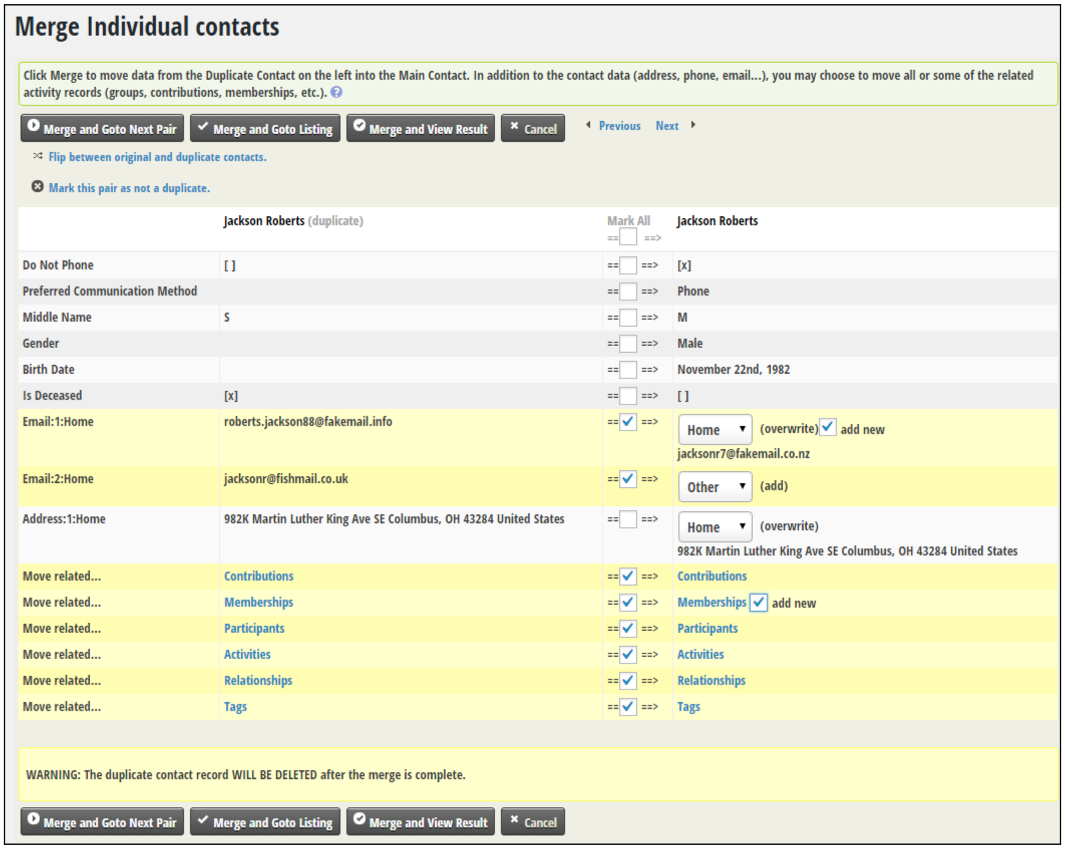
After CiviCRM runs the rule, it will return a list of potential duplicate contacts. The two potential matches are listed, along with the total weight (higher weighted matches are first), and a link to merge the records or mark them as not a duplicate.



The **merge** function is where the real power of this tool is realized. Both records are presented in a grid and you decide the fields that will be moved from the duplicate on the left to the main contact on the right. In this way, you can choose exactly what fields will be merged. The tool will also combine any related records, such as activities, contributions, and membership. This is important, as you would not want the historical data contained in those records lost as a result of the merging process.

> Be careful! Dedupe/merge is a powerful tool. Once you choose to merge the records the duplicate contact will be deleted from the system. If the contact trash is enabled, the duplicate will be moved to the trash, though you should not rely on that as your safety net.

Refer to the following screenshot:



As you can see from the preceding screenshot, we've chosen to merge two e-mail records and all of the related contribution, participant, membership, relationships, tags, and activity records (in order to preserve the historical data).

You can complete the merge and choose to view the result, return to the listing, or advance to the next pair of matching records. At the top of the page, you navigate to the next or previous matching record, flip the two records (so that the duplicate and retained records swap places), or whitelist the contacts (mark them as not a duplicate). If the merge screen does not provide enough details for you to determine if the two contacts are a match, or if you need to review either of the records in more detail, you can click on the contact name at the top of the column to view the contact record (typically, you would open the link in a new tab in order to retain the records in the merge screen).

Returning to the merge listing page for a moment, there are two additional tools available to you. As the name suggests, **Refresh Duplicates** will rerun the duplicate matching rule and refresh the listing. If you've jumped between screens, whitelisted some records, and merged some pairs out of order, you may want to periodically refresh the list to see what records remain to be reviewed. The **Batch Merge Duplicates** option will cycle through all matching records and merge them—but only if it is safe to do so. A safe match is one where no data in a specific field directly conflicts. For example, if you have two John Doe records with the exact same address, each of which has contribution records, the match will be deemed safe and the contributions combined. However, if both records have a value in the job title field that does not match, they will be considered as being in conflict and will not be merged. An empty value in one record (for example, in the job title field) will not be considered a conflict, and will be filled with the value in the other record.

> If you are doing a large scale cleanup of your system, we recommend running a backup beforehand. While duplicate records are trashed—and thus, available for restoration if a mistake was made—it is generally wise to make sure you have a full backup of your system before making any wide-scale data changes.
>
> Also, if you are doing a system wide cleanup, you will want to begin by creating and using rules that are very strict (and which will consistently yield valid matches), and then work toward fuzzier rules that may generate more false positives. This way, you identify and merge the more certain matches first.

Summary

In this chapter, we delved into the heart of CiviCRM—the contact record. We learnt how to navigate effectively through the system and also thought through the implications and configuration of contact subtypes. We saw how to create contact records, discovered the types of data we store with the record, organized records with groups, and categorized them with tags. We built relationships from one contact record to another and tracked communication with contacts using activities and miscellaneous information with notes. We also ran searches and understood the difference between contact and component-based searches and performed actions on search results. We discovered alternative workflows available through the system and also conducted the important maintenance process of deduping and merging records.

At this point, you should feel comfortable with the CiviCRM interface and understand the basic contact functionality and concepts. In *Chapter 5*, *Collecting, Organizing, and Importing Data*, we will look at the broader picture of collecting, organization, and importing contact records.

5
Collecting, Organizing, and Importing Data

At the end of the day, any CRM solution is only as good as its data. You can have the latest and greatest software tools available, perfectly customized to meet the needs of your organization, but if your data is incomplete, practically nonexistent, or filled with duplicates and inaccurate information, all of those wonderful tools will be useless.

In the previous chapter, we walked through the CiviCRM interface, understanding the different types of records that will be attached to contacts. However, we did not answer the questions of how we collect data, organize it, and import it into the system.

In this chapter, we will cover the following topics:

- Understanding and creating custom data fields to store data
- Organizing data fields in profiles for the purpose of creating online forms and other tools
- Integrating profile forms with membership forms, event registration, contribution pages, and online petitions
- Updating multiple contact records at once
- Importing contact records and activities from an external source

Our goal in this chapter is to move from a basic understanding of the system tools to a place where you can begin to work with your own data.

Custom data fields

Out of the box (or more accurately, off the website), CiviCRM has a core set of fields for each type of record that handles the most fundamental and common needs of the system. Within the contact record, they include standard communication fields (phone, e-mail, website, and IM), address fields (street, city, state/province, country, county, and geocode), demographics (gender, birth date, and deceased date), communication preferences (do not mail, do not e-mail, preferred method of communication, and so on) and various additional fields. CiviCRM has a set of fields for each entity in the system, such as **Event**, **Membership**, and **Contribution**.

Whether you are migrating from an existing database or starting from scratch, you will inevitably have additional data you need to store in fields. CiviCRM provides for this need through its custom data tools.

> Custom data is an incredibly powerful way to extend the database to meet the particular needs of your organization. However, it takes some planning and possibly some iteration cycles to build the fields effectively and ensure that the data will be stored and accessed the way you really need it to. Take the time to read through this chapter carefully before diving into the field construction process.

Custom data consists of the sets of fields. You first define a custom dataset, assign it to an existing data object, and then create fields within the set.

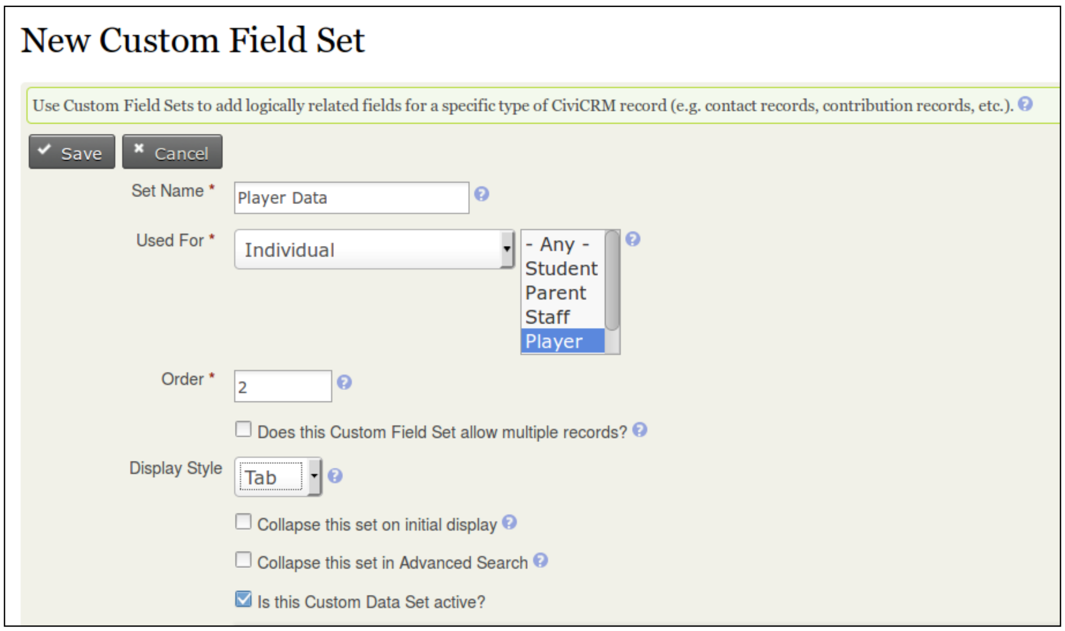
By data object, we mean an *existing type of record*. Your custom fields will extend some type of record in your system, such as individual contacts, membership records, or groups. You configure what record type will be extended, along with any associated subtypes or options, when you create the custom dataset. We will review the options available for extending records in this section.

> Consider this example: Soccer club CiviStars uses CiviCRM to manage their memberships but also their teams and players. When capturing data for players, they want to collect some additional data, such as the position, number of goals scored, number of assists, date first match, and date last match. To do this, they will create a custom set of data called `Player Data`. This custom set will extend each **Individual** with the contact subtype **Player**.

Let's take a look at the custom data interface and walk through the creation of new custom fields to get a better sense of how this works. We can access custom data through **Administer** | **Customize** | **Custom Fields**.

Begin by clicking on **Add Set of Custom Fields**. Enter a name for the set and select how it will be used (what record type it will extend). This is the most important step in the process—once you begin collecting data in these fields, you will not be able to change the type of data it is connected to. Many of the options available will provide additional sub-options. For example, if you create a custom dataset attached to events, you may then specify one or more event types that the dataset will be used for (select **–Any–** to expose the custom fields to all event types).

Note that if you are adding a custom set for a contact, you also need to decide whether there is only a single set (such as the player data in the example) for each contact or that there could be many (for example, a contract, where one player could have several contracts with the same fields for each contract):



Let's briefly review the uses available (in other words, the types of records that can be extended through custom fields). Some of them are self-explanatory, but there are some important distinctions:

- **Activities**

  This type is available when creating or editing an activity record. You may further restrict its use to one or more activity types.

- **Addresses**

- **Campaigns**

  This type extends the campaign data and can be filtered by campaign type. Don't confuse the campaign data with the surveys used in campaigns; separate field sets can be created for the actual surveys used to collect data from constituents.

- **Cases**
- **Contacts**

  This type is available to all contact types. Use the **Individual/Household/Organization** options if you wish the fields to only be available to a single contact type or even to a contact subtype if you created them.

- **Contributions**
- **Events**

  This type is available when creating an event and may be restricted to one or more event types. Note that this is used for tracking information *about* events, and not for collecting information from registrants. Use one of the participant options for registration data.

- **Grants**
- **Groups**
- **Household**
- **Individual**
- **Memberships**

  This type is attached to membership records and may be restricted to one or more membership types.

- **Organization**
- **Participants**

  This type is available to all event participant records (that is, the actual registration information).

- **Participants (Event Name)**

  This type is available to participant records for the event(s) selected by the name of the event.

- **Participants (Event Type)**

  This type is available to participant records for the event types selected.

- **Participants (Role)**

  This type is available to participant records for the event roles selected (for example, only speakers at events).

- **Pledges**
- **Relationships**

  This type is attached to relationship records and may be restricted to the relationship types selected.

- **Surveys**

At the risk of being repetitive, we want to underscore the importance of thinking through exactly how your data will be used, and where it should be attached, before creating your custom dataset. Once defined and in use, you generally cannot change the way the custom data group is used.

Once you have planned your custom sets and fields, create them in a test environment first to check whether it meets all your requirements. You will probably need a few iterations to get it right, depending on the number of custom fields and the complexity of your requirements.

> Note that you are not limited to one custom dataset per used-by type. You may create as many custom datasets as you wish and may create multiple sets attached to the same record type for the purpose of organizing your fields into different tabs or inline collapsible sets.

Having given this warning, we will note that in some cases, you can move a custom data field to a different custom dataset, which may have the effect of changing how the field is being used. This should be viewed as a last resort option, as it can create unexpected issues if there is existing data stored in those fields.

After naming your group and choosing how it will be used, you can set the order (helpful if you have multiple groups used for the same record type), add descriptive text before and after the fields, and choose from several configuration options. These include the following choices:

- Whether the field set should be collapsed when the record is first opened, or expanded so that the fields are visible
- Whether the field set should be collapsed when viewed in the advanced search or expanded by default
- Whether the group is active

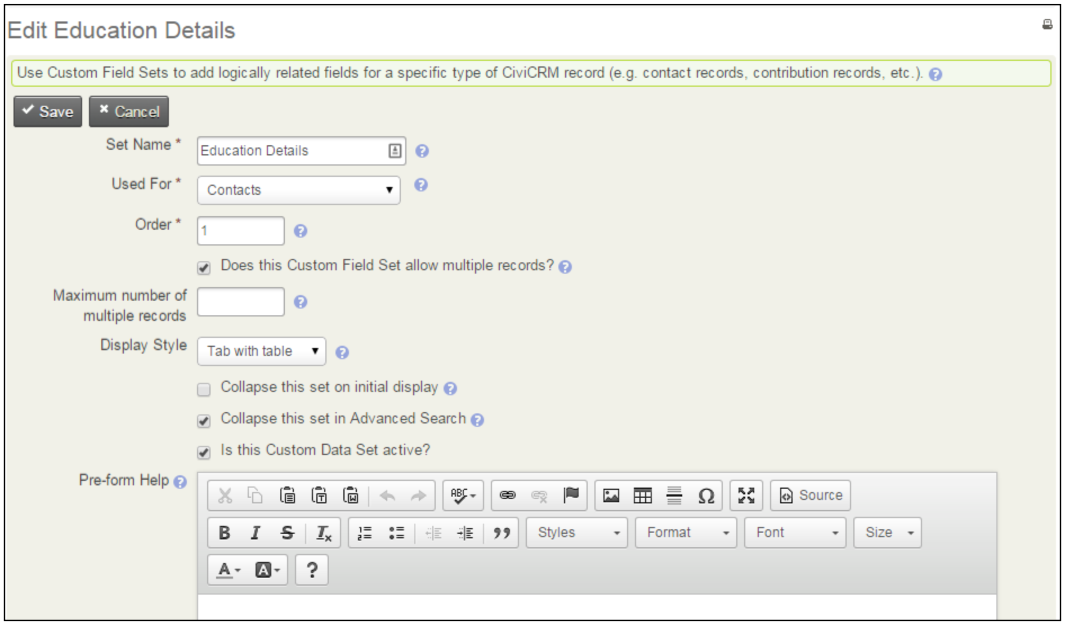
These options are straightforward and can be modified at a later date if you decide you prefer different selections. In general, it may be helpful to collapse the fields in the advanced search, where you want to be conscious of your screen real estate, and expand them when creating/editing the record, where it may be important to alert the user to the presence of the fields during data entry.

If your group is attached to one of the contact record options (**Contacts**, **Individual**, **Household**, or **Organization**) you have several additional configuration settings to consider:

- **Display Style**: The fields may be presented inline (**Inline**), appearing in the contact's summary and edit screens, or in their own tab (**Tab** or **Tab with Table**) in the contact record. The **Tab** display will show each complete record set in an accordion panel. The **Tab with Table** display will list the records in a table. When constructing the fields, you will have the option of choosing the ones that should be displayed in that table listing. This gives you control over the display so that the table is not inordinately wide.
- **Multiple records**: This setting is used for collecting multiple sets of records for a contact.
- **Maximum number of multiple records**: If you have enabled the multirecord functionality, you are also given the option of limiting how many records may be created for the contact.

> Note that multiple-record sets must be displayed in a tab, not inline, and only the first of multiple records will be exported. In addition, be aware that once you flag a custom group for use with multiple records, you cannot undo that setting and change it back to a single-record structure. This is because you may have added multiple data records and CiviCRM would have no way of determining which of the multiple records should be retained as the single set of data.

Save your custom dataset and you will be advanced to the form for creating your first custom field associated with this set. You may return at any time to adjust the settings for your group or add/delete/modify settings for fields:



As with the configuration for custom datasets, it is important to think carefully as about how your fields will be used. You can return at a later time to alter some of the settings, and even change the field type. But this is very limited; I can really only change some settings within a type. This is for a simple reason—once data is collected for a specific field type, it will be stored in ways specific to that type. Changing the type could easily result in data loss. For example, if I create an **Alphanumeric Text** field and later want to change it to a **date type** field, existing data would be lost, as it cannot reliably convert a string to a date type format.

After naming your field, select the data type and corresponding display type. The options available will depend on what data type you've selected. The following data types are available:

- **Alphanumeric**: This data type is used for standard text fields. It may hold numbers, but they will be stored as text (you cannot run calculations with them). The field length is limited to 255 characters.
- **Integer**: In this data type, the size of numbers can be stored depends on your server, but is likely to be about plus or minus 2 billion on 32-bit operating systems, and about plus or minus 9E18 on 64-bit operating systems.

> Note that CiviCRM silently rounds integer values entered outside the allowable range to the minimum or maximum value without displaying an error.

- **Number**: This data type should be used for values requiring decimals.
- **Money**: This data type is used for monetary values. It will be displayed according to the default currency selected in your global settings.
- **Note**: This field is used for longer text strings, such as lengthy descriptions or comments.
- **Date**: You are given the option of selecting what date and time format will be used, including using only parts of the date. For example, if you want only the year and month, you may choose from several options displaying those values. When configuring dates, you also decide how many years in the future and past will be available to the calendar widget.

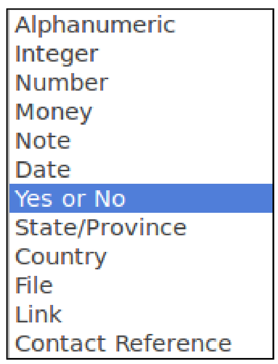
> Currently, all date fields make use of a pop-up widget to select the date. While this is helpful for ensuring accurate data storage (the widget constructs the value from the selection and places it in the required database format), it means partial date fields (such as selecting year only) will still operate by selecting a specific month/day/year. This is unfortunately non-intuitive from a data-entry standpoint. It also impacts searches on these custom date fields, and may yield unexpected results. If you do not need a specific date recorded, a **Date** field is not appropriate.

- **Yes or No**: While alphanumeric checkbox fields can be used for yes/no functionality (where checked equates to yes), this field may be more useful when you need to easily search for explicit *no* values. You could make this field required and set a default value of `0` (that is, no) to ensure all records have a value recorded, so search results are actually meaningful.
- **State/Province**: This data type will permit selection from a list of states and provinces enabled in your CiviCRM.
- **Country**: This data type will permit selection from a list of countries enabled in your CiviCRM.
- **File**: Browse button to upload a file. Files will be stored in the upload directory defined in global settings. A link to access the file will be presented in the custom data display. When you return to edit a record for which an existing file has been attached, you will have the option of replacing the file with another upload or deleting the existing file.

- **Link**: This data type is a hyperlink, which will be hot-active when in view mode.
- **Contact Reference**: This data type is used to link to another contact record. The field will render as an autocomplete field and will allow you to begin typing to locate another contact in the database.

> By default, the contact reference type field will pull contact matches from the entire database. In most cases, you will not want to do this, as it would expose all your contact records to whoever is using the form. Through the interface, you may limit the records accessible to this field by a group, or through an advanced filter. The advanced filter harnesses the API to construct the filters for the field.

Refer to the following screenshot:



After selecting your field type, choose your preferred display format. The options available depend on the field type, and several field types have only one option value. We will list and describe all of the display types that may be available.

When choosing a display type that includes a list of options (such as select, checkbox, and radio buttons), you will be provided with a form for creating the option labels and values. You can enter up to 10 options initially; after saving them, you can add more. You are also given the option of reusing a list previously created for another field. The label is what will appear in the forms; the value is what will be recorded in the database and exported from the system.

> Label text should be descriptive and meaningful to the person completing the form. Most of the time, you will enter the same value for both label and value, unless you have a good reason to make them different.
> Also note that if you choose to reuse an option list from a previously created field, any modifications you make to that list will impact *all* of the fields that use it. If you truly have a common set of options that are continuously reused, this shared list functionality is quite useful. Be mindful of unintended consequences if the shared options are later used in a way that was not anticipated originally.

The display types that appear are as follows:

- **Text**: This data type is a basic text field.
- **Select**: This data type is a drop-down box; select one option.
- **Radio**: These buttons allow you to select one option from the list available. If the field is not required, a link to unselect any options will be included in the display. You may decide how many options will be listed per line.
- **CheckBox**: This list allows you to select or deselect any of the options. You may decide how many options will be listed per line. Note that one weakness of checkbox options is the inability to easily search for unchecked values. If this option is important to you, consider creating yes/no type fields for each option and make it required. This will result in explicit values for both options.
- **Multi-Select**: This data type is a list of options, allowing the user to select one or more option. The list will appear in a drop-down list; however, as you select options, they will be added to the selection box in a tag-style display. This display format is particularly useful for larger option lists, where checkboxes would require too much space.
- **Advanced Multi-Select (obsolete)**: This data type displays the two columns of options—the left column displays all the available options, and the right column displays the selected options. Use the arrows between the two columns to move options to or from the selected list. This field is marked obsolete because improvements to the standard **Multi-Select** field are considered more user and visually friendly than this tool.
- **Autocomplete-Select**: This data type is similar to the **Select** drop-down box, but you begin typing a value to have it search for possible matches among the option list. This is useful for single-select fields that have a large number of options.

- **TextArea**: This data type displays a multiline box for entering longer text. It will store the content as plain text with no HTML. You may decide the initial height and width of the box, though it can be expanded by the user.
- **RichTextEditor**: This data type displays a multiline box for entering longer text with the **WYSIWYG** editor toolbar, as configured in **Global Settings**.
- **Select Date**: This data type is a pop-up calendar widget for selecting a specific date.
- **Select State/Province**: With this data type, select one state or province from the list enabled at **Administer | Configure | Global Settings | Localization**.
- **Multi-Select State/Province**: With this data type, select one or more states or provinces.
- **Select Country**: With this data type, select one country from the list enabled at **Administer | Configure | Global Settings | Localization**.
- **Multi-Select Country**: With this data type, select one or more countries.
- **Select File**: With this data type, provide a browse/upload file field.
- **Link**: This data type is a hyperlinked URL field.

Proceed with completing the field creation form, entering a default value (if desired and available), providing help text, and determining whether the field is required. Note that if you designate the field as required, it means that entering the field will be required for every new record in the backend!

If you would like this field included in the advanced search tool and relevant reports, tick the box for **Is this Field Searchable**. Typically, you will want most of your fields to be searchable, though it's worth considering the question. For fields that are unlikely to be searched, keeping this option off streamlines the advanced search interface.

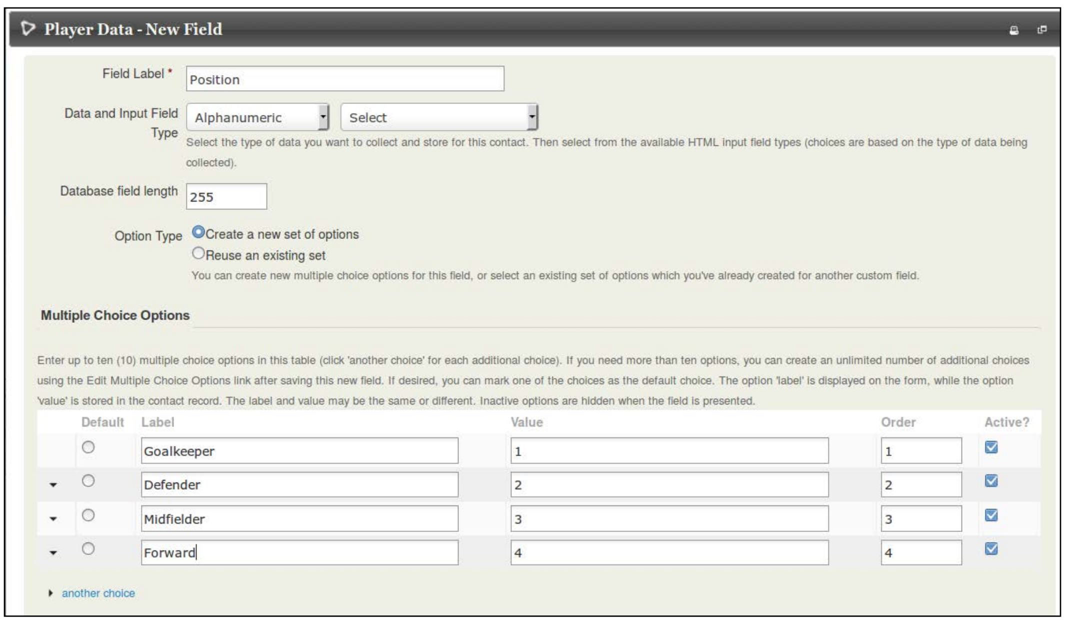
The last option on the field creation form is to mark a field as **View Only**. There are two situations where this can be helpful:

- If you are importing data from a legacy system, you may have some fields which you would like to retain in the new system, but would not want to maintain on an ongoing basis. Most often, this happens because the legacy fields find a different expression in CiviCRM, such as becoming part of the tags or groups structure. After creating the fields and importing the data, you would return and mark this field as **View Only**. In this way, you ensure that the data is available for reference, but users will not add to or edit it.

- The **View Only** fields are also helpful if you wish to populate the field with values calculated by hooks or other code. We will discuss hooks toward the end of the book, but for our immediate purposes, understand that they are a way for developers to run custom code at certain times. For example, you might create a custom field called `age`, which calculates the age of the contact based on the birth date (a standard field), and the current date. You want the value updated automatically with code every time it is displayed rather than relying on users to manually record the value.

> Note that you cannot import data into a field designated as **View Only** using the **Import Contacts** tool. You should leave the field as editable, import your data, and then return and mark it as **View Only**.

Refer to the following screenshot:



On the subject of importing legacy data, you may also find it useful to initially import, and then later completely hide some fields (not just mark as **View Only**). As with most tools in CiviCRM, you can easily disable custom fields. Doing so retains whatever data is stored in the fields, but completely removes it from the interface.

> Are you interested in understanding how CiviCRM handles custom fields in the MySQL database? Open up your database in phpMyAdmin, SSH, or your preferred database management tool. The creation of a custom group adds a record to the `civicrm_custom_group` table, containing your configuration options, and creates a new table called `civicrm_value_[unique text based on group name and id]`. Each custom field adds a record to `civicrm_custom_field` and creates a new column in the appropriate table.
>
> The table created by the custom group will always have an `entity_id` column that is a foreign key to the object's table it extends. For example, a custom group used for individuals will use the `entity_id` column to link the custom data record to the `civicrm_contact` table's `ID` field.
>
> This is helpful to know, should you ever need to run custom queries on your data. The structure makes it very easy to build relationship diagrams and queries between custom data tables and the records they extend.

Custom datasets and fields are a powerful tool in your CRM strategy. You are likely to find the need to construct them during your initial implementation to meet defined data recording needs, to import legacy data, and throughout your ongoing use of the system as data needs continually evolve.

> FPAGM will use custom fields to collect information about the food pantries they serve and businesses supplying food to the organization.
>
> Since the information collected for these two types of contacts is significantly different, the association will define two custom field sets and designate them for use with each contact subtype respectively. This is done by selecting **Organization** as the **Used For** value and choosing the appropriate contact subtype in the multiselect box that appears.

One important thing to keep in mind as it relates to the impact of custom fields on your database structure is that if you migrate your site to a new server, you will need to make sure the additional tables created by custom groups are migrated. In other words, it is not sufficient to export only your data; you must also export the database structure. Importing only the data into a clean installation of CiviCRM on the new server is insufficient as you will be missing the custom data tables from your old database.

> If you are a developer, you can also create custom sets and customer fields programmatically.
>
> If you are doing an initial configuration of your system and planning to import data, we recommend you create your custom datasets/fields, and then import a small sample of your data. Take some time to review how the data was imported and walk through some edits of the data to ensure the field types and display are structured in a way that makes sense and meets your data requirements. Once you've imported your live data, it will be more difficult to make adjustments to the fields. Take the time to work with the fields now to ensure they are configured correctly.

Creating online forms with profiles

Until this point, most of our attention has been spent understanding CiviCRM's administrative interface and customizing/configuring the system to meet your organization's needs. However, the power of CiviCRM isn't fully realized until you begin to collect and expose data to your website.

> If you are using Drupal as your CMS, you can use Drupal Webforms in combination with the Webform CiviCRM Integration extension to expose and collect data on your website rather than use CiviCRM profiles.

It's not uncommon for organizations to have very disjointed systems collecting and maintaining their constituent data. Perhaps you have a central database, such as MS Access, that is used by staff to track your members or donors and is stored on your office network. Several staff people may be maintaining spreadsheets with information relevant to their job functions, and which they need access to while traveling, or away from the office network. Perhaps your current website has a database where user login access accounts are stored and a list of members is periodically updated in order to have an online directory.

CiviCRM provides an opportunity to bring these disparate data sources together—those used internally on your office network, those which must be accessible remotely, and those which should be exposed on your public or user-accessed website. In doing so, you streamline workflows and improve data integrity:

In CiviCRM, you collect and expose data using profiles. Profiles are basically a collection of fields. You choose settings for the profile and its fields based on how you plan to use it. Profiles may be used for the following tasks:

- Creating forms where you collect information from users, either as a standalone form or as part of a contribution form, event registration form, or petition
- Exposing fields to logged in users and allowing them to edit and save their data
- Displaying field values to logged in users
- Creating website user account signup forms
- Providing contact record search forms and controlling what appears in the result list and detail view
- Creating alternate search result views in **Advanced Search**
- Performing batch record processing on search results

As a result of their flexibility and diverse ways in which profiles can be used, it is sometimes difficult to grasp the extent of their functionality or see potential uses. As we walk through this section, we will take time to offer suggested uses as you build your website.

> In the section, *profiles in action*, you will find an example of using a profile.

You administer profiles through **Administer | Customize | CiviCRM Profile**. This is where you will create new profiles, manage existing ones, and access the fields associated with each. You can also access several links for exposing profiles directly to users in various ways. We will see other locations in CiviCRM where you may insert profiles into event and contribution forms.

> When you first visit this page, you'll notice that it is laid out with two tabs at the top. User-defined profiles are those you create for your own purposes, such as the uses discussed above. Reserved profiles are those created by CiviCRM during installation and which are used for specific internal functions. While these reserved profiles may still be modified, they may not be removed from the system as they must be available for system functions.
>
> For example, when a new contact record is created on the fly, CiviCRM uses the appropriate reserved profile listed here to determine what fields should be made available. One example of where this on-the-fly creation may occur is when you create a new activity that is not in the system yet. The activity record must be associated with a contact record. You may either use the autocomplete search tool to find an existing contact, or choose to create a new contact record, which will open the corresponding contact type form in a pop-up window. This form is controlled by these reserved profiles. The default profiles have only a few basic fields, but you can change that by editing them here. For example, you may decide that every time a new individual is created, you collect the address and phone in addition to their e-mail address.

Let's briefly review the various settings available when creating a profile and its fields, and the standard selections for each use type.

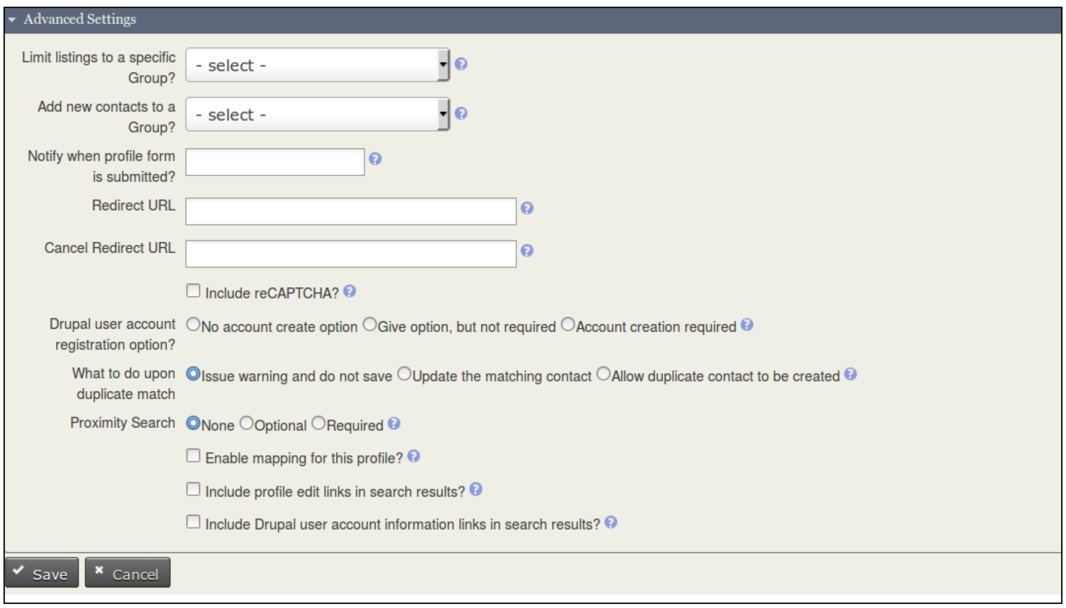
After clicking on **Add Profile**, enter a profile name (which will appear at the top of the form when presented on your website), and optionally provide a description (for internal reference only). Next, select from the following options what it will be used for:

- **Standalone Form or Directory**: This option is used for data collection and searching forms
- **Search Views**: This option is used for advanced search results and batch updates
- **Drupal User Registration**: With this option, fields will be added to the user account registration form (Drupal only)
- **View/Edit Drupal User Account**: With this option, fields will be added to the user account form (Drupal only)

You may return at any time to adjust these settings. As you can see, a single profile could potentially be used for multiple purposes. For the sake of reducing system clutter, it is best to initially only select those options you know you will be using.

If desired, enter **Field Pre Help** and **Field Post Help** text, which will appear when the form is in edit view. Click at the bottom of this form to expand the **Advanced Settings** panel. The options listed here significantly expand the functionality of your profile. Remember that not all options will be applicable for every use of the profile. CiviCRM simply ignores options that don't apply to a specific use of the profile on your site.

For example, you might create a profile containing contact address fields that is used for a profile view page on your site and is also used as a search results view on the administrative side. Settings related to search, such as what columns will be in the result list, will be ignored by the first use of this profile. Typically, you are creating a profile for a single use, and in general, this is a good way to think about the process. However, there is no actual limitation in the software as to the number of ways in which a single profile can be used:



Let's review the options:

- **Limit listings to a specific Group?**: This option only applies to profiles used as search forms. Selecting a group from this list will limit the contacts searched to only those included in the group. For example, if you are creating an online member directory, you will first create a smart group for current members, and then limit your search profile to this group so that only members in good standing will be returned in any search using this profile.
- **Add new contacts to a Group**?: This option applies to profiles used as contact signup or edit forms, including those used in conjunction with contribution pages and event registrations. When a user completes the form, they will be added to the group you've selected. This provides a great way to trace the source of your contacts or manage mailing lists.
- **Notify when profile form is submitted?**: You can choose to have one or more persons e-mailed when a profile's **Create** or **Edit** form is submitted. For multiple e-mails, separate each one with a comma.
- **Redirect URL**: After the form is submitted, you can choose where the user will be redirected. To use this field, enter a fully qualified URL (including `http://`). If the field is left empty, the user will be directed back to the profile form with a message, indicating a successful submission.
- **Cancel Redirect URL**: Similar to the last field, this option is used to redirect the person if they cancel the form. Leaving the field blank returns the user to the profile form and clears the fields.
- **Include reCAPTCHA?**: Captcha is a method for discouraging spam and robots from completing your online forms. Before enabling captcha on a profile form, you must first obtain an account at `http://www.recaptcha.net` (you will be directed through Google to create the account). After setting up an account and obtaining a private and public key, enter these values in **Administer | System Settings | Misc (Undelete, PDFs, Limits, Logging, Captcha, and so on.)**. Once you've configured reCAPTCHA in the global settings, it will be available to any profile form.

- **Joomla!/Drupal/WordPress user account registration option?**: Earlier in this section, we mentioned that a profile can be inserted into a Drupal user account form. The reverse is also available for Drupal, Joomla!, and WordPress—you can create and expose a profile form and have the user account fields (username and password) included. You may make user signup optional or required, depending on your needs. This is particularly useful when you are including the form in contribution pages and event registrations. For example, you may want to encourage people who are registering for your annual meeting to create a user account for future access to the site. Note that your profile form must include an e-mail address field and user account registration must be enabled in your CMS settings in order to use this feature.
- **What to do upon duplicate match**: What happens if someone already in your database completes a form on your site if the profile is being used in the create mode? Should a new contact be created? Should the fields be ignored if there is already data in them or should the new data update and overwrite the existing data? Use this option to decide whether duplicate contacts should receive a warning, be updated using the existing record, or whether a new duplicate record should be created. Check **Find and Merge Duplicate Contacts** tool (**Contacts | Find and Merge Duplicate Contacts**) to see what rules are configured for the appropriate contact type to identify matching contacts. Also note that CiviCRM will always update existing contact records for profile forms embedded in contribution and event registration pages.
- **Proximity search**: If a profile is used for searching, you can enable the proximity search functionality. Doing so will add several fields to the form, including address fields and a radius distance field. If set to required, users must complete the proximity search fields in order to use the tool. Make sure you have configured geocoding or this tool will not work (**Administer | System Settings | Mapping and Geocoding**). You may also need to run the **Geocode and Parse Addresses** schedule job (**Administer | System Settings | Scheduled Jobs**). This will geocode addresses that have not yet been processed.
- **Enable mapping for this profile**: If mapping is enabled and CiviCRM has successfully geocoded the address for a contact, a link to view the location on a map will be included in the search results and on the record's detail view. As with the previous option, making sure mapping and geocoding is configured in your site.

- **Include profile edit links in search results?**: This option provides a link for sufficiently permissioned users to edit other contact records in the system through a profile. Since the access to edit contacts is funneled through a profile, you can easily control what records and what fields the user can edit. You will need to permission the user appropriately to access and edit records for this profile.
- **Include Joomla/Drupal/WordPress user account links in search results?**: Enabling this option inserts a link to the user's website account page (**View Only**) in the search results. For websites seeking to build a social community, this can help people connect with other users.
- After completing the **Settings** form, you will be directed to a form where you can begin defining fields for the profile. This process involves selecting fields from the core fields that are natively part of CiviCRM, and custom fields that you have previously created. Your options for the **Profile** fields are somewhat independent of the original field definition (whether it is a core field or custom field). For example, you can flag a field as **Required** in the profile that is not required in the original definition, or you can add custom text before or after the field to help explain its use in this particular context.

The **Profile** field settings can be a bit confusing as the options can impact the field display significantly, depending on your use of the profile.

The first concept to grasp is the types of fields you can *combine* in a profile based on your planned use. As with the other parts of CiviCRM, the field selection process involves selecting the type, the field, and then any sub-options relevant to that field. You may add contact, activity, participant (event registrants), membership, and contribution fields to your profile. Additionally, there is a **formatting** option, which can be used to insert the HTML text into a form row. This option is useful when you want to separate your fields into subsets by inserting subheading rows.

Although all these field types are available through the field configuration tool, your actual use of the profile will dictate what combination of field types are allowed. In particular, there are two primary rules dictating use:

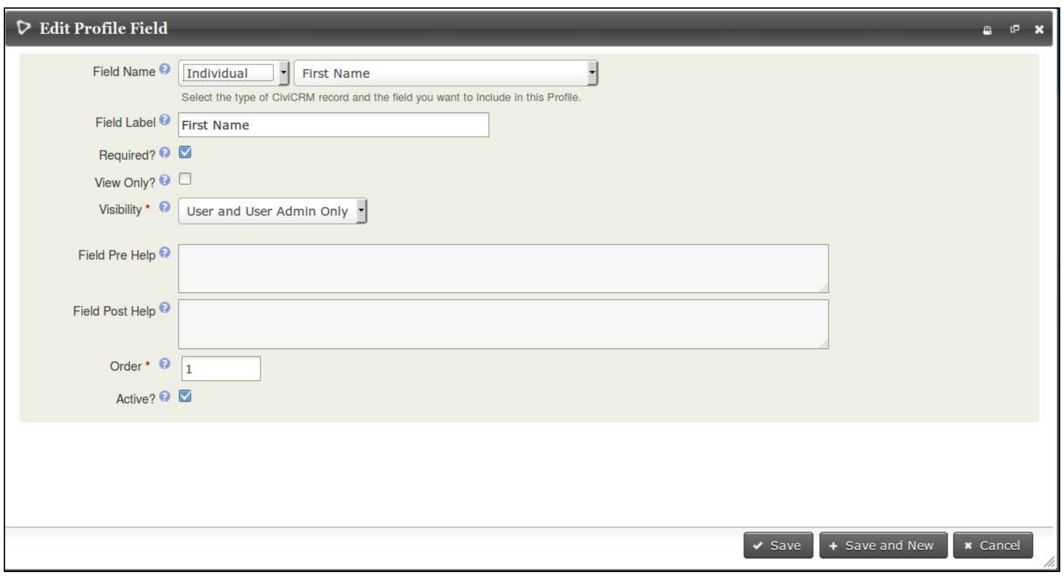
- Different contact type fields cannot be mixed. This is the most common mistake for new users. The limitation means you can't construct a profile that includes both **Individual-** and **Organization-specific** fields, and other such combinations.

- The **Activity/Participant/Membership/Contribution** fields may only be used in profiles used within the associated type of page. In other words, you can't use these fields with standalone forms, and you can't use a membership field in an event registration form, or other mismatched uses.

If you fail to respect these rules, your profile page will render an error, indicating that you have mixed-type fields, and you will need to correct them before proceeding.

> The field type list contains a **Contacts** option, as well as options for specific contact types and subtypes (**Individual**, **Organization**, and so on). The **Contacts** option includes fields common to all contact types, such as the **Address**, **Phone**, and **Communication Preferences** fields. The contact type fields are specific to only that type.

Refer to the following screenshot:



After selecting a field, you may proceed to complete the other fields, such as the **Field Label**, **Required**, **View Only**, **Field Pre Help**, and **Field Post Help** text. Note that the **View Only** fields will not be included in profile search pages.

Visibility and listings

One very important field to configure is the visibility field, which determines how the field data will be handled. There are three options available:

- **User and User Admin Only**: This option is the default option and can be used for fields found in all profile create/edit/view and component pages (events and contributions). It means that if you entered the data on this profile, only you and the system administrator can see the data. For example, someone else will not be able to access your signup form. Consequently, this option is the most restrictive and also the most secure. There generally is no need to change this field value unless your profile will be used as a search form.
- **Public Pages**: This option should be selected if you want to expose this field to a search profile either through the search form itself or as part of the resulting records' detail views. This includes profiles used for search results in administrative pages and batch updates. As the name suggests, it indicates that the contact record data may be viewed by contacts other than the logged-in user. For example, John Doe may use a profile search form to look up the address for Janis Smith.
- **Public Pages and Listings**: This option works the same as the previous one, but also includes the ability to hotlink values in the detail view. This is a great way to encourage follow-up searches from your resulting records. For example, let's say you have a custom field called `service types` that is attached to organization records. The field is displayed as a list of checkboxes from which the user selects one or more. After conducting a search and viewing a record, you see that they are associated with three of the services. In the profile form, this field was assigned with the **Public Pages and Listings** visibility, which means the three services for this record are displayed and hyperlinked on the detail page. Clicking on one of the services generates a follow-up search based on that value. In this way, the user can easily conduct multiple follow-up searches. Later in this chapter, we will construct a profile that uses this field and points out how it is displayed and used.

The **Visibility** option for the profile fields is not the only way you control access to data through your website, but it is one important way to limit the profile field use and should be considered carefully as you build your profile. As a general rule, you can leave the setting as **User and User Admin Only** unless you are using the profile in a search capacity.

If you have chosen either **Public Pages** or **Public Pages and Listings** for your visibility option, you will see two additional options appear in the form:

- **Searchable**: Checking this option indicates that the field should be available on search forms. Give some thought to the type of field you're working with when building out search forms. You typically will want only a small number of fields on the search form and several more fields included in the profile for display in the detail view.
- **Results Column**: After conducting a profile search, the user is given a paginated list of all records matching the selected search criteria. From that list, they can click on it to view the record details or map the contact (if enabled). Select this option to include the field in the result list table. Keep in mind that your horizontal screen real estate is likely to be limited based on the website template/theme you are using. You will only want to include a handful of fields in the search result view.

After completing the form, you may save it and return to the list of profile fields or click on **Save and New** to add additional fields.

There is one additional configuration feature to be aware of. You may recall when we reviewed custom field creation, we discussed the ability to create a custom set that supports multiple records. The example we used was educational history, where you want to store a separate record for the individual's secondary school, undergraduate, and graduate work. Multirecord custom fields can be exposed through a profile with the following considerations and restrictions:

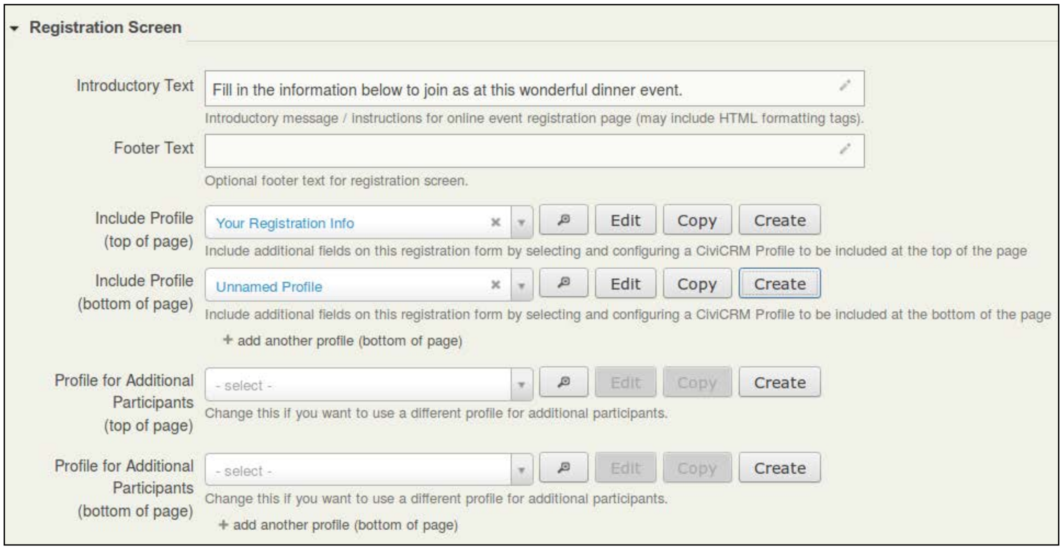
- You may only include fields from a single multirecord custom set. Mix and matching from different sets is not supported as it would be difficult to define how the records interact with each other.
- When configuring a multirecord field, the profile display in view/edit mode will show a list of the existing records in a sub-table below the other profile fields. The table will provide links to view/edit/delete the multirecord rows, or add a new one. When configuring the profile field, you will see an option, **Include in multi-record listing?**—this is how you determine what columns display in this sub-table region.
- In the search mode, the result list will only include one row for the contact, even if multiple sub-records match the search criteria.

Once you've completed adding your profile fields and have returned to the field listing, you can edit, preview, disable, delete, or reshuffle the order of the fields. Returning to the main profile page where each of your available profiles is listed, you'll notice several actions that can be taken with regard to them. In addition to links providing access to the profile fields and profile settings, you may select the following options:

- **Preview**: This option previews the profile in the **Create** view.
- **Use Profile-Create Mode**: This option sends you to the live profile page in the **Create** mode (for collecting new information from visitors to your site).
- **User Profile-Listings Mode**: This option opens the live profile page in the **Search** mode.
- **Disable**: This option disables the profile.
- **Delete**: This option deletes the profile.
- **HTML Form Snippet**: This option provides code for using the profile in the **Create** view outside the traditional means. The code generated is completely independent of your website, which means it could be used on other websites. Let's say your trade association has a sister foundation established that is used for disseminating scholarships to students interested in the organization's field of study. The two entities (the association and foundation) are separate, but are closely related. You publish a weekly e-mail newsletter and wish to encourage subscriptions through both websites, so you create a profile for this purpose and use this option's code to insert the signup form on the foundation site, while creating a standard menu link to the form on your main association site.
- **Copy Profile**: This option facilitates the configuration process when you need to create a new profile that is similar in construction to an existing one.

If you've read through this section for the first time without having a clear vision of how you want to use profiles, you may be overwhelmed. The challenge with profiles is that they are very flexible and can be used in many different ways, not all of which are immediately clear when you are new to the system. When setting up a profile, you shouldn't be surprised if you need to return to the profile settings several times to tweak the options as you build and test it in various uses.

Before closing this section, there is one more profile configuration tool to mention. We have spent our time walking through the primary interface for managing and creating profiles. A new form-builder interface has begun to be implemented and is currently available in several places, including the contribution page and event configuration tools. In these tools, you will actually be able to use existing profiles or create new ones on the fly, and drag and drop fields onto the profile:



We won't take the time to cover the functionality in detail here, but bring it to your attention as it is another way you may find yourself creating or modifying profiles.

Profiles in action

Let's take some time now to look at profiles in action. We'll return to our Food Pantry case study (FPAGM) to see how they make use of profiles to meet several data collection and management needs.

Empowering users to update information

As with many organizations, one of the reasons FPAGM chose to implement a web-based constituent relationship management system is to expose real-time data to their members and allow them to edit these details without staff intervention.

The employees of food pantries and food suppliers will have website user accounts that provide them with access to resources unavailable to the general public. Each of these employees will also have a contact record in CiviCRM where their contact details and event registrations are recorded.

Once a user logs in to the website, FPAGM wants to provide a link to allow them to review and update their contact details, including their address, phone, and newsletter subscriptions. They begin by constructing a profile with the desired fields. Each of the fields will be pulled from the **Contacts** and **Individual** field lists and will have visibility set to **User and User Admin Only** since the only person accessing the fields will be the logged-in user.

FPAGM sets several fields as **View Only**, as they do not want the user to be able to modify their value. This will include the first name and last name fields. Locking these down ensures the contact doesn't transfer the record to another user (for example, if an employee leaves a supplier and hands the login details to the new person replacing them), and helps ensure that each record is preserved for historical integrity. If new employees replace existing ones, we want to retain the old record and create a new one rather than rename the existing contact.

Several fields will also be designated as required to ensure that the association collects and maintains as much complete data as possible. The resulting field list is shown in the following screenshot. Care is taken to ensure the field order presents a logical display of information:

Contact Details - CiviCRM Profile Fields

Add Field | Edit Settings | Preview (all fields) | Use (create mode)

Field Name	Visibility	Searchable?	In Selector?	Order	Required	View Only	Reserved
First Name (Individual)	User and User Admin Only	No	No	↓ ⤓	No	Yes	No
Last Name (Individual)	User and User Admin Only	No	No	⤒ ↑ ↓ ⤓	No	Yes	No
Job Title (Individual)	User and User Admin Only	No	No	⤒ ↑ ↓ ⤓	No	No	No
Address Line 1 (Contact)	User and User Admin Only	No	No	⤒ ↑ ↓ ⤓	Yes	No	No
City (Primary) (Contact)	User and User Admin Only	No	No	⤒ ↑ ↓ ⤓	Yes	No	No
Zip Code (Contact)	User and User Admin Only	No	No	⤒ ↑ ↓ ⤓	Yes	No	No
Phone (Primary) (Contact)	User and User Admin Only	No	No	⤒ ↑ ↓ ⤓	Yes	No	No
Email (Primary) (Contact)	User and User Admin Only	No	No	⤒ ↑ ↓ ⤓	No	Yes	No
Positions (Individual)	User and User Admin Only	No	No	⤒ ↑ ↓ ⤓	No	No	No
Mailing Lists (Individual)	User and User Admin Only	No	No	⤒ ↑	No	No	No

Add Field | Edit Settings | Preview (all fields) | Use (create mode)

Take note of the highlighted values in the **Required** and **View Only** columns. Also note that in many cases, we have modified the default label for fields to make them more user friendly and context appropriate. For example, **Postal Code** is changed to **Zip Code**, and the address fields do not contain the location value as inserted by default when you select the field. The **Mailing Lists** field is actually the **Groups** list. You may recall that groups are commonly used to manage mailing list subscriptions. Any groups assigned with a **Public Pages** visibility will be listed when this profile is displayed.

Before proceeding, FPAGM takes a moment to preview the profile and ensure that it is configured as desired. Note that the **Preview** option displays the profile in the **Create** mode, which will exclude the **View Only** fields (the **Create** mode displays a clean form, unfilled with existing data, and consequently, there is no **View Only** information to display).

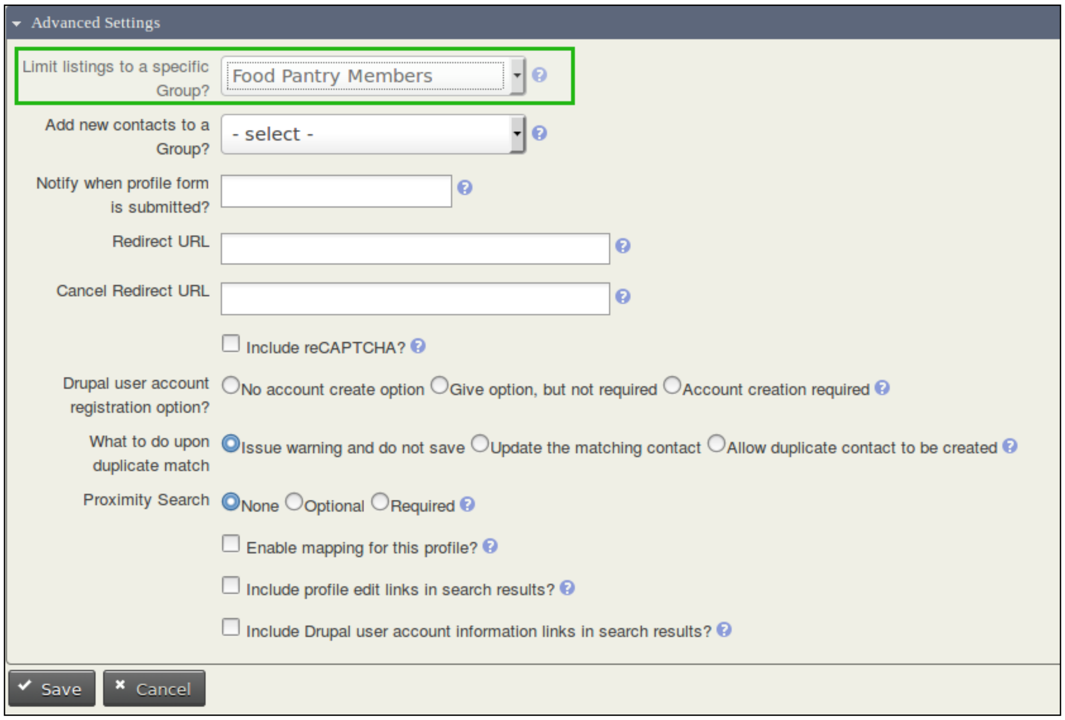
FPAGM's website is built in Joomla!, so they will add a link to this profile, to the existing user menu, which displays when a user logs in, and set the access level to **Registered** to ensure only authenticated users may access it. We will discuss the various options for exposing profile pages later in this chapter:

The particular user displayed here (**John Doe**) is missing some required information (**Phone**). By using this form along with the required fields, we will be able to encourage him (and other constituents) to provide a full set of contact details for their record.

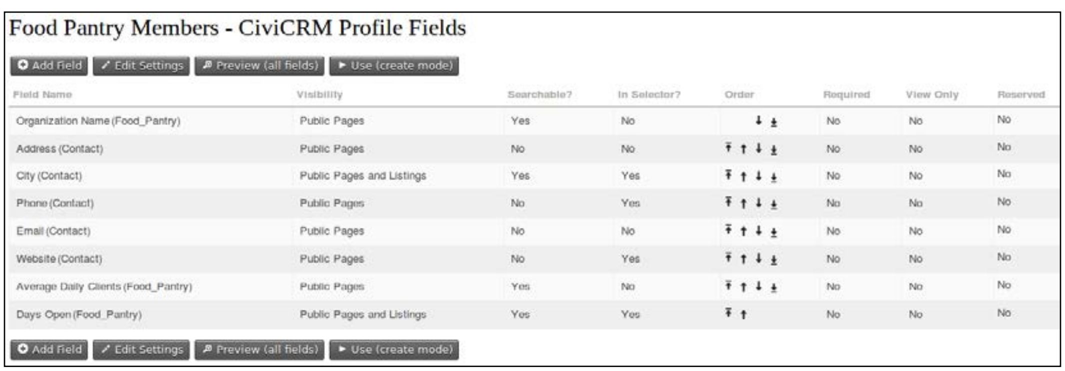
Searching an online directory

As a member of FPAGM, food pantries are primarily looking for two things: support and exposure. The association exists to serve the needs of the food pantries by serving as a clearinghouse of information and a community to connect food pantries to each other and their suppliers. Pantries also want the community at large to know more about who they are, where they are located, and whom they serve. FPAGM will help achieve this through an online searchable directory.

The directory should only list food pantry members in good standing. It should allow users to search based on address and service fields. To ensure that the profile searches current members, we first create a smart group to retrieve current food pantry members. While creating the profile, we use the **Advanced Settings** pane to limit the profile to this group:



We then proceed to define and configure the profile fields. The following field list is created:



Food Pantry Members - CiviCRM Profile Fields

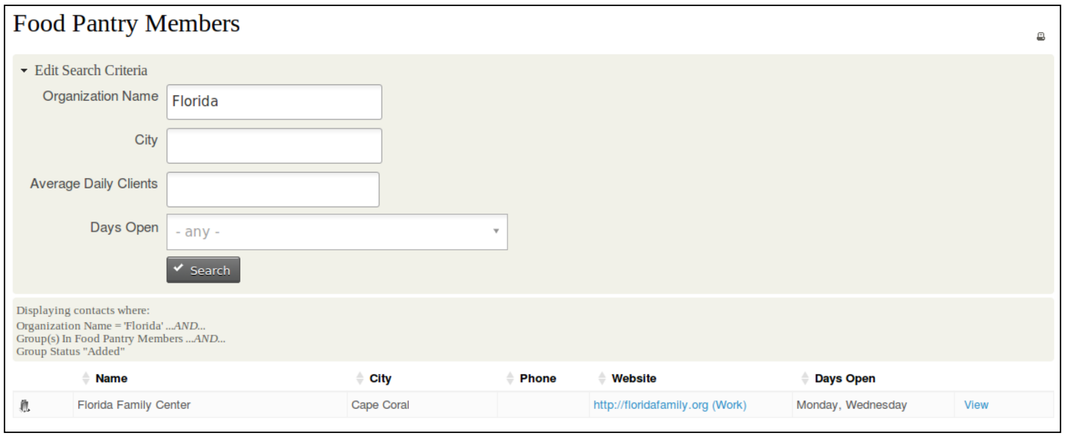
Add Field | Edit Settings | Preview (all fields) | Use (create mode)

Field Name	Visibility	Searchable?	In Selector?	Order	Required	View Only	Reserved
Organization Name (Food_Pantry)	Public Pages	Yes	No	↓ ⤓	No	No	No
Address (Contact)	Public Pages	No	No	⤒ ↑ ↓ ⤓	No	No	No
City (Contact)	Public Pages and Listings	Yes	Yes	⤒ ↑ ↓ ⤓	No	No	No
Phone (Contact)	Public Pages	No	Yes	⤒ ↑ ↓ ⤓	No	No	No
Email (Contact)	Public Pages	No	No	⤒ ↑ ↓ ⤓	No	No	No
Website (Contact)	Public Pages	No	Yes	⤒ ↑ ↓ ⤓	No	No	No
Average Daily Clients (Food_Pantry)	Public Pages	Yes	No	⤒ ↑ ↓ ⤓	No	No	No
Days Open (Food_Pantry)	Public Pages and Listings	Yes	Yes	⤒ ↑	No	No	No

Add Field | Edit Settings | Preview (all fields) | Use (create mode)

Note that only a few fields are designated as **Searchable?**, and only a few are configured for the **Public Pages and Listings** visibility (creating hotlinked results). Others are not searchable but are in the selection. You might not want to be able to search by phone number but still see it in the table.

After conducting some testing, FPAGM adds the directory link to the main menu as a publicly accessible search tool:



Notice that the **Average Daily Clients** field is searchable as a value range. This was an option available in the custom field definition.

After conducting a search, we click on **View** to look at the contact details for one of the records returned by the search:

Take a minute to review the original field settings for this example and compare how the selected options resulted in different searchable fields, result list columns, and the detailed view. For example, note how the **Public Pages and Listings** visibility for the **City** field resulted in a hyperlinked value in the detail view. Clicking on this link would trigger a new search based on that value—all contacts in Metroville. While using this option, give a careful thought regarding the usefulness of enabling the follow-up hyperlink. You wouldn't generally hyperlink a phone number or e-mail address, for example, as those are very likely to be unique to each contact record. General address fields, such as city, state, and postal code, would be good candidates for that feature, while street address would not (as it would only return contacts with the exact same address).

Including profiles in component pages

As discussed earlier in this section, one important use of profiles is in conjunction with event registration and contribution pages (which includes membership signup pages). By default, both of these types of pages will only require the e-mail address as a part of the registration/contribution process. Generally, you will want to include other important fields, such as the individual's name, address, and communication details.

We won't walk through the creation of a profile for this purpose, but as you create one, keep in mind that you may include the **Participants**, **Memberships**, and **Contributions** fields (depending on its usage), in addition to **Contact Details**.

When configuring the event or creating a contribution page, you will be given the option of inserting profile forms toward the top of the page or toward the bottom. If you have enabled the multiple contact registration capability for event registrations, you may assign different profiles for these additional registrants to help streamline and simplify the registration process for the end user.

Search result views and batch updates

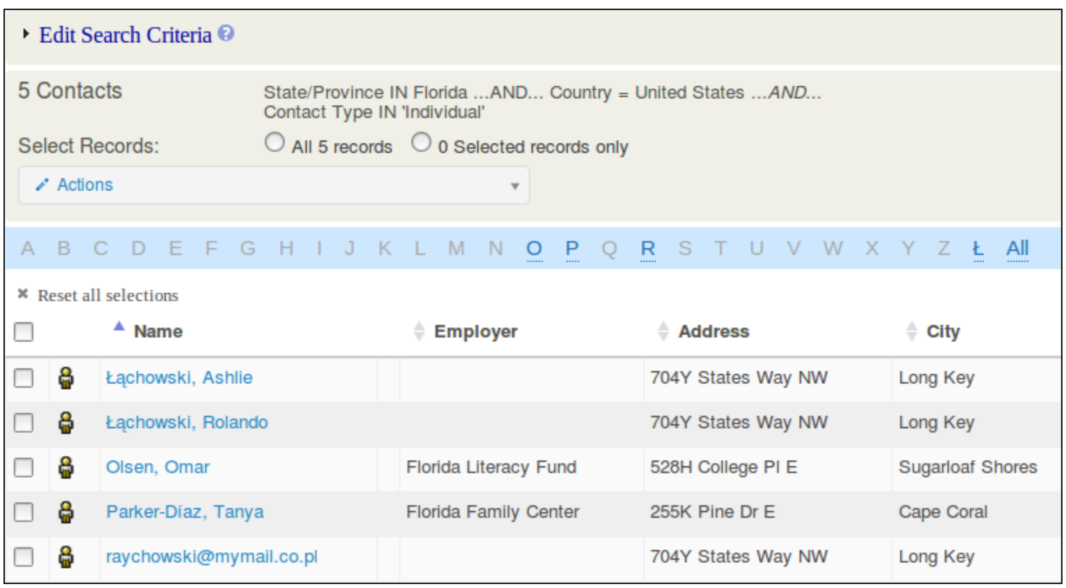
Most of the time, your use of profiles will result in some kind of form or other display on the public side of your website. However, there are two important uses that impact the backend administration of the site.

When conducting a contact search in CiviCRM, the resulting list of contacts contain the contact name, address, e-mail, and phone number by default. Sometimes, you may want different sets of fields displayed in the search result list. You can do this by creating a profile to serve as a search result view.

You may select a profile when conducting an advanced search, or select one as the default search view by visiting **Administer | Customize Data and Screens | Search Preferences | Default Contact Search Profile**. While using **Advanced Search**, use the **Search Views** drop-down menu to select your desired profile:

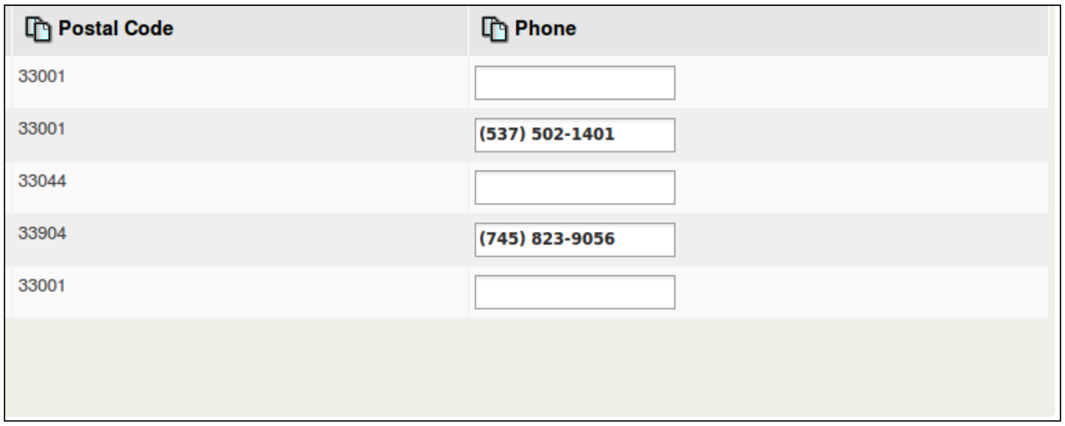
Note that in order to be available as a search view, your profile must have the **Search** option selected in the profile settings.

FPAGM wants an alternative search view that removes the **Country** column and includes the **Current Employer** field. When creating the profile fields for this purpose, they must select the **Public Pages** visibility and indicate the fields which should be in the results column. After conducting a search for individuals located in the city of Metroville and choosing this profile view, users see the page shown in the following screenshot:



FPAGM also wants to make the use of profiles for batch updating address fields and communication preferences. Batch updates let you edit selected fields for multiple records at once (up to 100 fields at a time) and include the ability to copy values from the first record to all subsequent records.

To create this profile, they copy the search profile just made, remove the current employer and e-mail fields, and add the **Do Not Mail** and **Preferred Communication** fields. After running a search, they select their desired records from the results list, select **Batch Update via Profile** from the **Action** drop-down menu, select the new profile, and then click on **Continue**:



Notice the highlighted icon and mouse-hover help text that lets you copy the first row's column value to all rows in the table. This is an incredibly powerful feature of the batch update tool. FPAGM might decide that all of these contacts should not be mailed and may prefer communication via e-mail. They select the appropriate options for the first record and copy to all other records with one click.

Exposing profile pages to your website

In the earlier examples, we briefly mentioned having exposed the directory search and user contact detail profiles to the FPAGM Joomla! website using menu items. However, there are other methods to consider while displaying profiles and different ways to go about doing this, whether you are using Joomla!, Drupal, or WordPress as your CMS. Let's walk through the CMS-specific methods first, and then review additional configuration options.

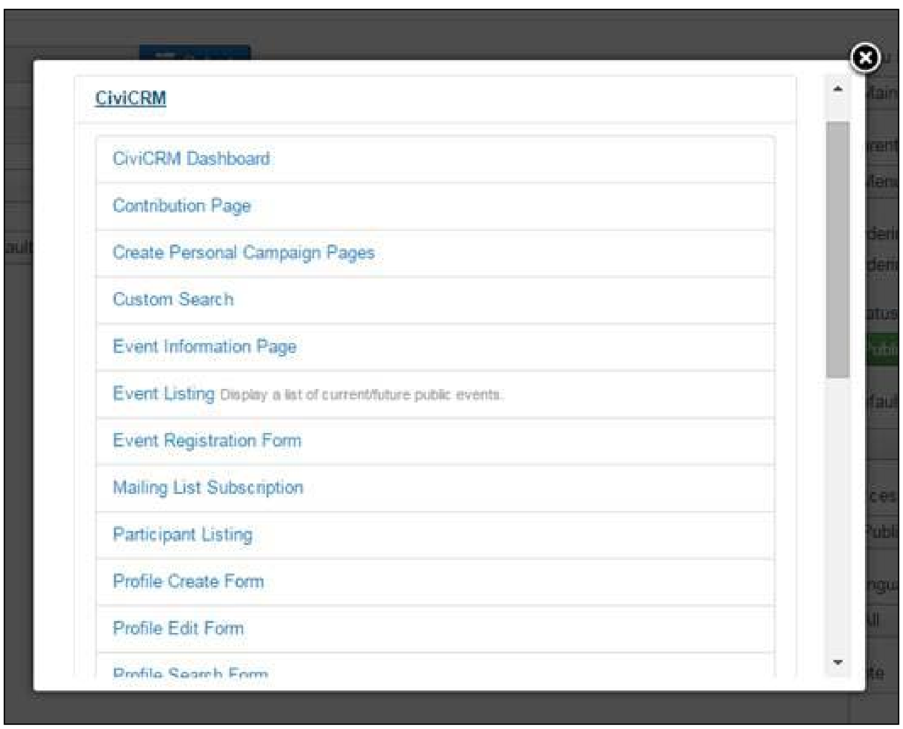
Joomla!

If you are already a Joomla! user, you are aware that the primary method for creating page links is through menu items. In addition to providing an interface for selecting various configuration options for pages, menu items also provide access to module configuration. Modules are the blocks of content and functionality that are found in various positions (as defined in your template) around the page. They may include menus, footer text, login forms, recent content items list, and other such tools.

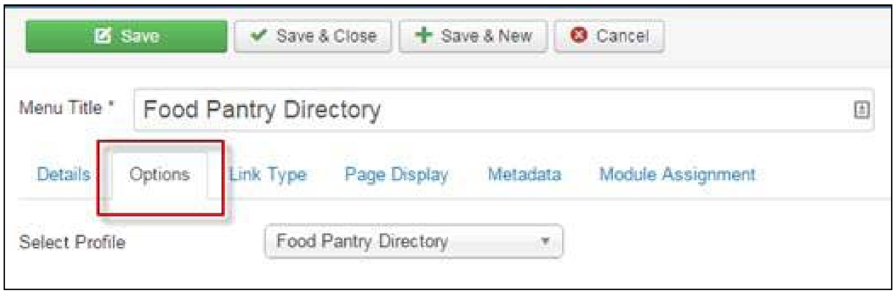
As a result of the connection between menu items and modules, you will often want to create links to CiviCRM resources through the menus. To do this, select your desired menu from the admin navigation bar and click on **New** to create a menu item. After selecting CiviCRM, you are given a number of sub-options for the type of page you wish to create. Our focus will be on the **Profile** options.

> If you want the benefit of building links to CiviCRM resources through menus but don't actually want the menu visible on your website, create a new menu called **Link Setting Menu** and leave the corresponding module in the **Joomla Module Manager** disabled. In Joomla!, the menu configuration is separate from its visibility/display on your site—which is handled through the **Module Manager**. Your menu may exist and have valid, accessible links, but not actually be visible on your website. In this way, the menu manager serves more as an internal-link manager.

Refer to the following screenshot:



As you can see from the **Menu Item Type** selection window, you have four options for exposing profiles: **Create**, **Edit**, **Search**, and **View**. After selecting one of these options, you choose the profile you wish to expose on the **Options** tab:



It's easy to miss the fact that you must select the record option (the previously configured **Profile** option, in this case) from the **Options** tab. If you don't select an option, the page will show an error. In a future version of CiviCRM, we plan to move this selection to the main **Details** tab of the menu-builder interface. Since the configuration settings for the profile and its respective fields are handled in CiviCRM, you only need to choose which profile to display and in which desired method from this tool.

There are, however, some additional display options that can be passed to the profile through URL variables, which we will discuss later in this section. If you wish to implement these parameters through a menu item, use the **External Link** menu option that lets you set the link through a full URL.

> Joomla!'s module management options are somewhat limited—you can assign modules to all menu items, no menu items, selected menu items, or all pages *but* those selected. There are several Joomla! extensions that can significantly expand your configuration options for modules. If you are looking for more options, take a look at the **Advanced Module Manager** (`http://extensions.joomla.org/extensions/administration/admin-structure/10307`), that lets you assign modules to specific components, sections/categories, articles, templates, languages, user, and other options. It even allows date-based, URL-based, and script-based (PHP) controls.

In addition to wanting to add the URL variables to profiles through menu items, you will inevitably want to insert links to profiles directly in your content items (articles and modules) without the need to build menu items first.

To do this, append one of the following URL strings to your website root domain, replacing `N` with the ID of your profile (visible in the profile list):

- **Create**: `index.php?option=com_civicrm&task=civicrm/profile/create&reset=1&gid=N`
- **Edit**: `index.php?option=com_civicrm&task=civicrm/profile/edit&reset=1&gid=N`
- **Search**: `index.php?option=com_civicrm&task=civicrm/profile&reset=1&gid=N`
- **View**: `index.php?option=com_civicrm&task=civicrm/profile/view&reset=1&gid=N`

For example, our FPAGM directory search page could be accessed at `http://fpagm.usingcivicrm.example.org/index.php?option=com_civicrm&task=civicrm/profile&reset=1&gid=8`.

After constructing your link, be sure to test it on your website and confirm that it is displaying as expected. Of course, you can also proceed with the **Link Setting Menu** tip discussed earlier, and create links from your articles to the search-engine-friendly alias for those menu items.

Joomla!'s native **search engine friendly** (**SEF**) option will correctly handle the initial link to a CiviCRM resource (subsequent pages are rebuilt as the standard URL strings). If you are using a third-party SEF extension, be sure to test your CiviCRM pages thoroughly to ensure compatibility.

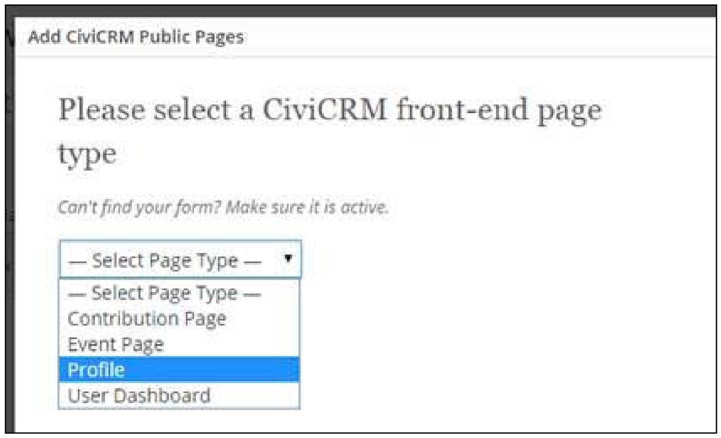
Drupal

Links to the CiviCRM profiles within Drupal will always be constructed through URL links to CiviCRM. These links may be added as menu items or as links from within the content of a node. You can use either absolute or relative addressing for links. For absolute links, append one of the following relative URLs to the base URL of your Drupal site including a trailing slash (for example, `http://yourdomain.org/`), replacing `N` with the ID of your profile (visible in the profile list):

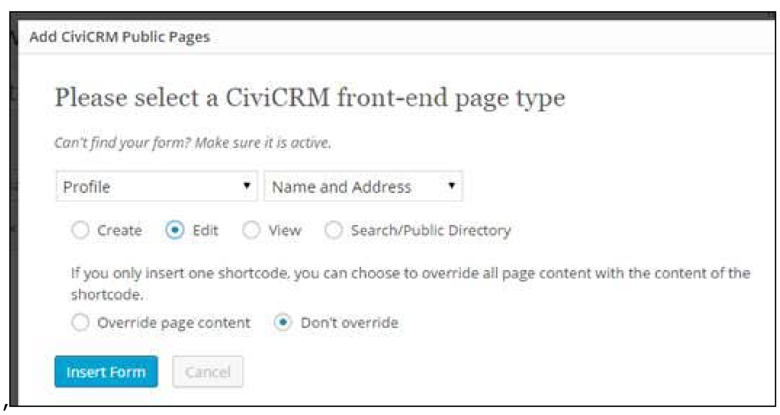
- **Create**: `civicrm/profile/create&reset=1&gid=N`
- **Edit**: `civicrm/profile/edit&reset=1&gid=N`
- **Search**: `civicrm/profile&reset=1&gid=N`
- **View**: `civicrm/profile/view&reset=1&gid=N`

WordPress

The CiviCRM profiles, and other pages, are added to the WordPress posts and pages through a shortcode widget, which will appear above the content box. Clicking on this tool will open a window where you can select the type of resource and specific page/form you wish to use:



An additional option, **Override page content** and **Don't override** is also available. If you override page content, the CiviCRM profile form will be the only thing present on that page—this includes the page title, which will be replaced with the title from the profile. Alternately, you can choose not to override, which gives you the flexibility to add additional content before/after the CiviCRM insertion point, and to control the title through the WordPress post/page form:



From v4.6, CiviCRM supports adding multiple shortcodes to a single WordPress page/post.

> Note that multiple shortcodes will not work in the versions of CiviCRM earlier than 4.6!

As with Joomla! and Drupal, you may create direct links to CiviCRM profiles by building the link manually. You will add the following paths to your base website URL, replacing `N` with the ID of your profile:

- **Create**: `?page=CiviCRM&q=civicrm/profile/create&reset=1&gid=N`
- **Edit**: `?page=CiviCRM&q=civicrm/profile/edit&reset=1&gid=N`
- **Search**: `?page=CiviCRM&q=civicrm/profile &reset=1&gid=N`
- **View**: `?page=CiviCRM&q=civicrm/profile/view&reset=1&gid=N`

Profile ACLs

Profiles have several permissions associated with them that may be applied to **Groups** (Joomla!) or **Roles** (Drupal/WordPress) of **Access Control List** (**ACL**). You can access the ACL permission management tool through **Administer | Users and Permissions | Permissions (Access Control)**, or through the CMS's standard method. There are five relevant permissions to consider:

- Profile listings and forms
- Profile listings
- Profile create
- Profile edit
- Profile view

Note that if you are using custom fields in your profiles and want anonymous visitors to access the form or page, you also need to grant **Custom Data Access** to the **Anonymous/Public** role.

You can further control access to specific profiles for the subsets of your users using CiviCRM's ACLs. This provides an advanced set of tools for limiting access to specific CiviCRM resources. However, be careful: over-using these can create system complexities that become hard to manage, and the tools do typically create some performance degradation.

Additional fine-grained access (for example, exposing profiles to anonymous users by default, but restricting access for specific profiles) can be accomplished with custom code modifications through hooks. Visit the CiviCRM online documentation for more examples and sample code at `http://wiki.civicrm.org/confluence/display/CRMDOC/Linking+Profiles`.

Additional options through URL variables

CiviCRM provides several additional options for refining the profile display using URL variables. These parameters should be appended to the create/edit/search/view URL you've selected:

- `&force=1`: Using this means the profile acts as if you already ran an empty search (by default, search pages open to just the search form). This option only applies to search profiles.
- `&search=0`: This option will hide the search form for search page profiles. Used in conjunction with the previous option, you can create a profile page that displays members of a group with no searching options.
- `&field_name=value`: Use this option in conjunction with the `&force=1` option to return a filtered list of results for your search and listing page. Multiple filters may be applied, if desired. For example, to return a list of records in New York, append `&state_province-Primary=1031`. Note that the field must be present in your profile definition as a public user and listing field. If you are uncertain what the field name is you wish to filter on, view the search page source in your browser and identify the form field name. You can also retrieve the field value for the select/checkbox/radio button fields, such as the numeric value of states in the preceding example.
- `&map=1`: Use this option to display a map by default for the result set. Note that you must have the profile configured to have mapping enabled (under **Advanced Settings**).

If you are using CiviMail to conduct broadcast e-mails from the system or make the use of **Send an Email** activities, there is a special checksum token that can be used while sending links to profile pages. Tokens replace values unique to each contact record when the e-mail is sent, similar to how you might use merge fields in your word processor to insert data from a spreadsheet or `.csv` file. The checksum token is a unique value created for each contact when the mailing is sent out. By appending the checksum token to your profile URL string, recipients can click on the link and have the profile form loaded with their contact information prefilled, even if they are not logged in to the site.

When using the checksum feature, the profile URL should have the following appended to it: `&id={contact.contact_id}&{contact.checksum}`. When CiviMail/activity e-mail sends the e-mail, it inserts the user's contact ID and unique checksum value.

If you find that your constituents are not accustomed to logging in to your website to update their contact information through a profile edit form, you may find it useful to e-mail them with the link to the edit form. They can access the page without logging in and can interact directly with their contact record. Note that the checksum value expires 7 days (by default) after sending the e-mail for security reasons. While this improves security, there remain certain risks while using this feature. The link constructed by the checksum provides a gateway to the user's data (controlled by the profile) without requiring them to log in. That means if they forward the e-mail to someone, the recipient would gain access to their contact record (within the 7-day access window). The **Checksum Lifespan** can be configured at **Administer | System Settings | Misc (Undelete, PDFs, Limits, Logging, Captcha, and so on)**.

Importing contact and activity data

Profiles provide excellent tools for empowering constituents to work with their own record or to construct simplified data entry forms for your organization staff. However, quite often you are working with a large number of contact records that must be added to your system, which may be too many to efficiently enter manually through a profile form.

It's also very likely that your CiviCRM implementation project will involve some migration of data from an existing legacy system. Even if you're a start-up not-for-profit, you are likely to have some contact records obtained from an external source that will seed your CRM database.

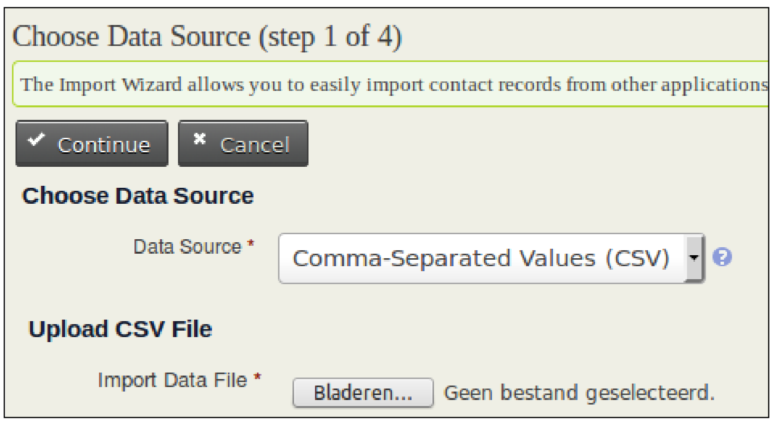
CiviCRM provides some powerful interface tools to import records from CSV, files, or from a record set specified by an SQL query. Even with a very powerful interface, there will be some work to do with your existing data to prepare it for import.

Let's take a moment to review the import interface and then retrace our steps to understand the data preparation concerns involved in importing. CiviCRM provides tools for importing contacts, activities, contributions, membership, and event registration records. Our concern in this section will be contacts and activities.

Contact import

To access the contact import tool, browse to **Contacts** | **Import Contacts**. This tool consists of a four-step wizard where you will upload your file, map the import file to the existing CiviCRM fields, review the mapping and choose to add contacts to a group or tag, and then complete the import with any subsequent notifications about the data.

In the first step, you will choose to upload either a CSV file or connect to a database through an SQL query. In most cases, you will be working with a CSV file. If you choose to construct A SQL query for retrieving the data, the database must reside on the same server and the database user configured in your CiviCRM installation must have sufficient privileges on that database. In either case, CiviCRM will retrieve the data and allow you to map the fields to the CiviCRM fields:



If you are importing from a CSV file, there are a few things to keep in mind:

- There will be a maximum upload file size, depending on the configured PHP settings for your server. The file size limit will be listed in the notes under the upload box.
- The number of records CiviCRM will be able to upload and process through this tool will largely depend on the resources and settings of your server. If you are on shared hosting or a low resource VPS, you may find that you need to split your import file into smaller chunks (less than 1,000 records) in order to process the import. If you have your own server or high-resource VPS, you may want to increase the PHP timeout and memory limit significantly. If the site is not live or you are not experiencing much site traffic, you could consider setting the timeout value to zero, which will prevent it from timing out altogether. Be sure to return it to a suitable for production setting after conducting your import.

- The best encoding for importing data is UTF-8. If your data has special characters, this encoding is required. If you need to import data from a different encoding, you should visit **Administer | Localization | Languages, Currency, Locations**, where you can configure an alternate **Legacy Encoding**. By default, CiviCRM will have the Windows-1252 format configured for this setting (used by MS Excel). Wherever possible, use UTF-8 as it provides the greatest data integrity.

Before you proceed with the import process, back up your data. Should the import script run into problems, time out, or you inadvertently assign data to an incorrect field, you will want to have a reliable backup for restoring your existing data and re-implementing the import:

1. After browsing to select the file for upload, indicate whether the first row of your data contains column headers. You will want to use column headers when possible as it will greatly assist your field mapping step. Then, review the import options.
2. When importing contacts, you may only import a single contact type at a time. In other words, your import file cannot have a mixture of organization and individual records, or individual and household records. If your data has mixed contact types, you will want to separate the records into different files or queries for each type represented. As you proceed through the import wizard and move to the field mapping step, you will see that there is functionality to map fields to related contact records (such as through the employer/employee relationship type), but each row itself must be the same contact type throughout your file.
3. Select how duplicate records should be handled on import. There are four options available; give some thought to your existing data and import data before you select your option. The options are as follows:
    - **Skip**: The default behavior, **Skip**, will alert you about any matching records, produce a report, which can be downloaded, and when processing the records, will completely skip the matched record.
    - **Update**: When a duplicate match is found, the data in the import file will update (overwrite) the existing data or fill the fields if no existing data is present. This option will not affect fields not included in the import file. Note that this option will not overwrite existing data with blank data from the import file—it preserves the existing data in such cases.

    - **Fill**: With this option, the import data will only write to a field if no existing data is present. If the existing contact data has a value, the corresponding value from the import source will be skipped during import.
    - **No Duplicate Checking**: Records are imported, irrespective of the existence of matching records.

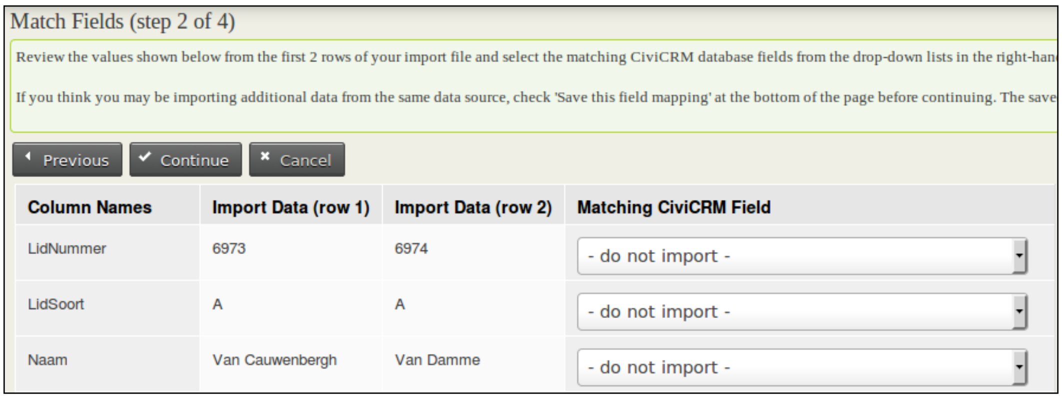
4. If you've chosen to **Skip/Update/Fill** the duplicate contacts, select the **Dedupe Rule** you would like to use when determining if a row matches an existing contact. If you need to review the rule definitions or create a new one, visit **Contacts | Find and Merge Duplicate Contacts**. Review the previous chapter if you need more information on how to configure the duplicate matching tool.
5. In most cases, your import file will generally be a true CSV format— a comma-separated list. But you have the flexibility to change that here, and select a different field separator character. If your file is tab-separated, enter `tab` in this field. If you import frequently and have a standard format using a different separator value, you may change the default value here: **Administer | Localization | Languages, Currency, Locations**.
6. If your import file contains date fields, select the format for the fields.

> Note that all the date fields in your import file must be formatted in the same way and the data must be consistent throughout.

   This is often an area where you must do some scrubbing with your existing data before importing, and is one of the most common causes for import errors.

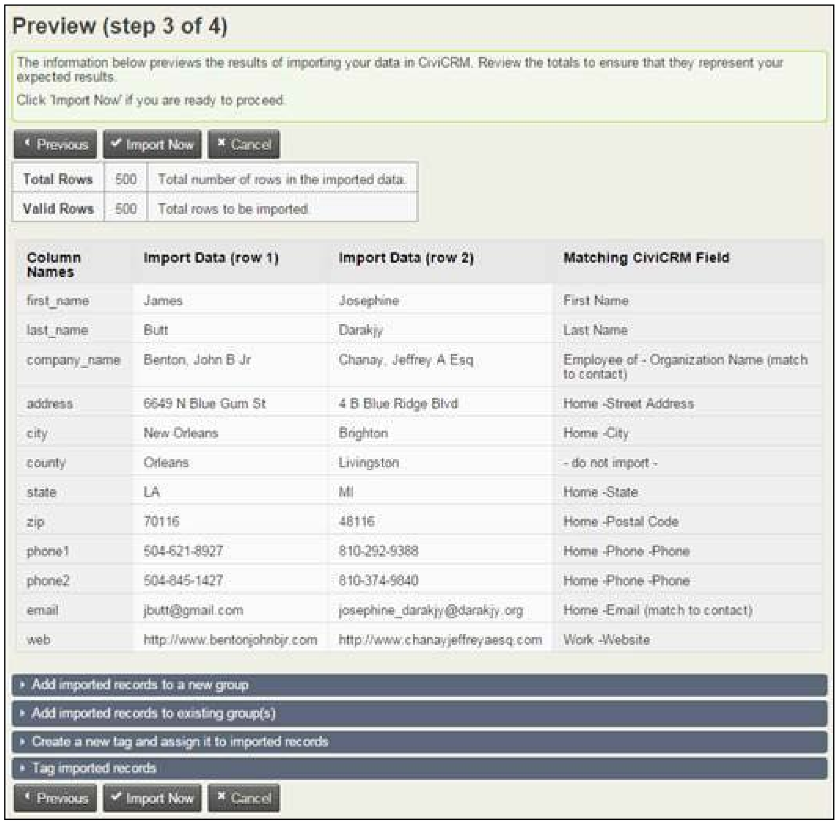
In the second step of the **Import** wizard, you will map the import fields to CiviCRM fields and will be given the option of saving the import mapping for future use. Using a saved mapping is particularly helpful if you've had to slice your data file into smaller chunks in order to process the import, if you regularly import records from a common source, or if your data is dirty and the import might fail or need to be rerun. Once a mapping is saved in the system, you will see an option available for selecting that mapping on the first step of the import wizard. Don't worry: if your import file differs slightly from a previous mapping, you will still have the opportunity to review and modify the mapping before proceeding with the import.

When CiviCRM first loads the file, it attempts to map the fields for you, based on an examination of your column names. While that is helpful to get you started, you will need to carefully review and complete the mapping in this step. For each column, you'll be given the column name (if this option was selected in step 1) and two rows of data to review. The field list is contact-type specific, so only relevant fields will be displayed. Some fields will have secondary options, which will appear once the field is selected. For example, if you are importing an address field, you must also select the location type that should be used:



In the third step, you'll have the opportunity to review the mapping and be notified if there are any initial errors in the import file. If there are errors, CiviCRM will provide a link to download a CSV file containing the rows with errors and a description of the error. In most cases, the errors will be owing to an invalid value, such as a malformed e-mail address or a value that does not match an option for a field.

After reviewing the errors file, you may choose to correct the errors, return to the first step, reload it and continue, or proceed with the import and handle the errors separately. This step also provides the option of adding the contacts to a new or existing group, or a new or existing tag:



Adding your imported records to a tag or group is an excellent way of tracking when the import took place or what was the source of the data. It can also prove useful for post-import data integrity comparison or to identify what records were imported during a partial/failed import. Keep in mind that if you've chosen the **Update** or **Fill** matching records, you cannot simply extricate incorrectly imported records by deleting those that were added to a group/tag, as that would remove previously existing records. As mentioned earlier, this is why it's critical to back up before processing a large import.

If you are ready to proceed, click on **Import Now** to begin the import and monitor its progress. Depending on the option that you chose for the duplicate record setting, you might receive a message, indicating that there were duplicate records skipped during the import. You will be provided a downloadable CSV file where you can review the duplicate records and any import errors that occurred.

Note that the error file returned by the tool prepends two columns to the data, detailing the type of error and column affected. Other than that, the data is returned in its original form. This makes it quite easy to review the problem data, fix it, remove the first two columns, and run the import again using this file.

Be sure to review your records after the import and make sure the data is stored as you intended. And make sure you separate multiple values for a checkbox field with commas!

Activities import

The activities import is accessed through the **Contacts** menu and will walk you through a similar four-step wizard. The most significant difference is that your imported records must connect with existing contact records. In other words, you cannot create associated contact records as part of the activity import; the activities must be imported to existing contact records.

The connection to existing contacts can be made by including the internal contact ID, external identifier, or e-mail address in your activity import file. Using internal or external ID fields ensures the most reliable connection with contact records, as both must be unique values in the system. While the e-mail address may also be used for matching, you run the risk of having multiple existing contacts with the same e-mail address in the system, which may result in the activity attaching to the wrong contact.

> The **External Identifier** field is intended for storing unique IDs from the database system you are migrating from. It can be particularly useful when you have core contact data as well as related record data (such as activities) that you are importing from that legacy system. You could also generate the **External Identifier** values in your spreadsheet to make it easier to import activities and contacts from the same sheet.

Imported activity data must include a column containing the activity type (either the ID or label), which must correspond to one of the types configured in CiviCRM. If you have not done so already, visit **Administer | Customize Data and Screes | Activity Types** to review the existing types and add new ones as needed. Additionally, the imported activity records must include the activity date and subject.

Activity imports must be done with the CSV files (the SQL option we saw with the contact import is not available to activity import), and you will not have any dedupe processing. If an import errors file is returned, it is likely to contain unmatched records as well as invalid values. Unmatched records are those for which no matching contact was found within the existing contact records.

Other import options

Our focus in this section has been on the native import tools available through the interface. While those tools are flexible and very functional, they do not always meet the needs of every organization. There are two notable areas of weakness that we see:

- The importer does not scale very well. It is a very resource-intensive tool, which means you must either crank up your server resources, or split your import file into multiple sub-files, as discussed earlier. In either case, for a large dataset it may take a very long period of time to run the entire import.
- While there are tools to import activities, contributions, event participants, and membership records, and match them to existing contact records, there are other areas of CiviCRM that you potentially will want to import to, which have no corresponding tool. For example, you may need to import cases, notes, or grant records, or may find that you need more advanced logic processing when handling certain record types, which the interface tool does not support.

Implementers and developers have explored a number of other options for importing records when the native tool falls short. While it's beyond the scope of this book to delve into these tools in details, we want to mention them briefly:

- **CiviCRM migration script**: In `civicrm/bin/migrate/`, you will find an `import.php` script that calls the `CRM_Utils_Migrate` class. The script uses an XML file format to construct the import fields. Unfortunately, there's not a lot of documentation on how to use this tool, but for the ambitious developer, you may be able to review the code and make use of it for your purposes.

- **Custom import script**: Many developers opt to script the import process themselves, making use of the API to create/update records in the system. This gives you complete control over the process and is probably the best for complex logic handling or data that must be cleaned up as it's processed.
- **ETL software**: Applications such as Pentaho Kettle have become a popular option for extracting, transforming, and loading data into a database. Using this option requires that you have a firm handle on the CiviCRM database structure, as you are responsible for inserting directly into the appropriate tables.

This list is far from exhaustive. However, it does represent the most common import methods we are aware of, and so you may find some support resources online to help you with your project.

Tips for preparing your data

While CiviCRM may facilitate the actual import process, the hard work comes with preparing your data for import.

You should begin by taking time to scrub your data. That will involve removing old records you don't want to clutter your new system with, ensuring valid values for fields such as e-mail and website, creating consistent values for any fields using option values, and generally reviewing your data to ensure it is as clean and well ordered as possible.

Depending on how your legacy system handled individuals, households, and organizations, you may need to do some work to split your data into subsets of records based on their contact type. Remember that you can only import a single contact type at once when using the CiviCRM import tool. That said, there are some clarifications to that rule, as briefly noted earlier.

When mapping your contact import, note the series of the **Related contact info** fields toward the bottom of the field list. These fields will allow you to import data to the primary contact type (for example, **Individuals**) while inserting data into related records. If the related record does not exist, CiviCRM will create it, and then build the relationship.

This is not the most efficient way to handle imports, and if you're not careful, can inadvertently create unintentional related records. However, for imports with only a few fields to be inserted in the related record, it may be useful. Also, be aware that if your imported data has empty values for the related record fields, CiviCRM may create the related record anyway (with empty data). This will require some cleanup in the system after the import.

The preferred method is to import records for one contact type, and then import the related record. For example, you might import all your organization records, and then import individuals using the related fields to match on the organization name.

After completing your contact imports, you may want to run a dedupe search and merge duplicate records. Despite your best efforts, duplicate records are bound to show up, especially after an import. What is great about the CiviCRM **Merge** function is that you can easily combine related records. For example, if ACME Company and ACME Co. are the same firm, each may have related records in your legacy system (for example, contributions, activities, and relationships). When you merge the two records, those related records will be combined in the resulting merged contact. Handling the data merge from within CiviCRM can reduce the pain and annoyance of trying to track down and merge the various related records in your previous system.

As noted previously, take database backups before you begin importing and at regular intervals throughout the process. You will want a path for reverting to a previous dataset should something go wrong.

Migrating to a production server

One common question involves how to best migrate your data from a development or staging server to your production server. Unfortunately, there's no one-size-fits-all answer to that question. Your internal workflows and the general nature of your system will dictate the best method available.

Understand that currently there is no convenient way to merge two CiviCRM databases. If you are doing a large import into a staging server, you will need to identify and export any changes to your production database before deploying from your staging server.

The CiviCRM tables found in your database are very portable. There is really only one that may need to be reset or cleared out when moving the database: the `civicrm_uf_match` table that connects your CMS users to CiviCRM contacts. The `uf_match` table may need to be emptied in order to force new matches with the existing CMS users. In addition, you should truncate the various cache tables to ensure that new content is being generated from the new location.

For a full discussion of migration steps and troubleshooting tips, see `https://wiki.civicrm.org/confluence/display/CRMDOC/Moving+an+Existing+Installation+to+a+New+Server+or+Location`.

Summary

In this chapter, we configured custom datasets/fields and began to understand their many uses and created profiles in order to collect fields for various uses. We also implemented a profile search and edit form, demonstrating the capabilities for exposing CiviCRM data to your website visitors and users. We reviewed the contact and activity import process, helping you migrate data from previous legacy systems to your CiviCRM database and touched on key considerations when migrating from one server to another.

Looking ahead to the next chapter, we will look at communicating more effectively using CiviMail, CiviCRM's broadcast e-mail system, and looking holistically at the tools available for managing your contacts with a view toward communicating better with them.

6
Communicating Better

Central to the success of your organization is its ability to communicate effectively. Though CiviCRM doesn't replace the hard work of crafting content and strategies, it does provide powerful tools to facilitate your communication efforts. This chapter begins by briefly reviewing how your communication efforts can improve your constituent relationships. We then outline the following topics:

- Looking at your communication
- Sending e-mails to one or more constituents
- Printing address labels
- Organizing constituents into groups for bulk mailing
- Sending bulk e-mails and SMS messages
- Setting up a template for bulk e-mails
- Customizing the templates for system workflow messages
- Recording e-mails sent to constituents from your normal e-mail client

If you're just interested in the mechanics of how to use CiviCRM to communicate with constituents, feel free to skip the next section, where we discuss the principles and concepts of effective communication.

Looking at communication

CiviCRM can assist your organization in sending, receiving, and tracking online and offline communications, but it is up to you to create an appropriate communication plan that fits your CRM strategy. Ideally, you will communicate in ways that will provide the following results:

- Effectively and efficiently achieving your organization's mission
- Responding to the interests of the different types of constituents in terms of topic, treatment, tone, and timing
- Aligning the communication to its call to action
- Reinforcing your brand

Aligning efforts with objectives

Your plans to communicate with constituents should relate to your plan to achieve your organization's mission. Usually, organizational goals are achieved both directly and indirectly through communications: serving clients, educating and persuading people, raising the profile of your organization within certain target groups, increasing event attendance, recruiting new volunteers, or generating new donations from new target markets. Make sure your communication efforts are directed appropriately, and you're asking the right questions. For example, do you need to improve the number of subscribers at the top of your funnel by reaching new people and soliciting new funds, or is it more important to improve the conversion rate of event attendees into volunteers, thereby increasing relationship depth and constituent involvement? Your strategies and efforts should directly relate to the organizational goals and objectives you've defined.

Topic, treatment, tone, and timing

Nonprofits usually benefit from having a variety of communication products and channels to suit the interests of their constituents in terms of topics and frequency of communication. However, you need to match your resources with what is achievable. Starting out with a single newsletter appearing once a month is probably better than trying to put one out once a day. However, if your aim is rapidly responding to news cycles, putting out a crisp short piece a day instead of a multipage monthly newsletter might be a better choice.

Every constituent in your system will have taken some particular step to initiate their first interaction with your organization. After becoming aware of your organization through a web search, speaking engagement by one of your volunteers or staff, or other entry point, the next significant step on a ladder of engagement usually consists of opting in to receive regular communication from your organization. Though every organization is different, this regular communication normally consists of summarized information of general interest, such as news about your organization, industry, profession, or subject matter that drives the vision of your organization. This initial *push* communication might be followed by *pull* communication, such as an organizational Twitter account, Facebook fan page, or an RSS-friendly blog.

The writing style or voice of your automated and bulk messages should suit your organization's persona. A professional society reaching out to prospective members should adopt a business tone that fits with the nature of the organization. A local sports league might strike a more casual tone with shorter substantive pieces and more focus on stats and standings.

The most common form of communication, and what will be our focus, is bulk e-mail products that constituents may subscribe to. These could be the monthly newsletters, daily updates, time-sensitive communication, such as urgent action alerts, notifications of new publications, or other content of interest to users. As constituents move up the ladder of engagement, your CiviCRM system will know more about them, providing you with tools to more effectively target contact segments and personalize the communication content and calls to action they receive.

The kind of material you distribute will determine who signs up and remains on your list. It helps if the content of your communications and its *voice* is appropriate: Is it analytical or anecdotal? Is it authoritative or casual? You may publish dry announcements for an organization, such as a clearinghouse on changes in labor law, narratives from an opinionated person for a homeless shelter, or a quirky gossip column for a creative sector association. Each speaks in a tone and with content that may resonate with its intended audience.

Repurposing content for different channels can help to stretch your resources further. Let's say your organization puts out a few major research reports a year. You might want to perform the following tasks:

- Distribute a press release
- Author a blog entry about it
- Mention it on your own social media channels
- Post about it into allied channels
- Include a summary or a couple of extracts in your newsletter(s)
- Hold an event where the authors present the work and have a discussion

All this could be done in addition to sending out an announcement to people who have specifically asked to receive notifications of new publications. Find ways to extend the reach of your work by multipurposing content.

Take advantage of automated communications to cross-market your organization's activities, services, and news. There are a number of places where CiviCRM automatically sends out messages in response to a user's action, such as an event registration confirmation e-mail or donation receipt. You can customize message templates sent through automated means. These include confirming event sign-ups, thanking people for contributions, and notifying them when their volunteer sign-up preferences have been received with thanks. Tokens, which are merge field placeholders for a contact's data, can be used to ensure that personalized information, such as names and addresses, are included in receipts. By crafting these messages beyond the default version that ships with CiviCRM, you can use them to tell your organization's story, seek further involvement, or solicit more support. Make sure that the voice and tone in these messages are appropriate. The primary purpose of these automated messages should be to continue providing details to constituents in direct response to their action (for example, a receipt). Without hijacking their primary purpose, you can build secondary messaging to build your brand and impart your story as follows:

```
Thank you for your contribution. Your official tax receipt will be
issued in January for all charitable contributions received this
year.
```

For a youth-oriented organization, use a more casual style:

```
Thanks for helping to deck the Dumbo Corporation. Tweet #deckdumbo
with other oddball campaign ideas.
```

CiviCRM provides support for several proven best practices in online viral communications. For example, the *forward to a friend* functionality may be enabled and will appear just after a constituent has signed up for an event or completed a donation. By offering this opportunity to invite others, you take an advantage of *motivation-inertia* and extend your organization's reach through constituent networks. Besides, most people would be happy if some colleagues or friends were at the event with them, or want to tell others about a cause they've just donated to. Similarly, a good moment to invite people to start their own personal campaign to raise money for your organization is just after they have completed their own donation.

Also give a thought to the timing of your communications. According to a number of studies, the highest e-mail open rates occur midday, midweek; so as a general rule, you can target noon-time on Tuesday, Wednesday, or Thursday. Of course, specific mailings may have timing goals that don't work with that general rule. For example, if you have a Monday event, it may be necessary to send an e-mail on Friday reminding the attendees of the event details. But even then, you should be conscious of the weekend dead-time and plan to send your reminder a few days in advance of when you might normally in order to ensure a higher reception rate.

Another common timing issue can occur in larger organizations, where different departments are sending e-mails independently of each other. If there is no organization-wide coordination, you might end up sending multiple e-mails to constituents on the same day, or within a short window of time. Doing so is sure to dilute the effectiveness of the mailing, hurting each of the departments in turn. Encourage e-mail creators to review the scheduled/sent list of mailings before they create a new one, or implement an organization-wide e-mail calendar, where each department is required to indicate their intended delivery dates for mailings.

The essence of what we're getting at is the need to be intentional and strategic about what you say, when you say it, and how you say it, while remaining on the lookout for serendipitous opportunities to link communications and extend your message.

Call to action

Many for-profit marketing and sales techniques translate to the nonprofit sector when asking for donations, volunteer time, event attendance, signing petitions, and so on. One simple but important communication technique to improve response rates is to have a clear, compelling **call to action**.

Making the link between the action and a concrete desirable outcome improves response rates. For example, an emergency relief organization might communicate that every dollar you contribute will buy a child in the earthquake zone one day's worth of food. Increasing the urgency of the call improves response rates: "If you act now, then [fill in the blank with a desirable outcome]" or "If you don't act now, then [fill in the blank with an undesirable outcome]."

Engaging the respondent's emotions with graphic pictures, anecdotes, and personal stories usually greatly increases response rates. They are the star actors in the show. By contrast, compelling rational cases using statistics and telling factoids are like a supporting cast. They are best used to fill out the performance and help the stars shine.

The surrounding communication—text, graphics, music, and video—should all build the case for taking action. Repeating the call to action several times in visually appealing and different ways helps, such as bold text links as well as buttons. By making it easier to complete the action, you improve response rates. "Click here" works better than expecting people to print a form, find their checkbook, get an envelope and stamp, and post the letter containing a donation.

This said, don't take emotional engagement to an extreme. If you press emotions too hard or too often, the strategy may backfire, as recipients find your arguments lack credibility or find themselves ignoring the communication because it overwhelms them. Further, if you pull those emotional strings too frequently, it begins to dull people to the issue and you lose the impact.

Reinforcing your brand

Whether you are aware of it or not, everything your organization does while interacting with the world contributes to its reputation. Do people trust that your research is solid, come to you for innovative policy suggestions, or refer volunteers to you? Are they worried you'll waste their donations on administration? Can they count on you to get media attention for the issue? Are they uncomfortable with your approach because it is too confrontational or too cozy with the villains? Your brand is the sum of all these perceptions.

While knowing how you are perceived is one part of the story, the more important part is what is yet to happen. How does your organization want to be thought of? Could changing the organization's brand improve how well it achieves its goals? Would a sunnier, more playful visual identity help? Or do you need a more conservative, professional, slicker design? Are your artistic elements potentially too well developed, and at risk of communicating to constituents that you spend more resources on marketing than on your organization's mission?

Communication activities are an important part of your brand. More people will typically receive bulk or broadcast communications than interact directly with your organization through programs and services you offer.

Everyone communicating with constituents on behalf of your organization should understand how their work fits into achieving the objectives of the organization. In this way, they'll be able to strike the right tone in the messages, words, images, colors, and style they use. Communicating with constituents through CiviCRM, either one-on-one or in a broadcast manner, should always be done in a way that is in tune with your organization's overall brand and visual identity.

Sending e-mails to one or more constituents

CiviCRM provides tools for sending e-mails directly from the system, both to small sets of contacts (a single constituent or small group of constituents) as well as to large volumes of contacts. The former is handled through activity records, the latter using bulk e-mailing tools. Later in this chapter, we will look at broadcast e-mail and SMS messaging using CiviMail in more detail. Our attention at this point will focus on single or small group e-mails using the activity tools.

However, by introducing the two different methods of e-mail, the question arises of when to use one or the other. The line dividing easier, simpler, lower-volume e-mailing and bulk, mass, or broadcast e-mailing is not always clear. Broadcast e-mailing is clearly appropriate when you are sending messages to thousands of recipients regularly as you need to know the open and click-through rates and segment based on that behavior (which activity e-mails do not support), and you do not want to manually process invalid e-mails from the list or deal with temporarily unavailable accounts. When you don't need those reporting tools and are communicating with a relatively small group of contacts in a less *marketing* type of way, activity e-mails are generally preferred. Note that CiviCRM allows a maximum of 50 recipients of a single activity e-mail, and expects you to use bulk mailing for a larger audience.

To keep things relatively clear, we'll call sending a non-broadcast e-mail **e-mailing**, and follow CiviMail's terminology of referring to a broadcast e-mail as **mailing**. We will always refer specifically to CiviMail rather than CiviCRM when dealing with broadcast e-mailing.

E-mailing using an external client

The simplest way to use CiviCRM to assist with communicating is to just click on any e-mail link it displays. For example, the **Contact Summary** page displays a contact's e-mails as clickable links. This will launch your e-mail client, placing the contact's e-mail into the **TO:** line. While this allows you to easily send an e-mail when looking at a contact's record, it may not be ideal from an overall CRM perspective as the e-mail will not be saved in CiviCRM. Fortunately, CiviCRM provides several tools to improve your ability to record e-mails directly in the system.

The question of what to retain and what not to retain in the system is important for your overall CRM strategy. Not all communications with all constituents need to go into CiviCRM. You must weigh the pros and cons of collecting data and having too much information versus too little information. The former may create extra work ensuring that the communications are stored and create a clutter of material to wade through in the system. The latter may result in other disconnected offline data sources being used to store and retrieve key information, or having insufficient history about interactions with a constituent. Once you've navigated these waters, develop a policy and procedure statement to guide staff, which includes clear examples of what should definitely be included in or generated from the system, and what should not.

Many CiviCRM sites, perhaps the majority, just track autogenerated messages sent to constituents and broadcast e-mails. Some may choose to record a few manually generated types of official communication to their system, such as e-mails notifying grant winners in CiviGrant. Others may try to collate all e-mails, in-person meetings, and phone call records that are related to one another through CiviCRM, particularly in the area of case management.

Articulating an appropriate policy where only important and useful e-mails are tracked can be challenging. We've all seen e-mail threads with 14 entries just trying to set the time, date, and place for a meeting. These communications may be voluminous and have no enduring interest or significance. Document retention policies usually distinguish between different types of communications that have appropriately shorter or longer retention periods, depending on whether it has continued relevancy or legal liability.

Your policy on what to put into CiviCRM needn't include all e-mails just because it is relatively easy to capture them, nor should it exclude phone and face-to-face conversations in advancing a case because of the extra work involved in documenting those interactions. Will the constituent expect the organization to "remember" an interaction? If so, it is likely you will want it available in CiviCRM.

To make the system useful and avoid a significant waste of time when something should be in the system but isn't, the policy you arrive at should be clear and followed consistently.

Having said this, it is also important that your staff do not turn into non-thinking policy followers, but continue to evaluate the policy against your organization's goals and deviate from the policy when they think it is required.

E-mailing using CiviCRM

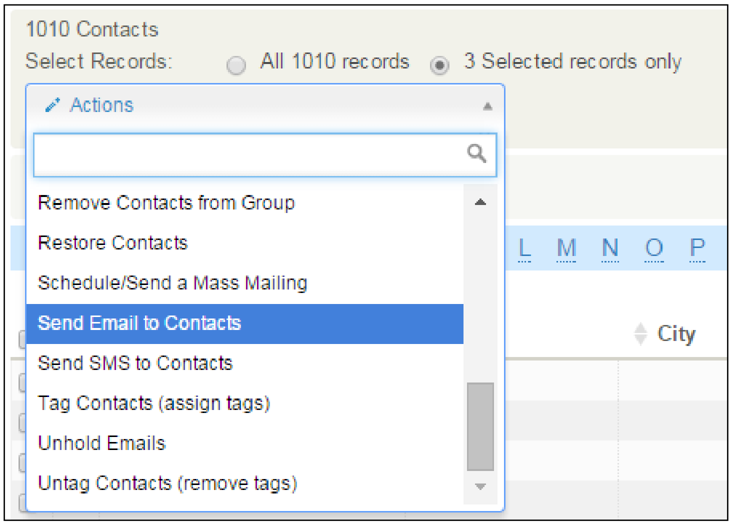
As alluded to earlier, in addition to providing hotlinked e-mail addresses that will open in your preferred e-mail client, CiviCRM provides tools to e-mail one or more constituents directly from the system. Assuming you are about to e-mail something to a constituent that should be kept in CiviCRM, there are several ways to invoke e-mailing contacts in CiviCRM without using its broadcast e-mail component, CiviMail.

To e-mail a single contact on a **Search Results** page that has an e-mail displayed, select **Send an Email** in the **more** link at the rightmost corner of the row:

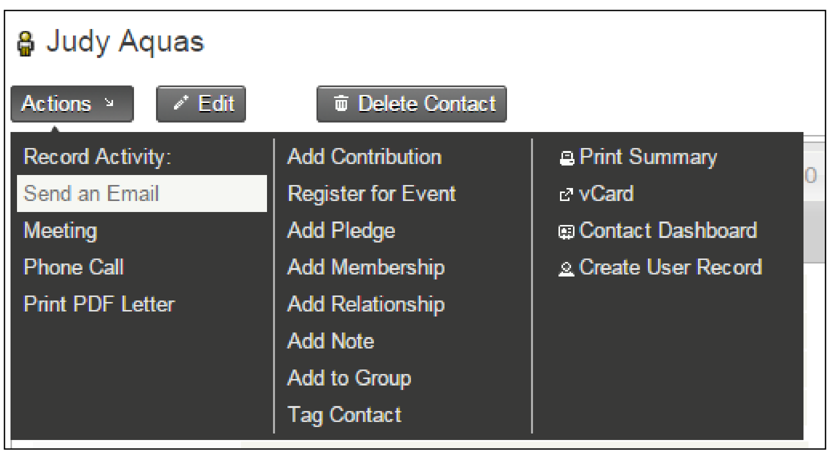
To e-mail multiple contacts from a **Search Results** page, perform the following steps:

1. Select one or more contacts using the checkbox column, or choose the **All Records** radio button.
2. Select **Send Email to Contacts** from the alphabetical listing in the **Actions** select field.

3. Complete the e-mail subject, content, and other options. Then send the e-mail:

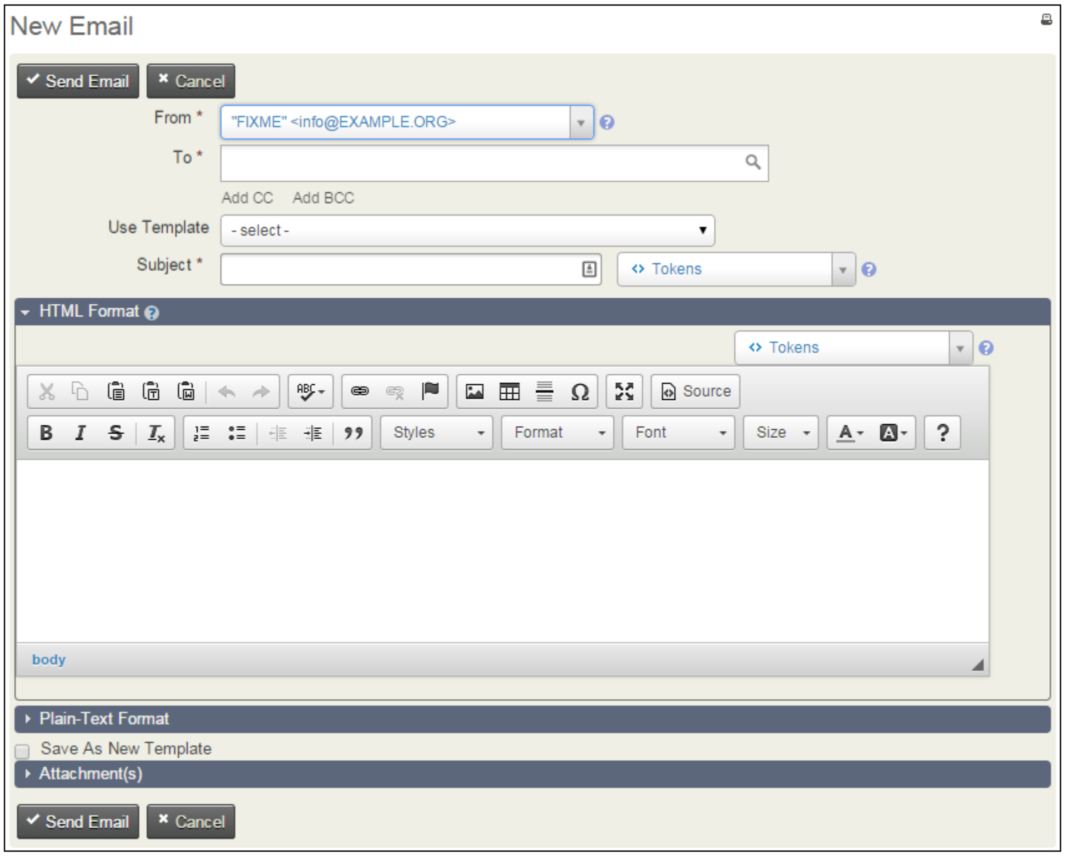


From the **Contact Summary** page, you may navigate to **Actions** | **Send an Email** to send an e-mail to a single record (or multiple records, by adding contacts to the recipient list). Note that if the contact does not have an e-mail or their privacy options have indicated they should not be e-mailed to, the **Send an Email** action is not displayed as an option:



Lastly, from any page in the system, click on the **Create New** button in the left sidebar (default block location) and select **Email**.

All four approaches will bring up the following form for e-mailing via CiviCRM:

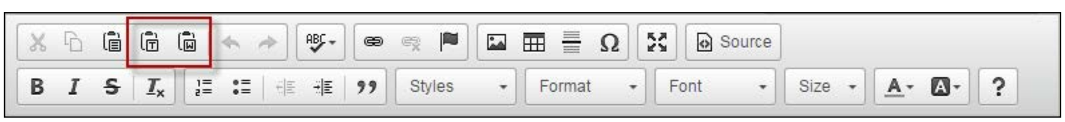


While it seems like a fairly standard e-mail form, let's go through it field by field to learn about its special features:

- **From**: This field defaults to the primary e-mail of the currently logged-in user but also allows you to select from other e-mails set up in **Administer | Communications | FROM Email Addresses**. This is particularly useful for situations where there are departmental or functional e-mails (for example, `info@example.org`, `volunteering@example.org`, `events@example.org`) or where one staff member sends e-mails on another's behalf (for example, `ExecutiveDirector@example.org`).

- **To**: This field specifies the e-mail address of the contact(s) to be e-mailed. If you arrived at this form through the contact record or search results, the field will be populated with the originating contact's e-mail address. If you arrived using the **Create New** button, you will need to search for the contact(s) you wish to send to. You can add additional e-mails using the standard autocompletion search functionality (name and e-mail).
- **Add CC** and **Add BCC**: These links provide autocompletion search fields to add additional people to the e-mail. Note that although they will receive the e-mail, the activity record will only reside on the **To** and **From** contacts.
- **Use Template**: E-mail templates are used in slightly different ways in different parts of CiviCRM:
    - Unlike automated message templates generated from event signups, contribution pages, and other public-facing forms, templates selected when manually sending an e-mail will prepopulate the content field and provide you with an opportunity to manually edit the content before it is sent out. As a result, the process is more like making and editing a copy of a Word file than autogenerating a letter from a Word mail merge template.
    - Since it populates the content field, and then provides access to further edit the content, you can take advantage of the tool by creating e-mail templates containing just your design/layout branding, and also use it to create standardized responses for common queries received by phone or mail. When creating your template, take the time to test it thoroughly and ensure cross-client compatibility, including reviewing how it will appear in web-based e-mail tools (Gmail, Hotmail, and so on). It can take some effort to get HTML-formatted e-mails to look consistent in different e-mail clients, especially when you are trying to do sophisticated formatting. For more complex e-mail design structures, you may want to consider using a web-based service that will review your content in different environments and help alert you to any issues. By investing the time to create a well-constructed template, you will save time for end users creating the e-mails and help ensure effective visual branding.
- **Subject**: In addition to providing text that will appear unchanged on the subject line in people's inboxes, you can use the **Token** field to include information from a contact's record that should be looked up and inserted into the subject line. This can include either core fields, such as a person's first name, or contact-type custom fields that are specific to your installation of CiviCRM. The latter are included in the drop-down list of field names under the custom field group's subheading.

- **HTML Format**: CiviCRM ships with two popular **what you see is what you get** (**WYSIWYG**) editors, which support standard formatting tools when constructing your e-mail. We find that Drupal users will typically use **CKEditor**, and Joomla! users will select **TinyMCE**, as they are more commonly used in those respective CMSes. Both users also have the option of using the default or user-specified editor installed, which may extend the options available (though there are some compatibility issues with some of the available editors). The following screenshots refer to **CKEditor**, which is the system default. Some standard caveats apply the following patterns:
    - While visually well-designed HTML e-mails tend to improve readability, click-through, and response rates, it is important to test and periodically retest how the e-mails are appearing in popular desktop and web-based e-mail clients. Invalid HTML markup, such as unclosed tags, are red flags to spam-checking software so beware of inadvertently creating deliverability problems by having someone who is not familiar with HTML doing anything complex in the HTML source view.
    - CSS used in your e-mail should always be inserted directly in the HTML tags. Most e-mail clients don't support style declarations inserted in tags through the class and ID values.
    - Don't cut and paste directly from Microsoft Word because it uses nonstandard markup code. Invisible to you when pasting, this markup code will often prevent your messages from appearing correctly in your recipients' inboxes because it references Microsoft-specific elements that are not widely supported. If you need to copy something from a Word document, the easiest way to remove the problematic markup code is to paste using the special **Paste from Word** or the **Paste as Text** icons. The **Paste as Word** icon will attempt to retain structural elements, such as bullet lists, whereas **Paste as Text** more thoroughly strips all design and layout elements:



    - For an image to appear in your constituents' browsers properly, it needs to be available on the Web somewhere. Generally, it is best to upload any image you need in your e-mail to a publicly accessible part of your website, making note of the URL that displays the image.

    - When referencing pages on your website or inserting images, be sure to use the full URL (`http://...`), not a relative path. Remember that the e-mail received by your constituents will not be displayed as a part of your website, so relative path resources will be meaningless.
    - There are a number of good resources (many of them free) for obtaining e-mail templates that are compatible with most e-mail clients. Consider obtaining some as the basis for your template, and then modifying them to suit your organizational branding.

- **Plain-Text Format**: CiviCRM will automatically convert your HTML version to plain text when the e-mail is sent if no content is provided in this field. If you have a fair number of contacts preferring plain-text e-mails, you will want to manually supply this content to ensure it is formatted as you desire.
- **Save As New Template/Update Template**: When creating an e-mail, you may optionally choose to save it as a new template for use in future e-mails. If your e-mail is based on an existing template, you will have the option of updating the template with your revised content.
- **Attachments**: When sending e-mails, you are given the option of attaching files. If the option to add attachments does not appear or you are not able to add as many attachments as you would like, check your configuration at **Administer | System Settings | Misc (Undelete, PDFs, Limits, Logging, Captcha, and so on.)**. Note that adding attachments could reduce the deliverability of messages, as it is one of the things many spam filters take into consideration. For small-volume e-mails, this should not be an issue, but it is generally not recommended when creating bulk e-mails.
- **Send E-mail**: After you click on this button, the message will be sent and copies of the message with appropriate tokens replaced in the subject and body of message will be attached to each recipient's and sender's record as an e-mail activity.

Printing address labels

Old-fashioned though it is, postal mail is still around, still useful, and won't be disappearing any time soon. While e-mail is less expensive and faster than regular mail, many people still do not use it, do not respond as well to e-mail-only communications, or simply prefer receiving something they can hold in their hand. Multichannel campaigns including direct mail, telemarketing, and meet-ups continue to outperform e-mail-only campaigns. Chances are that somewhere in your CRM plan you will still need to print out a list of addresses.

You will typically choose one of two methods for generating a mailing, depending on the size of the mailing and general mailing requirements. One option is to generate a search for the recipients and export the required fields as a `.csv` file. This file can be used as a mail merge data source with MS Word, Open Office Writer, or other word processors, or may be sent to a mailing house for large-volume processing.

Your second option is to generate mailing labels directly from within CiviCRM. This is commonly used for small mailings, which you will be processing in-house.

CiviCRM makes mailing label generation easy:

1. Find the contacts by using any of the search options outlined in *Chapter 3, Installation, Configuration, and Maintenance*. Consider creating a smart group for contacts that are mailed regularly.
2. Select the contacts to be processed.
3. Select **Mailing Labels** from the **Actions** field.
4. Use **Select Label** to choose the **Avery label** type that you will be printing on (the product number is typically indicated on the packaging). If you are not using an Avery product, look for an indication showing which Avery number the labels are compatible with, as many companies use the same dimensions. You can also look up the dimensions for the available labels on the Avery site for your country (for example, `http://www.avery.com` does not list the A4-sized products that begin with `L`, and `http://www.avery.fr` does not list the North American 8.5 x 11 ones). If you don't see a label size matching your requirements, you can define new label templates at **Administer | Communications | Label Formats**.
5. Choose the mailing **Location** value for each contact. Every contact must have one of its addresses marked as **Primary**, so this will generally serve as the most appropriate value.
6. Choose whether you want to remove a contact with the **Do Not Mail** communication preference selected.
7. Depending on how you have decided to enter and store your data in CiviCRM, you may want to reduce postage charges either by choosing to merge labels for contacts belonging to the same household, or by choosing to merge labels for all contacts with the same address (a common need for organizations that do not use the **Household** contacts).
8. Click on **Make Mailing Labels** and save the resulting PDF download file to your hard drive.
9. Print the file. If you have a big printout, you might want to initially print only one page to check the alignment of the text with the labels.

Recording a postal mailing

Normally, when you print a list of mailing labels, it's because you're about to communicate with those contacts. The process of generating mailing labels does not automatically record the fact that you will be using it for a mailing. As best practice, we recommend creating an activity for your mailing recipients after generating mailing labels as an effective way to retain a history of communication. The default installation of CiviCRM does not include an activity type appropriate to postal mailings, so the first step is to create such a type. Here are the steps to record mailings at the same time mailing labels are printed:

1. Create **Postal Mailing Activity**.
2. Navigate to **Administer | Customize Data and Screens | Activity Types**.
3. Click on **Add Activity Type**.
4. Enter a suitable **Label** value, such as **Postal Mailing**.
5. Enter a value, or leave the default numeric value populated by the system (recommended).
6. Enter a suitable **Description** text, such as `Postal Mailing` (optional, but useful).
7. Select **Contacts** and **Cases** as the **Component**.
8. Click on the **Save** button.
9. Record a postal mailing activity for each contact.
10. Find the contacts using the same method and criteria when creating the mailing labels. If you have just run the mailing labels, you can click on the **Done** button to immediately return to your result list and perform a follow-up action.
11. Select the **Record Activity for Contacts** option on the **Actions** field.
12. Select **Postal Mailing** as **Activity Type**.
13. Enter a name for the mailing in the **Subject** field, perhaps also a description in the **Details** field.
14. If appropriate, open the **Schedule Follow-up** fieldset and enter a follow-up activity, such as a phone call in 10 days.

Printing a PDF letter

Most organizations will be familiar with the idea of a merge letter. Rather than creating a generic letter addressed to "Dear Supporter," you want a personalized greeting that includes the individual's first name, such as "Dear Sofia."

Sending a letter with a personalized greeting and other personalized content inside an envelope with the correct address on it is no small challenge when hundreds or thousands are being produced. Large direct mailing houses will often have special machines that print a personalized letter and its personalized envelope at the same time, and then insert the included content and seal the envelope, all within a strictly-defined workflow that eliminates the possibility of mismatched elements. Small organizations may have envelope-stuffing *parties*, where letters are folded, address labels are applied, the folded letters are stuffed in the envelopes, perhaps with a reply envelope or postcard, and the package is sealed and mailed. With all of that activity going on, it's all too easy for a single envelope or letter to get missed or mismatched unless there's lots of checking going on.

An easier way to handle things that are less prone to mix-ups is to use window envelopes. The letter is laid out and folded in such a way that the mailing address is displayed through the window.

The letter itself will have merge fields in place to fill in the field values for the contact. For example, the address block will use the appropriate merge fields and you may address the recipient as "Dear First Name" using another field.

There are two ways you will typically use to construct your merge letter—construct the merge outside of the system using MS Word, Open Office Writer, or a similar word processor, or construct it inside the system using CiviCRM's **Print PDF Letter** function. There are pros and cons to both solutions:

- Using a word processor will provide more familiar tools and more control over the layout. However, you will have the added steps of exporting your CiviCRM contact data to a `.csv` file, and then linking it as a mail merge data source.
- CiviCRM's **Print PDF Letter** tool benefits from direct integration with your data. However, the interface for laying out your letter uses the **WYSIWYG** editor toolbar, which is not well suited for print-based layouts. You are likely to find it to be a bit cumbersome and awkward to use, requiring some trial and error before you have the document laid out correctly.

If your letter will be used repeatedly, such as a welcome letter to new members that you generate monthly, it will be worth the time and effort to create it in the system. However, if this is a single-use letter, it may be easier to process it outside the system using tools you are familiar with.

Printing a PDF letter starts with the same steps as many other actions you may take on groups of records:

1. Use any of the search procedures outlined in *Chapter 3*, *Installation, Configuration, and Maintenance* to find the contacts that are to receive the letter.
2. Select the contacts that are to receive the letter.
3. Select **Print PDF Letter for Contacts** from the **Actions** field.
4. If you have an existing template, you may use the **Select Template** field to prepopulate the content region. Otherwise, begin creating your letter content from scratch.
5. Select an existing or define custom page format dimensions through the **Page Format** panel.

Mail merge fields in CiviCRM are called **tokens**. We've mentioned them earlier when talking about e-mails. The interface and tools for creating a PDF letter are almost identical to the e-mail creation process, except that the final product will be a PDF file for printing rather than an e-mail sent directly to constituents.

To the right and above the content region of this page, you will see a drop-down field to insert **Tokens**. Use the searchbox at the top of the window to quickly locate your desired token. The token list is organized by record type (the **Address**, **Contact**, **Custom** fieldsets, and so on).

When tokens are inserted in your document, they will appear in brackets and include the actual data type and field name. You can move tokens around your document, but be sure not to alter the text inside the brackets as it will break the field reference.

Once inserted, your page with tokens may look like this:

Dear {contact.first_name},

I want to invite you to our…

When generating the PDFs, the token will be replaced in each copy of the letter by the first name of each contact that is to receive the letter. Consider the following example:

Dear Josephine,

I want to invite you to our…

You also have the ability to use token alternatives, such as `{contact.first_name|Supporter}`. This will use the first name of the contact if it can find it; however, if this is not set for the contact you are using, the token for it will replace it with the `Supporter` value.

Here are a few tokens that will have particular use and significance as you assemble your letter:

- **Display Name**: This token is generated for every contact record, specific to the type of record. For the **Organization** and **Household** records, the organization/household name serves as the display name. For individuals, the display name is calculated as `first_name last_name` by default. If your mailing includes contacts across multiple contact types, this field can be used to refer to the contact regardless of its type.
- **Postal Greeting**: This token is also a constructed field, intended to be the greeting line in a letter. A default formula exists for every contact type and will be automatically created and saved for each record. You may alter this value on a case-by-case basis for each record through the **communication preferences** panel. The most common value is `Dear name`.
- **Addressee**: This token is also found in the contact's communication preferences panel and represents a calculated value for how the contact will be listed in the address block.

The following tokens allow you to customize your letter's address blocks to fit your needs:

```
{contact.addressee}
{contact.street_address}
{contact.supplemental_address_1}
{contact.supplemental_address_2}
{contact.city}{, }{contact.state_province}{ }{contact.postal_code}
{contact.country}
```

Whether you are creating a standard letter that will be used multiple times or want a layout framework with standard fields, it's likely that at some point you will want to save your content as a reusable template.

As with the e-mail interface, you can create your template while generating your PDF letter, or update a template if your letter is based on an existing one. The full list of templates may be viewed and edited at **Administer | Communications | Message Templates**. Use the **User-Driven Messages** tab to create new templates or edit existing ones.

Once you have finished authoring the letter's content, click on the **Make PDFs** button to generate the PDF file. Be sure to review it thoroughly and make sure your tokens have rendered field values as expected. If they did not appear correctly, visit one of the records in your search results and make sure the fields actually have data in them. Then, try reinserting the tokens again using the insertion tool.

Organizing groups for communication

We've mentioned a few times in this chapter the convenience of having groups constructed for sets of contacts that are regularly used for different purposes. In *Chapter 5*, *Collecting, Organizing, and Importing Data*, the difference between static and smart groups is explained. With static groups, members are explicitly added or removed from the group either by an administrator (for example, for a Board of Directors group) or themselves (for example, for an opt-in mailing list). With smart or dynamic groups, search criteria define the group. As data associated with contacts changes, it may be added or removed from the group based on the defined criteria. A smart group might contain all contacts with memberships expiring in the next month, or those who have donated more than $2,500 in total over the last 2 years.

One of the primary purposes of creating groups is to easily manage segments of contacts you are communicating with. One functional way to look at this is to think of the contacts that the communications staff will need to find and select repeatedly. If your communication efforts are oriented around regularly disseminated products, such as a monthly newsletter, you will orient your groups around the list of contacts to which they are sent. Every one of those lists stored in CiviCRM is a good candidate for becoming a group.

Other parts of your organization may also be communicating with groups of constituents and will need their own CiviCRM groups. Volunteer management, development/fundraising, membership, education, or events will each need CiviCRM groups set up for every list they deal with.

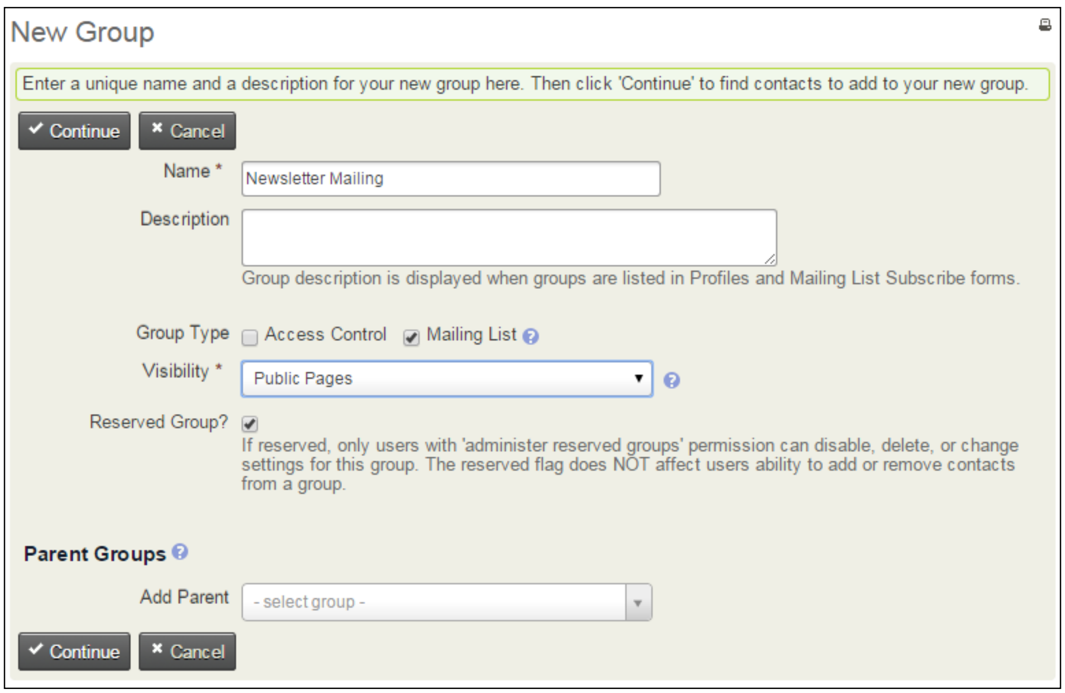
Groups are also essential to CiviMail, CiviCRM's bulk e-mailing tool. We strongly recommend that bulk e-mails should only be sent to contacts that have opted for mailing, which makes it essential that the membership in those lists be self-managed. In some jurisdictions, this is becoming the law. When generating smart groups from searches, you can easily accommodate the removal of opt-out contacts. Other forms of communication, such as direct mail and telemarketing, are also trending more towards permission-based models that at least allow for opt-outs.

There are two general rules of thumb on how to implement groups for communications in CiviCRM. First, it works well to use opt-in static groups for subscriptions to regular communication products such as newsletters. These self-serve subscriptions are excellent at bringing people into the wide side of the engagement funnel.

Second, it works well to use smart groups based on segmentation criteria for targeting certain constituents for conversion efforts from one layer in the funnel to another. For example, high-touch, high-cost approaches for major donors should be directed towards members of a tightly qualified set of prospects.

To review whether a group is currently set up so that it can be used for e-mailing or people can see and control their membership in it, follow these steps:

1. Navigate to **Contacts | Manage Group**.
2. Under **Group Type**, review whether the group is set up as **Mailing List**. Only groups configured as **Mailing List** will be visible to the CiviMail bulk e-mail interface.
3. Under **Visibility**, review whether the group is configured to appear on **Public Pages**. This visibility option determines whether the group will appear in profile pages that include the group(s) field, and whether it will appear in the **Mailing List Subscription** page.
4. If you want to change one of these parameters for an existing group, click on the **Settings** button towards the right of its row and make the desired changes:



Occasionally, it can be convenient to create a hierarchy of groups for communication purposes. For example, a chapter-based organization that manages newsletter subscriptions at the local level may have a central communication product that is sent to all subscribers of local subscriptions. If there were hundreds of local chapters, such as constituency associations in a political party, it would be quite elegant to have each local newsletter subscriber group set up as a child of the central one if the opt-in messages indicated that both a central and local newsletter would be sent to subscribers. Users would be able to select a single list, and staff would not need to worry about lists getting out of sync. This hierarchical functionality is handled by defining a parent for a group.

When editing the settings for a group, parent groups can be added one at a time by selecting them in the **Add Parent** field and clicking on **Save**. Similarly, parent groups can be deleted by selecting the group under **Remove Parent**, and then clicking on **Save**.

While you are on this screen, note the **Reserved Group** option. CiviCRM defines a permission to enable access to reserved groups; by selecting this option, you require the logged-in user have that permission in order to modify the group. If your organization has staff with multiple levels of system access, this provides a useful way to lock down certain groups and prevent lower-level staff from modifying them.

In the **Group Type** row, you may have noticed an option to flag a group for the **Access Control** use. We've intentionally skipped the discussion of this field, as it is better handled when reviewing CiviCRM's access control functionality (refer to *Chapter 3*, *Installation, Configuration, and Maintenance*).

Encouraging subscriptions using profiles

A basic but highly successful method of growing an organization's e-mail lists is to provide prominent, easy-to-use options for newsletter signups on the organization's website. This can vary, depending on the site design and layout—smack bang in the middle of the front page is probably too strong a location for any information architecture. Usually, the home page or all pages have a simple signup form in a sidebar or header region, or a button that directs the user to a full-page signup form where additional details are collected.

Other effective places to request website visitors subscribe to a newsletter are when they are buying a paid membership and on "thank you" pages just after they have done something that indicates some level of commitment to the organization. Depending on your site information architecture and, more importantly, your organization's process for engaging website users, it may be a good idea to have options for newsletter signups as a part of the user account registration form. The downside to including it is that every additional field on a form increases potential abandonment for visitors with low commitment.

A profile used to sign up new subscribers must include the contact e-mail address field at the very least. It is not uncommon to include the name and postal code fields, though you should remember that too many fields will increase likelihood of form abandonment. The postal code allows geographical targeting of content, while having the name can improve responsiveness to later personalized appeals and improve duplicate contact identification for merging and purging.

As mentioned earlier, CiviCRM provides a built-in field called group(s) that can be used in signup profiles to enable people to join mailing list groups that require a double opt-in (that is, confirmation of opting in after they receive an e-mail in order to circumvent bots or invalidated signups). This field provides checkboxes on the profile for every mailing list designated for public page visibility.

> CiviCRM comes with a built-in form for managing subscriptions. While it is functional and ready to use out of the box, it doesn't provide any flexibility with regard to the form fields, which is why most people will prefer to create a profile form. However, if the built-in form is adequate for your needs, feel free to use it.
>
> The URLs to access this page are stated as follows. If you prefer subscription forms that designate a single group rather than a list of options, you can use the subscription page URL and replace the group ID number (`gid=N`) with the relevant number:
>
> - **Drupal**: `http://example.org/civicrm/mailing/subscribe?reset=1&gid=N`
> - **Joomla!**: `http://example.org/index.php?option=com_civicrm&task=civicrm/mailing/subscribe&reset=1&gid=N`
> - **WordPress**: `http://example.org/civicrm/?page=CiviCRM&q=civicrm/mailing/subscribe&reset=1&gid=N`
>
> To access the built-in subscription page without limiting to a single group, simply use the preceding URLs without the `&gid=N` value.

To create a simple newsletter subscription profile in CiviCRM and display it on pages or in blocks in either a Drupal or Joomla! site, follow these steps:

1. Create publicly visible **Groups** as per the recipe in the previous subsection.
2. Navigate to **Administer | Customize Data and Screens | Profiles**.
3. Click on **Add Profile**.
4. Enter an appropriate name in **Profile Name**.
5. Leave **Standalone Form** or **Directory** checked in **Used For**.
6. Enter help text if desired.
7. Click on it to open the **Advanced Settings**.

> Note that it is possible to use the **Add new contacts to a Group?** functionality to add signups to a mailing list group. However, doing so will bypass the double opt-in functionality. If you choose to use this option, be sure to include help text in the page that informs the user they will be added to your mailing list.

8. Change Drupal/Joomla!/WordPress user account registration option to **No account create option**.
9. Change **What to do upon duplicate match** to **Update the matching contact**.
10. Click on the **Save** button.
11. Look at the URL in the browser's address bar and take a note of the value of `N` in the `gid=N` key value pair. This is the profile's group ID.
12. On the **Add Field** form, for **Field Name**, select **Contacts**, **Email**, and **Primary**.
13. We tend to prefer changing **Field Label** from **Email (Primary)** to **Email**.
14. Click on the **Required?** checkbox so that it is true.
15. Click on the **Save and New** button.
16. On the new **Add Field** form, for **Field Name**, select **Contacts**, and **Group(s)**.
17. Change **Field Label** from **Group(s)** to **Subscription(s)**.
18. Click on the **Save and New** button to add other fields, such as **First Name**, **Last Name**, and **Postal Code**, or the **Save** button to complete the form.
19. Navigate to **Administer | Customize Data and Screens | Profiles**.
20. On the far right of the row for the newly created profile, click on the **more** link, and then select **Use Profile-Create Mode**. The URL for this form can be added to menus to provide a **Newsletter Subscription** page.

21. If you have not done so already, ensure that **Administer | Users and Permissions | Permissions (Access Control) | [CMS] Access Control** has profile listings and forms and profile create enabled for anonymous/public users.
22. If you have added custom fields to the profile, ensure that **Administer | Users and Permissions | Permissions (Access Control) | [CMS] Access Control** has **Access all custom data** enabled for anonymous/public users.
23. In Joomla!, you can create a new menu link, select the **Profile Create** option, and select your profile from the parameters drop-down menu.

To create a small form block rather than a full-page form, perform the following steps:

1. Go back to **Administer | Customize Data and Screens | Profiles**.
2. On the far right of the row of the newly created profile, click on the **more** link, and then select **HTML Form Snippet**.
3. Click on the **Select HTML Code** button, and then copy the selection into the clipboard.

Then, use the appropriate and desired method in your CMS to insert the HTML into your website. For example, if you are using Drupal, you may want to insert the HTML into a block, or if using Joomla!, you might insert the code into a custom module. You may also want to make some adjustments and tweaks to the code. For example, you might perform the following tasks:

- Removing HTML that refers to subscriptions not wanted in this particular block (the code will include all publicly visible groups by default)
- Changing the page that users are sent to after successfully completing the form by changing the value of the hidden `postURL` input field to a different valid URL
- Changing where errors are displayed from within the block on the same page to a different page by adding `<input type="hidden" name="errorURL" value="http://www.example.com/subscription_errors.html">` to the snippet
- Adding some text before and after the form, and providing an appropriate title

One of the nice features of using the HTML snippet tool is the ability to insert the code on any site—you are not limited to using it on your site. For example, you could generate an HTML snippet and encourage your member organizations to solicit signups for your organization through their own site.

Sending bulk e-mails and SMS

Now that we have set up a group to send mass e-mails to and provided ways for site visitors to subscribe to our newsletter and other bulk e-mail subscriptions, it's time to send a bulk e-mail with CiviMail to all the group members who have subscribed to it.

> Quite a few organizations using CiviCRM also use MailChimp for their bulk mails. There are a few CiviCRM extensions that enable the synchronization of CiviCRM and MailChimp. If you do want to continue using MailChimp, we recommend you check the extensions page on the CiviCRM website and/or ask on the CiviCRM Stack Exchange site.

The construction of a bulk e-mail message involves a two-step wizard in which you name the mailing, select the recipients, and mailing options, develop content, preview/test, and schedule the mailing. Before we work through those steps, let's look at a few additional tools and options you may want to review and configure first.

> If you are using a version of CiviCRM prior to v4.6, you will notice that the user interface is very different from the screenshots included in this chapter. Significant work was done to simplify and streamline the mailing tools in v4.6. However, the core functionality has not changed significantly from the older versions, so you will still find this chapter helpful.

Setting up the system

Before we dig into the process of creating a mailing, we need to review several configuration options pertaining to the mailing process. Some of these were touched upon in an earlier chapter but deserve more attention as they directly impact the bulk mailing tools.

Under **Administer | CiviMail**, there are two settings pages you should review: **Mailer Settings** and **CiviMail Component Settings**. The first setting handles setting options pertaining to the mailing delivery rate; the second setting controls several options that impact the functionality and user interface.

The **Mailer Settings** page has the following options:

- **Mailer Throttle Time**: For most installations, this setting will remain zero. In some cases, you may need to further throttle your mailing by leaving a gap of time in between each e-mail (in microseconds). Similar to the previous option, this may happen if your hosting environment is very restrictive in how you are allowed to handle and process bulk e-mail.
- **Mailer Batch Limit**: A scheduled mailing begins delivery when the system job (triggered by a cron job) is next run. This option limits how many contacts are sent to each time that job is run. A value of zero places no limits (though there is a second option that may impact this behavior). In general, there is no need to alter this setting unless your mail server (which, by default, is your web hosting environment) places a rate limit on the number of e-mails you can send per hour. If they do, this setting will let you throttle the mailing and avoid exceeding that limit. For example, if you are limited to 1,000 e-mails per hour, and you run the cron job every 15 minutes, you would set this value to 250, ensuring no more than 1,000 are sent per hour.
- **Mailer Job Size**: With the default configuration, CiviCRM will begin processing your mailing, gradually working through the entire list of recipients in a linear fashion. For small mailings (a few thousand or less), this is more than sufficient. But for large mailings, processing the e-mails linearly may take quite a bit of time, resulting in the last recipients receiving the e-mail hours after the first do. For mailing server environments that can accommodate multithreaded mailing, CiviCRM provides the option of splitting your large mailing into smaller subjobs, which may then be run concurrently—greatly increasing the volume output of your mailing over time. This option defines the size of each of those subjobs.
- **Mailer cron job limit**: Working in conjunction with the previous setting, this option defines the maximum number of jobs you may run concurrently. This is important, as most servers will have a limit on the number of SMTP connections that can be made simultaneously. You don't want to lock up the server (or tie up all available SMTP connections) with a large mailing.
- **VERP Separator**: In order to process bounces and replies to your mailing, CiviCRM writes a unique return-path value into the header of the e-mail. For the vast majority of use cases, the default period (`.`) is the appropriate value to use for constructing the elements of this return-path. However, in some cases, you may want or need to set an alternate value.

- **Enable Custom Reply-To**: By default, the **Reply-To** address for your mailing will be the **From** address you selected when constructing the mailing. If you want your users to have the option of selecting an alternate value for the **Reply-To** address, enable this option. When building your e-mail, a new field will be visible providing access to this option.

It's very likely that smaller organizations will be fine leaving the default values in place. Larger orgs will want to investigate the resources of their mailing server or SMTP service and adjust the multithreaded job size and job limit options to ensure e-mails are delivered in a timely fashion.

The **CiviMail Component Settings** page provides the following options:

- **Enable Double Opt-in for Profile Group(s) field**: Earlier, we walked through the process of creating a profile and adding the **Group(s)** field in order to provide constituents a way to sign up for and manage their mailing list preferences. When using this feature with this option enabled, users will receive an e-mail after completing the form, which they must reply to in order to be added to the group. This prevents other people from signing you up for a mailing list that you do not want to receive. Only disable this option if you are confident users can safely sign up with a single opt-in (for example, if your profile form is only available to logged in users).
- **Enable Double Opt-in for Profiles which use the "Add to Group" setting**: Similar to the preceding option, this option will trigger a confirmation e-mail if you're using the profile advanced setting to automatically add people to a group. It's more common to leave this unchecked as your process of adding people to a group is more likely connected with another opt-in action, such as signing up for a membership or attending an event.
- **Track replies using VERP in Reply-To header**: Enabling this option will convert the **Reply-To** address to a unique value so that it can be processed by the system and reported on in the mailings summary.

- **Enable workflow support for CiviMail**: Most of the access control surrounding the CiviMail functionality is tied to a single permission: access CiviMail. This permission provides the logged in user the ability to create, edit, schedule, and send the mailing. While smaller organizations will be fine with that access level, larger organizations may require more finely-grained control and a more rigid workflow structure, separating the content creators from those authorized to schedule and send the mailing. If you are using Drupal, these advanced controls are available to you through the workflow support option. Enabling this option adds three permissions to your Drupal installation: **create mailings**, **schedule mailings**, and **approve mailings**. As the names suggest, these permissions provide you tools for separating the key functions and ensure the appropriate people are reviewing and approving the mailing before it is delivered to your constituents. Enabling this option also provides some integration support with the Drupal Rules module. For example, you can construct a rule to notify all contacts with the schedule mailings permission whenever a mailing is created and submitted for scheduling. If you have enabled these options and begun to assign the permissions to different roles, be sure to remove the access CiviMail option, as it will continue to provide access to all three of the workflow functions.
- **Enable multiple bulk email address for a contact**: In the contact record, you may have noticed that when creating multiple e-mails, you have the option of flagging one as the bulk e-mail address. By default, CiviCRM will always deliver to the primary address—unless a different e-mail has been flagged as the preferred bulk e-mail delivery address. Enabling this option turns this option into a checkbox, allowing you to select multiple addresses for bulk e-mail delivery within a single contact record.
- **Enable global server wide lock for CiviMail**: When the mailing cronjob sees a scheduled mailing and begins the delivery process, it will examine the multithreaded options we discussed earlier to determine whether the large mailing should be split into smaller subjobs. When each of these subjobs are picked up and delivery begins, CiviCRM must acquire a MySQL lock in order to safely process the mailing. If you are running a multisite environment where mailings on different sites may be triggered and run simultaneously, you may start to see errors if MySQL is not able to successfully acquire that database lock. If this happens, enable this option, which will have the CiviCRM test for the availability of a lock before attempting to acquire one, and will delay the subjob accordingly until a lock can be created.

- **Enable CiviMail to generate Message-ID header**: As described earlier, CiviMail relies on the construction of a unique value for the return-path value in order to process any bounces that are received. Sometimes, this method may not work, or you may not have access to an e-mail account that can handle plus addressing or catch-all handling. If so, enable this option to have the details about the mailing and recipient written into a `Message-ID` header.
- **Enable CiviMail to create activities on delivery**: When sending a mailing to your contacts, you will naturally want to store a history of the mailing in the contact's record, so you can see what communication you've sent to them. By default, CiviCRM handles that by creating an activity of the type, **Bulk Email**. While this is useful, and certainly fits with the concept of an activity, organizations that send mailings frequently will find that the contact's activity stream will quickly become overloaded with the bulk e-mail activities. While there is a tool in the activity tab to exclude activities from the listing by type, you are still, potentially, storing a large amount of data in the activity table simply in order to view the mailing history. Disabling this option will prevent activities from being created when a mailing is delivered. Instead, you can go to the display preferences and enable the **Mailing** tab on the contact record which will display that communication history in a dedicated list.
- **Disable check for mandatory tokens**: In the next section, we will discuss the use of several tokens that provide information about your site and provide a way for people to opt out of mailings. If you do not want these to be required for mailing, you may disable the token check. Please only do so if you handle these important functions in some other way.
- **CiviMail dedupes e-mail addresses by default**: As you construct your mailing, you will be presented with the option of deduping e-mail addresses. This situation arises when you have two contacts that share the same e-mail address (for example, a couple), but should not receive your mailing twice. You control the default setting for that option here.

- **Hashed Mailing URLs**: Oftentimes, you may see in the bulk e-mails you receive that there is an option to view the e-mail in a browser. This may be helpful if the recipient is using an e-mail client that does not render HTML very well. CiviCRM provides a token to insert a link to an HTML version of your mailing in your e-mail. The link that is constructed by that token references the ID of your mailing. While that ID is meaningless to the recipient, it does give them some facility to randomly change the ID in the URL in order to see past mailings you may have sent. When you create your mailing, you do have the option of limiting visibility to a specific mailing through that URL, but your control over who sees what is still very limited. You may, at times, send a mailing to one group of constituents that you do not necessarily want to share with another group. Enabling this option replaces the mailing ID with a randomized hash value. While it doesn't completely prevent unintended access, it significantly improves your ability to control who receives and can view your e-mail.

Before you jump into the mailing construction, there are a few more things to consider. Earlier in the book, during the installation and configuration section, we discussed the importance of setting up a cron job and reviewing the **Scheduled Jobs** list. Two, in particular, are critical for the proper function of CiviCRM's bulk mailing tools. The **Send Scheduled Mailings** job will query your system to see whether any scheduled mailings are ready to be sent, and then begins the mailing process. If this is not enabled, your mailings will sit in the scheduled list indefinitely. The **Fetch Bounces** job polls the bounce processing mailbox you configured in **Administer | CiviMail | Mail Accounts** and places e-mails on hold as appropriate. While you are technically able to send e-mail without having set up the bounce account and run this job, you will not be prepared to appropriately handle bounces by removing them from your future mailing lists, thus putting you at risk of ruining your mailing reputation.

Configuring the header and footer

CiviCRM supports the creation of multiple headers and footers for insertion in your mailing. These headers and footers can be used in conjunction with, or in lieu of, message templates. The footer, in particular, can be a very useful element in your mailing. Unlike message templates, however, headers and footers must be created before you construct your mailing, and so we will review them first.

In order to comply with the US CAN-SPAM Act, and in accordance with generally accepted mailing practices worldwide, every mail sent using CiviCRM must include two special mailing tokens: the domain address and the opt-out URL or e-mail token. It is also recommended that you include the group-unsubscribe URL or e-mail token. It is important to understand the difference between opt out and unsubscribe: opt out means that the user has chosen to completely remove themselves from receiving all e-mails from your organization; unsubscribe means they choose to no longer receive a certain newsletter (they are removed from the associated mailing group). If both links are included in your e-mail, be certain to craft the language carefully and accurately. Wherever possible, you will want to encourage people to simply unsubscribe from a certain list rather than completely opting out of all e-mails. If the latter is selected, you are legally bound to respect the contact's request.

Using tokens

In the previous chapter, we introduced the idea of a token, but it is worth reviewing here as well because they serve an important role in mass e-mail creation. A token is basically a merge field. When creating a mailing (or a PDF letter, per the previous chapter), you may insert tokens as placeholders for contact-specific data. When the mailing is processed and each recipient is cycled through, the token is replaced with the actual data. For example, you can insert a first name token and address your mailing to `Dear {contact.first_name}`. Several special mailing tokens exist, as mentioned above, to insert e-mail or URL links that are customized for the contact. When they click the URL link, it allows them to interact directly with their own contact record, such as providing the ability to opt out of all mailings.

The footer comes into play by providing a useful way to collect these required tokens and make sure they are consistently inserted in your mail. We recommend constructing a single default footer that is generic enough in its layout to be used in conjunction with any template. The footer should generally include the organization's name, domain address token, phone/e-mail/website, and opt-out/unsubscribe tokens. Note that the opt-out/unsubscribe tokens may be included as a URL link (which directs people to your website where they confirm the action) or as an e-mail address, which is processed by the **Fetch Bounces** scheduled job (see the previous section and *Chapter 3*, *Installation, Configuration, and Maintenance* for more details). If you want to provide a link to an HTML version of the e-mail, you would also include the **Mailing Permalink** token.

We recommend using the URL form unless there's clear reason to do otherwise. By using the URL, you force people to visit your website before taking action, which provides an opportunity to remind them about who you are, what you do, and perhaps cause them to rethink their removal request.

> Puzzled why the URL and e-mail constructed by the opt-out tokens appear as long, seemingly meaningless values? When CiviCRM generates the e-mails, it assigns a unique value to the opt-out tokens. This provides a connection back to the e-mail and contact record if the user chooses to opt out.

Headers may also be constructed to include an image, logo, or other branding you would want at the top of your e-mail. In general, we find headers to be less useful, as you typically have more control of your layout by using a message template.

To construct and edit headers and footers, carry out the following steps:

1. Navigate to either **Administer | CiviMail | Headers, Footers and Automated Messages** or **Mailings | Headers, Footers and Automated Messages**.
2. Click on the **Edit** link to the right of the **Mailing Header** row (you could also click on the **Add Mailing Component** button).
3. Customize the contents of the **Body – TEXT Format** and **Body – HTML Format** fields as appropriate, specifically including visual formatting for the latter.
4. To include an image in the e-mail, using an absolute path to a publicly accessible location, consider the following example:

```
td.footer {
  background-image:url(
    'http://example.org/sites/example.org/themes/example/
      images/newsletter-footer-bg.gif');
}
```

5. Choose whether you want this element to be the default value.
6. Click on **Save**.
7. Click on the **Edit** link on the right of the **Mailing Footer** row (you could also click on the **Add Mailing Component** button).
8. Customize the contents of the **Body – TEXT Format** and **Body – HTML Format** fields as appropriate, specifically including visual formatting for the latter.
9. The footer is the best place to put text and tokens to allow users to unsubscribe from the mailing list and/or from all of your communications.
10. Click on **Save**.

Configuring and sending bulk e-mails

As introduced earlier, the actual construction of a bulk e-mail consists of walking through a series of configuration options to build the content and recipient list, and to select how and when you want the e-mail delivered. This form consists of a series of tabs and panels that you will navigate through to select these options:

1. Navigate to **Mailings | New Mailing**.
2. Enter a value in **Mailing Name**.
3. If you want to use an existing template as the basis for this e-mail, select it from the list. Doing so will populate the **HTML**, **Text**, and **Subject** fields with the content from that template, allowing you to then modify the content as desired. To the right of the **Template** selection field, you'll notice an icon that allows you to save the e-mail as a template. If you have based this e-mail on an existing template, this link will provide you with the option of updating the existing template or saving the content as a new template.
4. Select the **From** address to use for this mailing. You may configure multiple addresses for use in this way by visiting **Mailings | From Email Addresses**.
5. Use the **Recipients** field to construct the list of people to receive the mailing. This is done by selecting mailing groups and past mailings that you wish to include or exclude from your new mailing. By making use of the include/exclude options, you can construct some very useful and advanced selection lists. For example, you could send out a promotion for an upcoming event where you include everyone in your newsletter list but exclude those who received an early-bird promo mailing the previous week.

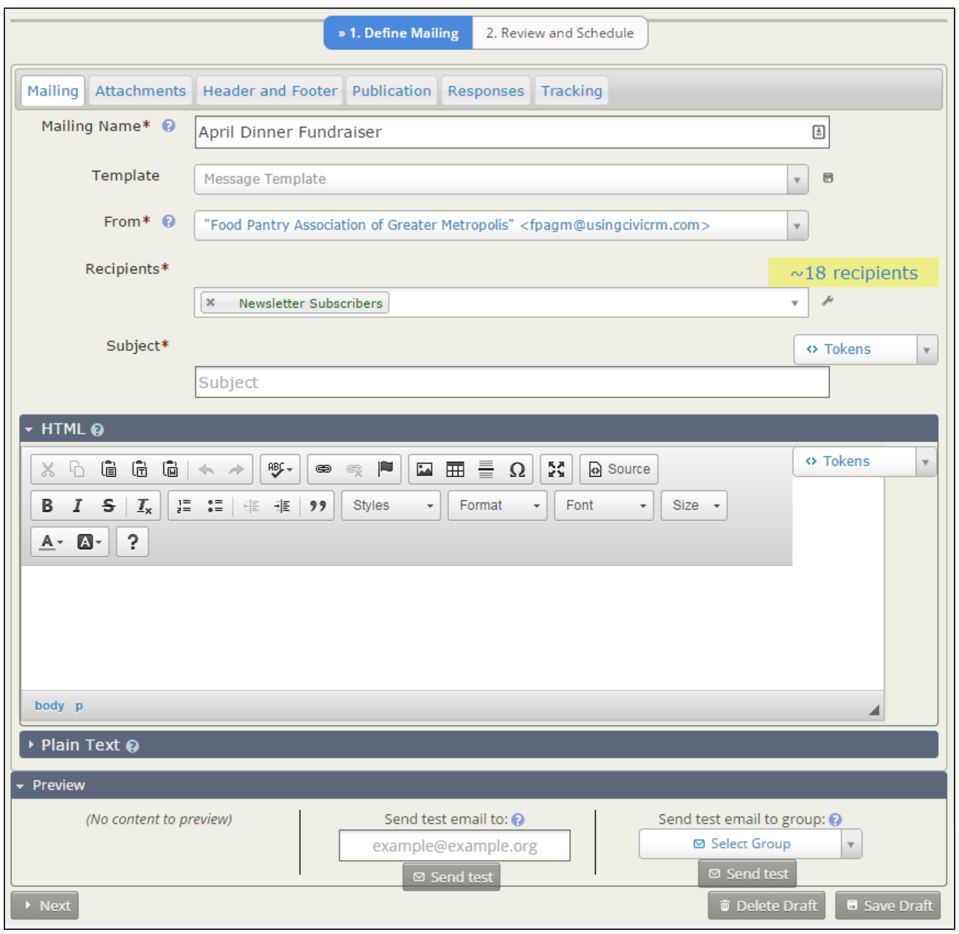
> Don't see a group listed that you are confident exists in your system? Remember that only groups flagged as a mailing list in the group settings will be available to the mailing interface.

6. Create a **Subject** for your mailing.
7. Construct your mailing content using the **HTML** and **Plain Text** fields. Here is where you'll spend the bulk of your time as you draft and tweak the content to meet your needs. Keep in mind that any images used in your mailing content should be uploaded to your site and referenced with a full URL (include the domain address).
8. Preview the e-mail on screen in a pop-up window or send a test e-mail to yourself or a group of contacts.

> This is a critical step in the process that should never be skipped.

9. Always take a moment to send yourself a test of the e-mail to ensure it is laid out as expected in your e-mail software.

At this point, you have a few options as to where to go next. You may save the e-mail as a draft and return to it at a later point, or delete it altogether (buttons in the bottom right). Most likely, you will want to review the other mailing tabs at the top of this page and continue the configuration process. Once you've finished configuring the mailing, you can click on the **Next** button to schedule and send the mailing. If this button is disabled (grayed out), it indicates there are required fields on this form that you've not completed:



Let's take a few minutes to review the tabs along the top of this screen, which provide access to additional configuration options.

- **Attachments**: Use the file browser button or drag and drop files into this space to include them in your e-mail as attachments. Be careful using attachments in bulk mailings; they can slow down the delivery significantly and may increase your exposure to being flagged as spam by recipient servers. It's generally preferable to upload your document to your website and provide a link in the e-mail to download it. If you do choose attachments, make sure they are not excessively large.
- **Header and Footer**: Earlier, we reviewed the header/footer configuration page, where these options can be created and edited. Use this tab to (optionally) select the header/footer you would like included in your mailing.
- **Publication**: When reviewing the use of tokens earlier, we mentioned the ability to include a permalink URL in your mailing content. This will link to a website version of your mailing, which is useful if people have difficulty viewing the e-mail in their e-mail software. On this tab, you have some control over the access to the web-based e-mail content. The **Public Pages** option means the content is publicly accessible to anyone who has the link. The **User and User Admin Only** means the page is only visible to logged in users. Note that there is a permission in the system ACL that also impacts access. Your logged in user must have a user group/role with that permission in order to view a mailing set to **User and User Admin Only**.
- **Responses**: This tab provides a number of options related to how CiviCRM will track and respond to user interactions with the mailings. From this tab, you have control over the automated messages that are sent out when a person opts out, re-subscribes, or unsubscribes from a mailing. The actual message options are managed in the **Headers, Footers, and Automated Messages** page discussed earlier in this chapter. You also have the option of enabling reply tracking, with various sub-options. When enabled, CiviCRM rewrites the reply-to address in the e-mail header so that it is sent to the main mail processing account. When next processed by the **Fetch Bounces** job (which actually performs more tasks than just handling bounces), the reply is parsed and stored as an activity in the contact's record. Typically, you will also want that e-mail forwarded to the original sending address of your mailing (as would happen with the standard reply-to behavior in your e-mail client). Select the **Forward Replies** option to enable this behavior. Lastly, you may optionally set up an autoresponder for replies. This may be helpful if you wish to immediately respond to the sender and buy some time by letting them know you will respond within a certain time frame (for example, you might reference your policy of responding to all e-mails within 48 hours).

- **Tracking**: One of the primary benefits of using CiviCRM's mass mailing tools is the ability to track statistics for a specific mailing. On the last tab, you have the option of disabling click-through and opened e-mail stats—though you rarely will want to do this. When enabled, **Track Click Throughs** will rewrite any URLs in your e-mail content to be directed through a CiviCRM URL, so statistics can be gathered. Similarly, **Track Opens** collects stats when a contact opens the e-mail in their e-mail client or web browser. While CiviCRM uses the standard method for handling this (a transparent image embedded in the e-mail content), it is a less than perfect way to collect open stats (there is no perfect way). When reviewing the statistics for a mailing, keep this in mind, as more people have likely opened the mailing than the stats suggest.

Whenever you prepare to send a mailing, keep in mind that this communication will be sent to an important audience—members, prospective members, donors, prospective donors, volunteers, supporters, or the press—whoever it may be. Take the time to review the mailing before you submit it. Make sure the recipients list contains the people you intend to receive it; review the e-mail content one last time; make sure your configuration options are selected appropriately. Lastly, decide whether you want it sent immediately or will schedule it for some time in the future.

At this point, the mailing enters the CiviMail queue. It won't actually be sent until the mailing job (**Send Scheduled Mailings**) is run. Normally, this job will be set to run Always—meaning every time the cron job is run. This means there will likely be a short delay before the mailing begins, depending on how frequently your cron is scheduled and when you actually submit the mailing. Thereafter, CiviCRM will process the mailings as fast as your hosting environment, SMTP server, and resources permit.

> Mailings may also be created directly from search results. After searching for records, select all or some of the contacts from the result set and choose schedule/send a mass mailing from the actions list. This will drop you into the new mailing interface where you can proceed with configuring the mailing. If you begin a mailing this way, you will see one additional field on the **Mailing** tab: **Unsubscribe Group**. Because this mailing is search-based, there are no mailing lists (groups) associated with it, and consequently no way for a person to unsubscribe from the group. To support this functionality, CiviCRM requires you to select an existing group that will serve as the mailing list for unsubscribes.

Managing mailings while in process or completed

After initiating a mailing, you can monitor the status by performing the following steps:

1. Navigate to **Mailings | Scheduled and Sent Mailings**.
2. Click on the **Report** link to the right of the row for the mailing of interest.

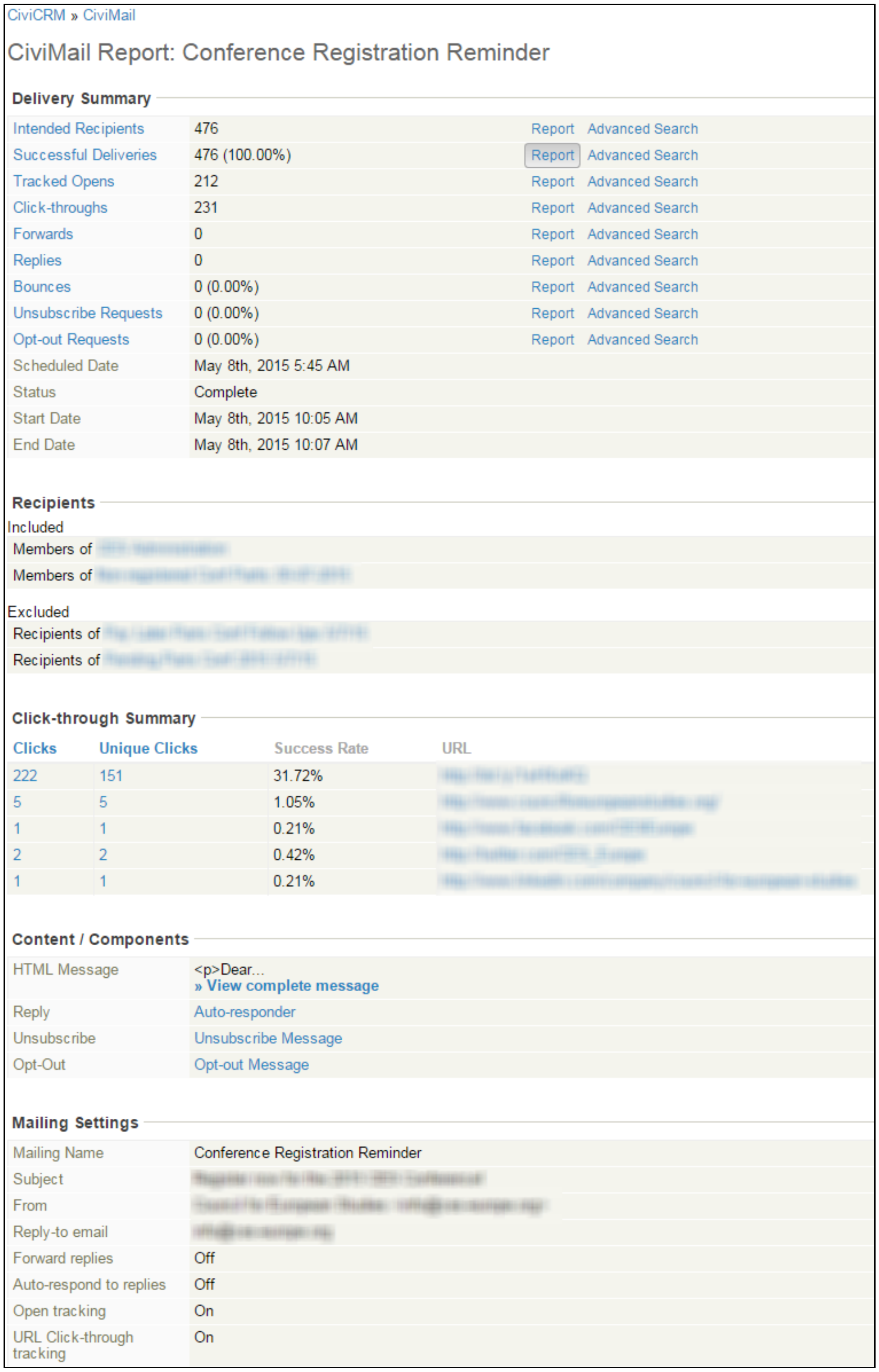
You can cancel or delete a mailing that is in the process of being delivered by performing the following steps:

1. Navigate to **Mailings | Scheduled and Sent Mailings**.
2. Click on the **– more –** link to the right of the row for the mailing of interest, and click on either **Cancel** or **Delete**.
3. Canceling will stop further sending. There is no ability to recall e-mails already sent out; it simply halts the mailing process at the time when you cancel it.
4. Deleting stops further sending and removes existing data about the mailing from CiviCRM.

As soon as the actual mailing process initiates, you can begin to review the mailing report. It will periodically get updated with new information as the mailing proceeds. In fact, it will generally get updated with new metrics for a few days after the mailing is sent. Values such as click-opens and click-throughs are dependent on user interaction. Constituents may receive the e-mail, take note of it, but may not follow up by clicking on links inside it for several days after receiving it.

The report itself provides a snapshot of the key metrics and details of the mailing. This includes the number of successful deliveries, bounces, click-opens, click-throughs (including a list of each link and whether it was a unique click), and links to the list of contacts to whom the mailing was sent. It also provides a copy of the message and record of the mailing options you chose.

The following screenshot is from an actual mailing (with some organization-specific details obfuscated). Note that the categorized items in the **Delivery Summary** section are all hyperlinked. For example, you can click on the click-through links to view a list of all contacts in the mailing who clicked on at least one link in your mailing:


CiviCRM » CiviMail
CiviMail Report: Conference Registration Reminder
Delivery Summary
Intended Recipients 476 Report Advanced Search
Successful Deliveries 476 (100.00%) Report Advanced Search
Tracked Opens 212 Report Advanced Search
Click-throughs 231 Report Advanced Search
Forwards 0 Report Advanced Search
Replies 0 Report Advanced Search
Bounces 0 (0.00%) Report Advanced Search
Unsubscribe Requests 0 (0.00%) Report Advanced Search
Opt-out Requests 0 (0.00%) Report Advanced Search
Scheduled Date May 8th, 2015 5:45 AM
Status Complete
Start Date May 8th, 2015 10:05 AM
End Date May 8th, 2015 10:07 AM
Recipients
Included
Members of
Members of
Excluded
Recipients of
Recipients of
Click-through Summary
Clicks Unique Clicks Success Rate URL
222 151 31.72%
5 5 1.05%
1 1 0.21%
2 2 0.42%
1 1 0.21%
Content / Components
HTML Message <p>Dear...
» View complete message
Reply Auto-responder
Unsubscribe Unsubscribe Message
Opt-Out Opt-out Message
Mailing Settings
Mailing Name Conference Registration Reminder
Subject
From
Reply-to email
Forward replies Off
Auto-respond to replies Off
Open tracking On
URL Click-through tracking On

The **Scheduled and Sent Mailings** page also gives you access to search tools to locate past mailings by name, date, status, and other fields. Past mailings may be archived, which is simply a way to keep your mailing interface clean by not displaying old mailings. Archiving retains the record but suppresses it from the search tools by default (you will notice the **Mailing is Archived** toggle on this form).

For more tools to locate and review mailings, visit **Mailings | Mailing Reports**, where you can search for mailing bounces, click-throughs, open reports, and various other summary and detail reports on mailings.

Sending SMSes

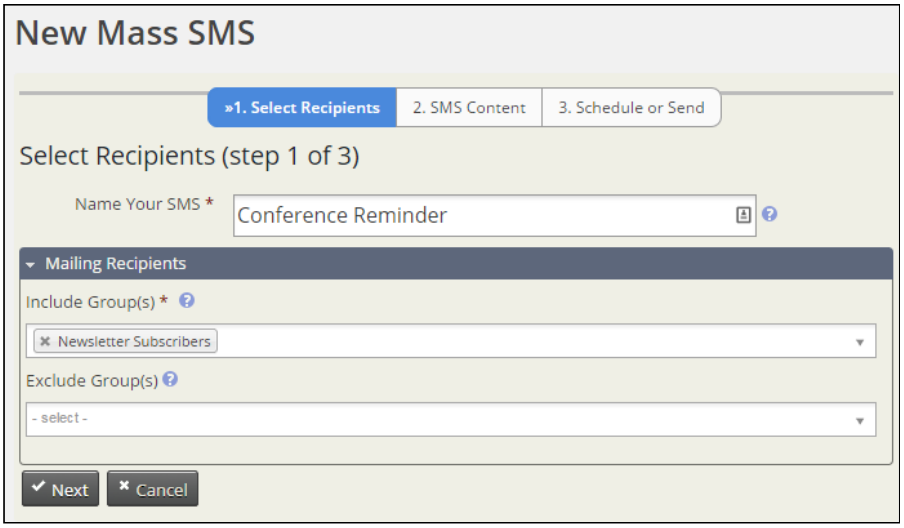
CiviCRM also provides tools to send SMS messages to contacts. The process is similar to what we've reviewed when creating mass e-mails, though somewhat simpler. Before sending a message, you must set up the system with whatever SMS service you choose to use.

CiviCRM does not ship with any SMS provider integrations; rather they are handled through third-party extensions. Visit **Administer | System Settings | Manage Extensions** to search for and install an extension. You can also search the extension directory at `https://civicrm.org/extensions` to look for possible solutions and read more details about them.

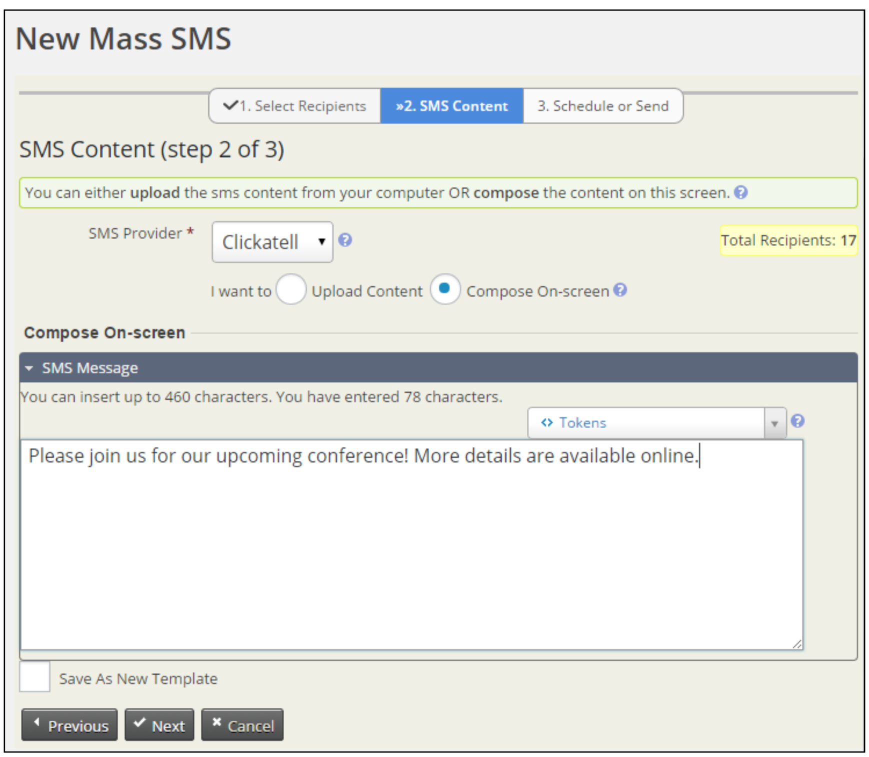
> Extensions are version-specific, and only those reported to be compatible with the version of CiviCRM you are running will be displayed in the **Add New** tab of the extension manager. If you find an extension in the directory that you are interested in, but it is listed as not yet compatible with the version you are running, that does not necessarily mean it's incompatible; it may simply mean the extension developer has not completed testing with the latest release and updated the extension listing to reflect compatibility. You may still be able to install and use the extension, but do so carefully and test thoroughly.

After installing an SMS integration provider extension, visit **Administer | System Settings | SMS Providers** to configure the provider. Here is where you will enter details, such as your account username and password, as well as any parameters the provider supports. You can now create a new SMS by visiting **Mailings | New SMS**.

In the first step of the three-step wizard, you will name the SMS and select the recipients. The interface for selecting recipients is similar to what we saw when creating a new mass e-mail—you may include/exclude groups and include/exclude past message recipients:



In the second step, you select your provider and compose your message. As with the mailing interface, you can insert tokens and save/update the message as a template for later use:



Lastly, you will preview the SMS and choose to send it immediately or schedule for some time in the future. Alternatively, you may save the message and return to it at a later date to complete it. Visit **Mailings | Find Mass SMS** to continue the message or review details about previously sent messages.

Creating a bulk e-mail template

We've already introduced the idea of message templates while discussing the PDF letters and the bulk mailing process. Templates are worth constructing when you have a design and layout that you consistently use for regular communications, or if you have standard content that you reuse on a regular basis (for example, a welcome letter to new members that you send out a week after they join).

Within the bulk mailing tools, you also have the option of reusing a previous mailing. If you have already scheduled or sent a bulk e-mail similar to what you need to send, then you can copy and modify it, effectively using it as a one-time template for both the mailing settings and the message content. To do this, visit **Mailings | Scheduled and Sent Mailings**, then click on the **Re-Use** link to the right of the row for the mailing of interest.

As we saw earlier, you can create a template based on the message content and formatting during the mailing creation process. Templates may also be constructed independent of the mailing wizard by visiting **Mailings | Message Templates**. Note the difference between reusing a past mailing and creating a mailing from a template—the former will copy all settings, including the recipient selections and mailing settings. Creating a new message using a template only prepopulates the mailing subject and body regions.

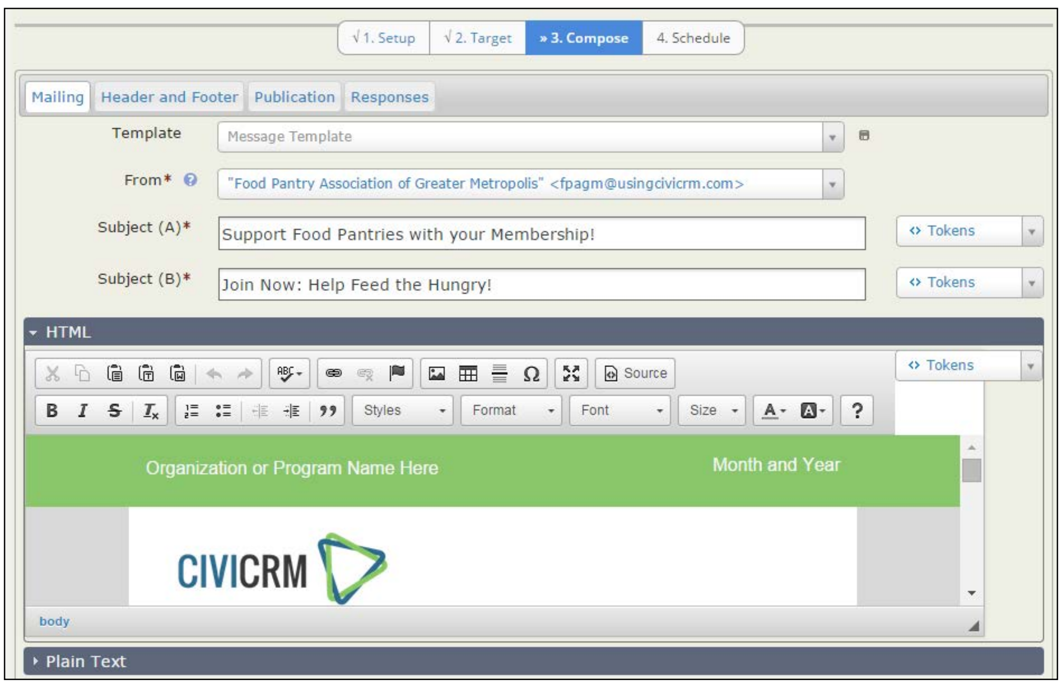
You can manage existing templates using **Mailings | Message Templates**. Notice that these templates will be available to both the CiviMail bulk e-mail system, as well as basic send e-mail activities.

A/B testing

Version 4.6 of CiviCRM introduced a new tool that will let you create different versions of a mailing and compare how effective they were based on the response statistics. You can vary the differences based on the **From** address, subject line, or the entire e-mail.

When constructing an A/B test, it replaces the process previously described for creating a standard bulk e-mail. In the first step, you name the mailing and decide which of the three test types you will use. In the second step, you define your recipient list and target audience breakdown. The recipient list is selected in the same way as you do a normal mailing. The target breakdown determines the percentage of recipients that will randomly be selected to receive the **A** version of the mailing, the **B** version of the mailing, and the **Final** version of the mailing. The concept here is to send different versions of the mailing to a small subset of your recipient list to determine the version that generates a better response rate; the remaining recipients (final list) are sent whichever version is deemed more effective. You determine the volume of your version testing using the sliding bar; the **Final** mailing adjustment will be calculated automatically.

As you advance to the next step, you will construct the content of your mailing. This step will reflect whichever A/B test type you chose in the first step. For example, the following screenshot represents a subject line test, and so it displays two subject lines to configure. This is the heart of the testing process—the place where you distinguish the differences between the two test mailings:



The final step is where you schedule your A/B test and the balance of the recipients. Running an A/B test requires some patience; you must allow sufficient time for the test results to be processed in order to determine the best course of action for your remaining e-mails. You can set a fixed gap of time by setting the assessment (final) mailing to be scheduled in the future or you can choose to let CiviCRM send the mailing on an ongoing basis as meaningful stats are returned.

After the mailing has been triggered, you can begin to review statistics to compare how the two test mailings have done. If you decide one test mailing has clearly outpaced the other, you can choose to end the test and begin sending the desired version to all remaining recipients.

Keep in mind that an A/B test mailing will slow down the delivery of your mailing, and does require additional time and effort to construct. It can be a very useful tool to gain insight into your constituent base and better understand how they respond to your organization, but it is probably something you will only want to use selectively, when you have specific campaigns or managing fundraising outreach efforts.

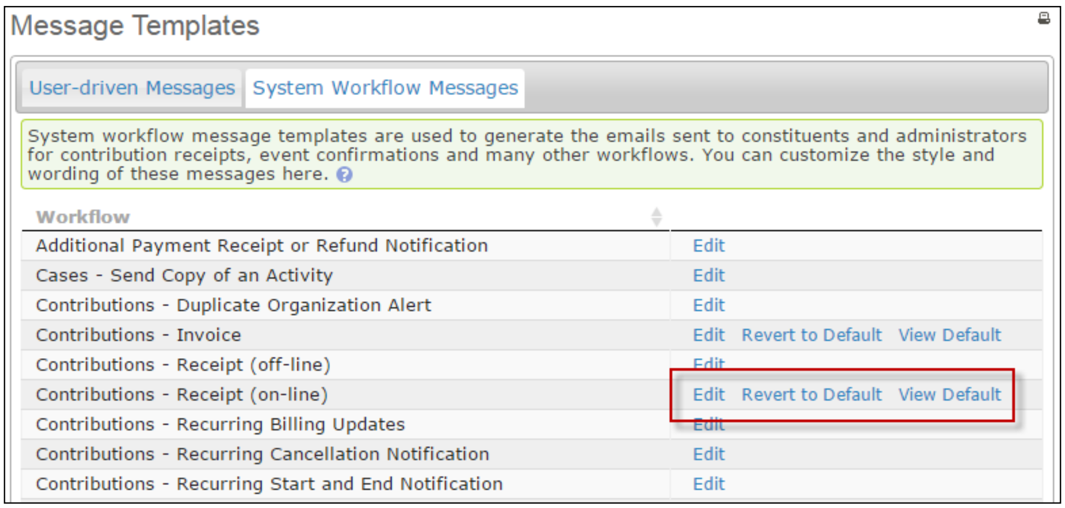
Customizing system workflow messages

In *Chapter 3*, *Installing, Configuring, and Maintaining*, we outlined how to set up CiviCRM to send e-mails. Once that is done, CiviCRM sends a number of messages automatically as part of its workflow. For example, if someone registers for an event, you will want them to receive an e-mailing detailing their registration selections; if you assign an activity to another staff member, they will receive an e-mail notifying them of the assignment. The text and formatting of these message templates provided in the standard installation is basic and serviceable. During your initial configuration, you should consider customizing these messages to fit with your organization's communication style. As you use the system, you should also be aware as to how these messages are triggered, so you can identify those that don't have quite the right tone, polish, or design as the rest of your organization's communications, and modify them accordingly.

The process begins by noting the text that is problematic, working out what should replace it, finding the text in the appropriate template, and then replacing it with the new text.

We reviewed the basic workflow template tools earlier in this book. However, it's worth reviewing again at this juncture because those automated messages are certainly a part of your overall communication strategy. On the one hand, they serve the primary purpose of providing details about an event registration, online pledge, or case record, for example, and so it is natural for the content to primarily focus on relaying the necessary details. However, these messages also provide an opportunity to share your message in different ways with people who clearly have a level of commitment to the organization. Further, the essence of branding is the principle of consistency. If all the e-mails generated from your system have a certain look and feel, but the automated response e-mails are notably different, you risk compromising the brand you've established.

Workflow message templates are accessed through **Mailings** | **Message Templates**, from the **System Workflow Templates** tab. The templates are pretty clearly titled; click on **Edit** in the appropriate row to access the content:



After editing and saving a template, the row will have several additional action options—**Revert to Default** and **View Default**. As a result of the automated function of these templates, it's important that they should be constructed properly and should include the necessary fields. If you edit a template and find it is no longer working correctly, you may view the default version (for comparison) or revert to it and re-implement your edits.

The edits we are about to describe benefit from a higher level of technical expertise than is needed for most other material in this book. The good thing is that it is easy to fix anything you break by reverting to the default. Still, you might want to have a communications wordsmith, a graphic designer, and a technically skilled HTML coder work together on this if you want to do more complicated changes than what we describe.

The template content may appear overwhelming at first as it contains many conditional statements (`if…else`), HTML, and field variables. Workflow e-mails use the Smarty templating system to render field values and perform operations and calculations on the content, and use HTML to define the structure and layout of the e-mail.

Smarty has much more power than the basic token replacement we saw in the user-driven e-mails. These system templates take advantage of that power in many cases. In order to edit the more complex system templates, it helps to know how to recognize things that are safe to change, things that may break the system template if you change them, and how to revert back to the default template if things start going wrong. We're not aiming to learn how to use the more programming-like functions in Smarty, but just learning how to edit the text strings mixed in among the programming constructs.

Let's take a brief look at one frequently used message template that might need editing in some installations: **Contributions – Receipt (on-line)**. If we click on its **Edit** link, we can use the first 15 or 20 lines of content in the **Plain-Text Format** field to illustrate how to approach customizing these files (we are beginning with the plain-text version because it is easier to see the Smarty construction without the HTML tags). We see the following output:

```
{if $receipt_text}
{$receipt_text}
{/if}
{if $is_pay_later}
===========================================================
{$pay_later_receipt}
===========================================================
{else}
{ts}Please print this receipt for your records.{/ts}
{/if}
{if $amount}
===========================================================
{ts}Contribution Information{/ts}
```

The first thing to notice is that there are two pieces of text that display in the receipt message: `Please print this receipt for your records`, and `Contribution Information`. Both are surrounded by opening (`{ts}`) and closing (`{/ts}`) tags. These `ts` tags are used to identify strings of text that are translatable into other languages. Inadvertently, this helps nontechnical users identify, relatively easily, what can be changed and what cannot. Anything in between opening and closing tags should be modifiable, at least on first glance. Since Smarty uses curly braces to designate its constructs from non-Smarty content, we can quickly identify it in the template and handle it accordingly with care.

For illustration purposes, let's assume that your organization finds the sentence, **Please print this receipt for your records** too staid for its youthful constituents. You want to replace it with **Just wanted to say thanks and let you know we got your payment**. Since the text is between opening and closing tags, changing it will not cause any problem.

> Text found within the `{ts}` tags may also be modified using the word replacement tool, found at **Administer | Customize Data and Screens | Word Replacements**. If your only change to the template was the text of this string, it would be better to handle it with a word replacement as it's easier to maintain through version upgrades.

Let's make the same change in the HTML version now. We start by putting our cursor in the text area field and use our browser to search for `print`. We find the same line, more or less, as there is a minor variation in the text. Once again, the text is between opening and closing tags; so we can make this change without breaking the site.

Having made the same change in both versions of the message template, we click on **Save**. We now see the new options beside this system message template: **Revert to Default** and **View Default**.

When making changes to system messages, it is important to test out any change as soon as possible, preferably on a nonproduction server if you have one available. If there are problems, you can revert back to the default version of the template.

When you upgrade CiviCRM, the upgrade script will alert you of any changes to message templates that may affect modified versions you have created. Don't ignore this warning; you may find important templates are broken if you have not taken the time to compare and update your modified version with the new default version.

Recording external e-mails

While our attention thus far has been primarily concerned with outgoing communication to your constituents, that is only one-half of the equation. You also receive communication from your constituents and will want to think through how to effectively capture that information for future reference in your CRM. In earlier sections, we discussed using activity records to store information about phone calls received, meetings that took place, or to manually store e-mails that you sent from an external e-mail application.

CiviCRM facilitates the process of recording externally-originating e-mails through an automated, scheduled job. The script will post the e-mail as an activity to every contact in the **From** and **To** lines. This lets your staff use their preferred e-mail client while having CiviCRM accumulate a relatively complete record of interactions with constituents.

Here is how to set up the autofiling e-mail feature:

1. Navigate to **Administer | CiviMail | Mail Accounts**.
2. Create an e-mail account on your mail server. Give the account an appropriate address, such as `activity@example.org`.
3. Click on **Add Mail Account** and fill in the form with the details required to access the account. In the **Used For?** field, select **Email-to-Activity Processing**.
4. Navigate to **Administer | System Settings | Scheduled Jobs**. Locate the **Process Inbound Emails** job and enable it. By default, this job is set to run hourly, which is generally suitable for most organizations. If you are a heavy user of this tool and are looking for a faster processing turnaround time, you can change it to run every time the cron job is run (**Always**).
5. Test the tool by sending an e-mail to the newly created e-mail address, and then wait for the job to run (or manually execute the job from the **Scheduled Jobs** page). Locate the contact record in the system that the e-mail was sent to and see if there is a new activity recorded for the individual.

If you don't see the e-mail recorded as an activity, you may need to do some troubleshooting. Here are a few suggestions to help narrow down where the problem is:

1. Try accessing the e-mail account from your e-mail client. Make sure the credentials are accurate and working correctly.
2. From the scheduled jobs page, view the job log for the **Process Inbound Emails** job. It will inform you if the system was unable to connect to the e-mail account and may shed light on the problem.

3. If the job log indicates the job ran successfully, try searching your system for recent activity records (use the **Find Activities** tool and limit by date range). It's possible the activity was attached to a different contact record than you expected.

Once you've confirmed that the e-mail is processing correctly, you can begin using it. As your staff receive e-mails from constituents, they can choose to forward it to this inbox or CC the account when they reply to the constituent. The e-mail will be processed the next time the scheduled job is triggered by your system cron job.

> When e-mails are processed by the script, the match to the contact is made based on the e-mail address. If the e-mail address does not exist in the system, a new contact record will be created. This has the potential to create partially complete contact records in your system very easily. Consequently, you should only use this e-mail address with staff, and never publicly expose the e-mail address lest you risk populating your database with bad records. Also understand that the script uses a parsing script to *find* the e-mail address of the original contact. You are typically forwarding or replying to an e-mail and CCing this account, which means the actual constituent's e-mail may be buried in a previous header. The parsing process is imperfect, so there may be times when it doesn't find and process the contact quite as smoothly as you hope. For the most part, you'll find the parsing process very reliable.

Personalized appeal for volunteers

Let's see some of what we've covered in this chapter represented in our case study example.

John Doe and his staff have accomplished a lot with CiviCRM in 4 weeks. They have the following entities:

- Imported the Canadian Tories' election list of people who have volunteered, donated, or taken signs for their lawn
- Imported John's personal list of family and friends
- Imported John's list of Fisheries Union contacts from around the province
- Started tracking all issues in the Constituency Office in CiviCase
- Sent out their first newsletter with CiviMail
- Begun discussions with a couple of payment processors on what sort of deal they would provide

He needs to quickly get organized to hold a fundraising dinner in 7 weeks. His district association president booked the hall before heading overseas for a 3-month contract. He's decided to send out a personalized appeal to his top 50 volunteers, hoping to get about 12 or 18 to step up.

Joe has created 10 outreach coordinator positions that he would like to fill, one for each of the following people:

- The four main villages
- The rest of the district
- The rest of the province
- The fishers' union
- Out-of-province contacts
- Major Tory funders who contributed to his campaign that he would like to cultivate relationships with

John is planning on sending out a personalized e-mail to the 50 prospects, and then following up with phone calls over the course of 3 or 4 days.

John doesn't expect to use this prospect list again. He also wants to hand-select the people to whom the appeal is sent. He figures that 4 to 6 pages of 50 contacts each is a good number for him to select from. As a result, he plays around with a few queries until he gets about the right number, and then methodically scans the names and selects good prospects.

He has between 3 and 8 people slotted for each of the 10 positions. He'd like to thank them for the things they did in the campaign and invite them to remain involved. To do this, Joe has created a few custom fields and will be using them in his personalized appeal.

To support both his own phone follow-up and the work of his volunteers, Joe has found a module called CiviEngage, and has installed it using the instructions at `http://wiki.civicrm.org/confluence/display/CRMDOC/CiviEngage+Installation`.

Using a combination of the CiviEngage tools, the broadcast e-mail functionality, and making sure he tracks as many details as possible in activity records, John is able to effectively reach out to, manage, and communicate with volunteers who will commit to helping him with the upcoming fundraising dinner.

Summary

This chapter outlined how to use CiviCRM to improve how you communicate with your organization's constituents. The first section focused on the broader topic of how communications should be aligned with the organization's overall CRM strategy.

Subsequent sections gradually built from sending an e-mail to one or a few constituents to sending out bulk e-mails to hundreds or thousands. Not all of the focus was on e-mail communications. We also looked at using CiviCRM to send bulk SMSes, print labels for postal mailings, record those mailings as activities for all the recipients, including a soft copy of the letter, and print personalized letters.

We then looked at strategies for list-building using CiviCRM profiles to enable users to subscribe to bulk e-mail products such as newspapers. While implementing profiles in recipe-style format, we took into consideration the differences and options present in the Drupal, Joomla!, and WordPress installations.

As lists are being built and constituents are communicated with, the role of CiviCRM groups becomes clearer. To that end, we reviewed basic strategies for organizing constituents into groups used for communication efforts.

The chapter wrapped up with some loose-end topics that are important for your overall communication branding and effectiveness. We reviewed automated messages generated by CiviCRM and briefly looked at how Smarty templating is used to construct them.

Using a scheduled job, we set up an e-mail box that can be polled by the system and have e-mails processed as activities in contact records (based on the **From** and **To** fields). This is a powerful way to connect your staff's desktop e-mail client software (and daily communication) with the CRM.

In the next chapter, we'll look at a number of ways to use CiviCRM to support fundraising in the nonprofit sector.

7
Campaigning with Petitions and Surveys

One of the challenges many organizations will face is how to best orchestrate multiple outreach and promotion efforts into a unified project—something that will clearly tie together these disparate pieces so that they can be understood and reported on as part of a single goal. For politically-oriented organizations, or those that are involved in lobbying and education efforts to advance the concerns of the organization to legislators, their project goals will often include outreach to constituents or the public at large, seeking support for their positions. CiviCRM's campaign tools can provide the project *glue* and many of the outreach features to help achieve these goals. Although you can also use campaigns in CiviCRM for fundraising, it is originally more focused on political processes.

In this chapter, we will discover how campaigns can help you in:

- Managing projects
- Defining goals
- Reporting on them in a unified way

We will also take a look at the survey and petition tools to understand how they fit into your data gathering outreach strategies.

Working with campaigns

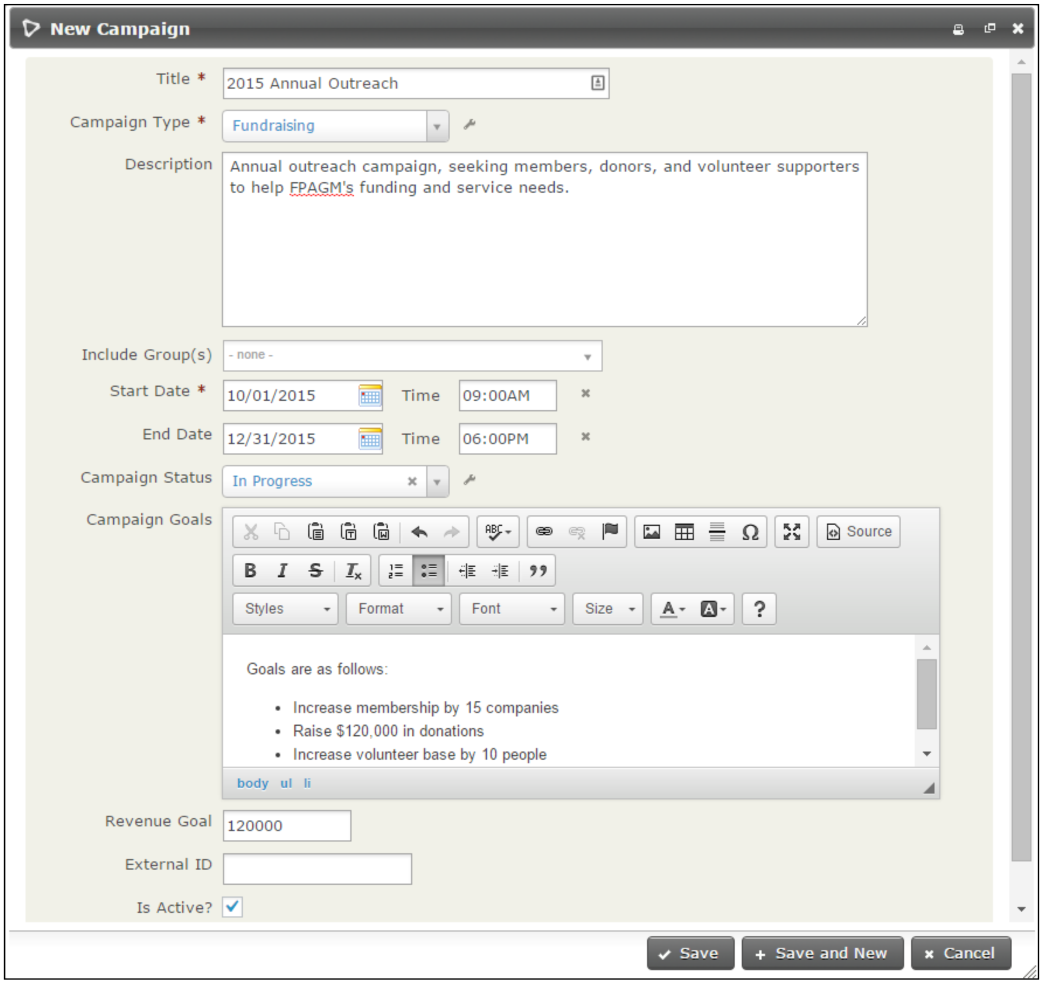
Before we delve into the details, let's first understand what a campaign is in CiviCRM. The terminology can be a little misleading, as the word "campaign" may have a specific connotation in different contexts. For example, you might hear the word and immediately think of a political campaign, seeking to elect a person for office; or you might think of a member outreach campaign, which is seeking to increase membership by a certain percentage over a fixed period of time. Both are good examples of how campaigns can be used in CiviCRM; but we want to be flexible enough to think beyond those more common uses of the term.

In essence, a campaign is a project—defined by goals and executed over a fixed period of time. The goals may be monetary in nature, such as a campaign to raise $20,000 in donations to fund a new program; it may be measured in numbers, such as a campaign to increase membership by 10 percent over the course of 2 months; or it may be measured by the success in achieving an external goal, such as passing a piece of legislation that is advantageous to your core constituency. Campaigns are typically limited by a period of time—for example, your fundraising campaign will take place over 1 month, your membership program over 2 months, and your legislative effort by when the legislature is in session, or by the next election. While CiviCRM doesn't strictly require an end date to your campaign, it's best to think of it in terms of a finite period of time, at which point the success of the campaign can be measured and reported on.

Into this project box, you place the resources and tools that will be used to help achieve the campaign goals: contribution pages, membership signup forms, events, surveys, petitions, cases, specific activities, and so on. As data funnels into the system, attached to a specific campaign, you gain the ability to search across different data types and extract information relating to this project goal.

CiviCRM expects you to have at least one campaign type configured to distinguish between the sorts of campaigns you might want to configure. You can access the campaign types by navigating to **Administer | CiviCampaign | Campaign Types**. Initially, CiviCRM will have the campaign types, namely **Direct Mail**, **Referral Program**, and **Constituent Engagement**, but you can modify these campaign types or add the campaign types.

As you would expect, we need to begin by creating a new campaign. We do this by navigating to **Campaigns | New Campaign**, or by visiting the dashboard at **Campaigns | Dashboard | Campaigns**, and clicking on **Add Campaign**. This will open a pop-up window where we define the campaign:



After giving our campaign a title using the **Title** field, we need to select a type from **Campaign Type**. This option list can be added to or modified using the wrench icon or by visiting **Administer | CiviCampaign | Campaign Types**. It's not uncommon for campaigns to fall into a set of categories as they repeat year after year. Give some thought as to how you will best organize your campaigns so that they can be easily referenced in future years:

1. Provide a description in the **Description** field for your campaign.

   This step is for internal purposes and should clearly describe the intent and purpose of the campaign

2. Optionally, designate a group of contacts that will be linked to this campaign, using the **Include Group(s)** field. The idea behind the groups field is to identify (and limit) the target of your campaign. For example, if you were creating a membership development campaign, you would be primarily targeting prospective members; you could create a group to store those contacts, and then associate it with your campaign.
3. Next, set a **Start Date** and, optionally, an **End Date**. As mentioned earlier, while you are not required to set a fixed end date, it is recommended you do so in most cases as it gives you a firm point in time where you can analyze the success of the campaign and report against the original goals. Further, most people are better at accomplishing goals when there is a deadline involved.
4. Set the status of your campaign in the **Campaign Status** field. This option list can also be modified using the wrench icon or by visiting **Administer | CiviCampaign**. As you would expect, the status field helps you track where you are with the project: is it in progress, still in the planning stages, or is it completed? Over the life of the campaign you will update the status to reflect what stage you are in.
5. Define the goals in **Campaign Goals** in written form, and if applicable, set the **Revenue Goal** field. Be clear and specific in your definition of goals; use numeric targets wherever possible, as they are easier to measure against. For example, rather than setting a generic goal to `increase membership`, indicate that you are seeking to add 25 new corporate members by the end of the year.
6. You can provide an ID in the **External ID** field, if desired, and control whether the campaign is active, by checking **Is Active**, or **Is Disabled**. As we saw with contact records, the external ID field is intended to help you tie the record to external data sources.
7. After completing the form, go ahead and save it. You can now view it on the **Campaign Dashboard**, which is where you would search for, edit, disable, or delete any existing campaigns.

Referencing campaigns throughout the system

Campaigns provide the glue to connect different records throughout your system. By referencing a campaign in different areas of your site, you associate them with the project and can track your progress toward the campaign goals. In the following different ways, you can connect records to campaigns:

- **Activities**: When you create an activity, you have the option of linking it to a campaign. Let's say that your project involves phone outreach efforts to potential members. As your staff places those calls, they can create an activity to record the details of the conversation and associate it with a campaign. Activities can also record an **Engagement Index**—a metric to rate how engaged a certain activity may be considered. For example, sending an unsolicited e-mail to a prospective donor may be a low engagement level (1)—you are initiating the conversation with no assurance of a response. However, if your constituent calls you to discuss their interest in a large donation, this would rank much higher on the engagement scale (4) since they are initiating the conversation and it may involve a significant financial contribution. While the engagement index is not strictly tied to campaigns (you can freely use it outside of the campaign context), it is often found to be a useful metric in campaign goal definitions.
- **Contribution Pages**: The first step in the contribution page configuration process includes the option to associate the page with a campaign. Doing so will mean all contributions that are generated as a result of this page will also be flagged as part of this campaign.
- **Contributions**: Individual contributions can also be designated as a part of a campaign manually (not only as a result of being created through a campaign-designated contribution page). This is important if you are receiving offline contributions (checks, cash, and so on) as a part of your campaign.
- **Pledges**: Assign a campaign when manually creating a pledge, or if you are enabling pledges on a contribution page, you can autoassign the campaign there.
- **Events**: As with the contribution pages, events can be associated with a campaign on the **Info and Settings** tab of the event configuration screen. Any registrations for that event will be linked to the campaign.
- **Event Registrations**: When creating a manual event registration (through the administrative side), you can associate the registration with a campaign.
- **Mailings**: Bulk e-mails are linked to campaigns on the **Mailing** tab of the creation form.
- **Memberships**: When creating a new membership for a contact, you can associate it with a campaign. As membership signup through your site is accomplished with a contribution page, you can automatically assign a campaign for memberships there as well.

- **Surveys and Petitions**: The survey and petition tools are more directly linked to campaigns, as they were built specifically for implementation in a campaign context. We will review these tools in depth later in this chapter.

As you can see from the preceding list, just about every type of record in the system can be linked to a campaign. From the various component search tools (for example, **Find Members**) and advanced search panels you can filter by campaign. For example, if you need to determine how much total revenue has been received to date for a certain campaign, you can easily do so using the **Find Contributions** search. As we will see in more depth later, many reports also include the ability to filter by campaigns.

Surveys and petitions

CiviCRM is open source software and is very much driven and developed, based on the needs of the organizations using the software. In fact, much of the functionality in CiviCRM is a direct result of organizations needing to extend the system to meet a particular need, and then working with the core team to contribute those modifications back to the core software. The campaign tools are one example of this, as they were largely contributed—then later extended—by an organization involved in voter advocacy efforts.

The upside of this model is that CiviCRM is continually being expanded and improved by the community of organizations using it on a daily basis. The downside is that we sometimes get functionality where the initial implementation is very specific and narrow in scope. Over time, it may be more generalized, and yet the remnants of its history are still present. To some degree, we see this to be the case with **Surveys** and **Petitions**.

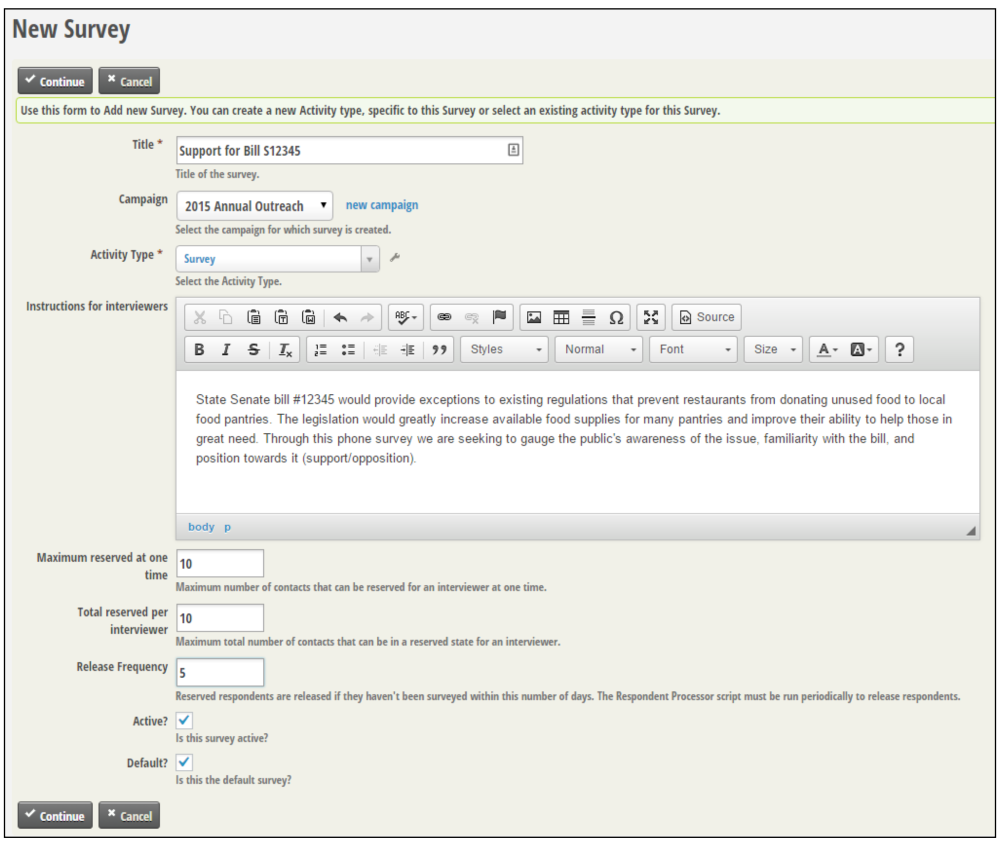
Let's first understand how these terms are used in CiviCRM, and then delve into how they are used. In CiviCRM, a survey is a series of questions your staff or volunteers would ask constituents—in other words, a phone or face-to-face survey. Staffs are assigned contacts to call and record the answers in a table layout. The responses can then be accumulated and reported on. Petitions are online forms that you invite your constituents to complete, and they implement some protections to prevent people from submitting them more than once.

It's important to understand how these terms and concepts are used in CiviCRM, because in many ways, it's different from broader use. For example, if you think of a survey as an online form to collect answers to questions (such as feedback from an event), this actually would be implemented as a petition. Further, the context in which these tools were originally created (voter advocacy) does limit, or require, some creativity, when repurposing them for other contexts. Let's take a closer look at how both tools work and discuss how you might use them for your organization.

Surveys

You create a new survey by navigating to **Campaigns | New Survey**, or by visiting the **Survey Dashboard** menu and clicking on **Add Survey**. On the initial configuration form, you will provide details about how the survey will be used:

> As a part of their annual outreach campaign (which is mostly oriented toward fundraising), FPAGM will also take the opportunity to get a sense of the community's awareness of a pressing legislative issue. The Senate bill, `#12345`, would reduce existing restrictions that prevent restaurants from donating unused food to pantries. The legislation would greatly increase donations and improve many pantries' ability to serve the needy. They will set up a phone bank with several volunteers who will contact constituents, inform them of the fundraising effort, and ask their perspective on this legislation. The responses will be captured in a survey.



1. Firstly, provide a name in the **Title** for the survey, and then associate it with the **Campaign** field's value.
2. Next, select the **Activity Type** value to be used for the survey responses. As you collect and store responses for the survey, they will be stored in an activity record with the contact.
3. If you have different types of surveys you plan to collect data for, you probably will want to set up different activity types. You can do so through the wrench icon, or by visiting **Administer | CiviCampaign | Survey Types**. Note that although it is functionally no different from other activity types you may have added to your system, it should be created through the **Survey Types** management page rather than the main activity types screen, in order to ensure it is properly associated with the survey tool.
4. Provide some text in **Instructions for interviewers**, describing the intent and purpose of the survey, and any special instructions they should be aware of. This is particularly important if you are using volunteers in a phone bank, as you want to take every opportunity to ensure they have a clear picture of the goal and purpose of the survey.

   As explained earlier, the survey tool is built using a workflow where you have staff or volunteers contact constituents by phone or in person to ask them questions and record the answers. The end user (constituent) is not interacting directly with the system, but rather through an interviewer. Consequently, this workflow must provide a system for assigning specific contacts to the interviewer (so that constituents are not contacted multiple times by multiple interviewers), and then releasing those to go back into the pool if a certain interviewer is not able to contact them in a timely manner.

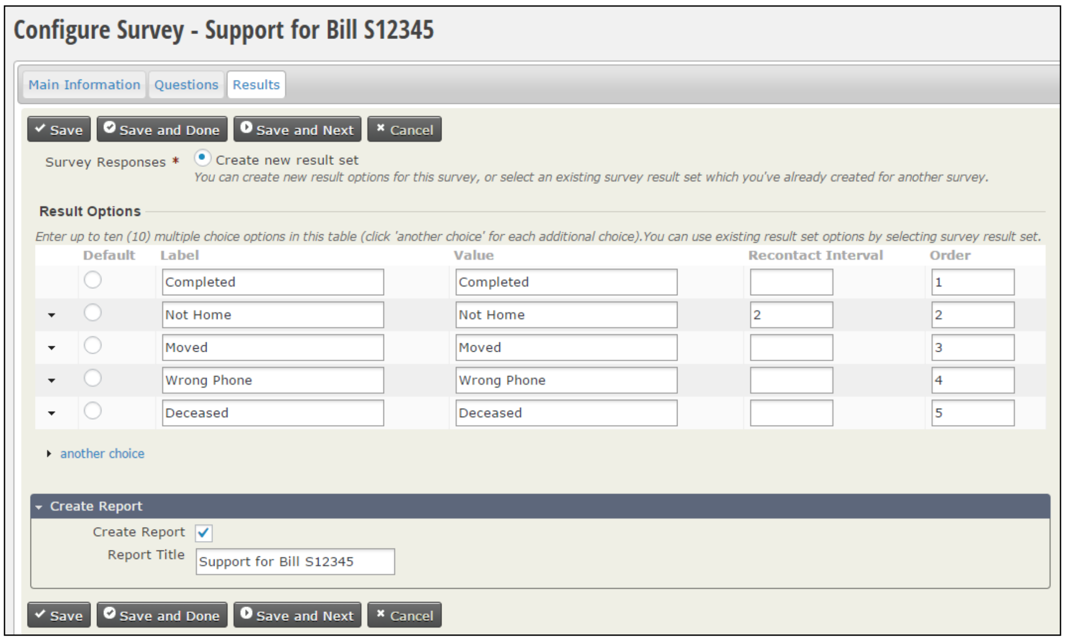
5. The **Maximum reserved at one time** field limits how many people an interviewer can reserve in one process. The **Total reserved per interviewer** field limits how many people they can reserve in total. The **Release Frequency** field (which is triggered with a scheduled job) will release reserved but un-surveyed contacts so that they may be claimed by other interviewers.

When configuring these options, you'll need to have a good handle on how many total contacts you will be surveying and how many interviewers you will have available. You want to make sure that interviewers have a good number of contacts to work with, but also prevent a case where your pool of contacts is completely tied up with a few interviewers who have fallen behind on their workload.

After saving the survey, you are taken to a tabbed interface where you select the profile to be used for contact information and one to be used for the survey questions.

You will need to configure both of these profiles using the main profile management tool. Go to **Administer | Customize Data and Screens | Profiles**. Understand that the profile to be used for contact information should only include contact fields; the survey questions profile should be built from activity fields. You will typically want to create the custom data fields (extending activity records) to store your survey questions, and then assign them to the profile.

The **Results** tab is where you define the status options for each surveyed contact. For example, you could create the following list of options: **Completed**, **Not Home**, **Moved**, **Wrong Phone**, and **Deceased**. If you created a result list from a previous survey, it will be available for selection and reuse. The **Recontact Interval** field lets you define a certain number of days that should pass before the contact is released to be resurveyed. For example, if you are conducting a face-to-face survey in a neighborhood and find that someone is not home, you may want that contact released in one or two days so that a follow-up attempt to contact them is made.



From this tab, you can also create a new report for this survey. Doing so will create a new instance of the **Survey Detail** report that is filtered for this survey and a respondent status of reserved. You can accomplish the same thing through the **Reports** menu, but it is often easier and faster to simply handle it here.

Once the survey is created, you will begin the process of interviewing constituents. The process enters an iterative cycle of **reserving** respondents, **interviewing** respondents, and **releasing** respondents. Let's consider each step in turn.

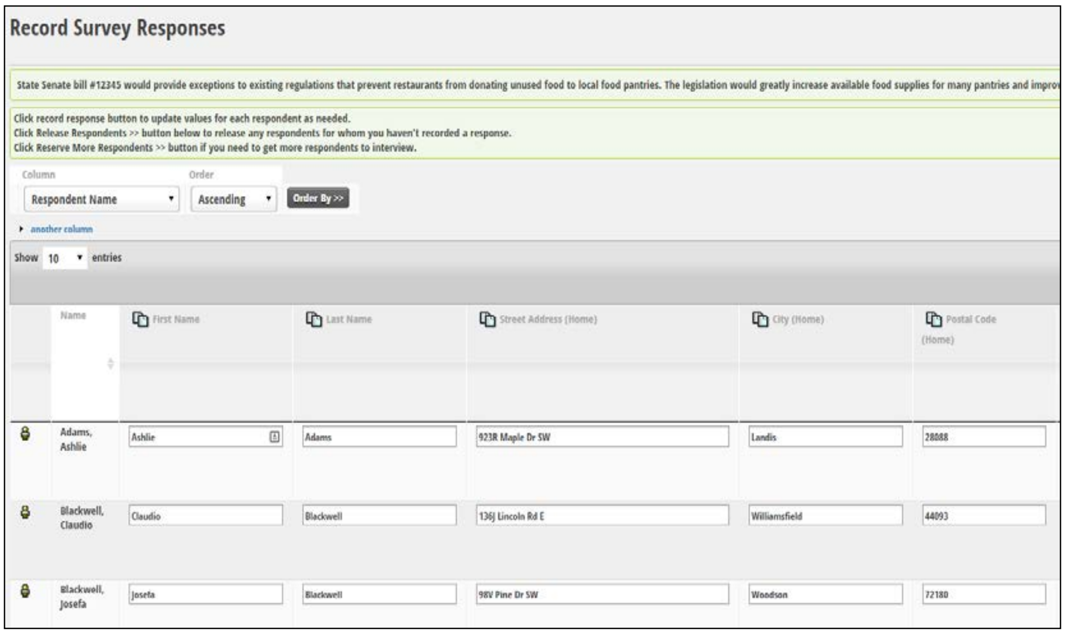
Reserving respondents is how you segment your database and determine who should be contacted as part of this particular survey. In other words, this is how you define your interview pool of people. Your interviewers will pull from this list when they begin the interview process. Most of the time, you will develop this list and it will remain fixed for the duration of the survey process. But there may be times where you find you need to return to the tool to add additional contacts; perhaps because you received a high rejection rate from the first interview effort (a large number of people opted not to answer the survey). Respondents are reserved by going to **Campaigns | Reserve Respondents**, or by visiting the **Survey Dashboard** page and clicking on the option under the **More** menu for the appropriate survey. This will open a search form, primarily geared around address fields, which you use to find, select, and reserve contacts. You will have the option of adding these reserved contacts to a new or existing group. Although not necessary, this is a good way to easily segment the records surveyed for later retrieval and reporting.

After reserving contacts, you can begin to interview them. Begin this process from the **Survey Dashboard** (the **more** menu) or by navigating to **Campaigns | Interview Respondents**. This will open a similar search tool to what we saw when reserving respondents. The difference is that the results set will be limited to those that were previously reserved for this survey.

Understand the intended workflow through this process:

1. A staff person or administrator constructs the survey, including creating the necessary custom fields and building them into a profile.
2. The survey builder also determines the initial interview pool for the survey.
3. Staff and volunteers are directed to begin the survey process. Each will initiate the interview respondent's process, search for contacts, and select them for interviewing. The list of contacts available has been defined (limited) by the survey builder, and once a user selects a contact to be interviewed, this person is removed from the available respondents list. This helps ensure people are not contacted multiple times by multiple interviewers.

4. As people are contacted and interviewed (or not interviewed for various reasons), the interviewers will record the contact details and survey responses, and be sure to mark the status for each contact. If a contact is marked with a status that is subject to a re-contact interval, they may be released back to the general list of available respondents for this survey. If a release frequency was defined in the survey configuration, contacts that do not have a status will also be released and can be claimed by other interviewers.



You may also manually release the respondents that were reserved by an interviewer from the **Campaigns** menu. This is useful if you have a volunteer or staff person who began but did not complete the interview process for the contacts they selected, and who will not be returning to complete the interviews. Rather than wait for the release frequency window (which may be several days), you can trigger the release immediately and make those contacts available to other interviewers.

The process of reserving and interviewing contacts can also be handled by navigating to **Campaigns** | **Conduct Survey**. The workflow is similar to what we saw before, but the interface is handled in a set of tabs that make it easy to switch between the two operations.

> As with many other areas of CiviCRM, the survey tools are powerful and can be quite useful for various organizations and use cases; but they also require some effort to fully understand the intended workflows. Take some time running through a test of the process from start to finish before you implement in a real-life situation.

GOTV (Voter Tracking)

We mentioned earlier that the **Campaign**, **Survey**, and **Petition** tools were borne out of the specific goals of the organization that helped sponsor the development work, namely efforts to increase voter turnout for elections. While the tools have become more generalized over subsequent versions from the initial inclusion of the campaign tools, there are still some features that are clearly specific to the original intent. One such set of tools is the **get out the vote** (**GOTV**) tracking.

From the **Campaigns** menu, select **GOTV (Voter Tracking)** to open up the voter tracking tool. At first glance, the search form that displays looks identical to the **Reserve Respondents** form. While the search tool is the same, the resulting records display is slightly different; it includes a column to the far right to track voting.

As the name suggests, get out the vote campaigns are primarily concerned with simply increasing voter turnout in an election. So, you can imagine one of the most important metrics they would want to capture is how many people within their interview lists actually voted. This search tool makes it very easy to list contacts and mark them as voted.

More so than other campaign tools, this tool has a narrower and specific purpose. I'm sure people can get creative and finds ways to repurpose it, but most will find that it will either be used by your organization for its intended purpose, or you won't use it at all.

> Remember from the first few chapters of the book that you can always modify the CiviCRM navigation to add, remove, or modify menu items. If you have no plans to use this tool, you can edit the menu item and disable it so that it streamlines your interface and removes any confusion. To do so, visit **Administer | Customize Data and Screens | Navigation Menu**.

Reporting on campaigns

The **Campaign** tools only have one report that is specific to its set of features: **Survey Report (Detail)**. We mentioned it earlier when discussing the **Survey** tools as there is an option to quickly create an instance of the report for a specific survey when in the campaign dashboard page. As the name suggests, this report is designed to list survey respondents for a specific survey (or set of surveys).

However, campaign reporting is actually sprinkled throughout many of the other component-specific reports. Remember that campaigns can serve two purposes:

- They provide a way to tie together different resources and outreach efforts throughout your system. Contribution payments, events and event registrations, memberships, mailings, activities, and so on can all be associated with a campaign, creating a common thread connecting them together.
- They provide a specific set of tools to survey and petition constituents for the purpose of gathering and storing input from contacts.

Because of this first goal—tying together disparate resources—the option to filter by campaigns appears in many of the system reports. Consider the following example:

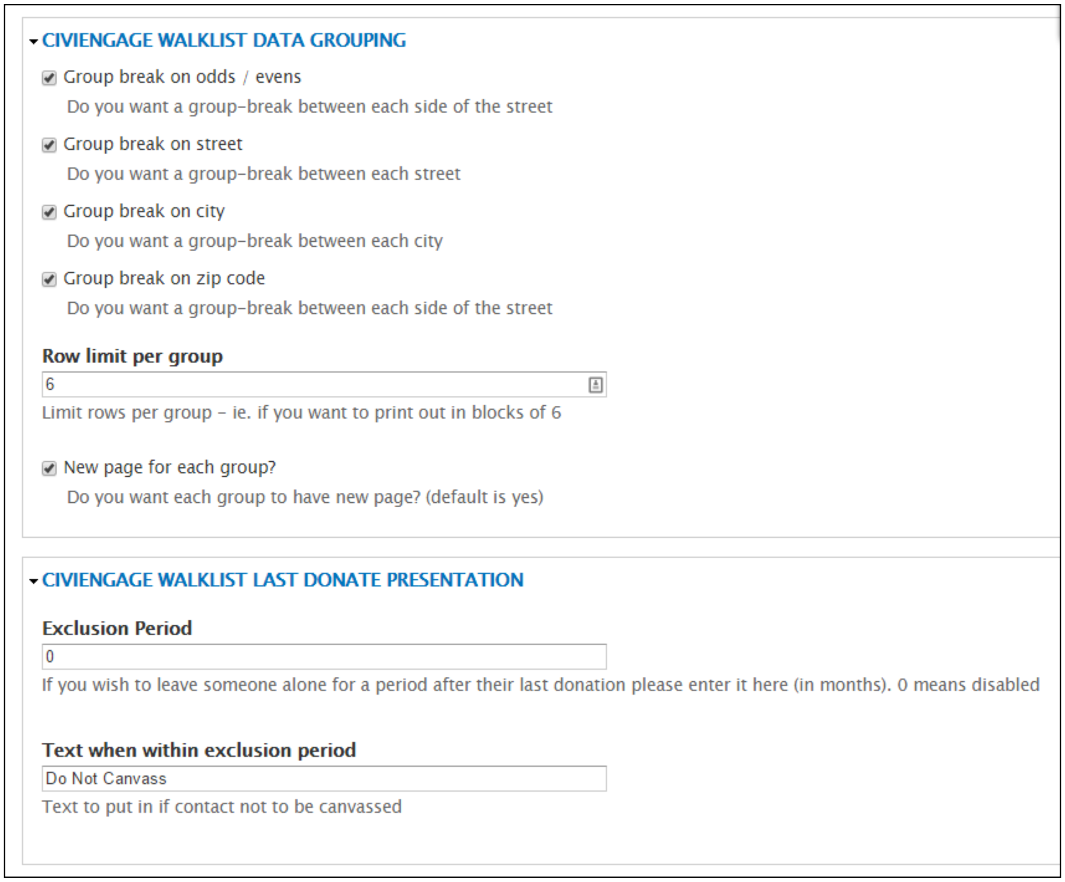
- Are you looking for details about all contributions associated with a campaign? Use the **Contribution Detail** report and filter by **Campaign**.
- Are you wondering who attended a fundraiser event in support of an annual fund campaign? Use the **Event Participant** report and filter by **Campaign**.
- Are you curious as to who received the outreach mailings and donation solicitation e-mails as a part of an end-of-the-year campaign? Use the **Mailing Summary** report and filter by **Campaign**.

The preceding examples are only representative—many of the reports designed for other areas of the system also include the option to filter by campaigns. As you explore the reporting tools, make note of where this option is available.

CiviEngage

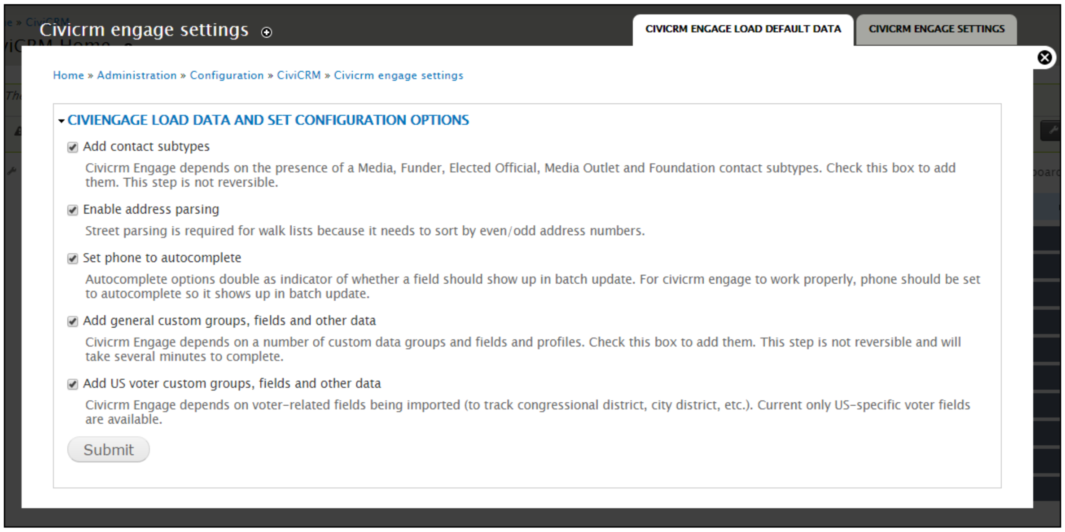
For the most part, we've tried to limit our review of features to those that are found in the core software and common to all of the three CMS environments. But it's worth mentioning in passing a set of features available in a Drupal module that ships with CiviCRM and integrates with the **Campaign** tools.

CiviEngage adds some additional features designed around walklists and phone bank support. Begin by enabling the Drupal module. If you do so from the interface, you will be prompted to configure the module, which will display the set of options shown in the following screenshot:



The first set of configuration options impact how walklist reports are generated. Since a walklist campaign involves…, well…, a lot of walking, you may want to use these options to break up your list into odd/even house numbers, group by the `zip` code, or page break in certain ways. This may make it easier to disseminate your walklists to volunteers as they canvass the area. If your campaigning also involves donation requests, you filter based on when their last donation was, to avoid over-asking those who donated recently.

A second configuration tab lets you load defaults to enhance the CiviEngage toolset.



Understand that selecting these options will create contact subtypes, custom data sets, and make adjustments to various configuration options in your system. Don't enable these options without understanding the implications to your system. If you are uncertain, you may want to spin up a development site where you can implement CiviEngage and begin to play with the features before configuring it on your production site.

If you choose to use CiviEngage, you will want to enable the **Walk/Phone List Report** that ships with CiviCRM and makes use of some of these features. Visit **Administer** | **CiviReport** | **Manage Templates** and enable this report template. It will appear under the list of templates for the **Contact** records and includes the custom datasets created by CiviEngage.

Summary

In this chapter, we walked through the purpose and use of campaigns as a tool to tie together various resources in the system, and as a mechanism for collecting information from constituents. We demonstrated how petitions are used to build the public-facing forms for soliciting information and positions from visitors. We also demonstrated how surveys are used to facilitate staff and volunteer phone banks and in-person surveys, discussed the intended workflows for ensuring interviewees are handled efficiently, and how duplicate contacts are avoided. We reviewed how campaigns, petitions, and surveys are presented in reports and briefly presented the CiviEngage Drupal module and discussed how it impacts the system.

In the next chapter, we will delve into CiviCRM's fundraising tools and considerations when developing a fundraising plan.

8
Fundraising for Your Mission

To accomplish their mission, nonprofits need money to pay their operating expenses, (salaries, rent, office and other expenses), and support projects and programs that advance the purpose of the organization. This chapter will focus on using CiviCRM to raise funds through donations to support this work. In addition, we will touch on other forms of revenue generation, such as grant-writing, membership development, and sales of products or services.

The need to actively raise funds is a necessity many in the nonprofit and advocacy world wish they could ignore. Part of the reason they work or volunteer in the nonprofit world is because of its orientation toward mission-based work rather than a profit-based bottom line. Nonetheless, your organization needs money to accomplish its mission and raising some or all of those funds through donations is often essential. Thankfully, CiviCRM is good at helping organizations raise funds.

This chapter is oriented towards fundraisers, those who support them with IT, communications and other services, and those to whom they report, such as Executive Directors. This chapter is generously sprinkled with suggestions and tips based on our experience in supporting fundraising organizations. When marketing your organization and its services and products for fundraising purposes, you will also find other chapters useful, particularly those that discuss contact targeting, communications, and outreach techniques.

In this chapter, we will cover the following topics:

- Developing a fundraising plan
- Selecting an online payment processor
- Initial configuration of CiviContribute and CiviPledge
- Manually recording donations and pledges
- Finding, examining, and acting on contributions and pledges

Implementing a fundraising appeal

In the first section of this chapter, we provide an overview of how to create a fundraising plan and how CiviCRM plays a role in developing and executing the plan. If your interest is focused on learning more about how to administer and operate CiviCRM in fundraising activities, feel free to skip the opening section. If you are looking to quickly begin accepting online contributions, start with the section on choosing a payment processor. Getting your payment processor account created and approved may take days or weeks while the rest of the configuration is a matter of minutes or hours. If you're using CiviCRM for offline fundraising only, you will not need a payment processor but will still need to configure CiviCRM for fundraising as discussed in the next section.

Developing a fundraising plan

Larger nonprofits can benefit from hiring a staff person, with a degree or diploma in fundraising and development, who know, how to develop and deliver a fundraising plan appropriate to the organization. Smaller ones may benefit from hiring a fundraising specialist as a consultant to help with their planning. The unfortunate reality is that many small- and even medium-sized nonprofits place this responsibility on those without specialized training, and often aren't able to provide adequate training budgets for them, given competing priorities. If that describes your organization, plan on buying a fundraising book or spend a few evenings Googling how to develop a fundraising plan.

Templates for fundraising plans will vary by author and type of organization. The common elements are included as follows:

- A version of the organization's mission
- An analysis of the historical and current fundraising situation of the organization
- A statement summarizing the case to give to the organization
- Short and long term goals for fundraising, usually broken down by type of giving or fundraising program

High-level plans for one to three years will be translated into work plans by laying out tasks with specific timelines for implementing programs and appeals across different channels.

CiviCRM's reporting and analysis tools can help in your analysis. The case for giving will undergird the creative material (such as text and graphics) that will be developed for various programs and included in CiviCRM's public-facing fundraising pages.

Segmenting by category

The **Market segmentation** process is the process of dividing your potential donor audience based on certain characteristics and attributes. Doing so allows you to customize your message and method of communication to more effectively reach each subset of your market. In fundraising parlance, common ways of segmenting donor revenue by (slightly overlapping) categories are as follows:

- One-time gifts
- Preauthorized monthly gifts
- Major gifts and planned giving
- Legacy or bequest giving
- Tribute gifts (in memoriam or in honor of)
- Events (often subdivided by event, such as Run for the Cure, an auction, or dinner)
- Memberships and subscriptions
- Corporate sponsorships, memberships, and partnerships

Other forms of fundraising may be important to your organization, including grant-writing to foundations or government, or contests. In addition, some nonprofits have fundraising revenue from merchandise sales of branded products, such as T-shirts or mugs.

Capital campaigns and special appeals may receive donations that fall into any of the preceding segments listed. However, it is often useful to separate the revenue for those campaigns into separate line items since the method used to raise these funds and their stated purpose is generally different from on-going fundraising for daily operations.

Begin by using the preceding list as a starting point for segmenting your contacts. Decide which are relevant for your organization and begin to prioritize them. For example, if you are a professional society that is mostly interacting with constituents during the peak of their career years, legacy or bequest giving is likely not a significant area of fundraising opportunity and thus not deserving of much time or focus. However, one-time gifts to an education fund that provides scholarships to students entering the field may be something that resonates well with your members, and thus deserves priority attention.

As you segment your list by category, take some time to analyze your database and understand the demographics of your constituents. What is the age breakdown of your contacts? Who is most involved and committed to the cause of the organization? Do you see any existing trends with past giving that can shed insight? Can you identify past challenges; for example, have you had success soliciting first-time donors but poor results retaining them consistently over successive years?

At this point, your goal is to understand and organize your donors and potential donors into meaningful categories so that you can better strategize your outreach methods.

> For practical guidance on ways to count prospects in your existing donor and contact database, see the *Counting prospects with Advanced Search* section later in this chapter.

Segmenting by channel

The major channels (methods) of fundraising are currently as follows:

- Direct mail
- Telemarketing
- Online
- Direct dialog or face-to-face

What channels have you used in the past and which have proved more effective? Do you have a good handle on any trends in past donations, such as movements away from direct mail toward more online tools?

Cultivating prospects is essential for good CRM and fundraising strategies. However, to cultivate prospects, you must know how to communicate with them. Part of this means understanding who they are, what methods they prefer, and what yields the best response. Part of this also means making sure you don't over-commit to a single fundraising channel that unintentionally excludes potential donors.

Since we are working with an online, web-based tool, it is easy to turn all of our attention to the tools available through that channel. However, excellent prospect development channels also exist in the offline world, including media events, advertisements, and brochure leave-behinds. Be sure to give consideration to other channels, while considering how you will track those methods in your CRM so as to centralize your management through all channels.

In short, don't fall into the trap of expecting technology to be your single-source solution to all your fundraising needs. It is a tool in your toolbox—one that is essential and can help tie together the various pieces of the puzzle—but is only one of many.

Some minor channels, such as direct response television and kiosks, will not be discussed in this chapter. Supporting them with CiviCRM can be understood as variations of telemarketing (inbound rather than outbound) and direct dialog. SMS is touched on as an extension of online fundraising.

Programs

A fundraising program is usually defined by the primary objective of getting a segment of donors to take some action. Each program may have one or more campaigns, where a campaign may involve several communications centered on a single appeal, such as e-mails, direct mail, and telemarketing calls to renew a membership before it expires.

Common types of program you may want to include in your fundraising plan follow. Only a large development office with a big staff would be able to do a good job on many separate programs. Smaller and newer operations should have fewer concurrent programs. We believe a prospecting program is essential for all fundraising plans, and we'd encourage those who have renewal but not monthly-giving programs to consider starting the latter.

We have listed and described typical strategic considerations or suggested approaches for developing or improving a fundraising program as follows. These suggestions are not going to be appropriate for everyone, but may help you brainstorm ideas that are appropriate for your organization's fundraising plan:

- **Prospecting**: Extra stewardship in the form of a special "thank you" and additional communication about what your organization does with the money donated will help to develop these relationships (acquiring new donors, usually a break-even activity at best).
- **First time renewals**: First-time givers deserve extra attention to encourage the second gift and cement an ongoing giving relationship. Consider scheduling a series of well-timed and well-spaced communications that both thank them for their gift and introduce them to your organization in more depth.
- **On-going renewals**: Encourage donation upgrades from the previous gift or suggest an automated recurring donation (getting a new donation from those who gave last year).

- **Conversion of one-time donors to monthly donors**: Multi-givers (more than one donation in the last year) and multiyear givers are good prospects for automated monthly recurring donations.
- **Upgrading monthly donors**: After a year of monthly donations and regular communication about what the organization is doing with the donations, consider asking for an upgrade to a higher level.
- **Prospecting for large donor clubs**: Investing the time and resources to set up large donor clubs with special access privileges for VIPs, events, and so on is a good way to reward and motivate higher levels of giving. Total annual giving in the past as well as intelligence about the ability to give are good ways to create this prospect segment (for example, a President's Circle for those giving over $1,000 per year).
- **Upgrading between large donor clubs**: If you establish a strong group of major donors who are committed and engaged with your organization, you may want to establish higher club levels and upsell to existing large donors. At some point you will find that donor clubs are no longer effective or appealing, and your relationship with high-end donors becomes considerably customized to their support levels and interests.
- **Special appeals**: Special appeals may be useful when there is extensive news coverage of an event or a chance to respond to an important opportunity/threat. If used too frequently, they can become ineffective.
- **Capital programs**: These programs should be researched and planned to ensure that the project costs will be covered and the fundraising targets reached. Capital programs are often multiyear efforts and multifaceted.
- **Renewal of lapsed monthly donors**: This program is a high-yield activity that helps address issues, such as the expiry of credit cards and donors moving their bank accounts.
- **Renewal of lapsed donors**: This activity is another program with good long-term yield. You may find it cost-effective to contact lapsed donors using telemarketing, in order of their most recent year of giving, and ending when the cost per donor reaches the cost of acquiring a new donor.
- **Acknowledgement programs**: Demonstrating appreciation for donations through thank-you calls and gifts may prove a good investment.

Money, donors, and prospects

Given the goal amount for a fundraising program, industry standards can be used to develop the number of donors at different levels and the number of required prospects. This amounts to a pyramid with a few donors at the top giving the bulk of the money and many at the bottom giving a smaller portion of the total; typically, 80 % of the money raised in a campaign is given by 20 % of the donors. This inverse curve holds across many organizations and levels of giving, and is likely to be evidenced for total donations by donor to your organization. For example, 25 % of Canadian charitable donors gave 82 % of the total donation (`http://www.statcan.gc.ca/daily-quotidien/090608/dq090608a-eng.htm`).

Googling for `gift range calculator` yields several good resources in the top 10 results. The single top-level donation may be 10 % to 25 % of the total amount to be raised in the campaign. Generally, as the gift size halves, the number of expected gifts doubles or triples. It can be convenient to segment levels by reducing the donation amount by a quarter or a third rather than a half, with a corresponding reduction in the number of expected gifts.

Well-established fundraising programs can expect to receive a larger percentage from larger gifts, and newer programs can expect to depend on smaller donations for a larger percentage of their goal.

In traditional capital and major gift fundraising, you need about four prospects (contacts you have some reason to believe can give at that level) for each donation at a certain level. More sophisticated gift range calculators factor in the likelihood of prospects at one level ending up giving at a lower level; this reduces the number of prospects expected to be required at lower levels in the gift range pyramid.

A range of communications and outreach activities are deployed to convert campaign prospects to donors, such as e-mails, letters, phone calls, and meetings. Each of these appeals has a much lower conversion rate than 25 %. The plan for the type, number, and order of the communications often varies by segment, with higher-value segments getting higher touch communications, such as personal visits, meetings, and telemarketing. Successfully raising significant amounts of money from low-value contributions usually involves greater automation and less paid time by humans. Volunteer time is often a precious commodity for nonprofits that is better spent on higher value activities.

What does this mean for your fundraising program? Gift range calculations and considerations help you define goals and establish budgets for your program. Soliciting money costs money; having a good handle on what to expect when you begin your program can help you budget effectively to ensure you raise more than you spend in the fundraising effort.

Benchmarking

As you develop your fundraising plan or review your existing one, it is useful to compare it with benchmarks and surveys. Direct mail remains the mainstay of fundraising at large established nonprofits, bringing in over 80 % of donations according to a recent study (`http://www.slideshare.net/artezinteractive/artez-interactive-from-donor-acquisition-to-fundraising-performance-benchmarks-for-nonprofits`). However, it is notable that the average online donation received, and the five-year value to the organization of online donors, is greater than direct mail donors. Further, the trend is clearly moving toward more online donations as well as mobile-based options, such as apps and text to donate solutions.

Assumptions in your plan about the size of lists that need to be contacted in order to generate a certain number of donations can be calibrated against benchmarks. Generally, the lower touch/lower cost communication channels have lower conversion rates. Good surveys provide actionable recommendations, such as the advice to focus on improving click-through rates in order to join the top-performing group of e-mail fundraisers.

So far in this section, we've been focusing on a top-down approach for planning your fundraising, moving from fundraising goals down to the number of prospects required in each segment. CiviCRM has a number of reports that provide an analysis of how your organization has been doing in its own fundraising, as we'll see in the *Reporting* section and in reports described in other parts of this book, such as the chapters on events, membership, and communications. These reports provide a bottom-up analysis of historical data for your organization that should be integrated with the results of the top-down planning in two ways:

- Firstly, you should compare your organization's metrics against benchmarks, such as those mentioned previously, to help identify areas of strength and weakness. Larger surveys tend to have more reliable data while the ones for your sector and region may provide more appropriate comparisons despite their smaller sample. These comparisons should help provide elements of a more general SWOT analysis (internal strengths and weaknesses, and external opportunities and threats) to inform your fundraising plan. Where have we done better or worse in the past compared to standard metrics? Do we know why? How can we address our weaknesses and leverage our strengths?

- Secondly, you should review your existing donor base by segment to determine whether the number of prospects presumed by your plan can feasibly be attained. Your plan may need to be adjusted to include actions to improve the size of prospect lists through list rentals, prospect development activities, such as asking board members to review their contact lists, or research into high net worth individuals in your area or with interests in your sector. When all these options are considered, you may decide whether your fundraising goals need to be raised or lowered for particular segments or programs.

The rest of this chapter will explain how CiviCRM, and particularly its CiviContribute component, can be used to implement your fundraising plan. As a result of the particularities associated with raising funds via events and through memberships and subscriptions, and the special support that the CiviEvent and CiviMember components provide, later chapters will be devoted to using CiviCRM for those types of fundraising.

Selecting a payment processor

CiviCRM may be used for fundraising with or without processing online contributions. For example, you could use CiviCRM to support a direct mail and telemarketing operation and require online donors to mail in checks. You can also accept in-kind donations online without setting up a payment processor.

Some organizations continue to use external online donation systems as they begin to use CiviCRM, which involves transferring the transactions to CiviCRM in order to use it as their centralized CRM for segmentation and reporting. This can be a cumbersome approach given the ease of using CiviContribute to process online donations, but might better suit your needs.

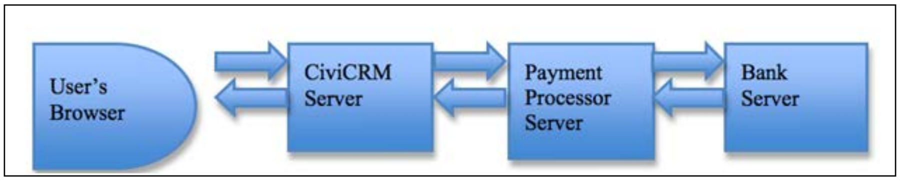
It depends on your specific requirements whether you find it worthwhile to set up online payment processing in CiviCRM.

Payment processors, sometimes known as payment gateways, assist in transferring payments from payers to you, the payee receiving the funds. CiviCRM relies on the processor to do the complicated work of connecting banks and credit card / debit card companies together to make sure money is properly moved from the donor's account to yours. The CiviCRM core team and the CiviCRM community have worked to create plugins for a number of payment processors. Information on the available payment processors with links to configuration pages for some of them can be found at `http://wiki.civicrm.org/confluence/display/CRMDOC/Payment+Processors`. Several new payment processor integrations are available as extensions. Visit the extension directory to review additional options there: `https://civicrm.org/extensions`. In order to use CiviCRM for online financial transactions, you'll need to choose one of these payment processors, set up an account with them, and configure CiviCRM to work with it.

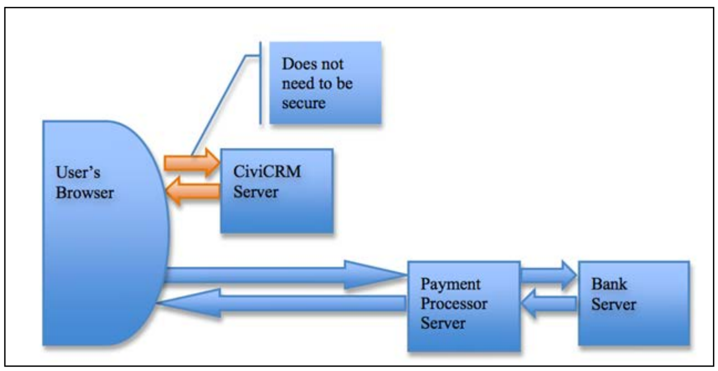
If you are just starting out and trying to decide among several processors available to you, the number of considerations to take into account when choosing a payment processor can be bewildering. We recommend starting your decision by determining which ones are available in your country. For most CiviCRM users, you will have a variety of options.

It's possible you will find that none are available in your country or that you would like to use one that is not yet supported. For example, you may be using a payment processor for your point-of-sale terminal or check processing and would like to add online payment processing to your existing account with them. If no existing integration extension is available, you always have the option of developing or supporting the development of an extension yourself. There are instructions available for developing new payment processor extensions at `https://wiki.civicrm.org/confluence/display/CRMDOC/Create+a+Payment-Processor+Extension`. Most payment processors provide technical documentation to assist developers in creating a plugin for packages such as CiviCRM, since it increases their volume of business. A variety of partners and contributors are available to assist you in creating and supporting a plugin for other payment processors (`https://civicrm.org/partners-contributors`). If you find that there are compelling reasons for using a different one, others might want to use it as well.

E-commerce websites, including sites that accept donations to nonprofits, interact with payment processors in two common ways, as illustrated in the following diagram:



In the first architecture (what we will call internal hosting), the e-commerce website (your site) securely handles credit card or other financial account information by talking to the payment processor behind the scenes while the user waits for the payment to be processed. Now, consider this diagram:



In the second approach (what we will call external hosting), the e-commerce website calculates what needs to be paid, then sends the user to the payment processor's secure website where the payment is handled, after which the payment processor site sends the user back to the e-commerce site.

If configured properly, both systems will transmit sensitive information such as credit card numbers via securely encrypted methods. Since CiviCRM does not store sensitive information regarding the transaction, both methods offer good e-commerce security.

> Transaction security is critical in a web-based environment, and not something to ignore, dismiss, or simply assume has been handled by your hosting provider. Credit card companies and payment processors require PCI compliance, which can be challenging to understand and even more challenging to properly implement. It is beyond the scope of this chapter to delve into the intricacies of PCI compliance and the obligations required by different compliance levels. We encourage you to discuss this with your payment processor company or identify one of the many PCI compliance firms that can audit your server and environment to identify any potential issues.

While both approaches are viable and effective, there are pros and cons to both:

	External Hosting	**Internal Hosting**
SSL certificate purchase and setup required	No	Yes
Potential security risk to credit card data	Extremely low	Very low
Available on low-end shared hosting	Yes	No
Need to keep your server secure	High	Very high
Loss of your visual branding	Yes	No
Donors exposed to possibly irritating payment processor messaging	Yes	No
Usability	Worse	Better

In short, the external hosting solution is simpler and shifts the responsibility for security to the payment processor, but requires the user be directed to the payment processor's site to handle the transaction, which complicates the user experience and diminishes your organization's branding (the user must leave your site).

We recommend using a payment processor that offers internal hosting for all but the lowest-volume sites. If you are new to online payments and don't yet know what kind of volume your constituents will generate, consider implementing the simpler external hosting solution until you can gauge the response and determine if internal hosting is worth the additional cost.

One of the aspects when securing your site is an SSL certificate. We will discuss obtaining and setting up an SSL certificate in this section. We do recommend you to consult with a security expert if you want the full picture of optimal security on a site.

Internal hosting requires you to obtain and set up an SSL certificate because your site must communicate securely with your users' browsers to process their credit card details. External e-commerce hosting, where your users are transferred to your payment processor's site to process the transaction, is secured using their SSL certificate.

SSL is a communication protocol that securely encrypts data transferred from your website to the user's browser. Internet users are becoming familiar with the fact that pages with `http://` at the start of their address are not secure, while those with `https://` can be secure. Browsers also display a small lock icon when displaying secure pages:

The cost of SSL certificates continues to come down as they are commoditized, and the ease of installing them continues to increase. Many hosting providers sell and install the SSL certificates from reputable providers for very reasonable prices. Security companies continue their efforts to create demand for higher-priced SSL products with more features, such as dynamic **Certified by** logos for your site, having your company name appear in the browser address line, and higher levels of warrantee. Try shopping around for a good price on whatever certificate you select (`http://www.namecheap.com/ssl-certificates` is a good source at the time of writing this book).

> Even if you are not planning to implement an internal hosting payment processor solution, consider purchasing and installing an SSL certificate to improve the general security of your site. Given the current affordability of SSL certificates and the benefits they offer, it is well worth the cost. Further, Google has recently indicated that they will give search result preference to websites running entirely over HTTPS, providing another incentive for implementing SSL.

While considering different payment processors, other factors come into play as well, such as the credit cards that are supported, the cost of different options, and whether they support advanced features such as recurring contributions. In our view, it rarely makes sense to save money on payment processors at the expense of usability since just a few lost donations are generally more *expensive* than the savings. However, there are often significant differences in the cost of payment processors that provide the same level of usability. These differences are highly dependent on the number and size of donations and what credit card or other payment instrument is used.

One factor that can play a significant role in cost is whether the processor requires you to have a separate merchant account. These usually involve separate charges for your bank, though sometimes they may be bundled into the payment processor's charges. Ask if they offer automatic transfers into your merchant account instead of requiring regular manual interventions to get money out of your account at your payment processor, as this proves useful and worthwhile for higher volume organizations.

Here are some of the charges you should ask about or consider when comparing the cost of different options:

- Initial payment processor account setup charge
- Initial merchant account setup charge
- Consulting or staff time to deal with the the payment processor and merchant account for setup and approval
- Fixed monthly and/or annual costs for payment processor and merchant account
- Commissions as a percentage of charges for payment processor and merchant account, sometimes with discounts for higher volumes
- Per-transaction charges for payment processors and merchant accounts
- The SSL certificate cost for the first year and annual renewal costs
- The SSL installation cost for new and renewed certificates
- Fees for extended/add-on services, such as recurring payments

Use an estimate of the number of transactions and their value per month to compare the processors. Higher fixed monthly costs paired with lower commissions and per-transaction charges favor organizations with stronger online fundraising, while those with small or nascent online fundraising tend to benefit from paying lower fixed charges and the accompanying higher per-transaction rates.

Organizations without deep experience in fundraising tend to overlook the importance of a steady stream of income from monthly preauthorized payments and the higher amounts of total donations they engender from donors. We strongly encourage making recurring payments a priority in fundraising plans, and as a result believe that you should select a payment processor with an extension that supports them, or consider funding the enhancement of a plugin for a processor that has yet to implement that functionality. For organizations with a good prospect list for preauthorized payments, any extra charges for this functionality will be a good investment.

PayPal Standard, PayPal Pro, and Authorize.net are possibly the best known payment processors, and the ones that receive the best CiviCRM support. While PayPal Standard is an easy-to-implement option, you should be aware of several caveats before you select it. As an external payment processor, it suffers from poorer usability, which results in a higher rate of abandonment, as users are confused with the redirection to an external site for the processing step. This is more than just lost revenue, as users often hit the **back** button when confronted with payment processor usability problems, which may cause unexpected results in CiviCRM (or other e-commerce applications), especially for event registrations. These problems may require staff time to sort out.

Be aware that PayPal places a three-to five-day delay on transferring funds into your bank account. While some delay will always be expected, PayPal's tends to be longer than most other solutions. Since PayPal is often targeted by fraudsters, their increased aggressiveness in combating fraud results in *false positives*, meaning that your account may suddenly be frozen for a variety of reasons without warning. Organizations claiming nonprofit or a charitable status seem to have additional security scrutiny. Further, if your bank account name does not exactly match your PayPal account name, you may have difficulty getting your money out as PayPal will not release funds from a PayPal account in the name of John Smith to a bank account under Judy and John Smith's name. Having your funds frozen or unavailable for undetermined periods can cause significant issues in your normal operations.

As mentioned earlier, don't limit yourself to those payment processors that are available in core CiviCRM. There are a number of very good integration extensions that deserve attention. Two in particular that you should consider are iATS and Stripe. iATS is the only payment processor (that we are aware of) that is actively funding the support and development of its integration extension. Further, iATS is geared specifically toward not-for-profits, and tailors its anti-fraud and security efforts toward the unique dynamics and threats that not-for-profits face.

We recommend getting started early with setting up a payment processor account and a merchant account. This can take days or weeks to complete, and may involve providing the founding documents of your organization, an official certification of nonprofit status, and bank account details, which may take some time to track down.

Initial fundraising configuration

Two components in CiviCRM are geared solely for fundraising: CiviContribute, which handles donations, and CiviPledge, which is designed for preauthorized payments or promises to make future payments. This section describes how to configure them.

> For organizations that will want to use CiviCRM in Europe, there is an extension called CiviSepa, which allows the recording of SEPA mandates, both for one-off and for recurring contributions. You can find the CiviSepa extension on the CiviCRM website extensions page at `https://civicrm.org/extensions/civisepa-sepa-direct-debit-extension`.

CiviContribute also supports the financial aspects of the CiviEvent and CiviMember components; if you are using those tools you will need to configure it to record or accept payments for event registrations, memberships, and subscriptions, even if your organization does not accept direct donations but only payments in exchange for such things.

Configuring CiviContribute

The first task in configuring CiviContribute is to turn on the component if it is not yet enabled:

1. Navigate to **Administer | System Settings | Enable CiviCRM Components**.
2. If **CiviContribute** appears in the left column, highlight it and then click on **Enable**.
3. Click on **Save**.
4. Next, make sure that information about contributions is displayed in appropriate places throughout the system.

5. Navigate to **Administer | Customize Data and Screens | Display Preferences**.
6. Ensure that **Contributions** is checked for **Viewing Contacts**, **Contact Search**, and **Contact Dashboard**.
7. Click on **Save**.

Now take a moment to review the component settings at **Administer | CiviContribute | CiviContribute Component Settings**. CiviCRM has tools for tracking taxes and generating invoices for contributions. You can enable and configure that functionality here.

Configuring financial types and accounts

Each contribution in CiviCRM has a financial type associated with it. Each financial type is associated with one or more financial accounts. This system classifies your contributions for the purpose of aggregating them for searching and reporting, and for entry or importing into your accounting system. They also assist in tracking which funds received are deductible for tax purposes.

In order to configure financial types and accounts, navigate to **Administer | CiviContribute | Financial Types**. Review the list of existing financial types to see whether they match your needs for reporting and accounting. Check with your bookkeeping and accounting personnel to get their perspective on what types they require. The chart of accounts in your accounting system will have one or more revenue accounts or subaccounts to handle the money tracked in CiviCRM. When you create a new financial type, it will be linked to a new financial account with the same name, along with several standard financial accounts. You may modify which accounts it is linked to by clicking on **Accounts** in the appropriate row. From this interface, you can assign/unassign financial accounts to your new financial type. If you need to create or edit financial accounts, you may do so by visiting **Administer | CiviContribute | Financial Accounts**. When creating or editing financial accounts, you have the opportunity to set an accounting code. This is particularly important if you plan to export from CiviCRM and import into your accounting software.

CiviCRM assigns a financial type at two different levels in the system:

- Every contribution record will be assigned a single financial type
- If you use price sets to define options for your contribution, event, or membership, each price set field will be assigned a financial type

The majority of tools, such as the **Find Contributions** page, the **Contribution** tab on the contact record, and contribution reports, focus on accessing, filtering, and displaying the financial type associated directly with the contribution record.

If you expect to set up more complex contribution pages that accept and record payments for different types of funds using price sets, you may find it's not entirely clear how you can later reference these price set field financial type assignments. One tool that you will find helpful is the **Extended Reports** extension (which you will need to download and install through the **Manage Extensions** page). This extension implements several reports designed to access and display contribution details at the price set field level. Note that there are reports included for contributions, memberships, and events.

Make sure your bookkeeper understands the structure of contribution records and can distinguish the financial types at the contribution and line item levels.

Configuring payment instruments

CiviCRM stores information about how payments are made as payment instrument information. Payment instruments are the method of payment, such as checks, cash, EFTs (electronic funds transfers), credit cards, and debit cards. Your organization most likely does not support all of these default instruments for accepting payments.

To review and adjust payment instruments, perform the following steps:

1. Navigate to **Administer | CiviContribute | Payment Instruments**.
2. To use the **Disable** or **Delete** options for a payment instrument, click on the respective link to the right of the relevant payment instrument.
3. To edit a payment instrument, click on the **Edit** link to the right of its name, enter or adjust the values in each field, and click on **Save**. Click on **Add Payment Instrument** to add a new record.

Configuring accepted credit cards

There is a separate interface for specifying what credit cards may be accepted (for example, Visa and Amex). Do not confuse payment instruments with the individual types of credit card. In particular, do not create a separate payment instrument for each one.

Instead, perform the following steps:

1. Navigate to **Administer | CiviContribute | Accepted Credit Cards**.
2. To use the **Disable** or **Delete** credit card option, such as Amex, click on the respective link to the right of the relevant credit card option.
3. To edit a credit card option, click on the **Edit** link to the right of its name. To add a type, click on the **Add Accepted Credit Cards** button and enter the relevant information.

Be sure to review your payment processor options and limitations when setting up your system to confirm the card types that they accept.

Configuring soft credit types

Soft credits are used to recognize one contact's involvement in another contact's contribution. For example, you may have people donate to your organization in honor of a family member who has been recognized by the organization for their support and involvement. Or you may have a development committee whose members are charged with cultivating new major donors. As those donations are received, you want to acknowledge the board member who was instrumental in obtaining that donation.

In either case, the contribution record clearly needs to be attached to the individual or organization actually making the payment; however, you also want to connect the contribution to the contact that helped obtain the donation or in whose name the contribution has been given. This is called a soft credit.

Visit **Administer | CiviContribute | Soft Credit Types** to review the current list of soft credit types. As with the preceding tools, you can create, edit, disable, and delete options from this list. Later in this chapter, we will discuss how to apply soft credits to a contribution record.

Configuring a payment processor

In order to accept payments online, CiviCRM requires you to configure a payment processor, as discussed earlier in this chapter. Different payment processors have different parameters, options, and setup instructions. To determine how to set up and test your account with specific payment processors, visit `http://wiki.civicrm.org/confluence/display/CRMDOC/Payment+Processors`, click on the name of your payment processor, and follow the relevant instructions. Alternatively, contact the processing company for more guidance.

> Additional payment processor integrations are available through extensions. Many of these are well-supported and fully integrated. Don't discount them simply because they are available as extensions rather than through the core installation. Visit the extension directory to find out what other processors are available: `http://civicrm.org/extensions`.

To configure a payment processor, follow these steps:

1. Navigate to **Administer | System Settings | Payment Processors**.
2. Click on **Add Payment Processor**.
3. Select **Payment Processor Type** from the available list and proceed to complete the details. You will need to add the **Name** value for the processor and may optionally provide **Description** text. The **Name** value will appear when the processor is displayed in frontend pages, but the **Description** text is for internal reference only.

> Note that you have the option of entering both live payment details and test payment details. Test payments may be generated from the backend of the site and should be configured to use your payment processor's sandbox site rather than the live processing site, if available.

4. Click on **Save**.

If you have chosen a payment processor that requires your site have an SSL certificate, you will need to purchase and install one separately. If you are using a hosting provider, they are likely to suggest preferred certificates and offer installation services for a fee. If you do not have a managed hosting arrangement that provides this service, you will need to have someone with system administration skills and sufficient server access install it. The technical procedures vary between operating systems and by certificate issuing authority, and are nontrivial for those lacking system administration experience.

Low-cost and mid-range SSL certificates support only a single domain or subdomain. This includes distinguishing between the root and `www` form of a domain. For example, a certificate for `https://www.mydomain.org` will not work for `https://mydomain.org` and vice-versa. You can purchase and install certificates for both domains, or buy a higher-priced wildcard certificate that covers both.

However, we highly recommend redirecting all of your website traffic to one or the other domain names and using that form consistently in your marketing materials. It can also help with session management in your CMS. Your hosting technical people should be able to redirect all traffic to one of the two addresses, or you can implement redirection through your .htaccess file. The redirection will mean that people visiting `https://www.mydomain.org` will be seamlessly redirected to `https://mydomain.org`. This also works if they have a longer URL with something after the domain name, such as `https://www.mydomain.org/section/page`, which will redirect to `https://mydomain.org/section/page`.

> Committing to a single domain form and using it consistently is important for two other reasons: it presents a more consistent branding for your organization and it improves browser session management. When a user logs in to your website, they create a session, which recognizes who they are to the system. This session is stored based on the website URL. If the URL changes (for example, from `www` to the root form) the session may be lost. This can disrupt multistep form processing, such as an event registration. Forcing a single *canonical* domain form will improve the reliability of session handling.

In either case, after the request for a certificate has been created and submitted, an e-mail will be sent to an address associated with the domain to be secured, asking for approval to issue the certificate. Sometimes, setting up e-mail for these addresses or getting access to them can be a hassle that delays the issuance of the certificate. Check with your hosting provider or certificate issuing authority to determine the list of e-mail addresses that can be used to approve the issuance. Cheaper SSL certificates often have greater restrictions on e-mails that can approve the certificate.

If your payment processor is not external, and thus relies on your site's SSL certificate for the secure transmission of sensitive account information, it is essential that you prevent non-secure access to your contribution pages that accept sensitive data, such as credit card numbers. Once you have tested your SSL certificate and confirmed it is working properly by accessing your site with `https://mydomain.org`, you must perform the following steps:

1. Navigate to **Administer | System Settings | Resource URLs**.
2. Select **Yes** beside **Force Secure URLs (SSL)**.
3. Click on **Save**.

At this point, CiviContribute is configured and you can use it to accept online payments for donations, memberships, or events. We strongly encourage you to carry out the following steps:

1. Enter a contact record and create a new credit card contribution.
2. Ensure that the payments are received by the payment processor.
3. Verify that the funds are deposited properly in your bank account, either automatically or manually as the case may be.

> Note that PayPal and some other payment processors have sandboxes that are more difficult to use than their production systems, so it can be faster and less problematic to just configure and test using real payments against their live servers. You will want to do a live payment test anyway before you go live with any public-facing forms.

It is also a good idea to have your bookkeeper review things at this point to make sure they can properly integrate online payments into your accounting procedures. Sometimes, there are issues with how payment processors batch transactions from online payments with those from point-of-sale terminals that can make things difficult to track. You may need to review how specific transactions stored in CiviCRM can reliably be correlated with deposits in your bank account and vice-versa. To review a report that may prove helpful in this regard, navigate to **Reports** | **Contribution Reports** | **Bookkeeping Transactions**.

Configuring premiums

Premiums are thank-you gifts that may be provided to donors to encourage them to give, and are often used as an incentive to commit at a higher level. For example, anyone giving $50 may receive a coffee mug with your organization's logo, while those giving $100 can choose to get a T-shirt with the logo. All premiums are specified on a site-wide basis before being enabled for particular CiviContribute pages. Constituents donating through premium-enabled contribution pages will always have the option of declining premiums. By making these gifts optional, you reduce wasted resources on unwanted premiums.

There is no need to configure premiums in order to use CiviCRM for fundraising, and if you are just getting started, it is perhaps better to first focus on more essential basic functions. As particular appeals begin to make use of premiums or new premiums, you will need to configure or reconfigure your site-wide premium options before they can be enabled for particular pages. Here is how to add a premium:

1. Navigate to **Administer | CiviContribute | Premiums (Thank You Gifts)** or **Contributions | Premiums (Thank You Gifts)**.
2. Click on **Add Premium**.
3. Enter information in the fields as it should be displayed to potential donors, starting with **Name**.
4. Description can be promotional text or just an explanatory description.
5. The **SKU** code is useful if the item is for sale elsewhere on your site.
6. For **Premium Image**, you can upload an image, use existing images from a URL, use the default **No Image Available** icon, or choose to display no image. If you sell the product elsewhere on your site, it is best to use the URL option and reference the existing image in order to ensure the two locations stay in sync.
7. CiviCRM will enforce this **Minimum Contribution Amount** option wherever the premium is enabled, displaying an error message if someone asks for the premium but doesn't contribute at or above this amount. You can create another premium for the same item if you would like to set a different minimum contribution amount for it on a different contribution page.
8. Some jurisdictions require tax-deductible charitable receipts to be issued only for amounts that exclude the fair market value of any premiums provided. If this applies to your organization, and this premium will be used on pages accepting tax-deductible payments, enter a value in **Market Value**.
9. Enter a value in **Actual Cost of Product** to improve the calculation of the net return from offering the premium and also the overall appeal.
10. Select the **Financial Type** option to be linked to the premium, representing the cost of sale. You may need to create a financial type and account for this purpose if no existing one is available.
11. Provide a comma-separated list of options in **Options**, such as size or color. The comma-separated list ignores line breaks, so text after the last comma on one line is put together with text at the beginning of the next until a comma is encountered. If you want to provide options for two aspects of a product, such as both color and size, you must either enter every combination as a separate option or do some custom programming.

12. Custom programming can allow the information collected in **Subscription or Service Settings** to be used to provide temporary access to downloadable files, such as reports or songs in your CMS or to memberships or subscriptions managed by CiviCRM. Alternatively, staff can manually administer such benefits once they receive an e-mail or other notification of a donation. In this panel, you define the terms of the subscription that is connected with the premium.
13. Click on **Save**.

You can return to add, modify, disable, or delete premiums at any time. If premiums are shared across multiple contribution pages, be sure you understand the impact of any modifications before you begin editing them.

Configuring price sets

Price sets are used to construct more complex sets of donation options than the simple radio-button list that is available by default in the contribution page configuration. In many cases, a simple list of donation levels and an option for donors to enter their own custom amount is sufficient. However, if you require multiple sets of options, or quantity-based purchasing, price sets can be used.

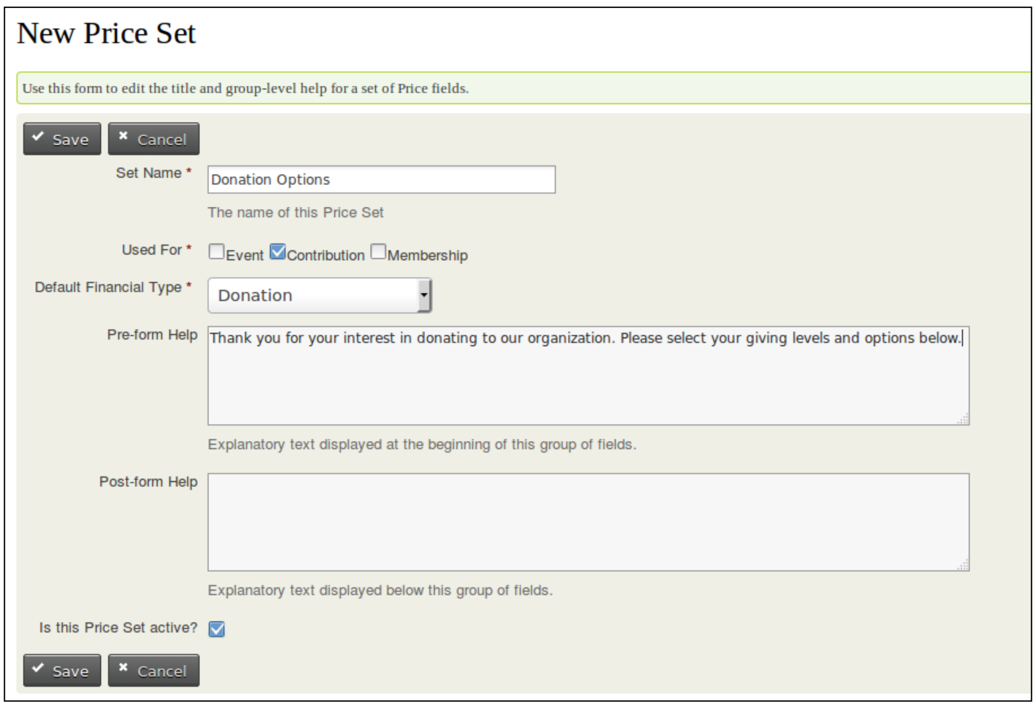
Price sets can also be used for events and membership signup forms, which is the more common application. We will review their use in that context in later chapters.

Price sets are also convenient for contributions when you have suggested donation levels that are reused on different pages. For example, a Humane Society may have pages devoted to funds for different species (since cat lovers may give more if they know it will go to caring for cats and not dogs). Annual campaigns to increase donations may have price sets for different segments that get reused from year to year. They also provide a way to potentially increase the gift amount by offering a benefit for an additional amount—similar to how premiums work. In short, price sets provide a much greater degree of flexibility over the standard tool, along with the ability to reuse them on multiple contribution pages very easily.

To configure a price set for contributions, follow these steps:

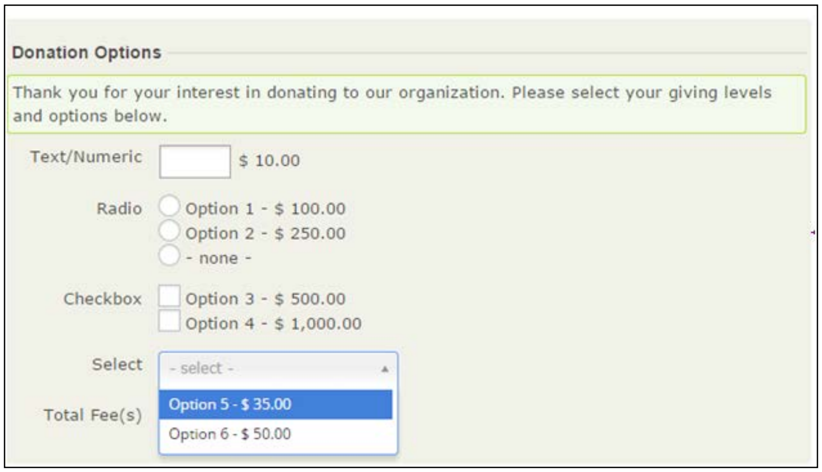
1. Navigate to **Contributions | New Price Set/Manage Price Sets** or **Administer | CiviContribute | New Price Set/Manage Price Sets**.

2. Enter text for a heading to be displayed to users above the donation amount options in the **Set Name** field, for example, `I want to help preserve natural habitat by donating`.
3. Beside **Used For**, select **Contribution** (or another option if you intend to use this for events or memberships).
4. Select the **Default Financial Type** option to be associated with these options. You will have an other opportunity to override the default value with field-specific options.
5. Optionally, supply some **Pre-form Help** or **Post-form Help** text.
6. Click on **Save**.



You are now presented with a form to add a field to the price set:

1. Enter a text in **Field Label**.
2. Select one of the four **Input Field Types** options illustrated in the following screenshot:



The **Text/Numeric Quantity** field type is appropriate when the user can purchase more than one of something, such as tickets for an event. Once selected, you must specify the unit for **Price**. The person completing the form field will enter a quantity, which will be calculated out to the total due based on the per-unit price.

If **Select** is specified as the field type, you are presented with rows into which you can enter the label and amount for a **Select** drop-down box. You can also indicate the option that is the **Default** value, uncheck rows you do not want **Active**, and use the **Order** values to indicate the order of the options. You may select a line-item-based **Financial Type** for each option. Click on **another choice** to display another row to enter data for additional options.

The **Radio** and **Checkbox** options have the same interface as **Select** for entering options. In addition, you can enter a value greater than **1** into options per line in order to have several options appear horizontally beside each other.

The **-none-** option on the radio type disappears when **Required** is checked for the field.

For the three field types that support an option list, you can revisit the available option values at a later time by clicking on **Edit Price Options** from the price field list.

3. You can uncheck the **Display Amount** field if you don't want the amount displayed with the label. This is usually unnecessary, as you generally will want to display the amounts for each option level.
4. Use the **Order** field to specify where the field should appear on forms compared to other fields in the price set. After saving your fields, you may also shuffle the order using the up/down arrows in the field listing page.
5. The **Field Help** option can be used to display explanatory text to users.
6. The **Active On** and **Expire On** options set a date range for when the specific option will be available to the user. This is valuable if you have date-based incentives for giving. For example, you might encourage early giving for your Annual Appeal campaign by offering donors the benefits of a Gold-level sponsorship at a reduced rate if they commit within the first two weeks of the campaign. After this point, you want the standard rate to be displayed on your form. To accomplish this, you would create two versions of the field with two different rates, and configure the date range, so only one is displayed at a time.
7. `Required` can be checked to force users to enter a value or select an option.
8. If you want the field to be visible to public donors, set the **Visibility** field to **Public**. If the field is to be used only by admin staff, set it to **Admin**.
9. You can optionally disable a field while creating it by unchecking **Active?**.
10. Click on **Save** to save the field, **Save and New** to save the field and return to the same form to create another field for this price set, or **Cancel** to abandon creating this field.

> If you are using price sets on contribution pages, we recommend using the first field to lay out suggested donation levels and additional fields to up sell additional benefits to donors. Be sure to preview and test your price set thoroughly, paying attention to which fields are marked **Required?** and how the field types impact the display and flow of the form.

Much of what we have just covered will be better understood when we walk through the configuration of contribution pages. It is there that these tools and options are combined into a publicly accessible form used to solicit contributions.

Configuring CiviPledge

CiviPledge is a CiviCRM component that supports non-enforceable commitments for recurring payments. This is different from recurring contributions that are also supported by CiviCRM, which actually creates an authorization record with the payment processor to automatically transfer funds on a recurring basis. In contrast, pledges are *promises* to pay a fixed amount through multiple periodic payments.

For example, your organization might encourage existing donors to increase their total annual contribution by committing to a monthly payment, which you associate with a corresponding monthly need. A homeless shelter might create a campaign to "provide five meals a month" for the year. The total annual donation is $240, consisting of $20 monthly payments.

When a pledge record is created, it consists of the total committed donation and the terms of payment, that is, the number of payments and the frequency (12 payments of $20). It is, however, only a promise to pay. CiviCRM provides useful tools for tracking payments, sending out reminders, and including pledge options in online payment forms. As the constituent fulfills their commitment through periodic contributions, you log the payment against the pledge record and track their progress. Once all payments are received, the pledge record can be closed.

> Pledge records are distinct from, but connected to, contribution records. The pledge is the commitment to pay a fixed amount on a periodic basis. As each pledge becomes due, you should receive a payment from the donor, which you will log as a contribution record in fulfillment of the pledge. This will become clearer later in this chapter when we walk through construction of a pledge record administratively.

Before implementing pledge signups, you must enable the component (it is disabled by default). Navigate to **Administer | System Settings | Enable CiviCRM Components** and move CiviPledge from the left column to the right.

You may configure automated pledge reminder e-mails that will be sent to constituents prior to the due date for their next payment. Enabling this feature is done through the Contribution Page setup, where you also indicate the online form that will be used for pledges. The pledge reminder feature is managed through a **Scheduled Job** called **Process Pledges**.

For more details about configuring scheduled jobs and setting up a cron job that will trigger those jobs, see *Chapter 3*, *Installation, Configuration, and Maintenance*. Note that the **Process Pledges** job does more than just send out reminders. If you are using the pledge tools but do not plan to send out automated reminders, you should still enable this job and simply set the **send_reminders** option to `0`.

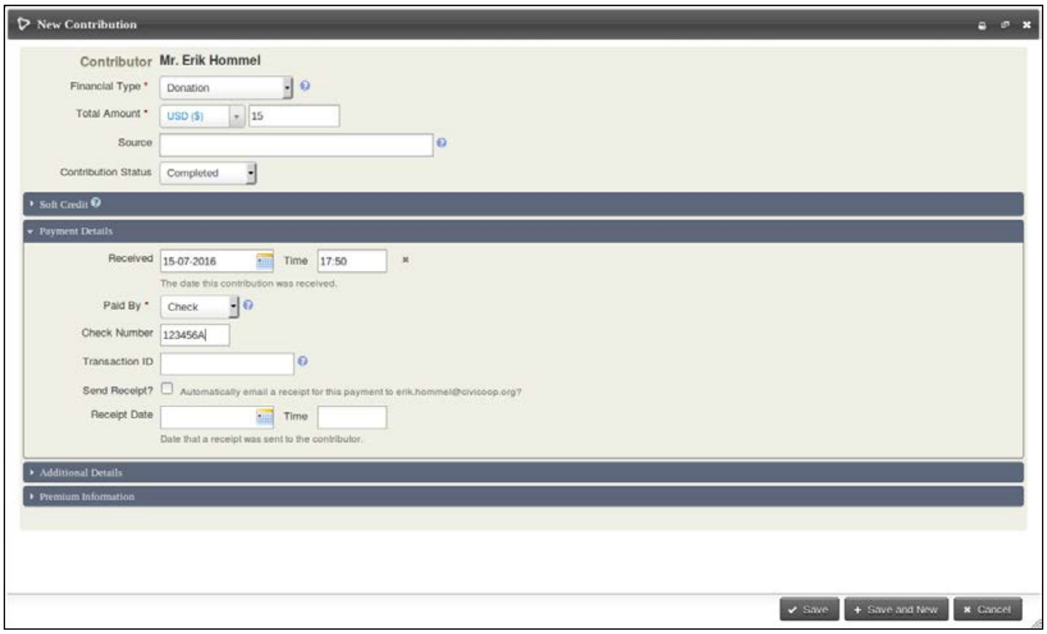
Recording a contribution manually

Now that we have configured CiviContribute and have a working knowledge of the key functionality options, we are in a position to look at recording a contribution record. Part of the reason for learning how to record a contribution manually at this point is that it will provide a better sense of the wealth of information that is stored about a donation. This will lay the groundwork for a better understanding of the automation that occurs when online contribution pages automatically record contributions.

> Sometimes, the terminology we use to distinguish different actions can be a bit confusing. By *manually*, we are referring to data entry by your organization staff using the administrative tools, as opposed to contributions that originate from a public-facing form on your site. The administrative interface displays the full range of options available, and so is a good place to start when reviewing contribution creation.

The simplest way to record offline contributions is to record them manually. The term *offline* may be a bit misleading or confusing; it is used to distinguish between payments received and processed directly online (credit card payments) and payments received through other offline means. This includes donations of any sort that are not processed by an online payment processor. Examples include cash or in-kind goods and services received at the office, checks received by mail, credit and debit card donations outside the website, such as those received by a call center, that are processed through a **point of sale** (**POS**) device, or **electronic fund transfers** (**ETFs**) conducted at a bank branch.

To record a contribution manually, navigate to **Contributions** | **New Contribution** from the main menu or the **Create New** button. From within the contact record, you can navigate to **Actions** | **Add Contribution**, or click on the **Contributions** tab, then click on **Record Contribution (Check, Cash, EFT…)**. If an integrated payment processor is configured for your site, you will see the option **Submit Credit Card Contribution**. The form is almost identical, except that it will include the required credit card-related fields and will trigger actual transaction.



Fill in the fields as follows:

1. If you chose to create a contribution from the **Create New** or **Contribution** menu, the **Contributor** field will be empty. You must either search for an existing contact or choose to create a new contact. If you initiated the contribution from within a contact record, the field will be filled in and locked.

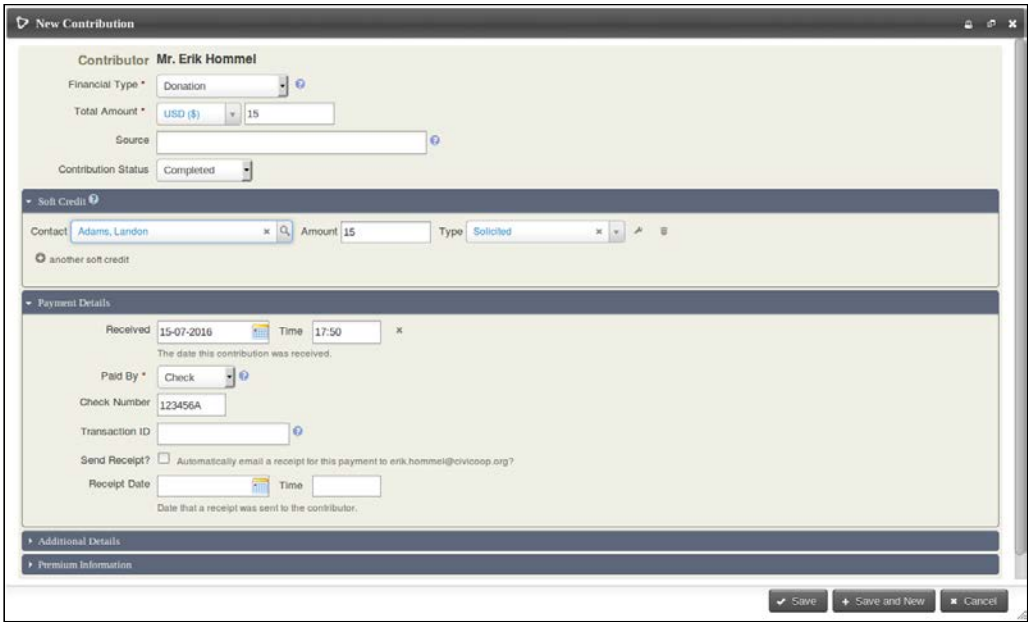
> The modal pop-up form that appears when you select a contact type is controlled by a reserved profile. You may modify the fields you wish to collect whenever this **Create New** contact option is selected throughout CiviCRM by visiting **Administer | Customize Data and Screens | Profile** and selecting the **Reserved Profiles** tab.

2. Select the appropriate **Financial Type** option.
3. Enter the **Total Amount** value and currency type. If you have previously created a price set, you will be given the option of selecting it in order to choose from the available options.
4. Optionally, enter a **Source** value. This is intended to help you trace where the donor/donation came from. If left blank, CiviCRM will populate it with a few relevant pieces of data, such as who entered the contribution.
5. Select a **Contribution Status** value. The two most frequently used statuses are **Completed**, which indicates the payment was received, and **Pending**, which indicates the obligation to pay has been made but the actual payment has not yet been received. We strongly encourage you to make use of the **Pending** status to record all commitments to pay—even if you have not yet received the payment. Doing so provides you with a way to follow-up and invoice those who have not yet submitted payment.

The remaining options are separated out into panels, which you can expand or collapse as needed. The first panel deals with **Soft Credits**. The concept of **Soft Credit** came from the desire to attribute or recognize a contact that was responsible for soliciting the donation. For example, let's say that Jimmy Doe submitted a donation and that he was prompted to do so after conversations with his cousin Rachel Jones, who has been a long-time donor and serves on several committees. You would record the contribution against Jimmy's record, as he is the one who actually provided the payment; but you would also soft-credit Rachel to recognize her involvement in obtaining the donation.

The soft credit tools are very easy to use and fairly self-explanatory: you select (or create) the contact to give the credit to, indicate the amount to attribute, and select the credit type. The list of options can be modified using the inline wrench icon, or by visiting **Administer | CiviContribute | Soft Credit Types**.

CiviCRM lets you credit a contribution to multiple contacts. Using the **Amount** field, you can split the attribution however you see fit.



The second panel includes the **Payment Details** fields, including the following options:

- **Received date**: This option will default to the current time when you opened the contribution form.
- **Paid By**: This option states which records the method of payment used. This list can be modified by visiting **Administer** | **CiviContribute** | **Payment Instruments**.
- **Check Number**: This option states the value that will be available for data entry if your payment method is **Check**.
- **Transaction ID**: This option is a unique value (no other record in the system may have the same **Transaction ID** value). If you are recording an online contribution (where you are actually processing a credit card), this field will be automatically populated by the payment processor. If you are entering an offline contribution, you may use this field to store whatever data you choose.

- **Send Receipt**: This option provides the option of e-mailing the contact a copy of the receipt e-mail, which will detail the amount donated and other options selected. This option is not available if there is no e-mail address on file for the contact.
- **Receipt Date**: This option is where you can optionally record the date you sent the constituent a receipt. If you've chosen to send a receipt via e-mail, this field will be hidden and automatically filled with today's date.

The third panel provides access to **Additional Details** you can optionally store for the contribution record.

- Whenever a contribution originates from the public-facing side of your site, it will enter the system through **Contribution Page** or **Event Registration Page**. When entering a contribution through the administrative tools, it can be useful to attribute the contribution with **Contribution Page**—even if it didn't technically originate from one. The most common use case is when you have defined a monetary goal for your page as part of a specific fundraising campaign, and want to record offline contributions against that campaign goal.
- Entering **Notes** about the donation, if any. For example, `Contact him again in December to see if he wants to make another tax-deductible donation before year-end`. The note will not appear in the contact's main **Notes** tab, as it is connected directly to the contribution record.
- Entering the **Non-deductible Amount** value of the donation. For example, if you are entering an auction payment of $500 for a bottle of wine with a fair market value of $350, the nondeductible amount would be $350.
- Entering the **Fee Amount** value, if any. For example, a $-1.25 bank charge to process an ETF. When processed online through a credit card, this amount will be populated directly from the payment processor.
- Entering the **Net Amount** value as calculated from **Total Amount – Fee Amount**.
- Entering the **Invoice ID** value, if any. This could be a generated invoice number from your accounting software.
- Entering the **Credit Note ID** value, if any. This would only be used if you are issuing a credit for the payment.
- Entering the date and approximate **Time** for **Thank-you Sent**.

If you have configured premiums, you will have a **Premium Information** panel that may be opened. A premium is generally a gift that you give to donors as an incentive at different giving levels. For example, you might offer a branded coffee mug for a donation of $25, and a branded umbrella for a gift of $50.

To use premiums, you must first define them in **Administer | CiviContribute | Premiums (Thank-you Gifts)**. They will then be available when creating a contribution record.

1. Select the **Premium** requested by the donor.
2. If there are options for the **Premium**, select the one preferred by the donor.
3. If the premium has been shipped or delivered to the donor, enter the date it was **Fulfilled**.

If you have created any custom fields attached to contribution records, they will be displayed below the panels described previously. Each custom data set will be displayed in its own panel.

Once you've completed the form to your satisfaction, click on **Save** to store the contribution, **Save and New** to store it and immediately bring up the same form to enter another contribution, or **Cancel** to abandon the record without saving.

Offline contributions can be edited at a later time. Online contributions (those where a credit card was processed) can as well—except for the contribution amount and a few additional fields. This is because we don't want to compromise the data. If a transaction actually took place with a payment processor, you should not be able to simply overwrite it through the interface, and thus the field is locked.

Importing contributions

As with other areas of CiviCRM, you can import contribution data to the system directly through the interface. Access this tool through **Contributions | Import Contributions** from the main menu. We won't take the time to walk through the process in detail, as it closely follows the steps outlined in *Chapter 5*, *Collecting, Organizing, and Importing Data*, where we imported contacts. However, there are a few nuances when importing contributions that you should understand:

- The import mode allows two options: **Insert new contributions** or **Update existing contributions**. These are mutually exclusive—if you are inserting, all records will be new; if you are updating, you must include a contribution ID column in your CSV file that matches existing records in the system. The update option will not simply create new records if no match is found.
- If inserting new records, you should have sufficient contact data in your import file to ensure that the contacts match and merge with existing contact records. The importer will not create contact records; you must be able to match the import row to an existing contact.
- As one would expect, there are certain required fields relevant to the nature of the data. This includes the contribution type and total amount, and is indicated in red with an asterisk on the field mapping step.

As with the contact import, we recommend importing a small subset of your data and reviewing it carefully before importing very large sets. Field mappings may be saved and reused, facilitating the import, test, and full import process. Also be aware of server resource limitations that may restrict how many records you can successfully import in a single step. If your import file is very large, you may need to split it into smaller sections for importing.

Manually creating a pledge

As reviewed earlier, a pledge in CiviCRM is a promise to make one or more payments in the future. A pledge is **Pending** until the first payment is received, at which point its status changes to **In Progress**. Once all payments have been received, its status changes to **Completed**. If one or more of the promised payments is late, no change occurs in the status of the pledge. In this way, think of a pledge as a container for multiple, promised, distinct contribution records.

If a person promises $360 to be paid in 12 monthly installments, spaced one month apart, CiviCRM considers this to be one pledge with 12 payments (contributions) of $30.

To manually create a pledge, navigate to **Contributions | Pledges | New Pledge**, or use **Create New | Pledge**. Alternatively, from a contact record, navigate to **Actions | Add Pledge**, or click on the **Pledges** tab and click on the **Add Pledge** button or link.

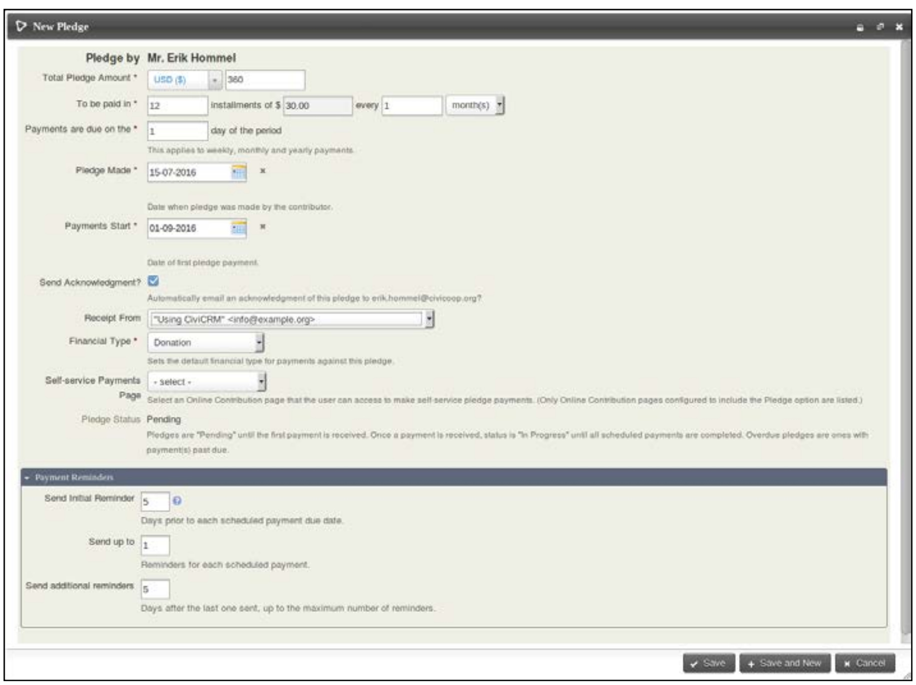
1. If originating from **Create New** or **Contributions | Pledges | New Pledge**, select a **Contact** or create a new one.
2. Enter a value representing the sum of all of the payments to be made in the **Total Pledge Amount** field. In our preceding example, that would be $360.
3. Enter the number of periods (pledge installments) and the length of each period (daily, weekly, monthly, or yearly) between payments, for example, **every 1 month**, or **every 2 weeks**. After entering the total pledge amount and installment period, CiviCRM will calculate how much is due for each installment.
4. If desired, change **Payments are due on the [] day of the period** to a value other than **1**, for example, to **15** if monthly payments will be made mid-month.
5. If the pledge was made before being recorded, backdate **Pledge Made** appropriately.
6. If the payments start on a day other than the date the pledge is being recorded, adjust the **Payments Start** date.
7. If the contact has an e-mail on file, click on **Send Acknowledgement** to e-mail them details of the pledge. If you choose to send an acknowledgement by mail, use the **Acknowledgement Date** field to record when that was sent. The date will be filled automatically if the e-mail option is used.
8. Select **Financial Type** to associate with these payments.
9. Select **Self-service Payments Page** to associate with pledge reminders. If selected, a link to this contribution page will be included in the pledge reminder e-mails. The user may use the page to submit online credit card payments and have the contribution attributed to the pledge. This is very valuable and important as it provides a direct way for the end user to associate a payment with a pledge.

As with contribution records, any custom fields associated with pledges will appear in their own fieldset panel for completion at this time.

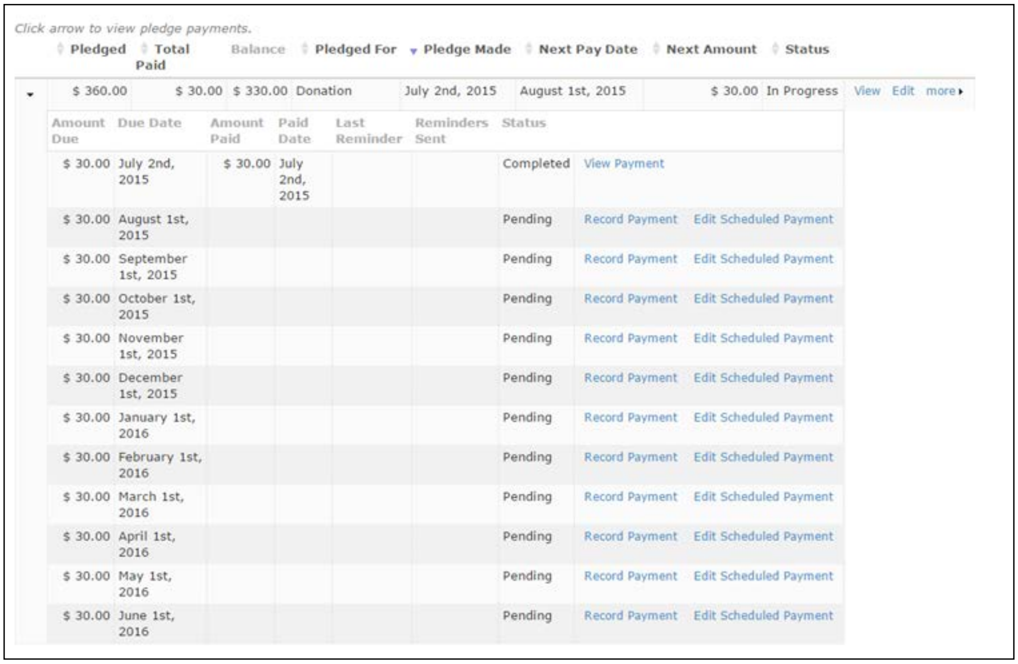
1. Click on the **Payment Reminders** header to expand the fieldset panel and configure reminder e-mails. Recall that this functionality is dependent on **Scheduled Job**, which manages both pledge status updates and e-mail reminders.
2. Configure when to send the initial reminder: **Send Initial Reminder [] Days prior to each scheduled payment due date**.
3. If you wish to send multiple reminders, set the **Send up to [] reminders for each scheduled payment** to a value greater than 1.
4. Set **Send additional reminders [] days after the last one sent up to the maximum number of reminders**.

Through these options, you can set up a schedule to remind a person about their pledge multiple times in fixed intervals until their pledge is received or the max number of reminders is received. Of course, payment reminders are only sent to contacts with a valid e-mail on file, and who do not have the **Do not e-mail** privacy setting selected.

Once you've reviewed and completed the record, click on **Save** or **Save and New**. Click on **Cancel** to exit the record without saving.



After saving, take a moment to review how CiviCRM constructs and displays the pledge record. As you recall, the pledge itself is a container for individual pledge payments. This is displayed in the contact's **Pledges** tab by a single pledge row, which can expand to display the individual scheduled pledge records.



Click arrow to view pledge payments.

	Pledged	Total Paid	Balance	Pledged For	Pledge Made	Next Pay Date	Next Amount	Status	
▾	$ 360.00	$ 30.00	$ 330.00	Donation	July 2nd, 2015	August 1st, 2015	$ 30.00	In Progress	View Edit more ▸

Amount Due	Due Date	Amount Paid	Paid Date	Last Reminder	Reminders Sent	Status		
$ 30.00	July 2nd, 2015	$ 30.00	July 2nd, 2015			Completed	View Payment	
$ 30.00	August 1st, 2015					Pending	Record Payment	Edit Scheduled Payment
$ 30.00	September 1st, 2015					Pending	Record Payment	Edit Scheduled Payment
$ 30.00	October 1st, 2015					Pending	Record Payment	Edit Scheduled Payment
$ 30.00	November 1st, 2015					Pending	Record Payment	Edit Scheduled Payment
$ 30.00	December 1st, 2015					Pending	Record Payment	Edit Scheduled Payment
$ 30.00	January 1st, 2016					Pending	Record Payment	Edit Scheduled Payment
$ 30.00	February 1st, 2016					Pending	Record Payment	Edit Scheduled Payment
$ 30.00	March 1st, 2016					Pending	Record Payment	Edit Scheduled Payment
$ 30.00	April 1st, 2016					Pending	Record Payment	Edit Scheduled Payment
$ 30.00	May 1st, 2016					Pending	Record Payment	Edit Scheduled Payment
$ 30.00	June 1st, 2016					Pending	Record Payment	Edit Scheduled Payment

As you receive contributions associated with pledges, it is important to log them through this interface and not the primary **Contributions** tab (CiviCRM will remind you of the existence of a pledge if you create a new contribution record when there is an open pledge record). Since the essence of tracking the pledge progress and status involves reviewing actual payments received for pledged payment records, you need to ensure that the contribution is associated with the pledge appropriately. As you can see in the preceding screenshot, we have recorded the first payment of the pledge record; the pledge record reflects this by reporting the total paid, balance due, and date of next payment.

If the constituent is late providing payment, submits a payment that is different from what is scheduled, or requests altered terms for the payment (such as extending the payment period), use the **Edit Scheduled Payment** link to modify the record. This can also be done when recording the payment. When you alter a payment, you have two options for how this will affect the pledge:

- **Adjust Pledge Payment Schedule?**: This option alters the next pledge payment (or multiple ones, if necessary), increasing or decreasing it to maintain the original total pledge commitment. For example, if the person paid $10 more than was due, the next pledge payment would be adjusted to $10 less than originally scheduled.
- **Adjust Total Pledge Amount?**: This option will retain all future payments as originally constructed and adjust the pledge total to reflect the payment change. For example, if the person paid $10 more than was due, the total pledge amount would increase by $10.

After recording a pledge payment, you will see the contribution record added to the contact's contribution tab. Remember that the pledge is only the record of a promise to pay; each payment will appear as an actual contribution record.

Searching, examining, and working with contributions

Thus far, we have focused our energy on understanding the key configuration options related to fundraising and working with single contact and pledge records within the contact record. In this section, we will work with contribution records in bulk and review *recipes* for implementing fundraising techniques through CiviCRM. While working through this section, we will also highlight noteworthy features or places where you may see unexpected results if not handled correctly.

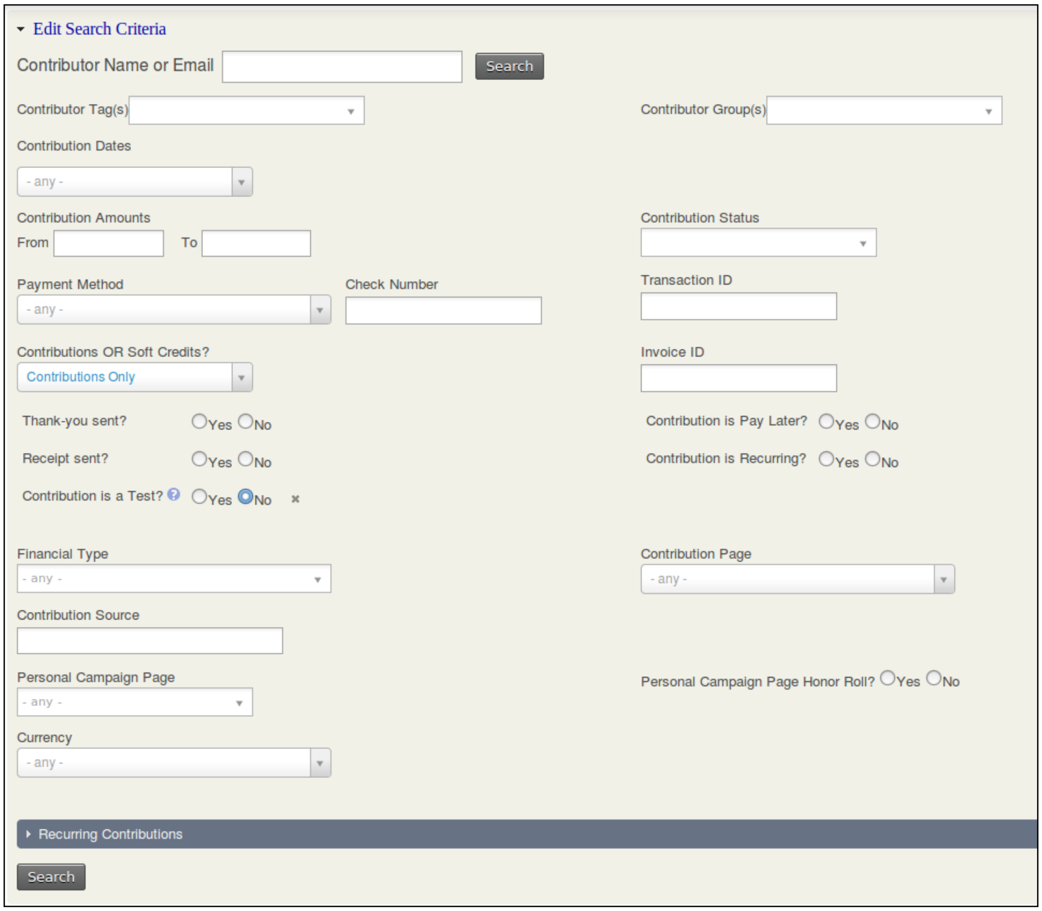
Finding contributions

While you will often be working with contributions directly through the contact record, it is likely that much of your time will also be spent searching for and reporting on contribution records in bulk. For example, you will periodically need to know how many contributions were received over a period of time, such as the last month or year-to-date. You may need to export all contributions of the type *Donations* in order to send end-of-the-year statements for tax purposes. Alternatively, you may want to isolate donors who have given amounts over a certain threshold and classify them as Major Donors, targeting them in unique ways through postal mailings and e-mails.

As with other functionality areas in CiviCRM, you can conduct these searches using the component search at **Contributions | Find Contributions** or through the **Contributions** panel in **Advanced Search**. The field options are the same, but the results are quite different. Component searches will always return component records, whereas **Advanced Search** returns contact records. This means that, if John Doe has three contributions matching my criteria, I will see three records in the component search (as distinct contribution records are returned) and only one in **Advanced Search** (representing the contact record). Further, actions, such as export and bulk updates using profiles, will reflect the source; in the **Find Contributions** tool, I will be able to export the actual contribution details.

> The **Advanced Search** tool does provide the option of displaying results in alternate ways, including the ability to return contribution records instead of contact records. Using the **Display Results As** drop-down menu, you can choose to retrieve contacts (default), contributions, event participants, activities, memberships, cases, related contacts, or mailings. The benefit over using component searches is the ability to add criteria across multiple types of data, but to retrieve the contact's related records in a different area. For example, I could retrieve all contributions for individuals with an **Employee of** relationship who have been members since 2004.

The following screenshot demonstrates the options available in the **Find Contributions** tool:



For the most part, these options are fairly intuitive and self-explanatory. We will review them briefly:

- **Contributor Name or Email**: This option can be a partial match.
- **Contributor Tag(s)**: This option searches contacts with the selected tags.
- **Contributor Group(s)**: This option searches contacts in the selected groups.
- **Contribution Dates**: This option will search the date on which the contribution was received (usually the date recorded).
- **Contribution Amounts From and To**: This option states the criteria treated as equal to or greater than in the **From** field, and less than or equal to in the **To** field.
- **Contribution Status**: With this option, multiple options may be selected.
- **Payment Method**: This option states the type of payment received.
- **Check Number**: If you specify a value for **Check Number**, make sure that the **Payment Method** field is either left empty or has **Check** selected; otherwise no results will be returned.
- **Transaction ID**: This option states the unique value associated with the transaction. Keep in mind that this is automatically filled in by a payment processor, and manually filled in when creating an offline contribution (and may be left empty).
- **Contributions OR Soft Credits?**: By default, you will typically conduct your search looking for the actual contribution record itself. Optionally, you may choose to also search for soft credits. If you do so, keep in mind the total value returned will not reflect actual income. After selecting one of the soft credit options, an additional field will become available where you can filter by a specific **Soft Credit Type** value.
- **Thank-you sent?**
- **Receipt sent?**
- **Contribution is a Test?**
- **Contribution is Pay Later?**: When constructing a contribution page or event registration, you have the option of enabling a **Pay later** option, whereby the user does not need to pay with a credit card but rather is committing to pay the obligation at a later time. It is important to be able to search for these records at a later time, as you may need to follow-up with an invoice to the contact in order to receive payment.

- **Contribution is Recurring?**: In addition to this **Yes** and **No** option, there is an additional panel toward the bottom of this form that provides additional filter options for recurring contributions. These options center on the dates of recurrence, modification, cancellation, and so on.

- **Financial Type**: This option provides a convenient way to search for payments for events, memberships, donations, or other financial types that have been configured.
- **Contribution Page**: This option provides a way to search for contributions that originated from or are associated with a specific contribution page. Oftentimes, a contribution page represents a specific campaign or initiative your organization has spearheaded; the ability to retrieve all contributions that were received as part of that effort is important.
- **Contribution Source**: This option searches text entered into the contribution's source field.
- **Personal Campaign Page**: This option is a tool that allows constituents to create their own version of a contribution page and collect donations for your organization through their own outreach efforts.
- **Personal Campaign Page Honor Roll?**: Contacts who contribute through a campaign page will optionally be part of the campaign honor roll—a way to recognize those who have supported your organization in significant ways. Selecting this option will return only contacts who have indicated their willingness to be displayed in the honor roll.

- **Currency**: If your CiviCRM implementation has more than one available currency (see **Administer | Localization | Languages, Currency, Locations**), then users can select the currency in which they would like to contribute. Specifying a currency type here returns only contributions in that currency.
- **Custom Data**: You can filter search results on custom data fields associated with contributions, if you have configured any.

Examining contributions

After conducting a search for contributions, you are given a list of results with key details. From this list, you can directly access the contact or contribution record.

Each column in the search results—name, amount, type, source, received, thank-you sent, status, and premium—can be sorted in ascending or descending order. You also have the familiar **View/Edit/Delete** action links on the right of each row.

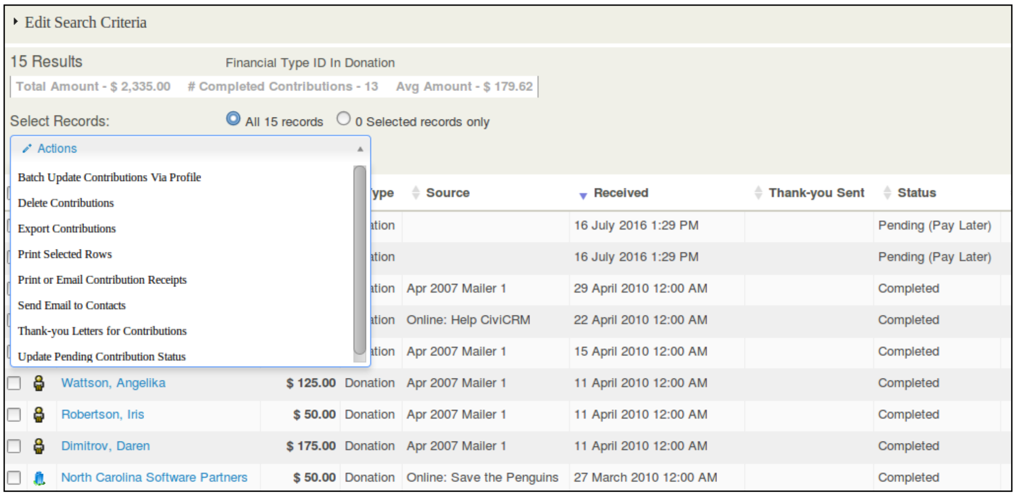
Clicking on the contact name in any contribution row takes us to their summary record. We can see the number of contributions and pledges as well as other tabbed items. By clicking on the **Contributions** tab, we get a good capsule summary of their donation history that encompasses recency, frequency, and monetary amount in three lines. The first shows **Total Amount**, **# Completed Contributions**, and **Average Amount for Current Year-to-Date**. The total for all the years is in the second line. Specific donations follow in reverse chronological order. Note that these totals only take into consideration completed contributions (pending, canceled, and so on are excluded). Once again, the columns can be sorted, facilitating quick access to donations in multiple ways.

Taking action on contributions

After conducting a search for contributions, you can select some or all of the records and take action on them in bulk. The options available are different from what we saw in the contact search action list, as they are tailored to the needs of contribution records.

In this section, we will review those bulk actions, consider typical use cases for them, and walk-through how to make better use of the functionality available.

First conduct a search, select some or all records, and select the **Actions** drop-down menu to review your options. After selecting an action to take on the selected records, you will be redirected to the appropriate form to select additional options related to that action. The following subsections explain the various actions.

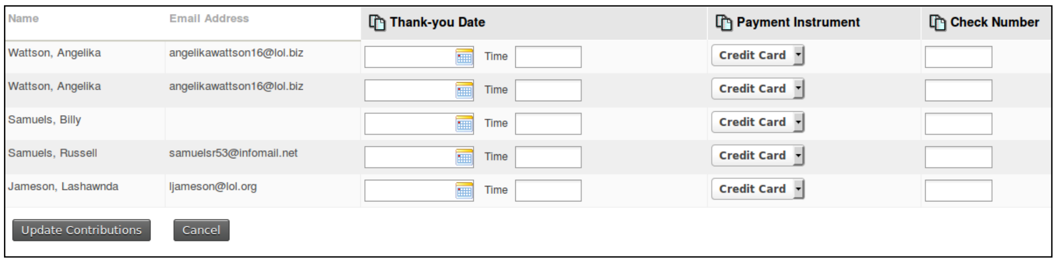


Batch Update Contributions Via Profile

Similar to the contact search equivalent tool, this option allows you to update up to 100 records at once in a grid-style layout using a predefined profile to define the columns/fields that will be edited. For the purposes of illustrating the usefulness of this action, we will create a profile with contribution fields, and then use it to alter the status and several other contribution fields. Similar to batch update actions carried out on other records, you will be able to edit the fields exposed in the contribution profile in a much quicker fashion than finding and editing each contribution record individually.

Create a profile at **Administer** | **Custom** | **CiviCRM Profile** and select a few contribution-type fields, such as the thank-you date, payment instrument, and check number. It's not necessary to add contact-related fields as profiles with only contribution fields display the name, e-mail, and address of the donor automatically. After saving the profile, return to your search results or reinitiate them, select one or more contributions, and choose the **Batch Update Contributions Via Profile** action. You will be presented with a list of profiles that can be used for this purpose. Select the profile you just created and click on **Continue**.

You will be presented with a grid/spreadsheet type layout where you can edit fields for multiple records and save them in a single step. Note the icon next to each column header. Clicking on the icon will copy the value present in the first row to all subsequent rows. This is a great way to mass-update records with the same value. For example, if you send out thank-you letters to all donors who contributed over the last month, you can conduct your search and use this tool to update the **Thank-You** field for all records at once:

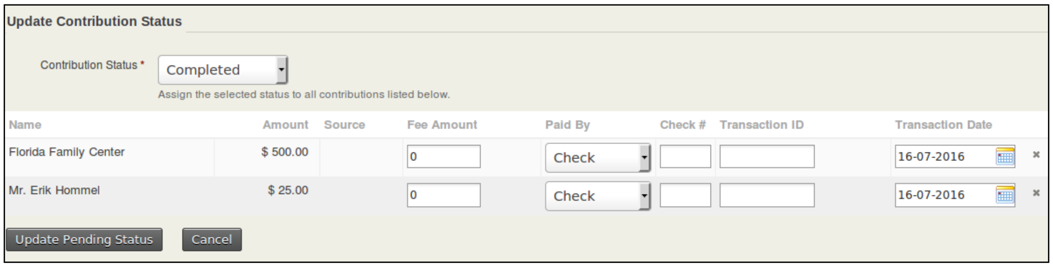


Update Pending Contribution Status

This tool is one way to update contributions from online *pay-later* contributions, or offline direct mail/telemarketing campaigns that have been received and entered manually by the administrative staff.

Pay-later contributions are left in a **Pending** status until the contribution is received (such as a check mailed in after the form was submitted). The status can also be used by staff to record payment obligations—someone who has made a commitment to pay but has not yet provided payment. Hopefully the contact will fulfill their obligation and submit payment, and you will need to update the record to change the status to completed and provide details about the payment. At a certain point, you may have some pending contributions that are deemed to be failed donations if there is no longer any hope of collecting payment. The **Update Pending Contribution Status** action presents a batch update form optimized for dealing with this situation. It allows the **Fee Amount**, **Paid By**, **Check #**, **Transaction ID**, and **Transaction Date** to be updated in a much quicker fashion than finding and editing each of these fields individually. Once you have entered data for those fields and selected a new **Contribution Status** option for the displayed records, click on **Update Pending Status** to save all the changes.

Note that all contributions selected by your search must have a status of pending in order to use this tool; otherwise, an error message is displayed.



Print or e-mail contribution receipts/invoices

As their respective names indicate, these two actions provide a way to generate a printable (PDF) or e-mailed receipt or invoice. When conducting your search to initiate this action, you will likely want to filter on the contribution status. Completed contributions will typically receive receipts and pending contributions will typically receive invoices.

One excellent use of this action is to follow-up on records that have just had their contribution status updated from **Pending** to **Completed**. After clicking on **Done** following any action you are returned to the same search results and can proceed with additional actions.

The templates used for the receipts and invoices can be modified at **Administer** | **Communications** | **Message Templates**.

Send Email to Contacts

Working the same as the corresponding contact search action, this tool allows you to generate and send an e-mail to search results. One possible use of this action is to send thank-you e-mails to donors who will be receiving signed hard-copies of receipts where jurisdictions do not accept e-mail receipts for tax purposes.

Complete the standard **Send Email** activity form, selecting **From**, **CC**, and **BCC** as appropriate, entering a **Subject** line, and providing the content of the e-mail. As with other uses of this tool, you can choose to **Use Template**, supply either/both **HTML Format** and **Plain-Text Format** content as desired, and incorporate **Tokens** in your content. The e-mail content may be saved as a new template or, if an existing template was used, it may be updated. If you've enabled attachments in your **Global Settings**, you may add them here.

Export Contributions

Some organizations track donations in their accounting software (for example, Simply Accounting, AccPac, and Quickbooks), while others use CiviCRM to track this information and only transfer summary information to their accounting system (for example, total revenue for each donation type for each month). As CiviCRM's bookkeeping feature set grows stronger, more organizations will be able to shift to relying completely on CiviCRM for individual transaction tracking. Those still tracking all donors and donations in their accounting package will need to export contributions from CiviCRM so they can be imported into the accounting system. This is one example of when the **Export Contributions** action is useful.

> CiviCRM includes a more robust and complete tool for integrating with accounting software through exports, called Accounting Batches. We will walk through this tool later in this chapter. Although it does require a bit more work to set up and use, it provides much more control over tracking the contributions that have and have not been processed.

If you are an organization that does its books on a monthly basis, you might wait until the fifth or tenth of the month to migrate data from CiviCRM to your accounting package. At that point, every month you would navigate to **Contributions | Find Contributions**; use criteria, such as **All contributions** with a contribution status of **Completed** and a received date of the previous calendar month; and click on **Search**.

Next, select all of these contributions and choose **Export Contributions** from the action drop-down menu. At this point, you may export a predefined set of default fields (**Export PRIMARY fields**) or choose to select the fields that you would like to export. When choosing which fields to export, you may save the field mapping and name it for easy retrieval on future exports.

Since the export process separates the records to be exported from the data columns actually included in the file, the field mapping can be reused for different export purposes. Depending on your work processes in CiviCRM, you may find it useful to construct a single export mapping that covers multiple export-related needs. Simplifying procedures so that only one data migration format is used is likely to reduce development and operating errors.

Delete Contributions

As the action title suggests, this is used for bulk deletion of contributions.

This tool should be used cautiously; we strongly discourage deleting financial data transactions and will suggest some ways to prevent any users from having the permission to delete financial transactions. A better practice is to post reversing transactions or use the status to communicate why the original transaction has changed (for example, by marking it as cancelled and providing an explanation for the action).

One exception may be when you clean out test records from your system. If you've created a true test record (using the Test-drive contribution page link, for example), the test records are well-hidden from the interface. You must explicitly choose to include them from the **Find Contributions** tool (check **Contribution is a Test?**); otherwise, they will be excluded by default. However, if you've run a live transaction or pay-later transaction as a test, you will likely want to remove it from the system at some point.

Be sure you have a recent backup of your database before performing any bulk deletion of this sort.

As you can see, CiviCRM provides a number of powerful tools for working with contribution records in bulk. Take time to explore the features available so that you have clear direction and know your options when you are working with records.

Searching, examining, and taking action on pledges

When compared to contributions, the options related to pledge management are fewer. As described earlier, a pledge is a collection of contribution records (pledge payments) defined by the encompassing pledge options.

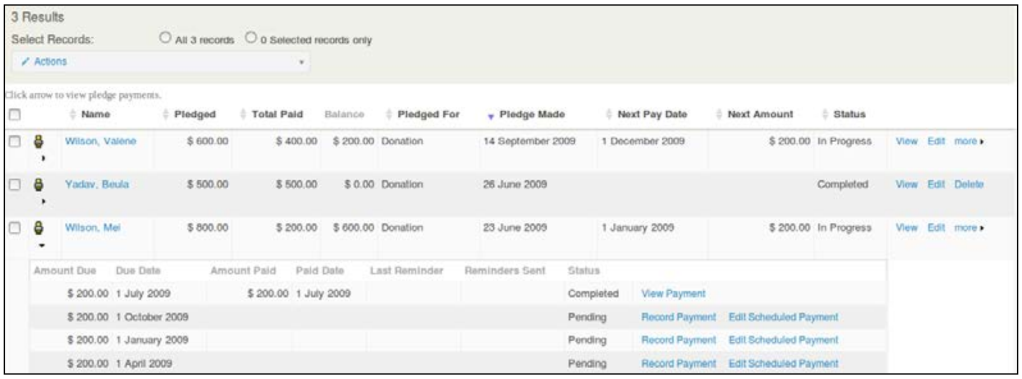
Searching pledges

To search for pledges, navigate to **Search | Find Pledges** or **Contributions | Pledges | Find Pledges**. The following criteria are available when searching pledges.

We will note any particularly useful, interesting, or possibly unexpected behavior when using the criteria:

- **Pledger Name or Email**: With this option, search using a partial string for the pledger name or e-mail.
- **Payment Scheduled**: With this option, select one of the date range options to search upcoming scheduled payments.
- **Pledge Payment Status**: With this option, search one or more of the status options listed. Note that this option searches the payment status, not the pledge status.
- **Pledge Amount**: The suboptions available in this option are **From** and **To**. These amount ranges are inclusive—it will include pledge amounts equal to or greater than **From** and equal to or lesser than the **To** amount. When using any of the range-based fields, you do not need to provide a value for both. For example, entering `50` in the **Pledge Amount From** field will return all pledges greater than or equal to `50`.
- **Pledge Status**: With this option, search one or more of the status options listed. Understand the difference between **Pledge Payment Status**, which tracks individual payment records, and **Pledge Status**, which tracks the overall status of the pledge record.
- **Pledge Made**: With this option, select a date range option.
- **Payments Start Date**: With this option, select a date range option.
- **Payments Ended Date**: With this option, select a date range option.
- **Financial Type**: With this option, filter the results by the financial type associated with the pledge.
- **Contribution Page**: Note that this list may include contribution pages that are not currently configured to allow pledges. For example, there may have been a time when they allowed pledges and pledges were made against them, but they are no longer configured to allow pledges.
- **Pledge is a Test?**: If **Yes** is selected, only test pledges are returned. If **No** is selected, only non-test pledges are returned.
- **Pledge Frequency Every [duration] [frequency]**: This option retrieves pledges defined by the selected frequency options.
- **Campaigns**: With this option, limit the result set by the campaign attached to the pledge record.

The search results return the "container" pledge record, but you may click on the arrow to the left of the record to expand and view the associated pledge payment schedule details.



Examining pledges

Pledges are more complex than single contribution records. In essence, they are groups of contributions bound and managed as a single unit (with distinct elements). The creation of the pledge defines the contribution records; the status of the individual pledge payments controls the status of the overall pledge record.

After conducting a search, the pledge search results page allows easy drill–down access into the schedule of payments, both pending and completed, that collectively make up the pledge record. In addition to the **View/Edit/Delete** links, a **Cancel** action is available for pledges that are not yet complete. Cancelling, unlike deleting, doesn't remove the records of payments received. It is the preferred way of managing pledge records that have been stopped mid-payment.

Each payment revealed in the drill-down has action links on the right that allow a payment to be recorded by the administrator and also let you easily edit the payment schedule when there is an issue with a payment. For example, if a payment has to be reduced or the due date extended, a single pledge payment record can be adjusted and the remaining payments will be adjusted accordingly (as discussed earlier in this section).

Taking action on pledges

There are three actions available as operations on search pledge results—pledges can be deleted, exported, or printed. The interface and workflow are very similar to those that are used for contributions described previously and for other objects, such as contacts, events, and memberships described elsewhere. After conducting your search, select some or all pledge records and choose an action.

Deleting pledges

As the action title suggests, initiating this option on pledge search results will remove them along with their associated contribution records from the system. This is a dangerous function, particularly when working with contribution records, which have certain data integrity and retention obligations.

In general, we strongly discourage deleting financial data transactions, and even suggest some ways to prevent any users from having permission to delete financial transactions in the following sections. If a payment (or pledge) has been made, it is better to cancel the record (retaining its history) or post reverse transactions (indicating that the funds were returned) than to delete it from your system. Deleting it altogether results in loss of historical data—the details and information about what transpired with the transaction. That is poor business practice and may not adhere to generally accepted accounting principles.

The one exception to this rule is with test records that were generated solely for the purpose of testing functionality, and whose financial charges (if any) have been reversed. If the test record was created using the contribution page test drive option, you can locate them in the pledge search tool, selecting **Pledge is a Test?** to retrieve them and using the **Delete Pledges** action to remove them.

Exporting pledges

Select **Export PRIMARY fields** and click on **Continue** to save a `.csv` file containing primary contact and contribution fields to your local hard drive. The export can be used for importing into your accounting system, sending mails, or whatever other needs you have.

If you want more control over what fields are exported, choose **Select fields for export** and click on **Continue** to advance to the field selection page. From this page, you will be able to specify fields to be exported, and if desired save the field mapping for future use. Once you have selected your fields, click on **Export** to generate and download the export file. Refer to your accounting system documentation for the fields it can make use of through its `.csv` import functionality.

If you have previously saved an **Export** field mapping, it will be available for selection and reuse when you choose the **Select fields for export** option. After selecting an existing field mapping and clicking on **Continue**, you will be able to review and modify the list of exported fields, and will be provided with the option to **Update this field mapping** or **Save as a new field mapping**. Selecting the former updates the field mapping when **Export** is clicked. Selecting the latter allows you to provide **Name** and **Description** values, and then saves the mapping and exports the data when **Export** is clicked. You can leave both unselected and just click on **Export** to export the data without modifying the existing field mapping.

Note that the export includes rows for each of the payment records, with columns representing both the payment record and the pledge record. So it's probably not that useful for generating a mailing list, since a contact is duplicated multiple times representing each of the schedule pledge payments. However, it's quite useful for drilling into the payments made and those due for each contact that has made a pledge.

Printing selected rows

This simply displays the selected pledge records in a print-friendly view, with the CMS context stripped out. It only includes the actual pledge records; pledge payment records are not listed.

Accounting Batches

Earlier we reviewed the process of exporting contribution records and discussed the importance of that process if you need to import those records into your accounting software. CiviCRM's Accounting Batches provide an improved workflow for managing that export/import process, along with additional tools that will help facilitate data entry for contribution records.

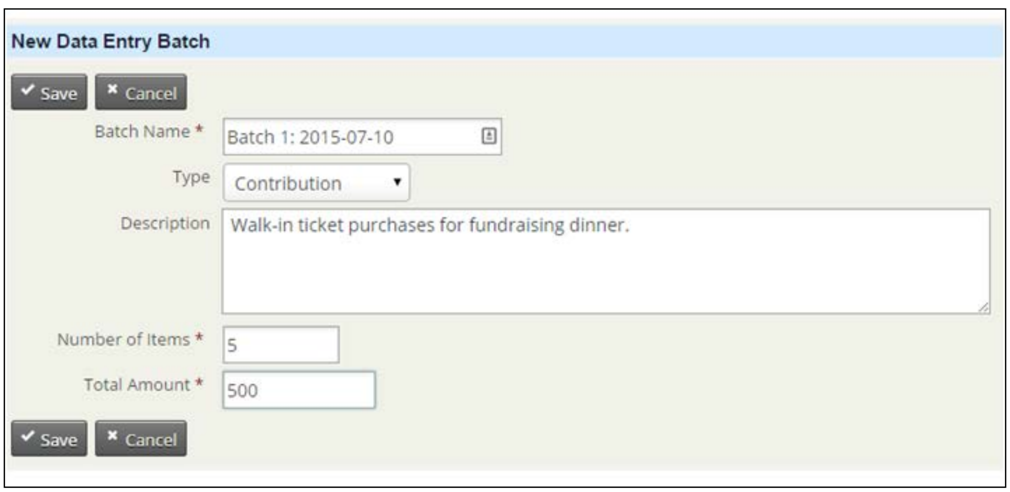
The underlying principle of accounting batches is the need to work with a set of contribution records and to have the ability to strictly capture and store the set of records worked with. Because we're working with financial data, it is critical that we don't skip records or duplicate records, especially when we need to be transferring them to bookkeeping/accounting software. Batches let us easily work with multiple records at once (improving data entry efficiency) and keep track of the sets of records worked with.

There are two workflows for working with batches that we will review.

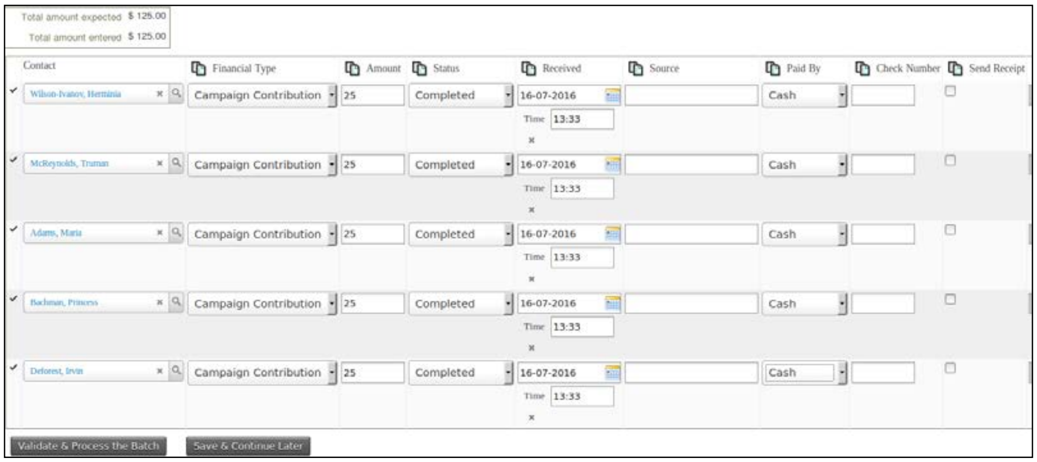
Batch Data Entry

As the name suggests, **Batch Data Entry** is used when you need to enter a number of contribution records in the system. Let's say that you held a fundraising dinner last week and allowed walk-ins to purchase tickets at the door. The bulk of those payments was received by check or cash and must be entered into the system. You can create a new data entry batch in order to record them.

- Click on **New Data Entry Batch** to initiate the creation of a batch set.
- Enter a **Batch Name** value or accept the default name that is generated. Select the type of batch you will create. We will use **Contribution** for our purposes. Batches may also be created to record pledges and memberships. Optionally, enter **Description** text for the batch. We will limit our entries to contributions received from our fictional fundraising dinner, and so provide a description to that effect.
- Enter the **Number of Items** value you plan to enter and **Total Amount**. This serves as a self-auditing tool; presumably you will be calculating the total amount received in order to prepare a bank deposit ticket. After entering each contribution into the system, your total recorded in CiviCRM should match the total calculated outside the system. You will have the ability to adjust these values if you later find that you made a calculation error.



After saving the batch you will be directed to the data entry form, which will list however many rows you previously indicated you will be entering data for. You then begin to enter data, first selecting an existing contact or creating a new one, and then working through each column of each row to fill in the information as needed. As with the Batch Update Via Profile tool, you can copy values from the first row to all succeeding rows using the icon to the left of the column header. Note that the **Send Receipt** column will actually trigger an e-mail receipt to the contributor.



Once you are finished with data entry, you can click on **Save & Continue Later** if you have additional records to enter, or **Validate & Process the Batch**. The validation process checks to makes sure your total contributions match the amount you initially indicated when creating the batch, and locks the batch to make it available for exporting. To see the completed batch, navigate to **Contributions | Accounting Batches | Closed Batches**. You may view the transactions and totals, export the batch, reopen it (to allow additional data entry or updates), or delete it.

When exporting, you have the option of using the **IIF** format, which is the native QuickBooks import format, or CSV, which is more generic and can be used in many other accounting software packages. The export will include critical information required by accounting software, such as the financial type, financial accounts, and accounting code.

Recall that, when we were discussing a workflow use case for contribution exports, we noted the importance of tracking the dates when you conducted the export. If using the **Find Contributions** tool and the standard export, you must devise your own mechanism for ensuring the exports don't duplicate records—such as our suggestion to consistently export all records from the previous month. However, what if someone comes across a check that was missed and is backdated to the previous month after you've already completed your export? Relying on dates and other criteria may be adequate most of the time, but it leaves you susceptible to changing data and an inability to easily track exactly what was exported and when. As you can see with the workflow previously described, **Accounting Batches** greatly improves this by packaging up your set of exported contributions into a set that can be stored, viewed, and exported as desired.

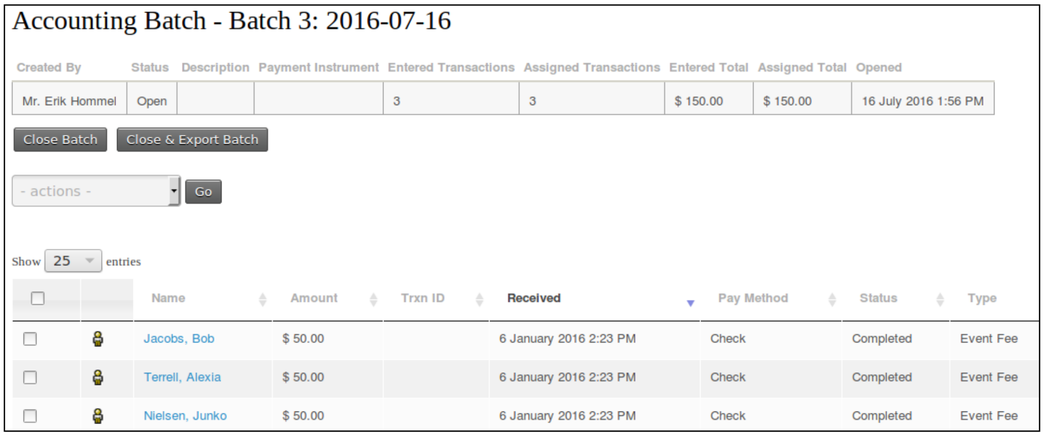
Batching existing contributions

The second workflow involves batching records that were already entered into the system—either credit card payments made by constituents through an online form, or records previously entered by staff through the contact record. In this case, we don't need to add new records; we simply search for them and group them into a batch record.

- Navigate to **Contributions | Accounting Batches | New Batch** to open a new set.
- As before, provide a **Batch Name** value, and optionally a **Description**.
- If desired, you can limit the batch to a single **Payment Instrument**. Doing so facilitates searching and data entry, but is an optional step.
- As before, enter the **Number of Transactions** and **Total Amount** values of the contributions to record. Note that in this context these fields are optional.

After saving, you will be directed to a page where your batch records and totals are detailed, and the **Find Contributions** search form is available. Remember that in this context we are working with existing records, so the tools are intended to help you locate the desired records and assign them to the batch.

We will search for records with a **Donation** financial type, and then select some to add to the batch. We do that by choosing the **Assign to Batch** action and clicking on **Go**.



You will notice that, after assigning contributions to a batch, they no longer appear in the search list below. Once a contribution has been added to a batch, it may not be added to another batch. This is the heart of the functionality—the ability to reliably track records that have been processed and those that have not.

Once you've finished searching for contributions and adding them to your batch, you can **Close Batch** or **Close & Export Batch**—the latter will trigger the export dialog where you select the output format. The records already assigned to a batch are immediately saved with it. If you navigate away from this page, it is considered an open batch and may be returned to for further editing at a later time.

You access **Open Batches**, **Closed Batches**, or **Exported Batches** from **Contributions | Accounting Batches**. There are additional filter options for searching batches from each of those screens.

Reporting

You can create contributions and pledges, manage existing records, conduct robust searches and take bulk action on the results; but how do you translate the wealth of data in the system into a meaningful report for organization leadership? How do you turn raw data into a story that tells people where the organization is and where it is headed? In this section, we will translate some of the search tools described previously into meaningful examples of how you might use them to extract important statistics and report summaries.

Counting prospects with Advanced Search

When trying to determine the number of prospects for different segments, you need to make sure to count contacts rather than contributions. For example, if you wanted to find the number of people who have given a donation between $100 and $500, you would not use **Contributions | Find Contributions** or **Search | Find Contributions** because either may return duplicate contact records if the contact has given more than one donation within that range.

The **Advanced Search** tool returns contact records, not related records (such as contributions), and includes a count of their number, so it is one useful way to count prospects for fundraising segments:

1. Navigate to **Search | Advanced Search**.
2. Click on the **Contributions** panel to open it. Note that this form is almost identical to the **Find Contributions** tool (it excludes the contact name/e-mail field, which is handled in the **Basic Criteria** panel).
3. Choose your desired criteria and run the search.

At this point, your search will return all contributors who have at least one contribution matching the criteria selected. One additional advantage of using the **Advanced Search** tool is the ability to add criteria outside the contribution panel. For example, if you want to restrict your search to those contacts who are also members in good standing, you can expand the **Membership** panel and add criteria.

The following table outlines how certain constituent segments translate to specific search criteria.

Segment	Field	Values to be entered
Those who gave one or more contributions greater than or equal to $100 and less than or equal to $500	**Contribution Amounts From**	**100**
	Contribution Amounts To	**500**
Those who gave in 2009	**Contribution Dates—From**	**Jan 1, 2009**
	Contribution Dates—To	**Dec 31, 2009**
Recurring contributors	**Contribution is Recurring?**	**Yes**
Tribute contributors	**Contributions OR Soft Credits?**	**Soft Credits Only**
	Soft Credit Type	**In Honor Of**
Paid-event participants	**Financial Type**	**Event Fee** (assuming your events use the standard **Event Fee** contribution type)

Segment	Field	Values to be entered
Paid members or subscribers	**Financial Type**	**Member Dues** (assuming your memberships use the standard **Member Dues** contribution type)
Contributor to a specific online campaign	**Contribution Page**	Select the page that accepted donations for the campaign

After you have entered your criteria and clicked on **Search**, you are presented with a page that includes the total number of contributors that match the criteria, and the first page of results (by default the first 50). After you have reviewed the results, you can change your search criteria and rerun the search easily by clicking **Edit Search Criteria** to expand the criteria panel.

Note that if you enter more than one criterion, you will return fewer results because all the criteria must be true in order to be returned in the results; in other words, search criteria are restrictive (**AND** joins the criteria). The search operator can be changed to **OR** in the **Basic Criteria** panel, or you may use other tools, such as **Search Builder** described later, if you are interested in returning results that match one *or* another criterion with more specificity. Another way to achieve this is to run your individual sets of restrictive criteria, save them in a group, and then conduct a search that combines the groups (multiple groups selected in **Advanced Search** are inclusive—the search will return records matching any of the groups).

Since criteria specified on the **Advanced Search** page are restrictive by default, we caution you against entering criteria for both contributions and pledges at the same time. If you aren't careful, you might end up asking for those who gave a completed donation and who also pledged, which are distinct groups generally handled very differently.

The **Advanced Search** tool is very powerful, but it has several limitations. Most notably, the interface does not let you *not* specify criteria. For example, there is no way to say "Search for every contact that has contributed with a contribution type that is *not* **Event Fee**." If this is required, you may be able to achieve the criteria using **Search Builder**. Also take a look at the **Include/Exclude Search** (navigate to **Search | Custom Searches** to view all available options). This tool lets you search specific groups or tags and exclude records from other groups or tags.

Additional segmentation suggestions and tools

The extension CiviRules can help with segmenting your contact as explained at `https://wiki.civicrm.org/confluence/display/CRMDOC/CiviRules+Example+Donor+Classification`. The CiviRules extension can be obtained from the CiviCRM Extensions page on the CiviCRM website at `https://civicrm.org/extensions/civirules`.

CiviCRM's search and reporting mechanisms, potentially supplemented with custom searches and reports, can provide you with:

- The number of existing prospects for initial gifts (for example, the number who have subscribed to a newsletter, attended an event, e-mailed a concern, signed a petition, and so on).
- Demographic and relational information on your donors and prospects and summary information on other characteristics you may have gathered as custom fields. This will be useful in developing categories of donors, for example, faculty, parents, alumni, local businesses.
- Analyses of the capability of your contacts to participate in fundraising efforts in terms of their prior efforts to tell-a-friend, forward e-mails in your CMS, and use Personal Campaign Pages to involve others.

Your organization will need to review its own segmentation needs. For example, criteria for high-end segments appropriate for bequests, major one-time gifts, and planned giving will vary. Your efforts to define them may benefit from engaging in research on your contacts with strong donation histories. This research may be done through word-of-mouth inquiries by board members, online sleuthing, or various databases and public filings. The next subsection also describes how to use CiviCRM to conduct surveys.

Before moving on to discuss other aspects of fundraising with CiviCRM, we want to point out a few custom search tools that are included with CiviCRM and may be very helpful when working with contributions.

The idea of custom searches came out of the need to provide advanced tools that performed calculation-based criteria or returned grouped and summarized data. While component searches, **Advanced Search**, and **Search Builder** are very powerful and flexible, their *universal* nature requires they return consistent types of records, namely either contact records or related records (such as contributions). Custom searches provide developers with a framework for creating more targeted search tools.

Custom searches are found under **Search | Custom Searches**. The following are searches most useful for contribution-related needs:

- **Contribution Aggregate**: With this option, search by the total amount contributed over a period of time. For example, if you want to see how many people donated over $1,000 in 2015, regardless of whether that was a single donation, four donations, or twenty—you can use this tool for that purpose.
- **Contributions made in Year X and not Year Y**: This option is useful for identifying lapsed or past donors who could be targeted for *renewal*. Note that there are some reports that provide similar capabilities and are more robust in the criteria and options provided.
- **Find Contribution Amounts by Tag**: If tags are used to segment your contacts or track their source, this tool may be useful. However, it is somewhat duplicative, as the **Find Contributions** tool also provides the ability to filter by tags.

As with other search tools, you may conduct the search and take action on bulk results. The available options will depend on the nature of the records returned.

Researching with profile questionnaires

For many organizations, surveys and profile questionnaires provide an important basis for understanding existing and potential constituents, and may help form your strategies for fundraising.

CiviCRM's custom fields and profiles can be used to conduct surveys (see *Chapter 5*, *Collecting, Organizing, and Importing Data* for a full discussion of custom data and profiles). General results regarding market attitudes to your mission and case are most important during the development of the fundraising plan. However, individual answers to survey questions during the development of the plan may provide data useful for fundraising appeal targeting. You may find that your contact base has distinct groups that respond to different elements of your mission. For example, some may be primarily interested in supporting immediate relief efforts, others primarily in supporting systemic and preventative change efforts.

Using profiles for survey data collection is probably the easiest way to collect information from contacts. However, it can clutter the interface easily if you must create a new data set for each survey you collect. Another option is to use the **Campaign** component, which uses activities as a structure for surveys and petitions. While the tools were originally purposed for political and issue-oriented campaigns, they can also be used for mission- and fundraising-based surveys. You may need to relabel certain elements in order to repurpose, such as **Petitions**, which for most uses are the equivalent of an online survey.

Contribution reports

CiviCRM has built-in reporting tools that include a number of excellent report templates geared toward donor/contribution/fundraising information needs. The following is a list of report templates currently available. You should expect this list to be supplemented in coming versions:

- **Contribution Summary Report**
- **Contribution Detail Report**
- **Repeat Contributions Report**
- **Contributions by Organization Report**
- **Contributions by Household Report**
- **Top Donors Report**
- **SYBUNT Report**

  This option means "Donors who contributed **Some Year But Not This Year** (**SYBUNT**)"

- **LYBUNT Report**

  This option means "Donors who contributed **Last Year But Not This Year** (**LYBUNT**)"

- **Soft Credit Report**

  Soft credits represent donations that a contact has solicited but not made

- **Bookkeeping Transactions Report**
- **Personal Campaign Page Report**
- **Contribution Aggregate by Relationship**
- **Recurring Contributions Report**

> There are a number of additional reports available through the extension directories that are worth looking at. In particular, take a look at the Extended Reports, which provide tools for searching price set data which is otherwise difficult to extract from the core reports.

A full discussion of CiviCRM's reporting tools is found in *Chapter 13, Telling Your Story – Building Reports*. We won't take the time to walk through the concepts and available features here, as they are covered in depth in that later chapter. Take the time to review the core concepts and available reports so that you know where to turn when you need to begin assembling reports.

Implementing an appeal

As we have seen, fundraising plans generally include several different fundraising programs, such as converting one-time givers into preauthorized monthly donors, holding a fundraising dinner, or prospecting for new donors. In this section, we will use CiviCRM to deliver an appeal across many channels: online, direct mail, telemarketing, and direct contact.

Planning

An appeal is a targeted message to constituents encouraging them to donate for a specific purpose, such as a project or new initiative. The standard elements of a simple fundraising appeal plan may include the following parameters:

- **Segment**: Who is to be asked for donating?
- **Goal**: What total amount of giving is the appeal aiming to raise, and what will the funds be used for?
- **Case**: What reasons are to be provided for donating? This should be a refinement of the general case for giving in the overall fundraising plan. It is usually best if there is an emotional component and a sense of urgency in the communications.

- **Ask**: What is the specific thing to be asked for? (For example, a one-time gift larger than last year's, any gift, an increase in the monthly pledge, and so on.)
- **Face**: Who is the face of the campaign? What name will the letters and e-mails come from?
- **Message**: What is the key message of the appeal, boiled down to a phrase or a sentence or two?
- **Creative**: The text, images, graphic design, and layout of the materials used in the appeal, including production. This includes e-mails, landing pages, thank-you pages and e-mails, direct mail packages and response mechanisms, telephone scripts, brochures, sign-up sheets, and so on. Don't forget the training and support materials for those helping to implement the appeal as volunteers or staff.
- **Team**: Who are the people who will be planning the appeal, preparing the materials, making the solicitations, following up, and so on?
- **Events**: Will there be a kick-off, closing, or other event(s)?
- **Schedule**: When do tasks and activities in the appeal start and end?
- **Closing**: When does soliciting for the appeal end, supporting materials, such as web pages and posters get taken down, and call sheets and off-line donations received by solicitors get collected for review?
- **Appreciation**: How will donors, volunteers, and staff be recognized and appreciated for their contributions? Will there be a party in addition to thank-you e-mails and letters?
- **Follow-up**: Reporting on how well the appeal achieved its goal, what lessons were learned for future efforts, sending pledge reminders, and communicating with donors and others on how the funds were spent.

With this plan and creative materials in place, you can begin using the CiviCRM tools to construct your online elements.

Creating an online contribution page

CiviCRM **Contribution Pages** are online forms used to collect contributions. They include a vast array of configuration options, which you may choose from. To create a new page that donors can use to pledge or contribute online, navigate to **Administer | CiviContribute | New Contribution Page** or **Contributions | New Contribution Page**. You can view existing contribution pages by visiting **Administer | CiviContribute | Manage Contribution Pages** or **Contributions | Manage Contribution Pages**, and can click on **Add Contribution Page** to create a new form from this page.

This brings up the first page of a nine-step wizard that will walk you through setting up all of the options associated with a contribution page. Each step groups together settings of a particular type. After saving the first form you will be directed to a tabbed interface where you can navigate through each configuration step. From each tab, you can click on **Save** (which saves that tab and returns you to it), **Save and Done** (which returns you to the manage contribution page listing), **Save and Next** (which advances you to the next tab), or **Cancel** (returning you to the contribution page listing without saving).

From the manage contribution page listing you can jump to any of the tabs directly through the **Configure** pop-up menu.

Let's review each configuration step in turn.

Title and settings

The **Title** text of your contribution page should be related to the message of your appeal. If you are going to have a single page for donations on your site, you should make the title fit with the style your site uses for pages and menu items, such as `Donate` or `Help the Children!`

Select an appropriate **Financial Type** value for the page. If its name doesn't make it clear, you may want to verify that the type you are selecting has the right tax-deductible status and accounting code. You can view the financial types by visiting **Administer | CiviContribute | Financial Types**.

If you want to allow organizations (not just individuals) to make donations on the current page, click on it to select **Allow individuals to contribute and/or signup for membership on behalf of an organization?** This adds fields to the contribution page that allow the user to specify the name and contact information of the organization on whose behalf they are contributing. These fields appear when the user clicks a select box labeled with whatever text you put in **On behalf of Label**. Enabling this option will record the contribution record with the organization contact. If the contacts don't exist in the system, completion of the form will create a new organization and new individual contact, and construct an employer/employee relationship between them. Once that option is selected, you must choose the **Organization Profile** value that you will use to collect the organization data, and also decide if the option to contribute/signup on behalf of an organization should be optional or required.

For example, if the page you are configuring is intended for a corporate campaign, you might check **'Required' to force ALL users to contribute/signup on behalf of an organization**. The contribution page functionality is used for membership signups as well as donations, and this feature is commonly used in that context when only organizations are eligible to purchase memberships on a certain page.

Enter any creative material, such as text and images that you want displayed at the top or bottom of the page, in the **Introductory Message** and **Footer Message** fields.

If the appeal has a fundraising goal, you may fill it in and it will be used to calculate how close you are to meeting the goal. As we will see later, CiviCRM provides thermometer-style widgets that can be used to promote your goal-based campaign. These indications of progress are a time-tested way of motivating participation in offline and online campaigns.

The widget presents a small block of content about the contribution page's appeal that can be placed elsewhere on the site or by your supporters on their sites. They explain the appeal and display the current progress towards meeting its goal. They also allow users of your supporters' sites displaying the widget to click through to the contribution page on your site to make a donation. We'll see what they look like, later. At this point, what's important is that the fundraising goal you set here determines the top level of the widget thermometer.

One issue to be aware of when using widgets is that you may not have control over them if you have encouraged your supporters to integrate them on their own websites. Once the campaign associated with your appeal is over and the appeal is closed, widgets about the campaign may still exist on your supporters' sites. The **Start Date** and **Time**, and **End Date** and **Time** fields can be used to make the widgets point to a page displaying a **Campaign is over** message, which can help prevent unintended donations to a completed campaign.

Certain types of fundraising appeal benefit from having donors indicate that a donation is made in honor of someone else or in memoriam to someone. For example, an organization raising funds to fight breast cancer might encourage people to donate in honor of loved ones who are cancer survivors, or in memory of someone whose fight with the disease has ended. Donations received as a result of funeral notices directing donations in lieu of flowers to the organization can then be tracked, public listings of such donations displayed if desired, and families notified if appropriate to allow them to express their thanks.

If desired, click on it to select **Honoree Section Enabled**. You can optionally provide a title for the **Honoree** section of the page and a description to put above the **Honoree** field. The latter might explain how such gifts are given special treatment. You then select **Honor Types** that will be available options, and **Honoree Profile** to use to collect data.

The standard workflow when someone completes an online donation is a three-step process: collect the information through a form; present the entered information back to the user for confirmation; and thank the user after completing the transaction. You may choose to skip the middle step by deselecting the **Use a confirmation page?** option. Do so with caution; people may be surprised that there is no confirmation step, and consequently no ability to review and modify their form options.

One way to help promote your contribution page and campaign is to encourage people to share it through social media. If you enable the **Allow sharing through social media?** option, CiviCRM will insert a footer block on the thank-you page that includes links to share the page through Facebook, Google+, Twitter, and LinkedIn, as well as providing a direct link to the page itself.

By default, newly created contribution pages are active. This means that navigating to the right URL will display the page in whatever state of configuration it is. If you want to disable the page until it is fully configured, until other elements in your fundraising program are ready, until its scheduled launch date has arrived, click on it to deselect **Is this Online Contribution Page Active?**.

Amounts

This page contains settings associated with how payments are to be made as well as the predefined levels for donations.

As mentioned previously, not all contribution pages need to submit a live transaction to online payment processors. Perhaps you want to set up a page that handles only in-kind contributions with custom profile fields appropriate to that use case, or perhaps you are just getting going with CiviCRM and, though you haven't yet managed to get all of your merchant and payment processor approvals yet, you'd like to start accepting pledges for later payment by check. In these cases, you should uncheck **Execute real-time monetary transactions**.

If you have configured more than one payment processor, checking **Execute real-time monetary transactions** brings up a **Payment Processor** checkbox list. Your organization may have more than one payment processor account if your site accepts contributions on behalf of suborganizations with their own accounts, or to provide complete separation of the accounting for charitable and non-charitable donations. You may enable more than one processor if desired. Note that the processor title that appears here is what will be listed on the contribution page.

In some countries, it might be unclear why there should be an option to send in a payment later by check on an online donation form. Either people donate online, or they send in checks, or they phone in a contribution. Why would anyone want to do part of the transaction online and part offline? Why would an organization want to facilitate that? The reason is that some people can't or won't pay with a credit card account online, perhaps because they don't have them (for example, wealthy older donors) or because they don't trust the security of online payment systems. They will respond to an e-mail appeal and fill in all of the information about themselves and their donation, but the payment itself will be done by mail, phone, or in person at a later date. They may also want to make the donation but not have sufficient available funds. Organizations benefit from reduced data entry and encourage the commitment to donate, which allows them to follow up if the donation is not received within a reasonable period. There may also be cases where an organization's infrastructure doesn't support online payments—for example, on-going monthly payments with certain payment processors. In some countries, such as New Zealand and parts of Europe, electronic funds transfers are common and can be facilitated by providing banking details that are used when later paying from a bank site.

If you find one of these cases applies to you, enable the **Pay later** option and enter text to be displayed to users who want to pay later in the **Pay later** label. Then, provide instructions, such as an address, phone number, and payment grace period in the **Pay later** instructions. This text is displayed on the thank-you page and is also included in the e-mail sent to the donor.

In *Chapter 9*, *Growing Your Membership and Interacting with Members*, we will discuss the option of turning off the ability to donate when purchasing a membership or subscription. For standard contribution pages, ensure that the **Contribution Amounts** section enabled is checked.

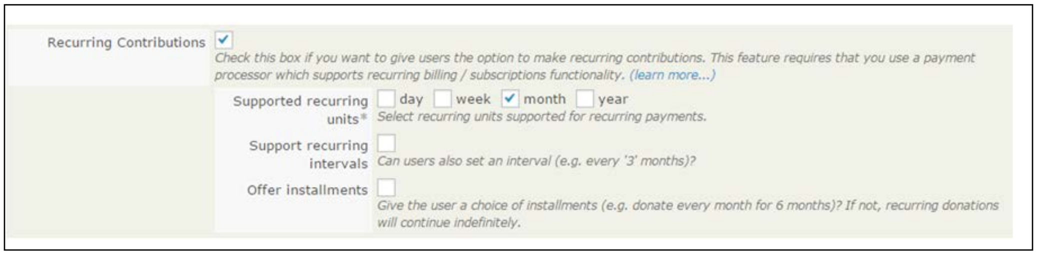
If you have configured a price set that you want to use, select it from the **Price Set** drop-down menu. Recall that a price set provides more advanced, flexible options for construction pricing options for your form. The standard handling (**Fixed Contribution Options**, found toward the bottom of this page) will allow you to list a series of options as radio buttons that the user will select from. Price sets allow for checkbox options, select drop-down menus, and price/unit calculations, in addition to radio buttons. If you want to use a price set, you must create it first and then select it on this form. You can create them at **Contributions | Manage Price Sets**.

Depending on what payment processor you are using, you may have the option of enabling **Recurring Contributions**. If enabled, you select the frequency options (units and intervals) available to users, and the option to let the user set the number of installments. Units indicate the interval measurement (for example, day, week, month, and year). Interval is the frequency of the unit (for example, every 2 months). Installments let the user fix the total number of contributions to be made (if not enabled, the recurrence will continue indefinitely).

These options are similar to what is available if you enable **Pledges**. In addition, you have several configuration options that control how reminders are handled. Automated payment reminders for pledged payments can be set up using the **Send payment reminder**, **Send up to**, and **Send additional reminders** fields. For monthly pledges, good numbers might be either two days or none prior to the payment due date, three reminders in total, and 10 days between reminders. For annual payments, which are likely to be larger and more unexpected, 14 days' notice and three reminders 14 days apart might be appropriate. Procedures to ensure manual follow-up in cases of nonpayment usually provide a providing good return on investment.

> In many cases for both recurring contributions and pledges, you will optimize your return by only providing the option of monthly donations. As a rule of thumb, more fields to be filled in leads to more abandonment before completion. Unneeded options may detract from the user experience.
>
> This is also true of the intervals and installments features. If you think your users really need these options, try testing two contribution pages, one with and one without this enabled, to see which yields better results.

Refer to the following screenshot:



Pledges and recurring contributions provide similar, but different, functionality. It's important to understand the difference:

- A pledge is a promise to pay a total amount in fixed, scheduled intervals. It's only a promise, though. The donor must send payment by phone/mail or using the online payment form when each scheduled pledge payment is due.
- Recurring contributions are actual payment authorizations. Your payment processor will receive and record the recurring authorization. When the next payment is due, they will automatically initiate the transaction and send notification back to your CiviCRM installation (so that the contribution record is generated).

In general, recurring contributions are preferred, as you (and your donor) do not need to actually do anything to trigger future payments. The contributor will receive receipts, from both your CiviCRM installation and the payment processor, that include a link where they can visit and cancel the recurring contribution.

Though pledges require more work (to follow up with late payments) and are more susceptible to abandonment (since the donor must take action each time the pledge payment is due), they may still have an important place in your fundraising strategy.

> Note that many payment processors don't support recurring contributions. If yours does not, the pledge tool may become a more important element of your fundraising plan. This should also be considered when selecting your payment processor; if you expect to use recurring contribution functionality, you will want to make sure your selected processor's integration supports it.

Provide a **Contribution Amounts Label** value that will be present above your fee options. Then, check **Allow other amounts** if you would like to give potential donors the option of entering a donation value of their choice, rather than being forced to select from the price set or a simple list of donation levels. You may enter minimum and maximum amounts accepted for this field. One reason to enter **Minimum amount** could be to help ensure you don't lose money given the cost of processing a donation. In our view, this is likely to be shortsighted given the lifetime value of a new donor and the cost of acquiring a new donor. In jurisdictions with limits on donations to political campaigns, entering **Maximum amount** can improve compliance while lowering compliance-adherence costs.

As mentioned earlier, **Fixed Contribution Options** are suggested gift levels presented to users as radio button options. You can provide an **Amount** value for each level or both an amount and **Contribution Label**. If desired, a default amount can be selected when users land on the page.

The number, amount, and default value of these options can significantly impact your revenue as they steer donors to wards giving less/more or abandoning their decision to donate. Consider using multiple pages that vary these amounts and the default value, and use it for comparison testing within the same segment. Consider setting up additional pages with appropriate suggested amounts when trying to upgrade donors to higher levels of giving. Vary the link inserted into direct mail and e-mail messages so that donors land on an appropriate page based on their segmentation.

Memberships

Leave **Membership Section Enabled** unchecked for contribution pages. In *Chapter 9, Growing Your Membership and Interacting with Members*, how to configure contribution pages for membership signup and renewal is explained.

Receipt

Expressing appreciation for a gift to your organization is not only polite and respectful, it also helps generate more gifts from that contact and possibly their associates. If you don't thank people for giving, you are much less likely to get repeat gifts, and word of mouth might cause others to not give.

The normal workflow for an online contribution begins with the contribution form, where the contact fills in information about the donation, a confirmation page that presents the user with everything that is about to happen for them to review and approve, and then a thank-you page.

The **Receipt** step in configuring a contribution page gives you control over the content of the thank-you page and e-mailed receipt. The content entered here should reflect your appeal's general messaging. You must specify the **Thank-you Page Title**, which could be as simple as "Thank You!" You don't need to enter **Thank-you message**, but it is a good idea to provide a sense of what the money will be used for in a personal tone of voice. The Thank-you page footer provides another text field on the same page that appears after optional items, such as **Tell-a-friend** and **Personal Campaign Pages**, both of which are configured later on in the contribution page process, as explained in the next section. If you are going to enable these viral marketing features, we highly recommend using the thank-you page footer to explain what they are and to motivate donors to make use of them.

Generally speaking, you will always use the **Email Receipt to Contributor?** feature as an automated way to send a receipt and create an additional channel for thanking the donor. You may want to fill in the **Receipt From Name** with the organization name or individual most associated with contribution giving. It's best if **Receipt From Email** reflects **Receipt From Name**. Thank-you's coming from `info@mydomain.org` don't have a terribly strong impact. It is good practice to ensure that the **FROM** address is monitored since some people will reply to the e-mail. You may also want to include an e-mail address and phone number in **Receipt Message** for an administrative person to contact if there are any questions. The details of the contribution are automatically inserted into the e-mail body. The template used to construct it can be reviewed by visiting **Administer | Communications | Message Templates**.

Use the **CC Receipt To** and **BCC Receipt To** fields to enter one or more comma-separated e-mail addresses to receive copies of the receipt messages. This can be useful if there are premiums or price set options that require manual fulfillment, such as setting up a membership or subscription or sending out thank-you gifts.

Tell a Friend

A person who has just finished donating to your cause is the best advocate you can have for encouraging their friends and colleagues to donate. They can speak with authority about making a donation, and they are often highly motivated as they have just made their own donation.

To encourage viral marketing of your cause, CiviCRM includes the functionality to enable donors to tell their friends to donate via e-mail. Check **Tell a Friend enabled?** to reveal the available options.

The first two fields, **Title** and **Introduction**, control what appears if users go from the donation thank-you page to the **Tell a Friend** form. The **Suggested Message** text can be modified by the users so that the text they want will be sent to their friends or colleagues. An **Info Page Link** option can also be included in messages sent to these friends. This provides a longer case for giving to the campaign and more information about your organization and its mission. The **Thank-you Title** and **Thank-you Message** fields are the title and text that will be displayed to people who do tell their friends.

Profiles

In *Chapter 5*, *Collecting, Organizing, and Importing Data*, how and why to create custom fields, and gather default and custom fields together into profiles, is described.

Contribution pages may optionally include two profiles that will collect more information about the donor/donation than is required by CiviCRM. Selecting a profile with **Include Profile (top of page)** causes the profile to appear above the billing information and below the introductory message, amounts, honoree section if enabled, and premium section if enabled. Selecting a profile with **Include Profile (bottom of page)** causes it to be displayed below the billing information. If fields on the form or in the profiles are repeated, only the first instance of the field is displayed.

A profile for contribution pages can contain fields about the contact giving the contribution or fields that are attached to the contribution. Commonly collected information about the contact will include name, address, phone, whether the contact wishes to subscribe to a newsletter, and other communication options. Asking what a donation should be used for is a good example of a custom contribution field for a profile.

Premiums

Premiums are a way of encouraging donors to donate more than they would otherwise. It incentivizes giving by offering a gift at various donation levels.

Premiums must be configured before they can be used on a particular contribution page. Review the Configure Premiums section found earlier in this chapter. To enable the premium section for a contribution page, click on **Premium Section Enabled?**

As with all other text and content for contribution pages, the **Title** and **Introductory Message** for the **Premium** section should be developed in order to support the case for giving and the overall message of the appeal. The title appears as a section heading on the contribution page, and the **Introductory** message, which can contain images and other HTML graphical elements, appears below it but above the list of premiums available to donors on the page.

We recommend providing an office administrator **Contact Email** and **Contact Phone** number for any donor with questions about premium fulfillment and shipping.

You can disable the automatic display of the minimum contribution amount after the description of each premium by unchecking **Display Minimum Contribution Amount?** You may also provide a **No Thank-you Label** and choose where to place it. This gives the donor the option of not receiving a premium that they may not want (and thus saving you the cost).

Widgets

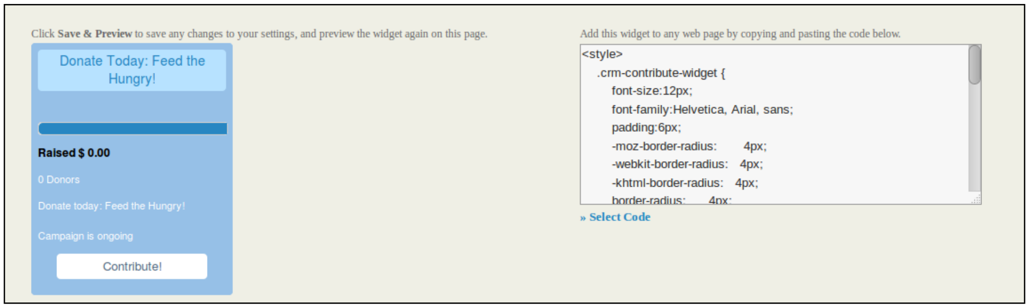
As described in the preceding sections, contribution widgets are code snippets that can easily be added to any web page to help motivate and drive potential donors to the contribution page. Contribution widgets are a different form of viral marketing than Personal Campaign Pages or Tell a Friend. Instead of having supporters reach out one-on-one to their friends via e-mail, it enables supporters with their own sites or web pages to easily publicize the donation page to their own site visitors. Contribution widgets can also be used on your own site. They can be placed in Drupal blocks, Joomla! modules, or WordPress widgets to draw attention to ongoing fundraising campaigns you are conducting.

To enable contribution widgets for a contribution page, check **Enable Widget?** This reveals settings that can be configured to affect the appearance of the widget. Here you will set the widget's **Title**, optionally provide the **URL to Logo Image**, enter the **Button Title** text, and provide a brief description about your campaign in the **About** field. Note that the space available for content is limited as this is a widget and not a full web page. You should use a short, boiled-down version of the campaign's request or appeal, rather than a full description of what the campaign is about.

Below this is a panel you can open to **Edit Widget Colors**. The values must be in hexadecimal format, prefixed with a the**#** symbol. Hexadecimal color codes can be found at `http://en.wikipedia.org/wiki/Web_colors#Color_table`.

Once you've completed the configuration, click on **Save** and **Preview**. This will generate the code that can be copied and used on your site or another site, as well as rendering the resulting widget for review.

The following screenshot shows the resulting widget and code block:



Once you are satisfied with the appearance of your widget, click on **Select Code**, paste it into any desired d web page, and make it available through your CMS for visitors to copy to their own sites (if desired). If you have a list of webmasters who are interested in your organization's mission, that would be a good place to post a request to use the code.

Personal campaign pages

A stronger kind of viral networking than **Tell a Friend** may be appropriate in cases where the donor is making, or would be willing to make, more of a commitment and sacrifice to the appeal and organization than just a few clicks and a few dollars. If your supporter base includes highly motivated and engaged individuals, such as people willing to participate in a run-a-thon or bike-a-thon, you might want to enable and put some effort into personal campaign pages for these volunteer campaigners.

A personal campaign page, sometimes referred to as a PCP, allows donors to create their own customized donation page on behalf of your organization. They can tailor the message and display (within certain parameters) to their preferences, and then solicit donations to your organization through it. When contributions are received through a PCP, the owner of the page receives a soft credit to recognize that the donation was received through their promotion of your organization.

To enable PCPs, begin by checking **Enable Personal Campaign Pages?** (for this contribution page). This reveals a number of settings to configure. The first two help to protect the reputation of your organization from spam bots and malicious users. Check **Approval required?** to require administrator approval before new personal campaign pages are activated. Enter a **Notify Email** value to ensure that the administrator is notified as soon as there are pages awaiting approval on the site. Once the page is approved, its creator will be notified and they will be able to start their campaign.

You and the system need to know who is setting up a campaign page. Use a profile to collect key information about the constituent, such as their name and contact details. Once this profile is specified in **Supporter Profile**, it will be used as supporters create their campaign page. You can control whether the PCP owner will receive notifications when donations are made through their page. There are three options: providing the owner with the option of receiving notifications; requiring they receive notifications; or disabling notifications altogether.

We recommend allowing approved supporters to use the **Tell a friend** functionality by checking that field, and setting the **"Tell a friend" Maximum recipients limit** to **5** or **10**. The latter setting allows personal campaigners sufficient flexibility while not risking unduly loading the system or endangering it being labeled a spammer.

Your appeal message should be consulted to help you determine what to enter in **Create Personal Campaign Page** link text. This text will appear on the donor thank-you page and on each **Personal Campaign Page** to encourage donors and visitors to personal campaign pages to create their own. It is good communication policy to use the same text on any menu or other links to the same functionality from your CMS system.

When people create a personal campaign page, they have the option of allowing donors to their page to leave information that will be scrolled through on an honor roll on their personal campaign page.

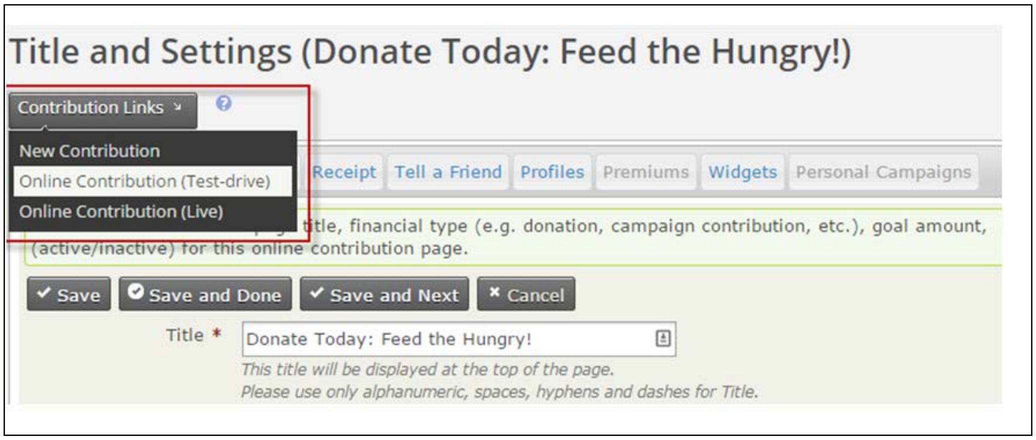
While personal campaign pages can be powerful ways to transmit the message about your site's contribution page, they do involve some measure of risk, as strangers are allowed to create content on your site and send e-mail messages from it with links back to that content. We saw that it was possible to require prior administrator approval of personal campaign pages before they were allowed to become active. Administrators can also navigate to **Contributions | Personal Campaign Pages** or **Administer | CiviContribute | Personal Campaign Pages** to view a list and manage these pages.

To review the content of a personal campaign page and confirm it is (still) appropriate, click on **Page Title**. If the page content is inappropriate, go back to **Personal Campaign Pages** and click on either **Reject** or **Delete**.

Campaigners who get others to donate are extremely valuable to your organization. Those who are successful in soliciting a high level of donations through this tool may be candidates for a greater role and more involvement in your organization.

Test-drive

After completing configuration of your contribution page, we strongly recommend you test the new contribution page using the Test-drive functionality. This and other links can be retrieved through the **Contribution Links** button. Try to test all options, which may require going through the confirmation, thank-you, and other optionally enabled pages a few times. Review e-mails that are generated as well as on-screen content. Once you have done this yourself, you should get another staff person or friend to review it before you enable the page.



Live contribution page

Once you are satisfied with the configuration of your new contribution page using test drive mode, we strongly recommend testing the live contribution page. This is an essential step if this is the first page configured to use a new or changed payment processor, or for pages using new optional features.

If you have an organizational credit card or PayPal account, the service charges on the amounts on your pages shouldn't be that problematic. You can try configuring a test contribution of $1, $10, or some other small amount in order to reduce any costs incurred by your processor. Don't forget to disable or delete the option for the small test amount before putting the page into your menu system or advertising it through an e-mail blast.

Many times, we want to send out a broadcast appeal to a large group immediately after enabling a new contribution page. To avoid embarrassment and, more importantly, loss of revenue and respect from your donor base, make sure you send the message to a small group who will review and test all elements of your campaign, including automated e-mails.

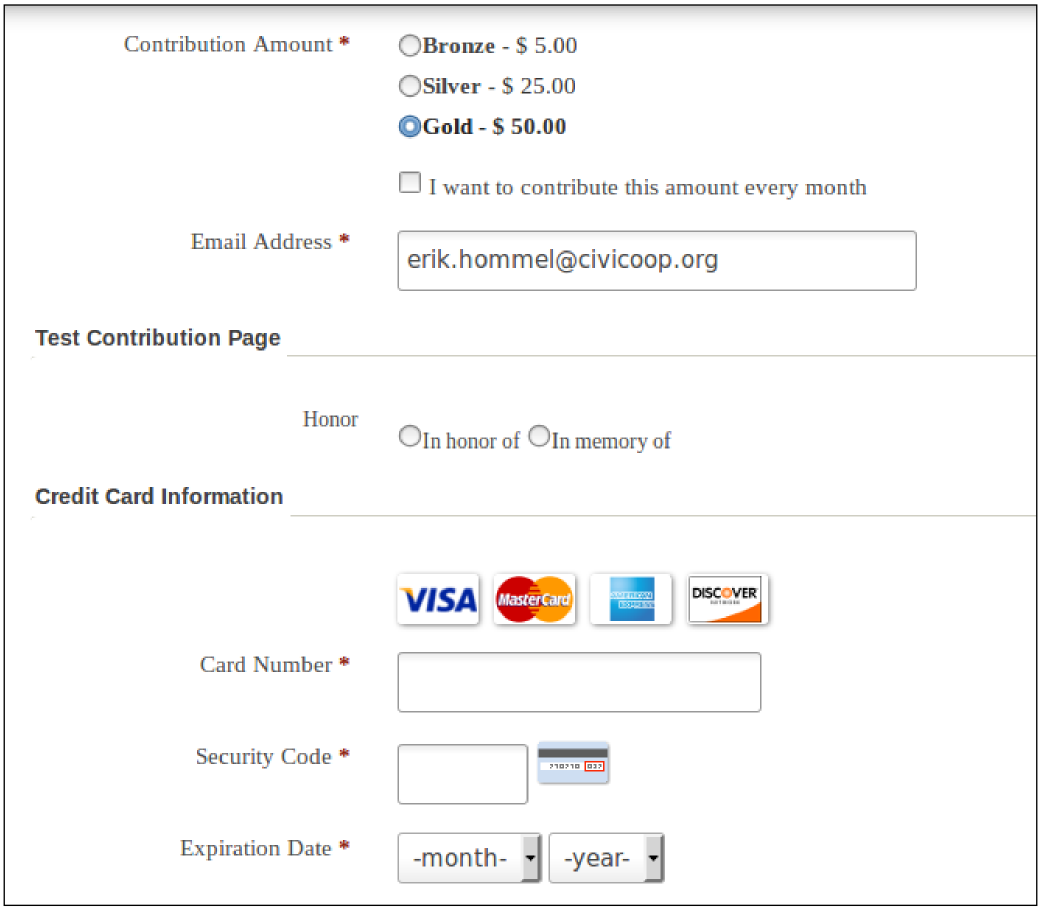
Publicizing the page

The URL generated by CiviCRM for a contribution page is pretty ugly and hard to remember. It may look something like: `https://example.org/civicrm/contribute/transact?reset=1&id=1`.

Drupal, Joomla!, and WordPress all provide tools for creating search-engine-friendly links that will disguise the standard CiviCRM link, turning it into something like: `https://example.org/donateNow`.

In Drupal, you can enable the core **Path** module, then navigate in Drupal to **Site building | URL aliases | Add alias**. In Joomla!, you can enable the native SEF rewriting tool through **System | Global Configuration**, and select the **Site** tab. In the **SEO Settings** fields on the right, select **Yes** beside **Search Engine Friendly URLs**, and preferably enable the `htaccess` option, **Use URL Rewriting**, (being sure to change the filename that ships with Joomla! as per the instructions provided). Then, create a link using **Menu Manager** and enter a friendly URL in the **Alias** field. Note that enabling SEF URLs will have a broader impact on your entire site. While it is a significant and highly recommended improvement over non-SEF URLs, you should make sure you test thoroughly before enabling it in a live environment. In WordPress, you will insert the contribution page into a page or post using the CiviCRM public page insertion tool. Once you've saved the page you will be provided with a search engine-friendly permalink you can use to promote the page.

If using Drupal, you can avoid getting split statistics from search engines due to having two links to the same page, by setting up and configuring the Global Redirect module in Drupal so that there is only ever a single URL for a page.



Sending direct mail

CiviCRM functionality supporting offline contribution management is mostly covered elsewhere in this book, and there is little to add that is specific to fundraising. As a result, the next few sections will present short summaries describing how to use that functionality in a coherent approach to addressing fundraising objectives, rather than the detailed instructions necessary to walk through administering and using various forms and pages in CiviCRM.

A direct mail appeal involves preparing mail packages, handling returns of undeliverable mail, and inputting responses. The simplest mail packages have address labels on the outside of the envelope and unaddressed "Dear Supporter" letters inside. A different approach is to use envelopes with windows revealing the addressee and address at the top of the first page of the letter. Even the smallest nonprofits can produce these packages in-house using CiviCRM's support for labels and personalized letters.

Once volumes are no longer small, it may be more cost-effective to out-source the production of the packages. At a certain point, different techniques can be used that are only possible with larger-scale volumes. In particular, printing addresses and personalized salutations onto a single sheet that is cut, folded, stuffed with inserts or response mechanisms on different paper stock, and sealed to produce the envelope and its contents, can all be accomplished more efficiently using large-scale services.

When volumes are small, you might print labels and letters directly from CiviCRM. As the volumes increase, CiviCRM contact information will be exported into a file that is delivered to the mail-house for processing.

Post offices provide volume and other discounts that significantly affect the return on direct mail fundraising programs. If an organization can prove that the proportion of undeliverable addresses in a mailing is low enough, they may receive a reduced rate. If they can ensure that the mail is bundled into groupings that correspond to delivery routes, they may also receive a reduction. At present, CiviCRM supports the US Postal Service's address verification software, which can help improve the quality of your address data. Apart from that, files exported from CiviCRM need to be processed by external services in order for CiviCRM users to qualify for postal delivery discounts.

Some postal services and private services have change of address files that can be used to update the addresses in direct mail databases. Though mail is deliverable to properly formatted but out-of-date addresses, this is a poor use of valuable resources, and communication with valuable donors is lost. It pays to periodically cleanse a donor file against a National Change of Address or similar file.

The cost effective way to deal with undelivered returns and to process significant volumes of positive responses is to put barcodes on the envelopes and response devices. This allows a barcode reader to quickly input the information without retyping or conducting manual, time-consuming lookups. There is an initial specification for adding barcode support to CiviCRM, but it is awaiting community funding (`http://wiki.civicrm.org/confluence/display/CRM/CiviCRM+for+Canvassing+and+GOTV`). In the meantime, printing the contact ID as a part of the envelope addresses and response materials may reduce data entry costs.

Running a telemarketing appeal

At its simplest, an outbound telemarketing appeal requires campaigners to speak with prospects on the phone, record whether they will donate, discuss how much they will donate, and record how they will pay, with details such as their credit card information.

To make this happen, you will begin by getting a list of qualified prospects with phone numbers. This may involve appending phone numbers through a data broker. The quality of the phone canvassers' training and abilities makes a big difference to the response rate and level of donations received. Low-end call center technology can improve the productiveness of human callers by using predictive dialing. Employing **Voice over IP** (**VoIP**) phones can reduce long-distance costs without significant loss of call quality. Internet-based solutions start with inbound click to call solutions, which are now closely related to virtual call center technology. In this setup, Internet-based phone canvassers are connected to qualified prospects by a website or web service, and they enter the responses they receive into website forms without having to see or dial a phone number.

The link cited previously includes some rough estimates of the cost to implement much of this in CiviCRM. Simpler approaches are readily available.

The simplest of all is to search for prospects that have appropriate phone numbers. Print-outs can form the basis of a call sheet, with response data entered at a later point.

Lists of prospects without phone numbers or whose numbers are now **not-in-service** (**NIS**) can be exported and sent to a data broker and the results imported to overwrite existing stale data.

Moving up a notch in sophistication, custom fields can be set up for activities to represent typical activities in a phone canvass, such as responses to questions in a script (for example, are you willing to make a donation of $50?), and call disposition (no answer, not home, and so on). This can be used to filter prospects that have not yet been reached and to target those whose pledged donations have not yet been received.

Some of this functionality can be handled through CiviCRM's campaign tools. As noted earlier, these tools were born out of political campaigning needs, but can serve well for other purposes. The survey tool within a campaign is a way to assign contacts to volunteers or staff who can make the phone calls and enter responses in a grid-like form, where they are stored as activity records against the contact. This may be used for a phone bank setup where it's critical your volunteers and staff can access and record data very efficiently.

Direct contact

Direct contact fundraising involves activities, such as soliciting donations from passers-by on busy streets. It can also encompass staffing a kiosk at a conference or mall. Choosing locations where the street traffic is likely to be well disposed to your cause and able and willing to donate is important. Canvasser personality and skills are critical.

Donors from this channel can be entered into CiviCRM from cards or sheets used on clipboards. They tend not to renew as well as donors from other channels.

Another traditional approach enjoying some success is door-to-door canvassing. Once again, the neighborhood targeted will have an immense impact on whether this form of prospecting breaks even and pays dividends over the long term.

If your organization's qualified prospect list is dense enough in some neighborhoods, then it can make sense to use walk lists for canvassers. Using the address search fields in Advanced Search or the Survey Report, you can develop a walk list that targets your desired geographic area.

Other types of donation

Major one-time donations and planned gifts tend to come from contacts that have a good long-term relationship with your organization or key individuals in it; a strong alignment with your mission or some part of it; confidence that your organization will successfully deliver on commitments, and resources that enable them to make a major gift. Custom fields in CiviCRM can be used to track specific interests and demographic information related to the ability to give. During the cultivation of the relationship, personal face-to-face relationships developed through CiviEvent and board activities can be important. Tracking relationships among high net-worth individuals, or cross-linked board memberships of other organizations, can be important in identifying prospects for major donor campaigns and the best person to contact for the request. Once the request has been made it can be useful to track meetings and phone calls regarding negotiations about the terms of the gift, tax implications, and so on. These can be stored in generic Activities, or a more structured workflow can be created using CiviCase.

Permissions

While the broader issue of permissions is covered elsewhere, we want to take a moment to note one area of primary concern when working with contributions. We strongly discourage deleting financial data transactions as these records have tax- and fiscal-responsibility-related implications. You can disable the **delete in CiviContribute** and **delete in CiviPledge** permission from all roles or access control groups to prevent intentional or unintentional deletions.

Review the permissions related to contributions by visiting **Administer | Users and Permissions | Permissions (Access Control)**. The first section on that page will provide a link to the respective CMS permissioning tool where you can modify access.

Summary

In this chapter, we learned how to use CiviCRM for fundraising. In particular, we discussed the basics of developing a fundraising plan and the factors to consider when selecting an online payment processor. We saw how to configure CiviContribute and CiviPledge and manually record donations and pledges. Finding, examining, and acting on contributions and pledges and implementing a fundraising appeal is what we looked at next.

In the next chapter, we will discuss how your organization can track memberships and subscriptions using CiviCRM, and how to use contribution pages to enable your constituents to purchase and renew them online.

9

Growing Your Membership and Interacting with Members

If you are a member-based organization—whether a professional or trade association, a society, or a charitable not-for-profit organization using membership structures to encourage recurring support—your members are your lifeblood. They are most likely your primary constituents, and much of your organizational identity and vision revolves around serving their needs. Having an integrated system to solicit, retain, and manage your members is essential to your organization's success. As such, you will want to take advantage of CiviCRM's membership management tools.

In this chapter, we will cover the following topics:

- Reviewing the initial setup and configuration of membership structures in CiviCRM
- Understanding how the daily management tools work
- Soliciting new members and retaining existing members with online forms
- Searching and building reports to track members
- Putting membership in context and reviewing other tools that will prove useful

Setting things up

As with the other areas of CiviCRM, you will begin by configuring several system options related to membership. It is important to take some time to think through the mechanics of how your organization works in order to ensure that the system is configured properly.

There are several membership tools that should be reviewed and configured through the interface, which you can access through **Administer | CiviMember**. In addition, several scheduled jobs have an impact on your membership workflows and should be reviewed, configured, and enabled. These scheduled jobs will be covered in the relevant sections.

Component settings

Before digging into the nuts and bolts of configuring membership types and statuses, let's briefly touch on the membership-related component settings, which you can find at **Administer | CiviMember | CiviMember Component Settings**.

Currently, there is only one configuration setting to review and set: the **Default online membership renewal page**. One of the things you might want to do, and which we'll cover later in this chapter, is create an online form to accept new memberships and membership renewals. This can greatly ease your administrative work, as members will be able to process their memberships directly through the website on their own. We do this by creating a contribution page and enabling the membership features.

Another resource that you may choose to expose to your users is the **Contact Dashboard** page. This page will summarize the various ways a logged-in user has interacted with your organization. It will optionally include a listing of contributions, memberships, event registrations, groups, activities, and related contacts for the user (see **Administer | Customize Data and Screens | Display Preferences** to control what is visible on this page). The membership block in this screen will include a link for the user to renew their membership. By default, this link will only appear if their membership originated from a contribution page—in other words, if they originally signed up using an online form, they will have a link to renew their membership through that same form.

If the membership originated elsewhere (a data import or through an administrator creating the membership), there will be no link available for renewal. That's where this configuration option comes in—it allows you to set a default contribution page to be used as the renewal form for self-service memberships. Once you have your membership structure up and running and have created a contribution page to accept membership signups and renewals, return to this configuration page and set the default value to ensure people can manage their membership renewals.

Defining membership types

Your first step will be to define your membership types. Access the configuration tool from **Administer | CiviMember | Membership Types**. The **Membership Types** drop-down menu equate to the different categories of membership your organization maintains. Each type may have an amount and dues period associated with it, as well as options determining where it is visible and how it impacts related contacts. If your membership structure has sublevels or you allow alternate payment periods, you may need to define a type for each sublevel or payment arrangement.

For example, consider an "Affiliate Membership" category that is broken down into three sublevels—small, medium, and large—in which the volume of annual sales generated by the member company determines its membership sublevel. To achieve this, you would create three membership types, Affiliate (small), Affiliate (medium), Affiliate (large), or some similar naming convention.

After naming the type and entering an optional description, you search and identify the organization to which the membership is attached. This means that at the very least, your database must contain one organization record representing *your* organization, to which these membership types will be attached. Whether you realized it or not, CiviCRM created a default domain organization when you first installed the software. This is most likely the record you will want to use for your membership types. To access it quickly, visit **Administer | Communications | Organization Address and Contact Info**.

This model of attaching a membership type to an organization helps support more complex systems where you may have memberships with both the central organization and regional districts, or some other subentity, and want to clearly designate what organization each membership type is attached to. Memberships are also a good way to implement paid subscriptions (such as a monthly magazine). Organizations that have both memberships and paid subscription products can attach the membership types to different organizational entities (such as departments) for management and reporting purposes.

Proceeding to complete the membership type form, you will enter **Minimum Fee** and **Financial Type** to which membership payments should be assigned. If your membership type is free, simply enter `0` in the amount field. You will also indicate whether you want to enable auto-renewing membership as an option or requirement for a given membership type. The **Auto-renew** option works like recurring contributions, but in conjunction with a membership record. The person completing the online form is committing to have their renewal payment automatically processed when the membership next comes due. One useful application of this feature is to offer monthly payment options for a traditional annual membership.

Next, you determine the membership period, determined in terms of duration of time and type of plan. The duration unit is the length of the membership from the starting point to the ending point, such as 1 year, or 6 months. The **Membership Type Plan** field supports two models for determining when the membership starts (and how the end date is calculated)—the fixed and rolling periods. Rolling membership types begin on the signup date and extend for the configured length of the membership. Fixed periods, as the name suggests, have a fixed starting point, for example, January 1.

Fixed memberships with the duration in months always start on the beginning of the calendar month a person signs up. For example, if a person signs up for a fixed period membership of 6 months on July 7, their membership begins on July 1 and ends on December 31. If you have selected a fixed period of one or more years, you must select the specific start date for the period (most commonly January 1), as well as the roll-over date. The roll-over date is the point after which a new membership record will cover both the current and coming year.

Consider the following example:

FPAGM configures three membership types in the system, two of which are **Regular** and **Affiliate**, each of which has a fixed membership period for 1 year starting on January 1, while the **Supporting** members have a 1-year rolling membership. For the two fixed period membership types, they set a roll-over date of November 1. This means that any new memberships created between November 1 and December 31 will be valid from the time created until December of the following year. This feature recognizes that it would not be appropriate to assess a full year's membership dues for only 2 months of benefit.

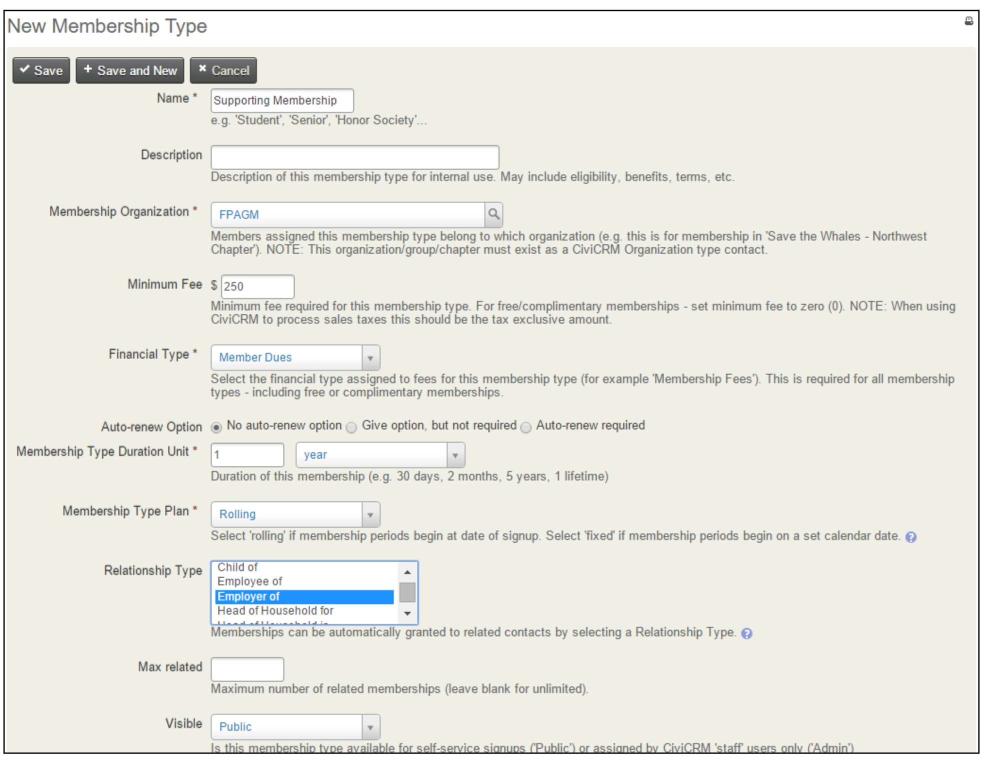
One of the most powerful features of CiviCRM's membership tools is the ability to configure membership inheritance through relationships. If a relationship(s) is selected in the membership type configuration, any contact record with that relationship to the "primary" member is automatically granted a membership.

A common use of this feature is to automatically consider employees of organizations as members. To do this, select **Employer of** in the relationship type field. When an organization becomes a member, a corresponding membership record will be generated for each employee of the organization. The related or inherited records will not be editable; only the primary owner of the membership will have an editable record.

Identifying which side of the relationship you should select can be tricky. For instance, in the preceding example, should you select **Employer of** or **Employee of** as the relationship type? For help selecting the right relationship type and to see some examples of how the inheritance works, click on the help icon by this field.

Other relationships that are commonly useful for membership inheritance are **Household Member is**, **Parent of**, and **Spouse of**.

FPAGM's **Regular** and **Affiliate** membership types are both organization-based (that is, the membership is owned by organizations, such as food pantries and businesses supplying to the pantries). The **Supporter** membership type may also be organization-based, though individuals may also become members through that type. The association will configure all three to have the **Employer of** inheritance. By doing this, the organization can develop saved searches for current members for use in mailing and broadcast e-mails.



If you selected a relationship type to implement inheritance, an option to limit the number of inherited records will appear. By setting a **Max related** value, each primary member will be limited to how many related members they pass inheritance to. You will have tools to manage which related records receive that inheritance through the primary contact's membership record. One additional note about membership inheritance: once you set this value during membership type creation, you will not be able to modify it. This is because it has a trickle-down impact on contacts, which would be difficult to alter after it has been used. If you're uncertain about what relationship type to use for a given configuration, create a test membership type, and then use it with several records to ensure it works as desired; you can then create your "real" membership types with more confidence.

Lastly, you have the option of controlling the visibility of a membership type. Publicly visible types will be available to contribution pages, where you can create online signup and renewal forms. Admin visible types are only available to backend users. Many organizations will have lifetime or complimentary memberships that they assign with discretion to certain constituents; these are likely to be limited to admin-only visibility.

Reviewing status rules

At any given point in time, you will want to view your members as having a certain status. For example, when they first join, you may view them as new members. If the current date falls within their membership period, they are current members. At some point, if they choose not to renew, they will be considered as expired or past members.

CiviCRM provides a mechanism for defining the rules by which you determine the status of members, and which can be configured to periodically calculate the status of members based on those rules. Navigate to **Administer | CiviMember | Membership Status Rules** to review and modify them.

Before we look at the rules themselves, let's understand a few important concepts and review the intended purpose of the default rules.

The first concept to grasp is the importance of the status rule order. As CiviCRM processes membership records against these rules, it will assign the first matching rule based on the order displayed. This is important, as some membership records may match multiple rules.

For example, in most status configurations, a **New** member would also match the **Current** member rule. Since the **New** status rule is listed first (in the default configuration), this is the status that will be assigned when the criteria overlap for a given record.

Secondly, it's important to construct the rules so that there is no ambiguity—no gaps during which a membership record fails to match any existing rule. For example, if your **Grace** status ends 3 months after the membership end date, but the **Expired** status does not begin until 6 months after the membership end date, you have a 3 month gap of time where a membership record would not match any rule.

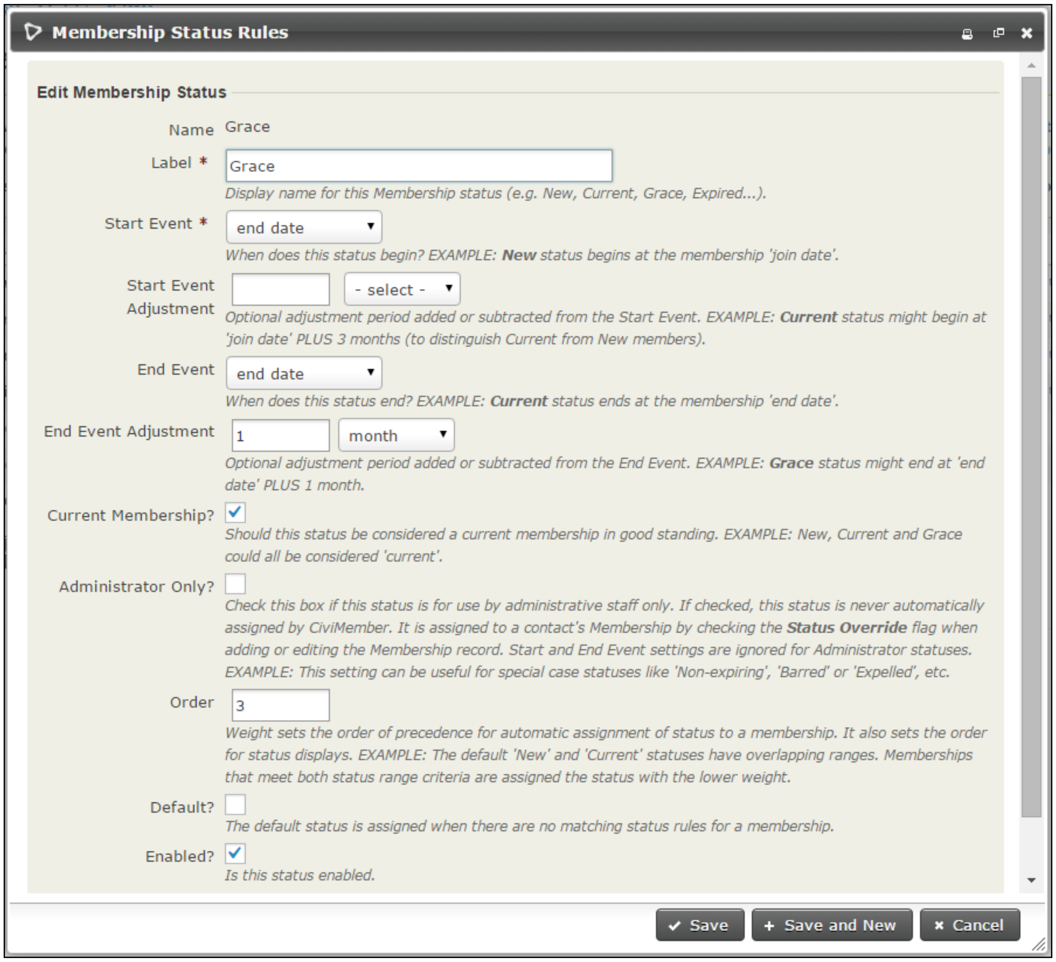
CiviCRM ships with seven preconfigured rules. Let's briefly review their intended use based on the standard settings:

- **New**: This membership type is used for those members who have just joined the organization. Perhaps you want to recognize them by sending them special communications or recognize their "newness" with a flag on their conference nametag. Whatever your use case, this status will help you quickly identify new members.
- **Current**: This membership type is used for those members for whom the current date falls within their membership period start and end dates.
- **Grace**: This status provides a way to give members some flexibility if they have not renewed their memberships prior to their end date. Let's be honest—most members wait until after their end date to renew their membership. You don't necessarily want to cut them off right away, so you configure a grace period in which their member benefits continue, but they are not considered a **Current** member. This can also be helpful for your membership director or membership committee. You can use the **Grace** status to quickly generate a list of members who have not yet renewed for the current year and start reaching out to encourage renewal.

- **Expired**: Once a member is past the end date and past the grace period allowance, their membership expires. The **Expired** status tells you that they let their membership lapse without renewing.
- **Pending**: This status is a special use case when allowing membership signups with the **Pay Later** option. The **Pay Later** option can be enabled for member signup pages as an alternative to collecting real-time credit card payments. In effect, it is a promise to pay, either by check, cash, or whatever other options you provide to members. When a membership record is generated through pay later, both the membership and contribution record is flagged as **Pending**. Once the payment is received, you will record it in the contribution record and mark it as **Complete**. After saving the completed contribution record, its corresponding pending membership will be updated to the **New** or **Current** status, depending on the rule definition.
- **Cancelled**: The first four status types are all date-based rules. Depending on the current date and configured rules, the membership record will be assigned the first matching status. The fifth one (**Pending**) is a payment-based rule. In contrast, the **Cancelled** status is generally only handled on a manual basis. For example, a person may join your advocacy organization and at a later point find that they disagree with certain positions taken by the organization, prompting them to contact you and cancel their membership. There is no date or payment-based calculation triggering the cancelation; you simply change their status to **Cancelled** in the membership record.
- **Deceased**: The last default status type, **Deceased**, may be manually applied to the record or will be triggered by the contact's deceased field. (This means that the status will be set automatically if you set the deceased date on **Contact Summary**.)

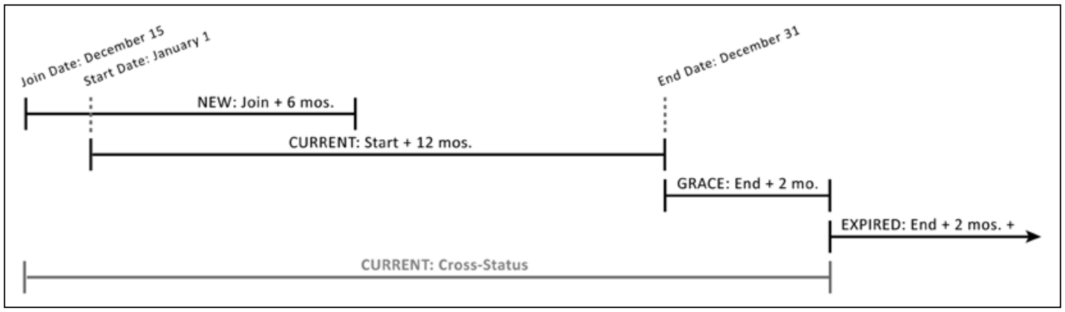
Most organizations will find the basic functionality afforded by these default rules to be sufficient for their needs (though they will certainly want to review them and may find a need to tweak the rules configuration, such as adjusting the duration of their grace period). If the default rules do not meet your needs, you may add, remove, or reorder the rules as needed. For example, you may construct a multi-tiered grace period structure before memberships expire—grace (1 month), limited (2 months), and last chance (3 months), in which you gradually restrict the user from certain member benefits and communicate with them in different ways.

While creating a new rule or editing an existing one, you have several configuration options available. These options can be easily misunderstood or misconfigured, so let's take a moment to review them:



Each status rule will define a trigger (**Start Event**) that indicates when the rule is activated, and an optional ending point (**End Event**). Each of these events may be offset by an adjustment value. Both events are measured from one of three dates—**Member Since** (the initial date the individual joined the organization), **Start Date** (the date when the membership period began), and **End Date** (the date the membership period will end or has ended). Using these two trigger events, you can define where each status begins and ends on a relative basis.

However, it can be a little confusing to think through how the start/end events, associated with the join/start/end date, translate to your desired status. One way to think through this is to build a simple timeline representing each status:



Let's take a closer look at how our timeline grid in the preceding diagram impacts the **Grace** status settings. As you recall, the **Grace** status is intended to represent the period after the membership end date, but before we regard the record as expired.

- **Start Event**: Select **end date** in this field with no adjustment
- **End Event**: Select **end date** in this field with the end event adjustment of 2 months

What does this mean? Starting with the membership's end date, the record will be flagged as the **Grace** status for 2 months. After that period, it will be changed to the **Expired** status, or whatever other rule then applies.

> Be sure to designate one status as the default one. It will be assigned to a membership record in the absence of another matching rule.

In addition to setting the start and end events, you may consider marking a status as administrator only with the **Administrator Only?** checkbox. Flagging it this way means the status will never be assigned through rule matching. It can only be assigned if an administrator overrides the calculated membership status and assigns it. You may, for example, create an **On hold** status, which administrators use to flag members who must submit credentials or other paperwork before being considered as the **Current** members.

The **Current Membership?** checkbox indicates the status types that should be counted as current members in the dashboard grid displaying membership totals. For most configurations, you'll consider the **New**, **Current**, and **Grace** status rules as current.

After setting up your rules, you may want to run some test records, changing the join, start, and end dates to match the various statuses you expect will be assigned, and then track if they are in fact changed as expected.

Membership status rules are processed whenever a membership record is saved. If you're creating, updating, or testing your records through the administration interface, it's very easy to adjust the dates, save the membership, and confirm the correct status was assigned. But how do you ensure the memberships reflect the proper status when they have not been manually updated in some time? This is particularly important when the status should be updated to a **Grace** or **Expired** status, which may have an impact on the user's access to your site.

CiviCRM handles this through a scheduled job called **Update Membership Statuses**. This job should be run daily, as it will cycle through all your membership records, compare them against the status rules, and update the status where appropriate. If you need more information about configuring scheduled jobs, refer to *Chapter 3*, *Installation, Configuration, and Maintenance*. This is a critical function in your membership workflow; take the time to ensure it is running and working properly.

Setting up renewal reminders

By now, you should have your membership types set up and be thinking about creating membership join and renewal forms to encourage new and existing members to work directly with the system through your website. You will also want to be thinking about how you will generate periodic member renewal invoices to retain existing members.

Wouldn't it be great if CiviCRM could know when a membership record is nearing its end date and send the member a reminder e-mail, encouraging them to renew? Well, the good news is that CiviCRM provides just that type of capability! The feature is handled through CiviCRM's **Schedule Reminders** tool, available at **Administer | Communications | Schedule Reminders**.

The **Schedule Reminders** tool can be used with event registrations, activities, and contact records, as well as memberships. We will focus on their use in the membership context, but the principles and steps we will cover have similar applications in those other areas.

> Be sure to enable and configure the **Send Scheduled Reminders** job in the **Scheduled Jobs** interface. It's generally sufficient to run this job on an hourly basis. It is responsible for polling all scheduled reminders and determines what needs to be triggered and sent at a specific time.

Click on the **Add Reminder** button and begin to complete the form. The **Title** field is for your internal reference, and should be descriptive enough to distinguish this reminder from others you will create. For example, you may want a title such as `Membership Renewal (30 days prior)` to distinguish this reminder from one you may decide to send on the membership end date. Select **Membership** from the **Entity** dropdown and select the **membership types** and **auto-renew options** (if applicable) you wish to send this reminder to.

You then need to configure when this reminder will be sent. Although you can set a specific date to send the e-mail, you typically will want to choose a relative date based on the membership join date or end date. For example, we may create a reminder to be triggered 30 days prior to the membership end date in order to encourage renewals before the membership moves into a grace or expired status.

In most cases, you will want to enable the **Record** option to record the activity for an automated e-mail. Doing so provides a helpful log within each contact record that received the e-mail, and can be used when conducting further follow-ups with the member. You can enable repetitions, if desired, but do so cautiously. It's tempting to set up a reminder e-mail, enable the repetition option, and unintentionally overload the contact with communications. Furthermore, if you are planning a series of reminders, it is often better to tailor each message to the timeframe context. For example, if you send out a reminder 30 days prior to the end date, another on the end date, and a third 14 days after the end date, each message should reflect the timing. The message on the end date will alert people that their membership has now ended; the message 2 weeks after the end date might alert people that their membership is about to expire and they will begin to lose access to their membership benefits.

Complete the **From Name** and **From Email** fields to configure who the e-mail should come from. If these fields are left blank, the default organization's name and e-mail will be used. Optionally, choose to limit the recipients to select contacts or a group of contacts, or include additional contacts in the recipient list, either by selecting manually or including a group. The latter might be used to send a record of each reminder e-mail that is triggered to an administrative e-mail inbox.

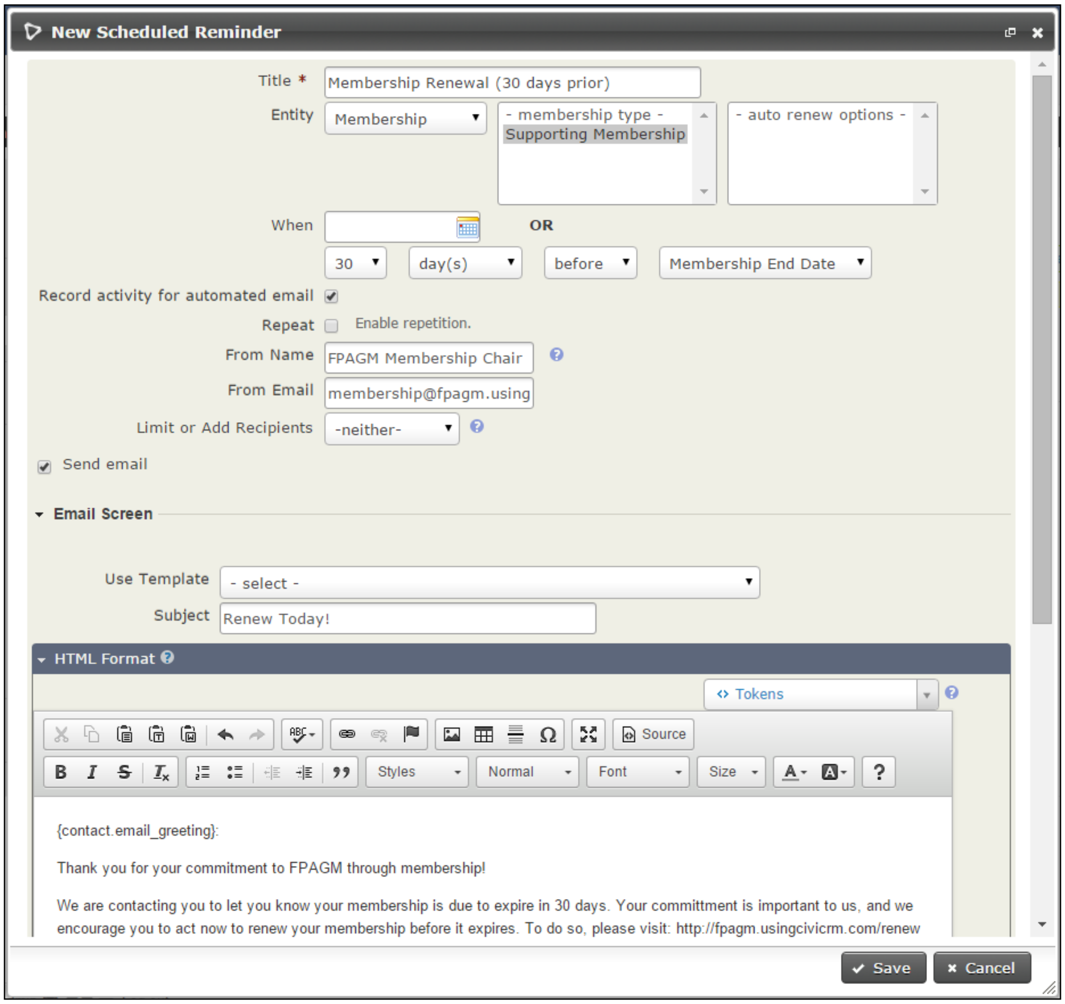
Lastly, you will supply the e-mail with a **Subject** text and content, which may be based on a template, if selected. As with other mailing tools in CiviCRM, if you select a template, it will populate the fields with those values, and then allow you to modify and adjust as desired. Future changes to the template will not have an impact on the content of this reminder e-mail (unless you edit the reminder and re-select the template to update the content).

> Be direct. Renewal messages are sent to constituents who already have demonstrated a level of interest and commitment to your organization. While you want to make the case for continuing their membership, you are primarily just reminding them to renew. Keep the message direct and succinct.

Notice that above and to the right of the body text area, there is a link to insert tokens. A token is a placeholder representing a field in the system. When the e-mail is processed, the token will be replaced with the value for the field for each recipient. Using tokens allows you to customize the e-mail for each constituent, such as addressing each e-mail to "Dear First Name". Consider using tokens as an important way to personalize your e-mails.

Once you've completed the configuration, save the reminder e-mail and return to the **Schedule Reminders** listing. If this is the first reminder you've created, you may want to run some tests to ensure it works and appears as desired. This can be tricky, since the reminder is based on a membership record, but it is worth the effort to set up test data when you are first working through the system.

Typically, this will mean creating a membership in a test contact record, and then adjusting the start and end dates so that they fall within the period when the scheduled reminder would be triggered. You can then visit **Administer** | **System Settings** | **Scheduled Jobs**, locate the **Send Scheduled Reminders** job, and trigger it manually (navigate to **more** | **Execute Now**). Be aware that any memberships in your system that meet the reminder criteria will be sent the e-mail. If you want to avoid that during testing, temporarily limit the reminder to a specific contact or group, run through your tests, and then remove that limitation.



Working with memberships and daily management tools

As you work with membership records, you will likely want to easily access a snapshot of how your members are trending, search for members by specific type, status, or other criteria, and work with individual contacts and their membership details. CiviCRM provides a host of tools to do these things.

From the main navigation bar, let's do a quick review of the **Membership** menu:

- **Dashboard**: This option provides a summary of current members by type and date range.
- **New Membership**: This option lets you create a new membership record quickly.
- **Find Members**: This option provides tools for searching through the member records.
- **Membership Reports**: This option lists all existing membership report instances created in the system.
- **Batch Data Entry**: This option provides tools to enter membership records and their contribution records in bulk. This set of features is detailed in the `Accounting batches` section in *Chapter 8*, *Fundraising for Your Mission*. The only difference to note is that batches created for memberships will include columns for the membership type, join date, start date, and end date, in addition to the standard columns for recording the contribution details.
- **Import Memberships**: This option allows you to take records created in your previous system or other external source and import them into the system.
- **New Price Set**: Price sets are generally used when creating a contribution page as a way to build more complex fee and amount fields. If the price set is configured as applying to memberships, those amount fields can also be linked to specific membership types. Price sets are also available when creating a new membership within a contact record through the administrative interface.
- **Manage Price Sets**: This option enables the listing of all existing price sets created in the system.

We won't review each of these tools in depth, but will take some time to highlight key features and considerations.

The **Dashboard** option is a great way to quickly view a system snapshot of memberships by type. Remember when we configured membership status rules and there was an option to flag a status as considered current? Well here is where that option plays out—the grid on the **Dashboard** page will display current members as defined by that option, broken out by current/renewals for the last 2 months and year to date.

Notice that much of the data on that summary grid can be clicked to follow the hyperlink. For example, you can click to quickly see members who renewed or joined in the previous or current month within a specific category or across all categories. Also note the footnote explaining counts in brackets versus those outside of brackets. Counts within brackets represent primary memberships—those contacts that "own" a membership directly. Counts outside of brackets include inherited members, in addition to the membership owners. If you are using the membership inheritance feature in your membership type configuration, this distinction is important, as you don't want to unintentionally overstate how many members you have.

The **New Membership** menu item quickly creates a new membership record. Using this option, you enter the form, and then search to select a contact or create a new contact. Most of the time, you will probably want to first search for and view the contact record to ensure that it is the correct one before generating the membership record. But this type of "alternate" workflow (creating the record and then identifying the contact) is common throughout CiviCRM, and is strictly a matter of preference.

The **Find Members** option provides tools for searching membership records. While using this tool, the lens through which you are looking at data is membership records, and not contact records. This means that it's possible to have a single contact duplicated, if the contact has multiple membership records meeting the selected criteria. As with the other search tools, you are given the option of taking action on the results, such as exporting or generating an e-mail to the contacts. Note that the export will include membership record details as well as the most recent contribution details associated with the membership.

CiviCRM provides a membership record import tool, **Import Memberships**, similar to the contact import tool discussed earlier in this book. The primary difference with this tool is that the imported membership records *must link to an existing contact record*. You cannot import membership records and create the owner's contact record in a single step. The match to a contact record can be done using the contact's name, e-mail, or with the internal or external contact ID. For best results, use the internal or external contact ID field, as it ensures a correct match without relying on other data points that could potentially have duplicates and cause an unintended mismatch.

When importing, you choose whether the membership records are new or should update existing records. Unlike the contact import, these are strict options—if you choose to update, CiviCRM will require a connection to an existing membership record (using the membership ID field); if no matching record is found, the import record will be rejected. It won't update the match if found, or create a new one if there is no match available; it will simply skip the record if no match is found.

In addition to the fields that allow a match to existing contact records, the following fields are required when importing memberships:

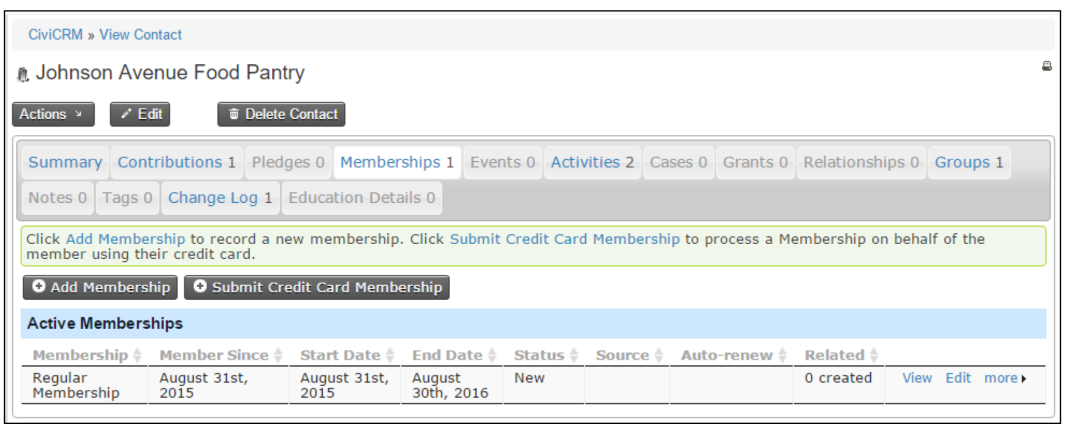
- **Membership start date** (be sure to select the correct format in the first step of the import wizard)
- **Membership type** (this must match the name of an existing type configured in your system)

As with any bulk action you are doing in your system, take the time to run backups before you perform your import. It's worth playing it safe and having a plan if you realize you made mistakes during the import process.

Memberships in the contact record

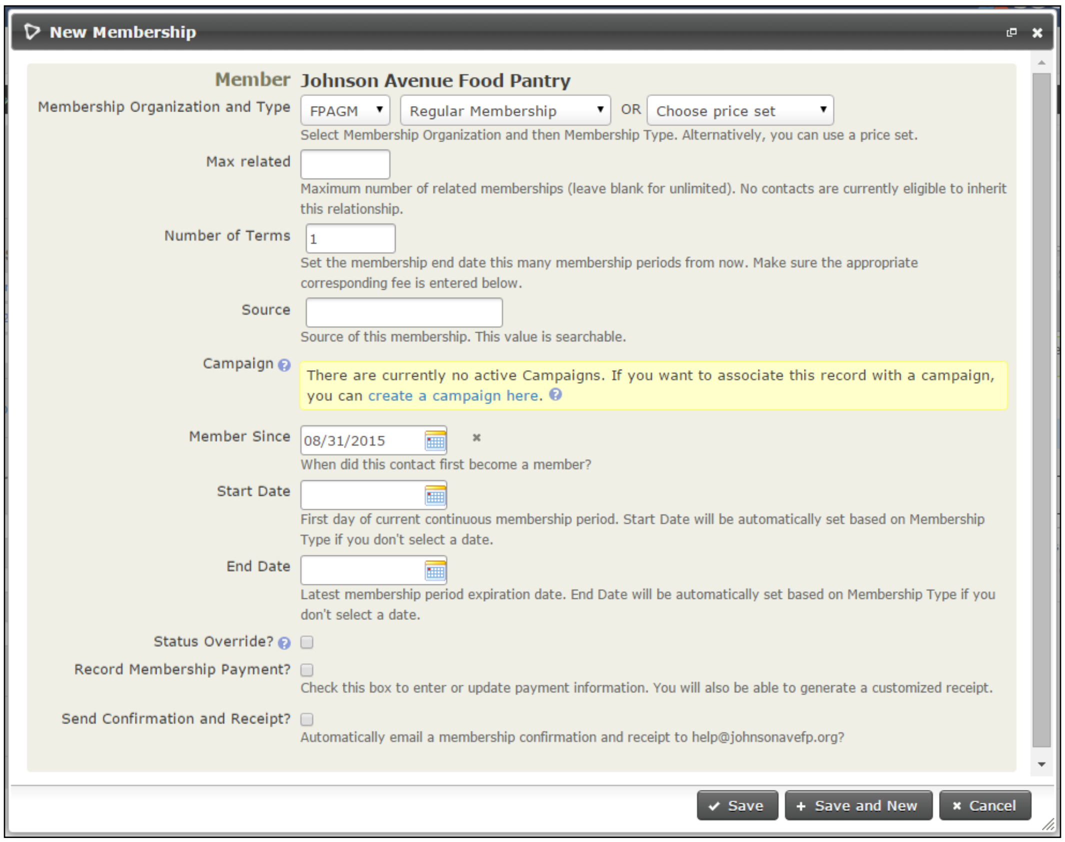
Although searching, importing, and getting a sense of your overall membership picture is critical for your ongoing organization management, you will also want to get into individual contacts and work with their membership records.

While viewing a contact record, you see a **Memberships** tab that displays a history of the contact's membership and buttons for creating new membership records:



Depending on your data, you may notice that the membership listing may be split into two sections: **Active Memberships** and **Pending and Inactive Memberships**. The latter will include expired, canceled, or pending membership records.

The **Add Membership** button is present above the membership listing. If you have a credit card payment processor configured in your site, you will see a second button to create a membership and process the credit card payment (**Submit Credit Card Membership**):



After selecting the desired membership type or choosing a price set and option, review the other fields and complete them as necessary. Note that you do not need to manually set the start and end dates unless they are be different from the defaults that would be calculated as described in the **Membership Type** configuration section.

If your membership type uses relationships for inherited membership, you will have the option of setting the permissible maximum number of related records. You may recall that we discussed this when walking through the membership type configuration process. When creating the membership, you can alter the default value on a case-by-case basis if desired. Leave this field empty to impose no limits on how many related members may exist.

The **Number of Terms** field is used if you allow people to purchase more than one membership term at a time. For example, you might offer members a discount if they renew for 2 years at a time instead of 1 year.

The **Status Override?** flag is used for manually forcing a certain membership status on the record. This should be used carefully and sparingly. Once you indicate that a status is overridden, the membership status update job and any edits to the record will not recalculate the status based on the join, start, or end dates—the override will take precedence over the rule-based calculations. This is typically only used for instances where you have a special contact in the system who should be handled within an existing membership category but is not charged the associated fee or is required to renew. This option should also be used when marking a membership as cancelled, in which case you are purposely removing it from the status rule structure. Take care when using this option; you will lose the ability to manage your contacts through rule-based status types once this is used.

> If you are using the **Status Override?** flag to mark a membership as permanently current because they are a lifetime member, consider setting up a lifetime membership type with the duration set to one lifetime, as this may be a more appropriate way to manage such contacts.

The **Record Membership Payment?** option provides fields for entering payment details connected to the membership. Completing the fields will result in the creation of an associated contribution record. It is important to make use of this option whenever possible rather than handling the contribution record separately, as it creates a connection between the membership and contribution record that can be referenced later. It also streamlines the process significantly as you process the membership and payment in a single form.

This connection between the membership and contribution record(s) will come into play later when we discuss the membership renewal process. Renewing a membership involves extending the membership end date by the configured membership period and then linking the renewal contribution to the membership record. Over time, a single membership record will have multiple contributions connected with it, representing each time the person renewed their membership.

> As mentioned in the previous chapter, where we discussed contribution records, we strongly recommend using the **Pending** contribution status to indicate obligations to pay that have not yet been fulfilled. In the context of creating a membership record, if you have a person who is joining as a member but has not yet submitted payment, you would create the membership record (typically with the **Pending** status) and record a membership payment with the **Pending** status. This will facilitate the process of keeping track of who owes membership dues.

Most of the fields available in the membership payment section are pretty straightforward, and have been discussed in the previous chapter. However, there is one additional field with unique applications in the membership context: **Record Payment from a Different Contact?** This field is used when a membership is paid for by a person other than the one actually receiving the membership. Most often, this is used for processing gift memberships or subscriptions.

Selecting this checkbox reveals two additional fields: **Soft Credit Type** and **Payment From**. When using this feature, the contribution created for and linked to this membership will be attached to the contact defined in the **Payment From** field. A soft credit (using the type selected) will reside with the contact receiving the membership. This provides the means to effectively track the full scope of the transaction.

As the label suggests, **Send Confirmation and Receipt** will generate an e-mail to the user with details about the membership and contribution records created. Visit **Administer | Communications | Message Templates** to adjust the content and layout of this e-mail.

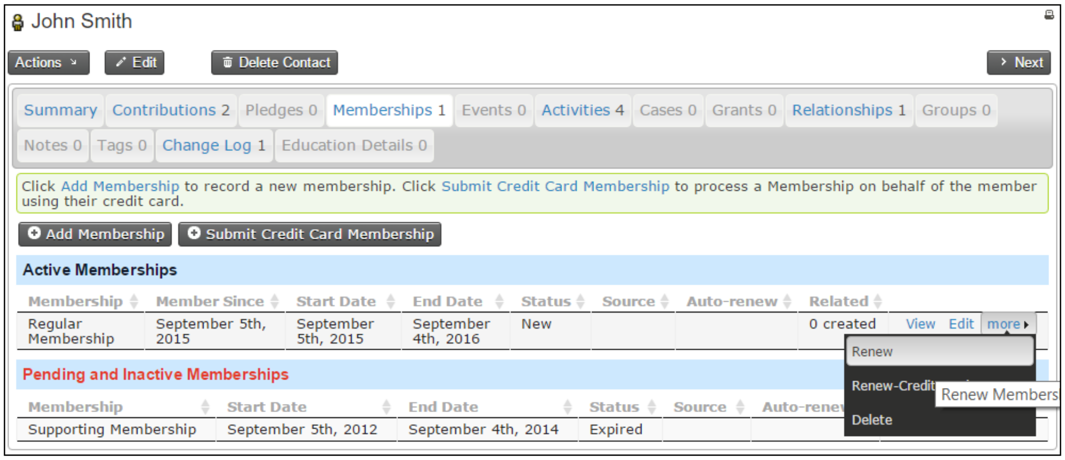
> From time to time, CiviCRM will provide tips or warnings in pop-up windows. For example, when creating a new membership record for a contact that already has an existing membership, the system will alert you to the presence of that membership and ask if you want to renew or modify that membership instead of creating a new one. Every organization and system setup is different, so the warning may or may not be applicable to your use case. Regardless of this, don't ignore those warnings; take a moment to read them, as they may help you follow best practices in your data collection and management.

Returning to the membership tab listing, let's understand how CiviCRM handles membership records and renewals. As outlined earlier, there are three dates associated with memberships: join date, start date, and end date. The **Join Date** value is the date when the membership record is first created. The **Start Date** value is the date the membership period begins. For fixed period membership types, that may actually precede the join date. For example, if a membership type runs for a fixed period of 1 year, starting January 1, a new membership created on February 12 will have a join date of February 12, but a start date of January 1. Rolling period membership types will typically have the same date for the join and start date fields. The **End Date** value is calculated based on the membership type configuration and start date value.

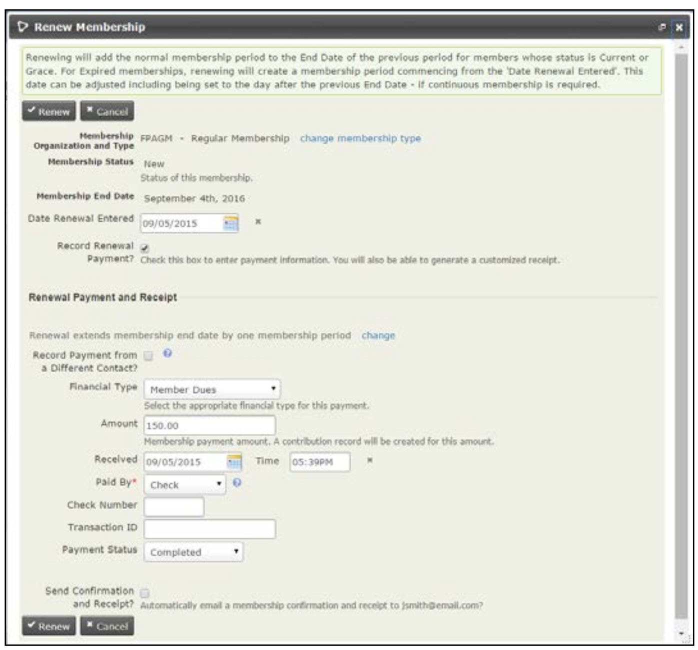
The idea of renewing a membership record involves extending the end date by the membership period. A membership from January 1, 2015 through December 31, 2015 that is renewed for 1 year will simply have the end date changed to December 31, 2016.

Many organizations are used to thinking about membership history as a series of separate records. Using the preceding example, you might expect to see a record for 2015, and a second record for 2016, rather than one continuous record extending through 2 years. If you are used to that structure, take some time to think through how this alternate format impacts your workflow. Rather than thinking of membership records as distinct periods, you must view them as an ongoing, linear record. After adjusting the way you think of membership to fit this model, you will find that the structure can be very powerful when seeking to conduct effective searches on member history.

CiviCRM facilitates the renewal process by including a **Renew** and **Renew-Credit Card** option in the **more** drop-down menu:



The renewal form is a simplified version of the membership creation form, and only requests information about the renewal date, payment, and receipting. Since a renewal extends an existing record, all the other values are fixed or calculated based on existing data (you do have the option of changing the membership type, but even that is assumed to be a continuation of the existing type):



Note that membership records that are inherited via relationships will not have options available to edit or renew the record, but instead will have a link to the primary or owner's membership record where those functions can take place.

> One common area of confusion is with regard to membership renewals for expired memberships. If a certain record exists, but is expired, how should the record be handled if a renewal is triggered? CiviCRM processes these records by retaining the original join date, but resetting the start and end dates to the new values based on the date the renewal took place.
>
> Depending on how you prefer to track membership history, this structure may not be ideal, as it does mean you lose some of the older data. You may prefer, for example, to create a new membership record for expired members in order to retain the older historical data separate from the new record. Doing so allows you to note the membership lapse that took place between the old and new records.

At this point, we've covered the major functions involved in configuring and working with membership records through the administrative tools. Let's see how this translates to the frontend of your website.

Forms to solicit new members and retain the existing ones

Having great administrative tools is wonderful, but we also want to be able to expose the membership signup and renewal pages on our website in order to solicit new members and retain existing members. In CiviCRM, we do this through a contribution page.

Contribution pages are used to solicit funds from site visitors. This may be for general donations, sponsorships, pledges, campaigns, or in our case, memberships. Begin by visiting **Contributions | New Contribution**.

We will not review all of the options available in the contribution page configuration, as that has been covered in depth in the previous chapter. We will focus on the key elements pertinent to membership signup pages.

In the **Title** tab, you will see a **Financial Type** field. Its use, for our purposes, can be a bit misleading. As you recall, when we defined membership types we assigned a financial type to each. When processing memberships through a contribution page, whatever financial type was assigned to the membership type will be used for the respective transaction. However, you may construct your contribution page so that you collect memberships and also allow additional donations to be made. In this scenario, whatever financial type you choose will be used for the additional non-membership contribution. Regardless of whether you plan to collect non-membership contributions through this form, you must select a value for this field.

Notice that there is an option on this tab that allows individuals to sign up on behalf of an organization. By default, CiviCRM will treat users interacting with your website as individual type contacts. After all, people use computers, not organizations. However, if your membership categories are connected to organizations, you should select this option and indicate if the "on behalf of" functionality should be optional or required. Note that you may still collect information about the individual completing the form; the signup form will treat this individual as a related contact (employee) of the member organization.

In the **Amounts** tab, you configure the options related to the payment, such as what processor to use, whether you want to allow the "pay-later" capability, and whether the user may contribute money beyond the membership fee (*Contribution Amounts* section enabled). Consider this last option carefully—do you want your signup form to focus entirely on the membership options, or is your membership structure closely linked to a broader donation-solicitation effort?

> If the **Pay Later** option is enabled, visitors will have the option of clicking on a box to indicate intent to submit payment at a later date. After the form is submitted, their membership and corresponding contribution record will be marked as pending. When you receive the payment, simply update the contribution record—enter the payment method, details, and mark the status as complete. Doing so will also mark the membership as complete and set the join date to the date the payment was received.

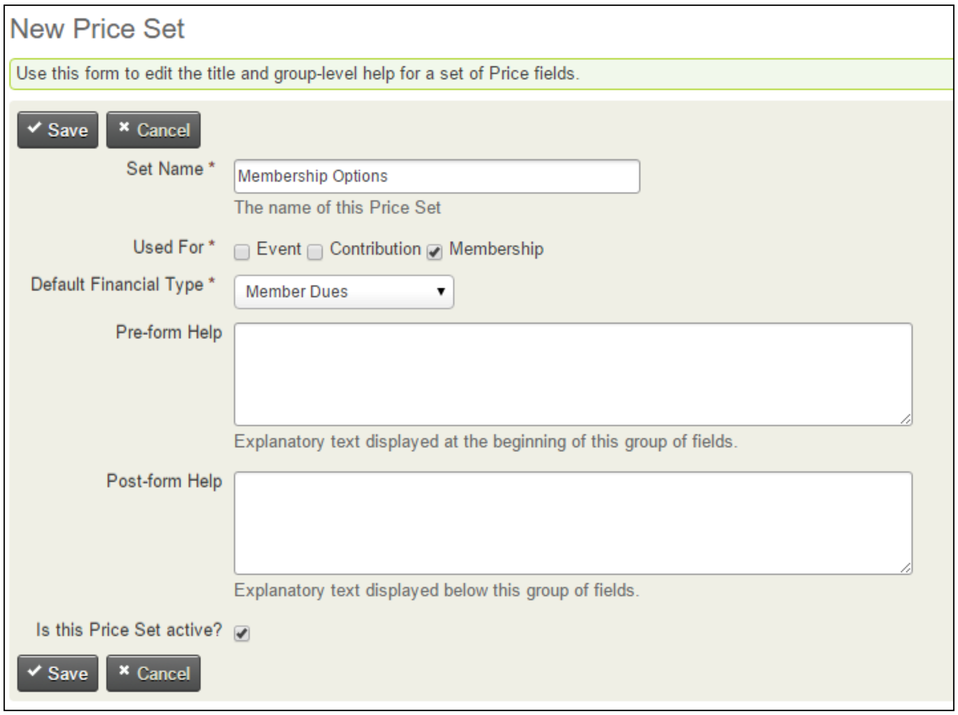
The **Memberships** tab is where you enable and configure membership signup capability. This single contribution page can be used for both membership signup and renewal forms, and consequently includes a title and description field for both purposes. The renewal title and description will only display if the user is logged in to the website and CiviCRM recognizes an existing membership record. Otherwise, the membership join text is used.

However, this does not mean that CiviCRM will always treat the membership record as a new one. If a non-authenticated user (someone who is not logged in to the site) completes this form in its membership join version, CiviCRM still attempts to match them with an existing record in the system. If it finds a match and the contact has an existing membership record, it will renew the record instead of creating a new one.

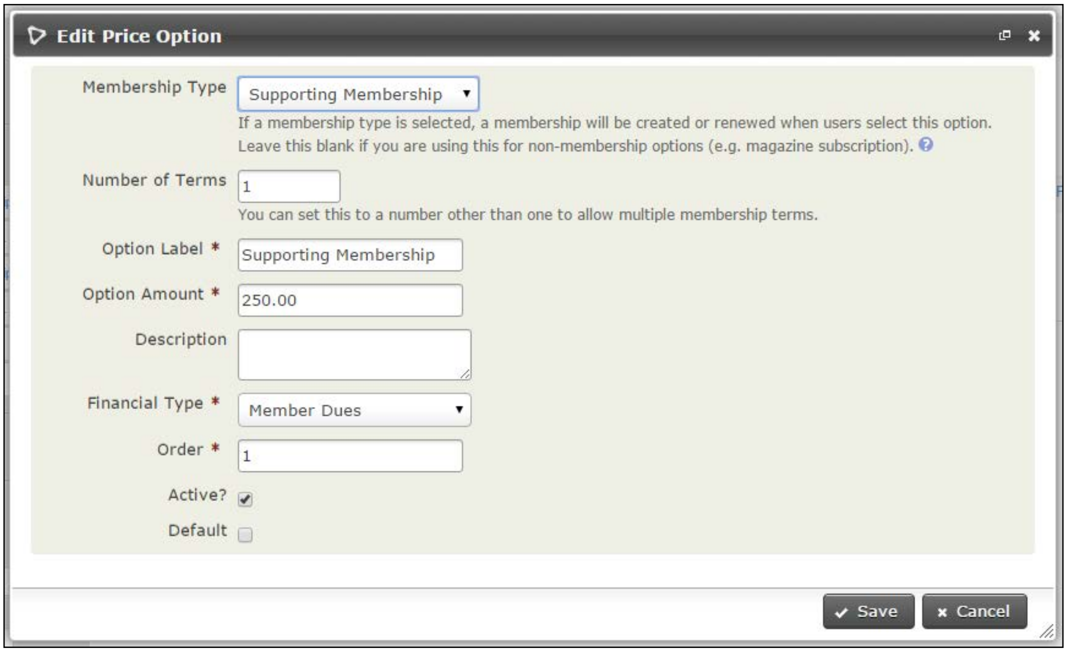
Toward the bottom of this form, you determine the membership types that will be available to this particular form, the label terminology to be used, whether membership signup is required, if the membership fee should be processed separately from other contributions received (if configured on the previous screen), and if membership fees should be visible.

The membership types available to this form can be configured in one of two ways: using a **Price Set** option, or by selecting the membership types from the list presented. The latter is simpler and more straightforward: simply check the membership types that should be available, and optionally choose which should appear as the default. The list will be presented as radio buttons on the form, where the user selects one from the list.

Alternatively, you can create a **Membership Price Set**, which provides much more control over the structure and display of your membership options. From the **Memberships** menu, select **New Price Set**. Enter a title, indicate it will be used for **Membership**, select a **Default Financial Type** value, and optionally enter some descriptive help text:



You can then begin to define your price set fields. In the previous chapter, we discussed the options available to you when defining your fields; review that section for a full explanation of the available features. As it relates to memberships, you will notice that when you create a new price set field and manage the option lists for the field, you have two membership-specific configuration options: **Membership Type** and **Number of Terms**. Using these two fields, you can associate an option list item with a membership type and determine how many terms it applies for. When you select a membership type, the default amount for that type will populate the option list item's amount field, but that value can be modified. This is quite useful for constructing discounted membership rates. In effect, you can optionally override the standard membership rate for specific forms:



Note that the **Separate Membership Payment** option is not available for Google Checkout and PayPal Standard payment processing, as they do not support multiple transactions in a single submission process (this limitation may apply to other payment processors as well). This option should be selected if you want the contribution associated with the membership and the additional contribution amount to be assigned different financial types, as noted earlier. For example, you may want the membership fee to be processed as a **Member Dues** financial type, and any additional amount to be processed as a **Donation** financial type.

The **Receipt** tab provides options for configuring the **Thank You** screen and the e-mail receipts your contact will receive. The next tab configures the **Tell-A-Friend** feature, which is generally more appropriate for fundraising campaigns than membership signups. If enabled, contacts completing the membership form will be encouraged to tell their friends about your organization using the suggested text that you provide. If you rely on word-of-mouth networking to get your message out, this feature may be useful to you.

In the **Profiles** tab, you have the option of selecting up to two profiles for inclusion in the form. Recall that a profile is a collection of fields used as a standalone form or embedded in contribution and event registration forms. By default, the membership signup form will only have one required field—the e-mail address. Most of the time, you will want to collect additional information about your members, such as their name, address, and phone number. You may first need to create a custom profile or edit one of the existing ones, such as **Supporter Profile** or **Name and Address** at **Administer | Customize Data and Screens | Profiles**.

If you have come to this step and have not yet created your custom profile, don't worry—you can proceed with the contribution page configuration and return at a later time to select your desired profile.

> If you enabled the option to allow individuals to sign up on behalf of an organization, any profile you assign to the form in this step can only be used for individual fields. The information collected for organizations through a profile is selected on the **Title** tab.

Premiums are gifts that you offer to members if they contribute at a certain threshold. For example, you might advertise that a $50 donation will receive a travel umbrella with your organization's logo. This is generally oriented toward donation pages rather than membership signup forms, but may still apply if you tier your memberships to encourage higher levels of giving with extra benefits. Before configuring this step, you must have created a premium set (accessible through **Contributions | Premiums (Thank-you Gifts)** or **Administer | CiviContribute | Premiums (Thank-you Gifts)**).

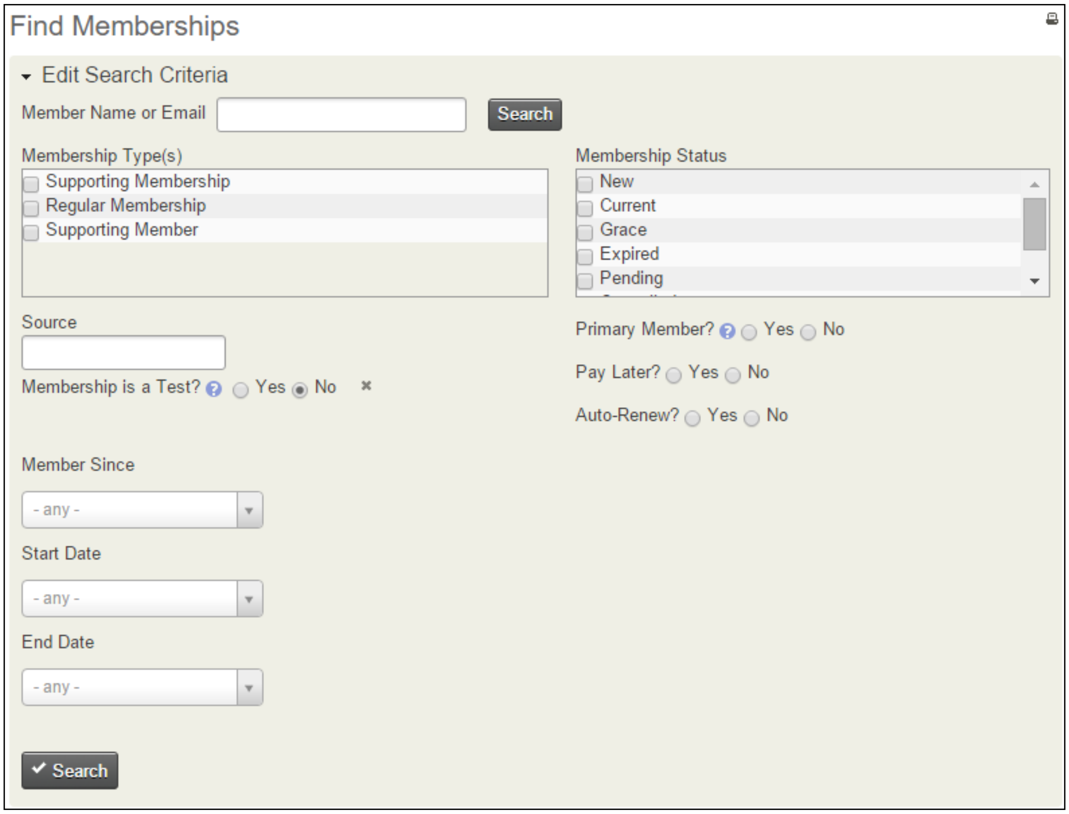
If your membership form is part of a larger campaign, you can create a thermometer-style widget to track contributions. For example, let's say you initiated a member-get-a-member campaign seeking to raise $20,000 by the end of the year. After enabling and configuring your widget options, you add the code generated to your site's home page, encouraging people to join. Any members who join through this contribution page will have their fee added to the campaign total and reflected in the widget. This goal-oriented campaign model is more common for donation-based solicitation, but could still be creatively used for membership-based purposes.

The configuration tab is for **Personal Campaign** pages, which also may be more relevant to non-membership contribution pages. A personal campaign page, or PCP, empowers your constituents (such as existing members) to solicit funds on behalf of your organization. In doing so, they receive a *soft credit* for their role in raising funds. Using the example from the widget discussion, you could go one step further and let each of your existing members create and customize their own membership promotion page to use for their own correspondence with friends and colleagues.

> FPAGM is excited to offer online membership signup and renewal forms. They look at this as an opportunity to streamline the member signup process such that more businesses and organizations will be inclined to join.
>
> The website administrator creates a membership contribution page, focusing primarily on the key configuration elements for membership. Since their **Regular** and **Affiliate** membership types are organization-based, they choose to require signup on behalf of an organization and only expose those two membership types. At a later time, they will create another contribution page for the supporter membership type, which is geared more toward individual donations.
>
> While membership is organization-based, they want to collect details regarding the primary contact (individual) they will interface with at the business or organization. Using an existing profile as a basis, they use the **Copy Profile** option and adjust the fields to collect name, address, and other key details. After completing the configuration, they test the page and enable it as a menu item on their site.

Searching and reporting

We mentioned earlier the **Find Members** tool on the **Membership** menu, but let's take a few moments to explore the options available and review membership reports:



Most of the search options here are self-explanatory—you may search by a contact name or e-mail, membership types, and membership status. For these types and statuses, selecting multiple options is inclusive: the result will yield records matching *any* of the selections.

Below the membership status field is a set of important options, if you are making use of membership inheritance via relationships. Recall that you can configure a membership type to extend the membership to other contacts based on the selected relationship(s). If ACME Corp. is a member and the employer/employee relationship is selected for their membership type, all employees of the business will receive a membership record as well.

While this functionality is useful, it may be confusing to understand how you calculate members. If ACME has three employees, a membership search would yield four results for this one membership record—the organization (which actually "owns" the membership, plus the three individuals who are employed by the company). This may be useful when you are sending out a broadcast e-mail and want all members to receive it; however, if you are seeking to count the number of actual membership records that were purchased, your numbers will be inaccurate.

With the **Primary Member** field, you can choose to view all the members (leave the options deselected), just the membership record owners (select **Yes**), or just those who are members through inheritance (select **No**).

Below this field, you have options to filter your results by whether they were generated by a **Pay Later** transaction (via a contribution page) or whether the member has chosen the **Auto-Renew** option for the membership. To the left, you have options to search by the membership **Source** text or filter by the **Membership is a Test** option. Test records are generated if you use a contribution page in test mode.

As one would expect, the three date fields associated with membership records are searchable as date ranges, with relative range options, or the ability to search specific dates. With some creative thinking, these date range search fields can generate some powerful tools for understanding your membership. Consider the following examples:

- You want to know who did not renew in the year 2014 for a membership type that has a fixed period of January 1 through December 31. For this, select **Choose Date Range** for the **End Date** field and set the **To** field to **December 31, 2013**. All members who joined or renewed prior to 2014, but did not renew for 2014 will be included.
- You want a list of members who joined in the last few years. For this, navigate to **Member Since | Choose Date Range | From** and set the field to **January 1, 2012**. Any join date occurring after that date will be provided in the result.
- You want a list of members who joined sometime in the last 2 years. For this, set **Member Since** to **Previous 2 Years**.

These example searches illustrate the benefits of the date structures in membership records. You can also begin to see how the continuous-record membership model can be quite useful, especially when you are trying to get a sense of the longevity of a person's involvement with your organization through membership.

CiviCRM is packaged with several reports geared toward membership management. From the navigation bar, navigate to **Reports | Membership Reports | New Member Report**. Before we dig in, let's review some terminology and concepts as they relate to CiviCRM reports (covered in more depth in *Chapter 13*, *Telling Your Story – Building Reports*):

- **Report template**: In this report, templates define (in the code) what fields, filtering, sorting, grouping, and visual options are available. Every report template is designed with a specific purpose and specific set of data in mind.
- **Report instance**: Often just referred to as a report, a report instance is a specific implementation of a template. In other words, you can choose specific criteria and options available in a template and save it, print it, or export it as a CSV file (in most cases).

A single report template may have multiple (or no) instances associated with it. Each instance would have different filters and settings rendering different results, though based on the same originating template. Almost all of the report templates that ship with CiviCRM also have an initial report instance created. Many of these are found in the **Reports** drop-down menu, categorized by type, and all are listed at **Reports | All Reports**.

There are four templates available specifically for membership records:

- **Membership Report (Summary)**: In this report, the options available are geared toward generating summary totals of members, whether by date or membership type. The resulting report includes details on any contributions associated with the membership records.
- **Membership Report (Detail)**: This report is geared toward the membership records themselves. You can select the contact and membership-related fields that you would like listed in the results, and can filter on standard options, such as membership types and status, as well as contact-related selections, such as groups and tags.
- **Membership Report (Lapsed)**: This report is a bit more specialized, as it displays the records of whose membership has lapsed (are no longer current). It is intended for organizations that want to reach out to lapsed members in a focused way to encourage them to renew or rejoin the organization.
- **Contribution and Membership Details**: Unless you offer free memberships, most of your membership records will have a corresponding contribution record connected to it (or multiple contributions if they have renewed several times). This report lets you see the memberships along with those payments, with options to filter accordingly.

From **Reports | Member Reports**, you can create a new report as follows:

1. Click on **New Member Report**.
2. Select **Membership Report (Summary)**.
3. Click on the **Columns** tab to select the columns you would like displayed on the report.
4. Select your desired **Grouping** options. As this is a summary report, it will group the records and generate totals and counts for them.
5. Select your desired filters in **Filters**. Typically, you will consider filtering by status, type, contribution status, or one of the date related fields.
6. Click on **Preview Report**.
7. In order to proceed with saving the report, you must have valid results generated. In other words, you must have at least one record in the report preview result set. If your report yields no results after clicking **preview**, you could create a test membership for yourself at **Memberships | New Membership** for the purpose of generating this report.
8. Review and adjust the report criteria as necessary. It's not unusual to find that you must review and tweak the filter and display settings until you get the result you're looking for. After making changes, click on **Preview Report** to refresh the results.
9. Once you are satisfied with the report results, click on **Title and Format**, enter **Report Title**, and update **Report Description**, as desired. Optionally, you can adjust **Report Header** and **Report Footer** (used when printing or generating a PDF file of the report), and select **Email Delivery** and **Access** related options (in the corresponding tabs). For a full discussion of these tools, refer to *Chapter 13*, *Telling Your Story – Building Reports*.
10. Click on **Create Report**.

Once saved, the report can be retrieved with your selected settings for viewing, printing as a PDF file, or exporting as a CSV file. For a full and detailed discussion on reporting concepts and tools, see *Chapter 13*, *Telling Your Story – Building Reports*.

The big picture and other tools

Membership management rarely occurs in a vacuum. It's most likely that your members will also be your authenticated (logged-in) website users, a primary target for event registrations, and recipients of most of your communication via snail mail, e-mail, or other means.

Let's consider some ways your membership may impact other areas of CiviCRM and review some third-party extensions that may be used with your site and members.

Common functions in CiviCRM

It's not uncommon for member-based organizations to have a "members-only" section in their website. This secure access area will require a Joomla!, Drupal, or WordPress user login account. If you have created a contribution page for membership sign-up, you can include a profile that has the user account creation option enabled. As contacts complete the membership application form, they will be able to create their user account to access the site.

As you work with your members, it's likely that you are primarily concerned about your current members at any given point in time. While it is useful to visit **Membership | Dashboard** and see a snapshot of your current members broken down by type, it's more likely that you are mailing, e-mailing, or otherwise, working with current members through other means. An easy way to have quick access to a list of current members is by creating a smart group.

Using **Search | Advanced Search**, expand the **Memberships** panel and select your desired membership types and the new, current, and grace statuses, or your customized current statuses. After running the search, select all contacts and use the action dropdown to create a new smart group.

Recall that smart groups are saved searches. They are criteria-based, which means that when new members join the organization or existing membership records expire, the smart group you've just created will always display the current list of members at that point in time.

Now that you have this saved search, you can easily export the list for mailings or use the group for a broadcast e-mail. In addition, the group could form the basis for an online directory.

Membership directories

It's worth taking a moment to think through the steps required for setting up a membership directory, as this is a common goal and function for many member-based organizations.

The usefulness and value of an online membership directory is indisputable. If you are an industry-based association, it's likely that you exist in part to help your members more effectively reach potential customers. If you are a professional society, you are likely seeking to foster relationships among members for professional development and networking.

Perhaps you've addressed these needs in the past by publishing a printed directory. The process involves collecting updated information from members, entering it into a database, exporting the information and laying it out in design software, soliciting advertisements, proofing, sending to the printer, and finally disseminating to members through the mail, only to receive e-mails and phone calls as soon as it's received alerting you to the outdated information it contains for a significant percentage of your members. Sounds like fun!

While an online directory does not eliminate the need for work, or in any way guarantee 100 percent accurate data, it does streamline the process significantly. Since your directory will pull data from your database in real time, there is no lag; once you receive updated contact information for a member and update it in CiviCRM, it will be available on the directory. Furthermore, if you expose a profile to members, allowing them to update their own contact information, you potentially reduce data entry (and to some degree, responsibility) for the information.

The steps to build your online directory are fairly simple. Begin by constructing your smart group of current members as described in the last section. Doing so ensures that only members in good standing will be exposed to the website directory. As soon as someone fails to renew in a timely fashion and rolls over to the expired status, they will be removed from the directory listing (and the membership benefits it provides).

Recall from *Chapter 5*, *Collecting, Organizing, and Importing Data*, that we looked at using profiles as a search tool and that one of the advanced options when configuring a profile is to limit the search results to a selected group. We use this option to restrict the directory to only your current members group, created earlier.

Proceed by adding and configuring fields for the profile. While adding fields, you will determine which are searchable, which should be in the **Results Column** (remembering that you likely have limited screen real estate for the columns), and which will be in the detail view. The directory page will begin by offering users a search form, through which they will locate and view details for members.

Once the profile is complete, Joomla! users may use the menu system to add a **Profile Search** item and select the appropriate profile. Drupal users can access the search page by visiting `http://example.org/civicrm/profile/search&gid=#&reset=1`, where `#` represents the profile ID. WordPress users will use the short-code widget to embed the form in a post or page.

> By default, the profile search opens to display just the search form itself. Adding `&force=1` to the URL will cause the page to open with the form and a list of contacts (if restricted to a group, it will display just the contacts in this group). Adding `&search=0` will open the page with just a listing (no search form). Adding `&map=1` will include a map with the geocoded records marked (you must have address geocoding enabled in your system).

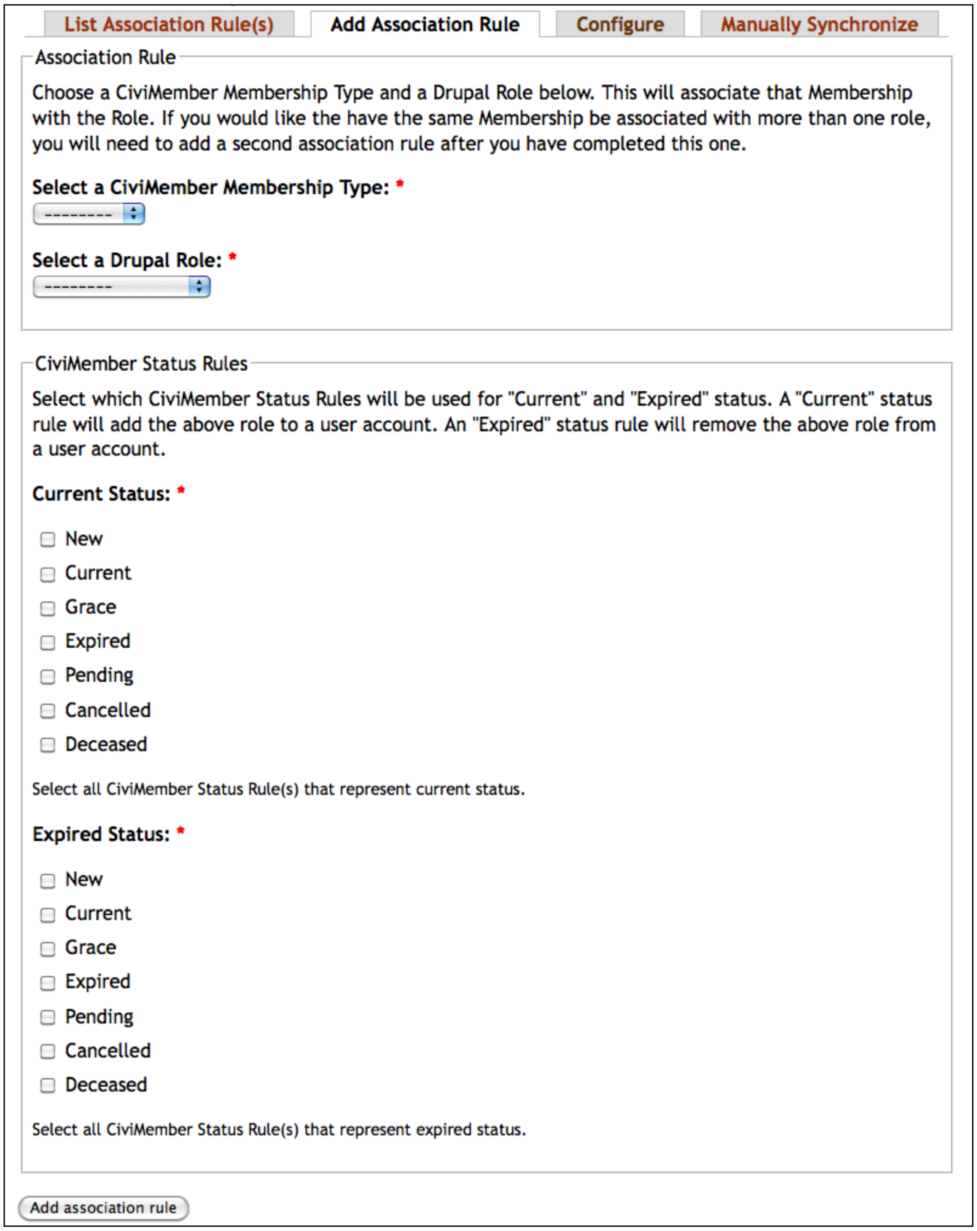
Third-party extensions

All three CMSs (Joomla!, Drupal, and WordPress) have a growing library of third-party extensions that have been developed to expand the integration of CiviCRM into your website. Several of these will be of interest to member-based organizations.

Three Joomla! extensions may be useful for expanding membership-related capabilities and helping to better integrate the Joomla! users with their corresponding CiviCRM contact records:

- **CiviAuthenticate**: This extension adds a second layer of authentication to the core Joomla! authentication, requiring that a user attempting to log in also has a membership in good standing. The plugin configuration includes the status level that is the threshold for allowing access and redirection links for the various possible outcomes (membership is expired, no contact record found, or bad password). There are also options for assigning a Joomla! user group based on membership type or status available at `https://github.com/lcdservices/CiviCRM-CiviAuthenticate`.
- **CiviCRM group sync**: This extension lets you create synchronization rules between the CiviCRM groups and Joomla! user groups. If you are a heavy user of CiviCRM groups for parsing your contacts and want that to have access control implications for the users, this is a great way to handle it. For more details, refer to `https://github.com/lcdservices/CiviCRM-Group-Sync`.
- **CiviCRM user synchronization for Joomla!**: This extension improves the integration between the CiviCRM contacts and the Joomla! users. For example, you can ensure that any time a new user account is created, it is linked with an existing, or creates a new, CiviCRM contact record. This plugin also provides advanced integration with **Community Builder**, a popular Joomla! extension. For more details, refer to `http://extensions.joomla.org/extensions/extension/extension-specific/civicrm/civicrm-user-synchronization-for-joomla`.

The Drupal/CiviCRM integration comes in a variety of forms. The **CiviMember Roles Sync** module, which is included in the CiviCRM tarball, is the most relevant one in this context (see `civicrm/drupal/modules/civicrm_member_roles`). After enabling this module in Drupal, it can be configured by navigating to **Site Configuration** | **CiviMember Roles Sync** | **Add Association Rule**:



Each CiviCRM membership type can be associated with one or more Drupal roles. When first using this module, we recommend selecting every membership status once for each association rule, either in the **Current Status** or **Expired Status** sections. Drupal permissions can be set for the associated roles in Drupal at **User Management | Permissions**. After creating or changing the association rules, the new permissions for a user will take effect by default the next time they log in. If necessary, new Drupal roles can be created at **User Management | Roles**. Using this tool, members can be permissioned to access, create, or delete content of various sorts and use the Drupal functionality in extremely fine-grained ways.

WordPress has a recently-ported version of the Drupal member/roles sync module, available at `https://civicrm.org/extensions/wordpress-civimember-role-sync-plugin`. The plugin checks the membership details during login/logout and updates the WordPress role based on the rules defined.

These are only a sample of some of the modules and extensions available to help you take an advantage of CiviCRM structures in your overall website implementation.

Summary

In this chapter, we've seen how CiviCRM provides robust membership management and reporting tools for administrators and the ability to expose member sign-up and renewal forms to your website. Specifically, we walked through the essential configuration steps required to get up and running with membership management in CiviCRM, taking time to understand the core concepts with how CiviCRM deals with membership records. We reviewed the tools available for monitoring and tracking your membership records, and saw how individual membership records are handled within the contact record. We also set up a website form to allow contacts to join or renew their membership, while discussing the broader options available for contribution campaigns, and understood how the membership search tool can be used to find subsets of members, in particular with regard to the various date fields. We stepped through the creation of membership reports from one of the three membership report templates. We took a step back to understand how membership relates to your broader website objects and reviewed other tools available for enhancing membership-related functionality.

In the next chapter, we will look at event management and see how CiviCRM lets you construct complex event programs and set up online event registration.

10
Managing Events

For many organizations, events provide one of the best opportunities to interact face to face with their members, supporters, and other constituents. Constituents get more exposure to your organization and develop deeper ties with it and the other attendees when they attend your events. Whether you host large conferences and expos, training workshops, webinars, political rallies, user group meet-ups, support round tables, professional accreditation programs, or any other kind of event, their role in your overall CRM strategy is significant.

Registrant processing and event promotion are often the most challenging, time-consuming, and important pieces of the management process. CiviCRM provides flexible event management tools to define the nature of the event, determine the data and fees that must be collected, track participants as they register online or are entered by staff through the administrative tools, and develop the lists, name tags, and other resources you need to present an outstanding professional event.

This chapter will focus on the primary tasks and responsibilities involved in event management, including the following topics:

- Why events?
- Building and promoting your event
- Processing and managing participants
- Tracking, searching, and reporting
- Integrating events into your CRM strategy

First things – why events?

Before digging into things, it's worth taking a minute to ask the questions: why would you host events, and what exactly is an *event* as it relates to CiviCRM?

Many not-for-profits exist as organizations that people donate to, become members of, or support in other ways. The purpose and services many organizations provide are not oriented around *walk-in* support or other face-to-face interactions with constituents, apart from events.

All in all, events provide an important person-to-person interaction with your supporters, volunteers, members, donors, and other contacts interested in or related to your organization.

So what exactly is an event? In CiviCRM, event management tools allow you to do the following tasks:

- Publishing and advertising an event description, including date, time, and location
- Registering participants
- Calculating and collecting fees
- Collecting data about participants
- Tracking registrants' status
- Using more advanced elements, such as self-registration forms on your site, with automated waiting lists

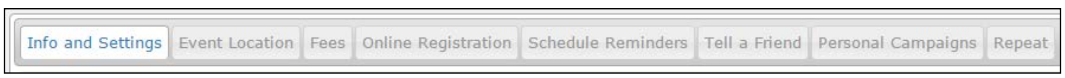
You are not likely to use the event tools for very small group meetings, such as a one-on-one meeting with a constituent, board meetings, committee meetings, and other such no-fee, basic events. For these events, it will be easier and simpler to use a CiviCRM activity, either with the preconfigured meeting activity type, or through your own custom activity types. Events are best used when you have larger numbers of registrants, or want to be able to expose a registration form to allow constituents to register on their own.

Building and promoting your event

The first step in event management is to configure your event in the system. Once configured, you can begin collecting registrations and tracking participants. The event tools all reside under the navigation bar's **Events** menu. As with the other areas of CiviCRM, the event administration tools are not always provided in a simple, task-oriented workflow. You are likely to find that the creation, configuration, registration, tracking, reporting, and managing happen in a more iterative pattern, rather than a linear one. We will begin by walking through the event creation process, touching on the various options available, and may circle back later to delve deeper into specific areas.

Use the **New Event** option to begin the process of setting up an event. This opens up an initial information and basic settings form. After saving it, you will be directed to a tabbed interface, where you optionally configure other settings areas (or return to adjust this first form).

You should carefully work through each tab in a sequential wizard-style way when first becoming familiar with the event tools. Thereafter, you can skip around to the configuration areas you require for a given event:



Information and settings

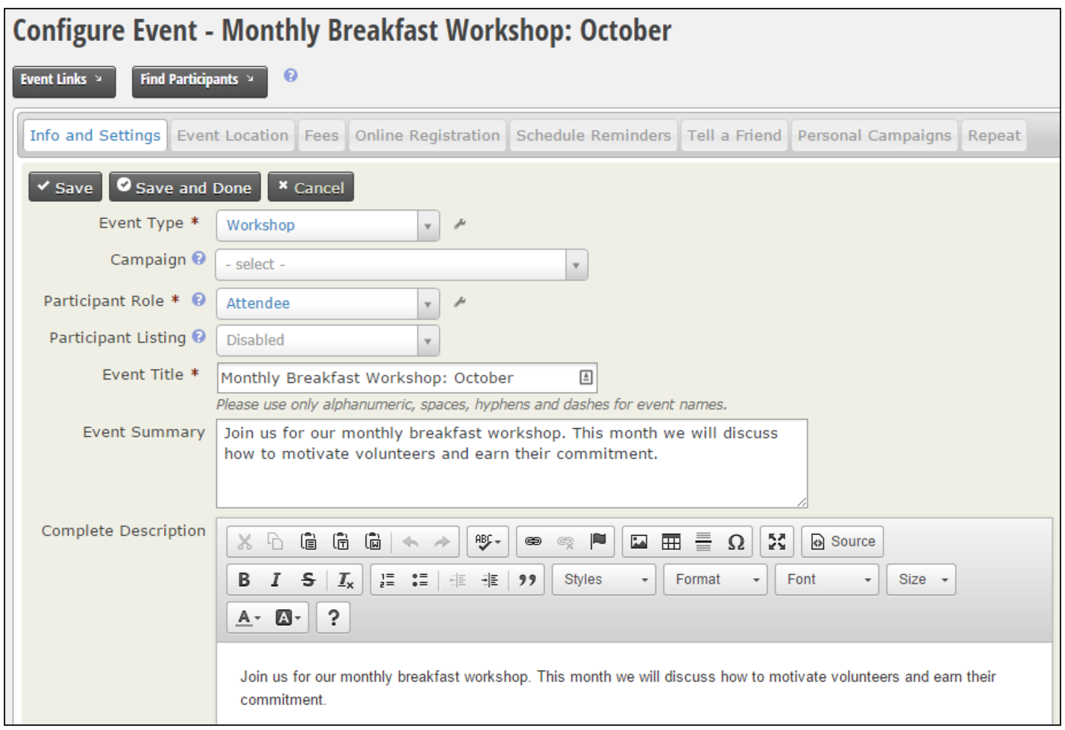
The first form defines basic information about the event, including its category (type), title, description, dates, and so on. You may notice that the very first field on this form is for selecting an event template. If no event template exists, a notice to this effect will appear at the top of the page.

Event templates are very useful if your organization hosts a number of very similar events, such as a monthly breakfast seminar series, or a bimonthly training workshop. From one event to the next, the structure, fees, location, and perhaps even the basic description remains similar. In such cases, you can save time and reduce errors by setting up an event template under **Events | Event Templates**. The template creation tool is almost identical to the tabbed form we will be working through now, with the exception of a few fields removed (such as event dates) that are presumed to be unique for each event.

When creating a template, complete only those fields that are common to all (or most) events of this type. For example, if your monthly breakfast seminar hosts different speakers on different topics, you will want to leave the **Summary** and **Description** fields empty.

When a template is selected while on the **Info and Settings** form for a new event, the event is prepopulated with any data stored in the template. You will have the opportunity to review, adjust, and fill in any fields in your event. Once a template has been selected for a new event, there is no association back to the template. In other words, changing template settings at a later date will have no impact on existing events that used the template. Its only purpose is to prepopulate the event, and in doing so, to facilitate the event creation process.

Returning to the initial event creation form, we see event type and participant role fields. The event type is used to categorize your events, which can be useful when analyzing and managing events. You can, for example, define an event type for your annual fall conference and later run searches based on the event type, such as displaying all constituents who participated in any of the fall conferences over the last five years. The event type options are managed under **Administer** | **CiviEvent** | **Event Types**:



Custom data fields used to collect information about your registrants can be configured based on these event types. Since events of the same type will often have similar data collection needs, this is a useful and efficient way to repurpose fields for multiple, similarly structured events. We will discuss custom data later in this section, when we review the use of profiles. They are created and configured through **Administer | Customize Data and Screens | Custom Fields**.

As we have seen in other areas of CiviCRM, you have the option of associating the event with a Campaign. Recall that campaigns are a way to tie together various resources in your system for the purpose of tracking and reporting on them together. For example, if you began a significant fundraising campaign, you might construct a series of contribution pages in order to collect donations, and then kick off the initiative with a fundraising banquet that you construct as an event. By creating a campaign, you can connect those different forms and facilitate reporting.

Participant roles categorize the nature of the participant. For example, your event may have attendees, guests, speakers, staff, volunteers, and other types of registrants you will track and also want to classify. Participant roles are managed through **Administer | CiviEvent | Participant Roles**. Similar to event types, custom datasets may be constructed based on the participant's role. In this way, speakers can be prompted to provide a title and description of their talks, exhibitors can be asked questions about their needs for space, power, and equipment, volunteers can be asked about their preferences for an assignment, and basic attendees can be asked about their breakout session preferences.

While defining a participant role, you have the option of deciding if a role will be counted. We will see later in the event management tools that CiviCRM provides up-to-date counts of your participants, organized into various categories, one of which is the main participant count. Typically, you will want to *count* any attendees who have paid or have committed to pay, but exclude from your count any attendees who have canceled or are in a non-attendee role. Many organizations will not count speakers or staff when reporting the number of attendees for a conference. By creating a staff role and choosing to not count it, you can still track the fact that they were present at the conference and generate name tags from the system for them, but exclude them from the counts provided to your Events Committee or Board of Directors in various reports. Be clear on who is included in your counts, as there are some purposes for which you will want a *full* count, such as the number of meals required at the event.

Returning to our form, the selection of a participant role in this location determines what role will be assigned when participants register using the event registration form. In most cases, you will select the **Attendee** role, as that is the standard role intended for event participants.

Peer pressure may be a useful tool in your event promotion toolbox. CiviCRM provides the option of exposing a participant listing to site visitors. When visited, a current list of all participants will be displayed.

There are three listing templates included in the standard installation, namely **Name Only**, **Name and Email**, and **Name, Status and Register Date**. Unfortunately, at this time, there is no interface for actually setting up alternative collections of fields to be included in listings. If you have the ability and resources to edit the PHP and Smarty `.tpl` templating files, you can create more templates and tell the system about them through **Administer | CiviEvent | Participant Listing Options**.

> While participant listing pages may serve as an effective peer-pressure promotion tool, they may also be perceived as invasive to privacy by your attendees. Make sure the nature of the event (and the nature of your constituents) supports displaying such a list. In particular, be sensitive to the use of the name and e-mail template, as some contacts may not want their e-mail information disseminated in this way.

Enter the title of your event, keeping in mind that it will be publicly visible in the event information and registration pages. You also will want the event to be uniquely named to avoid confusion with other events. For example, if you host an annual conference, you might name it: Annual Conference 2016, Annual Conference 2017, and so on.

Use the **Event Summary** and **Complete Description** fields to describe the event, such as the topics covered, speakers, and audience. As the name suggests, the **Event Summary** field should be brief and succinct. It will be included in the RSS and iCal feeds generated by the system, which you may use for promotional efforts. The **Complete Description** field should be more complete, and is displayed on the event information page.

> Your RSS feeds allow other websites to automatically pull content from your site and display it on their site. The event feeds include information about your events, such as links to send visitors to your registration pages. The iCal feeds are another similar format for publishing your event information. People can set up their Google Calendar, Outlook, and other calendaring applications to automatically read these feeds and display your events on the right date and time.

Define the event's start and end date/time. For a single-day event, it is sufficient to just complete the start date field.

Jumping down to the final set of fields on this first step of the event wizard (we'll discuss the maximum number of participants' option later), you click on it to enable or disable the following options:

- **Include Map to Event Location**: This option inserts a Google or OpenStreetMaps map on the information page with the event location plotted. You must have a location defined on the second step of the wizard and must have geocoding configured to make use of this function (visit **Administer | System Settings | Mapping and Geocoding**).
- **Public Event**: This option determines whether the event appears in RSS/iCal feeds, in the HTML event listing page, and in Drupal's CiviCRM **Upcoming Events** block. Turn this off if you have *invitation-only* events that you don't want to publicize through the automated methods.
- **Allow sharing through social media?**: Wherever possible, you likely want to harness the social networks of your constituents to spread the message and mission of your organization. One way you can do that is by enabling the social media block, which will appear on the event information and event registration thank-you pages. The block includes a link to the event, and links to share the event on Google+, Facebook, Twitter, and LinkedIn.
- **Is this Event Active?**: This option enables or disables the event. A disabled event will be hidden from RSS/iCal/HTML listings and cannot be visited through event information pages or registration forms. Be careful about disabling past events thinking they would not be accessed by site visitors. If you have older content articles on your site that reference the event information page, it's possible that people will visit older events to learn what information was covered. We will see later on that there are options for limiting the date/time window when people may register for the event, so you do not need to be concerned about people registering for past events inadvertently.

Maximum number of participants

One of the most advanced tools available in the event management process is the ability to define a maximum number of participants for an event and determine how to handle people who try to register after that maximum is reached. This is an important feature, as one of the consequences of providing online registration forms is that you lose some control over the event management process. Unlike a pure paper-based system (registrants mailing or faxing their registrations to you), you and your staff are not *touching* each registrant as it comes in. This can create a problem if you have limitations on the size of events due to space or other factors. You can't rely on manually shutting down the registration form once you near the maximum, as you have no way of knowing or controlling how many people register within a short period of time, pushing you over your limit.

Enable the maximum participants tools by entering a value in this field. Two additional fields will become visible—**Offer a Waitlist?** and **Message if the Event is Full**. The second field is fairly obvious—if the maximum number of registrants has been reached, the registration form will be shut down and this message will displayed to people who attempt to register. If you choose to offer a waitlist, the message block will include additional recommended terminology explaining how the processing of the waitlist is handled.

The waitlist and administrator approval options (which we'll see on the **Online Registration** tab) make use of special participant status types that are disabled when CiviCRM is first installed. If you would like to use them, you must first enable the statuses in **Administer | CiviEvent | Participant Statuses**.

The reason they are disabled by default is that the features depend on **Scheduled Job** to work properly. Be sure to visit the **Scheduled Job** interface and configure the **Update Participant Statuses** job. It is generally sufficient to run that job daily.

If waitlisting is enabled and the maximum number of participants has been reached, people who visit the site will be told that they may not register at this time, but can sign up for the waitlist. The waitlist feature places people on a list in the order received, where they will be maintained until space opens up with the event. Available space may be the result of a new venue that accommodates more people (in other words, you increase the maximum number of participants), or due to existing registrants canceling, which opens up new spaces.

In either case, registrants remain on the waitlist until space becomes available, at which point they are sent an e-mail inviting them to register. We will see one additional option impacting this process on the **Online Registration** tab—the ability to define an expiration period for their **Pending** status. Let's review how the process works through an example:

1. While attempting to register, an individual is informed that the maximum number of registrants has been met.
2. The person chooses to go on the waitlist, and then enters his/her name and e-mail address.
3. After 3 days, your organization decides to move the event to a new venue that accommodates 10 more people. After altering the settings in the system, the first 10 people on the waitlist (first come first served) receive an e-mail, inviting them to register. CiviCRM automatically changes the status of their registration from **On waitlist** to **Pending from waitlist**. If they have not registered after the expiration period is over, their registration status changes to **Expired**.

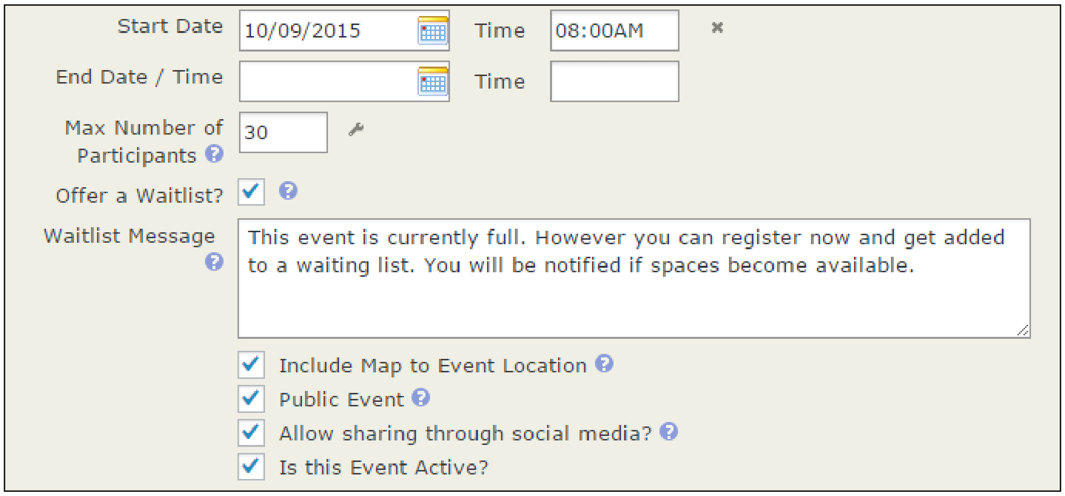
4. During the period when the status of these 10 registrations is **Pending from waitlist**, only those waitlisted contacts may register. New visitors to your website will not be able to register, as preference is given to waitlisted people. Waitlisted individuals beyond the first 10 (who were invited to register) remain on the list. As these waitlisted individuals respond to the invitation to register or allow the invitation window to expire, new people are invited to register (if there are additional individuals on the waitlist) or the registration form becomes publicly available.

While the assumption is that those 10 invited people on the waitlist will sign up in a timely fashion, that's not always the reality of the situation. Some of those people may drag their feet or simply lose interest in the event. In either case, your ability to successfully fill the event to capacity and give fair opportunities to others on the waitlist to attend is compromised.

The expiration period option improves this by limiting the window of time during which spaces are held for waitlisted invitees to register for the event. We will review how to configure it in the **Online Registration** tab in a later section. There are a few things to consider when using this option:

- Other sorts of pending registrations, that is, **Pending from pay later**, **Pending from incomplete transaction**, and **Pending from approval** also expire based on the same expiration period. The **Pay later** transactions usually require a few weeks before a check is received in the mail, so your expiration period for the **Pay later** events may need to balance quite different lengths of appropriate periods. You may decide not to provide the option of paying later for events you expect will reach capacity. Alternatively, if you're monitoring the event carefully, you could initially enable **Pay later**, and then disable it when the initial capacity limit is reached.
- While you define the expiration time in the event settings, the scheduled job triggers the script that runs analysis on your records and determines if and when any e-mails should be distributed. If your job is configured to run nightly, expiration periods shorter than a couple of days may have undesirable effects, as the actual window during which the individual may register could be too short. Also, beware of the fact that many people do not get around to reading, never mind responding to e-mails over the weekend. This leads to undesirable impacts on waitlisted users if you have an expiration period of less than 72 hours.

If you are new to CiviCRM but are interested in this functionality, it may be worth setting up a test event and running through the various scenarios with test records to understand how the behavior works:



After completing this form, click on **Save**. Now click on the **Event Location** tab to proceed to the next step.

If you are creating a new event, notice that you are only given the option of continuing or canceling after filling out this form. After continuing, the full tabbed interface appears and you may navigate between the form steps as desired. Note that you must save each tab separately as you complete or edit it. While you can navigate to other tabs leaving unsaved edits in place, the information will not be stored for the event until you save that tab. In other words, the **Save** button only impacts the form you are on; it does not impact the other tabs. On each tab, you have the options **Save**, which saves the information but keeps you in the event configuration form, **Save and Done**, which saves and returns you to the event management screen, and **Cancel**, which returns you to the event management screen without saving.

Event location

The second tab is used to enter the location of the event. Note that this is intended for the actual physical location of the event, and not the location of your organization. It will be included in the event information page, and if you've enabled mapping in the first step, it will include a Google/OpenStreetMaps map.

Once you've created your first event and entered a location, that location will be available as a selection option for future events. At the top of the form will be an option to enter a new location or use an existing one. This is very useful if your organization uses various training or event locations on a regular basis. However, be aware that any changes to the location will affect all instances where that location is used.

You may enter one or more phone number and e-mail address associated with the event. The person who answers at this number should be knowledgeable about the event, how to register for it, and how to get to it. In some cases, it may be a number in your organization; at other times, it might be a number associated with a venue. For example, the phone number might be the hotel's phone number where your convention is being held and where attendees should call to reserve overnight accommodation.

The last field controls whether the event location should be visible on public-facing pages. After entering the information, click on **Save** and advance to the next tab.

Fees

If your event requires the payment of fees for people to attend, enable this option and begin completing the fields.

If you have set up a payment processor in your site to handle real-time credit card transactions, you may select the processor from the drop-down list. If you are not accepting credit card payments on your site, or do not wish to enable that for this specific event, you may still collect fees by clicking on **Enable Pay Later option?**. The idea behind **Pay later** is to ask people to commit to payment, which will be made outside the real-time context of the registration process. For example, you might allow people to pay with check, to call and pay by credit card, or to pay onsite with cash.

The **Pay later** option may be used in conjunction with payment by credit card, or each option may be used independently. However, if you have enabled fees for your event, you must have at least one option activated. If both credit card and **Pay later** options are enabled, the registrant will be given the option of selecting **Pay later**, which hides and disables the credit card fields from the public-facing registration form.

After enabling **Pay later**, you must complete two additional fields, and optionally select the third. The **Pay Later Label** option is the text to display beside the **Pay Later** checkbox on the registration form. The **Pay Later Instructions** field can contain a sentence or two of instructions on how to pay later. It will be included in both the **Thank You** page and the receipt sent to registrants. We recommend including the following detail in your instructions: who the check should be made out to, where the payment should be sent, and when it needs to be received. Consider the following example:

```
Payments should be made out to "FPAGM" and mailed to 123 Main St,
Metropolis, ThisState, 12345. Payments must be received within 30
days or at the convention, whichever is earlier, or your registration
may be canceled without further notice.
```

Below the **Instructions** field is an option to require the billing address for the individual. When the registration is processed by credit card, a billing address block will be present and required, as payment processors use the address to validate the card number. However, if you are including the option to pay later, a billing address is not required by the system. You may choose to require it if this is important for you to gather during the registration process.

Enter a **Fee Label** value to determine the text displayed on the public-facing information and registration pages. The **Financial Type** field determines how the fees will be categorized when the contribution record is created. Your selection is used for the public-facing registration form and will set the default value for registrations created through the administrative interface.

At this point, you must configure your fees. There are two ways to construct fee options—**Price Sets** or **Regular (basic) Fees**. The **Regular Fees** will present a basic list of fee options from which the registrant may select one option. The **Price Sets** option allows the construction of more complex series of options. A **Price Sets** option is a collection of fee fields, which may include radio button options (user selects one from a list), checkbox options (user may select more than one from the list), select field (user selects one from a list), or a text field (user enters a quantity, which is calculated against the configured per item rate to determine the total cost).

While **Price Sets** provide you with much more control and flexibility when constructing your fee options, it is more difficult to search and report on this option, given its potential complexity. If you don't need that level of control, it's much easier to just use the **Regular Fees** tool.

If using **Regular Fees**, enter the **Fee Label** and **Amount** columns to define your fee options. You may select one option to appear as **Default**. Once you have your fees configured, optionally click on it to enable **Discounts by Signup Date**. The date-based discount tool consists of one or more discount sets with associated fees. As you can define multiple discount sets, you can create a tiered structure for your discounts. For example, let's say your event will take place on March 15. You might construct the following fields:

- **Early Registration**: Now through January 15
- **Standard Registration**: January 16 to February 15
- **Late Registration**: February 16 to March 14

What we've defined as late registration will be entered as your **Regular Fee** options. You'll then create two discount sets, which have the appropriate date ranges to handle the early and standard registration fees. After naming the discount sets and entering the date ranges, click on **Add Discount Set to Fee Table** to create those sets.

Once saved, two new fee option tables will be added to this form, prefilled with **Fee Labels** you defined in your **Regular Fees** grid. In most cases, your fee options will remain the same, only the fee amounts will change. However, you can restructure the discount fees as you wish. For example, you might have a preconference program registration that is only available for people who register before January 15, which you only add to the first discount set.

The end user visiting your site to register will only see the fees appropriate to the time in which they register. CiviCRM takes care of determining what options are listed, ensuring that you don't have people trying to register at the discount rate past the associated date window.

> **Event discounts**
>
> If you are looking to offer other kinds of discounts besides the date-range based options available through the standard tools, consider installing the CiviDiscount extension (**Administer | System Settings | Manage Extensions**). Using this tool, you can create code-based discounts and automated discounts based on membership, age, and other criteria.

As mentioned earlier, price sets allow more advanced options for configuring event fees. Price sets must be created in the price set management tool before assigning them to a specific event. While we are still on the event fee configuration page, note the message concerning price sets. If you already have at least one price set configured, a select box will display allowing you to select that. Doing so will hide the **Regular Fees** sections, as you must choose one method or the other when configuring fees.

To construct a price set, visit **Events | New Price Set**, or **Manage Price Sets** to view the existing sets. Each set will consist of a series of fee fields. The set may be reused any number of times, so you may want the name to be general enough for use in multiple events. For example, if your organization holds a monthly breakfast seminar series with standard rates for each event, name your price set `Monthly Seminar Fees` rather than `March, 2011 Seminar`. Of course, if the price set will be used for a single event, you will want to be more specific in your naming to clearly differentiate it from other sets. Be sure to indicate that the price set will be used for events.

> The price set functionality may be used for events and contribution pages (including use with memberships). In the context of a contribution page, it allows you to have different levels and types of donation options.

Each fee field will use one of the following display/format types:

- **Text/Numeric quantity**: The registrant is given a text field where they enter a quantity value. The unit price is set by you and the total is calculated during the registration process. You might use this when selling banquet tickets at a conference where registrants may invite their spouse or colleagues to attend.
- **Select**: This option states a list of options displayed in a select form field.
- **Radio**: This option states a list of options displayed in a list of radio buttons where the user may only select one option.
- **Checkbox**: This option states a list of options displayed in a list of checkboxes where the user may select/unselect any of the available choices.

For each field, you may choose whether the fee amounts are visible and whether the field is required. The required field option means the registrant must select an option from this one field. It does not impact how this field relates to other fields. As with the regular fees, you can set the **Active On** / **Expire On** dates for the field, allowing you to expose or hide the field within certain date ranges.

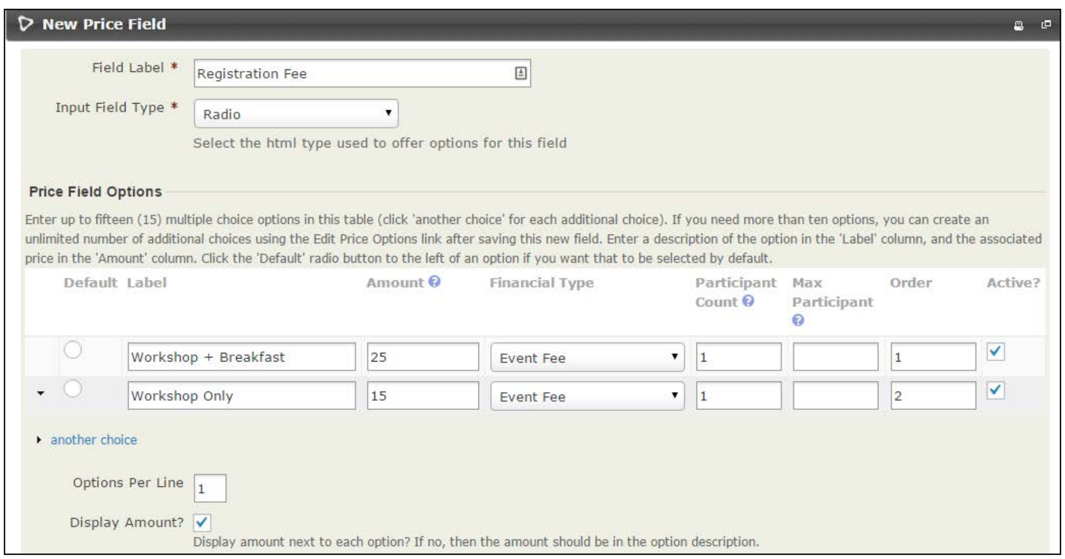
If you have selected the radio, checkbox, or select field type, you must enter the options available to that field. Each option value will have a label, amount, and financial type. If you want the selection of that option to count toward the total participant count, to be used in determining when the max participant count is reached, you can enter a value in that field. If this particular option is also governed by a maximum count, you can enter a value in that field.

Entering a **Max Participant** value at the option value level does not impact the total max participant count. It is useful when you have attendee options at your event that are limited in size. For example, you might have a golf tournament at a conference that is limited to 20 foursomes. You are not limiting total conference attendance to that level; just the selection of this particular option. Another way this can be used is if your event has break-out sessions in smaller rooms and you require people to select the sessions that they plan to attend during the registration process. The price field options do not necessarily have to have an amount associated with them, so you can create your session options in a field simply for the sake of controlling the participant counts.

Toward the end of this form is the option to make the field publicly visible or admin only. As the option suggests, a publicly visible field will appear on your public-facing registration form, while an admin-only field will only appear when you are registering people through the backend administrative tools. An admin-only field may be useful for structuring discount rates that only administrative staff may apply, or for registering speakers and guests for which special rates are available.

> Price set fields may be configured using a negative value, which could be used to allow discounting options. For example, your organization may offer a $25 discount if people agree to arrive an hour early and provide volunteer assistance with the event setup.

Refer to the following screenshot:



After configuring all your fields and saving them, you can return to your event configuration and select the price set for use in your event. Save the form and continue to the next tab to proceed with your event setup.

Online registration

The **Online Registration** option is where the power of CiviCRM is realized in the event management realm. No longer do you need to rely solely on processing paper-based registrations or to migrate data from a third-party event registration system into your contact database. Everything happens in real time, directly integrated with your constituent management software. As people register for the event, you see current statistics at any given point in time summarizing attendees by status and role.

The first few fields in this page control various options for how the form functions. After entering the text for how the registration form should be labeled when accessed from the event's information page, you specify the time period when the form will be available. You may, for example, want to cut off online registration a few days prior to the event in order to calculate total registrants, finalize numbers with your caterer, and begin preparing attendee packets. Once the end date has passed, site visitors who try to access the registration form will be redirected back to the event information page with a notice informing them that registration is closed.

The next two fields control multi-registrant capabilities. When **Register multiple participants?** is enabled, registrants will have the option of indicating a number of people besides themselves that they wish to register. Based on the number indicated, they will be given a separate form to complete for each registrant. The confirmation page will detail each registrant and the total amount charged will reflect all registrants. This is particularly useful for organizations whose constituents consist of businesses that may send multiple people to a conference, exhibit, or show, or a political party that allows a certain number of delegates from each region to attend a convention. The **Same email address?** option makes the e-mail field on the additional registrant forms optional (by default, each registrant must have a unique e-mail address).

If a user visiting your site logs in before registering for an event, we know with certainty that the registration will be attached to the correct contact record. Any time a person is logged in to the system, CiviCRM becomes aware of them and will know to interact with their record. However, very often, your registration form will be publicly available, and even if the visitor does have a user account, they may not take the time to log in before completing the form. In such cases, CiviCRM will take the data submitted in the form and use it to try to match the person to an existing contact record in the system; if no match is found, a new contact record is created.

By default, your form will use the **Unsupervised rule** defined in **Contacts | Find and Merge Duplicate Contacts** to determine a possible match. However, you have the option of selecting a different rule, if desired. This may be useful if your registration form for a certain event has specific fields that could be used to improve the matching success of the process.

> **Duplicate matching rules**
>
> If you are not familiar with the process of creating a duplicate matching rule, please review the detailed explanation earlier in this book. When selecting a rule for use in your event, there are two important things to consider:
>
> - Make sure the fields defined in your rule are also present in your registration form. If you match on fields that are not present in your form, you will never have a successful match and you'll find a lot of duplicate contacts enter your system.
> - Make sure your rule is strict enough to avoid false matches. In the context of a registration form, it's very likely a lot of users will complete the form without first logging in; you want to make sure there are enough fields compared by the matching rule to avoid connecting to the wrong contact.

The **Require participant approval?** option is used if you want the administrative staff to review registrants before they are allowed to complete their registration and pay. Enabling this option will mark each registrant as pending approval in the participant status field and exposes an approval message field where you provide guidance to the registrant regarding this function.

Before using the participant approval functionality, you need to enable the **Awaiting approval**, **Pending from approval**, and **Rejected statuses** at **Administer | CiviEvent | Participant Statuses**, and enable the **Update Participant Statuses** scheduled job, as described in the *Waitlisting* section.

If you are using either the waitlist or approval functionality, you may optionally configure a **Pending participant expiration (hours)** duration, as reviewed earlier. This value determines how long approved/accepted waitlisted registrants are given to complete their registration after CiviCRM sends them an e-mail inviting them to register. For more discussion on this functionality.

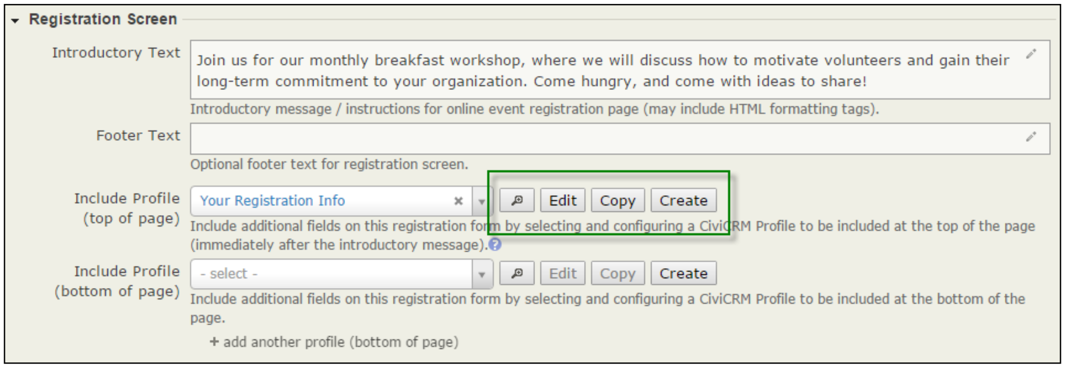
The rest of this form handles the page titles and text that will be displayed on each of the three steps of the registration process—the registration form, confirmation page, and the thank-you page. Simply click on the message area to enlarge and expose the toolbar editor region. In addition, you will set your profile selections in this area.

A **profile** is a collection of fields, both basic system fields (first name, last name, and so on) and custom fields that you have configured in the system. A standard event registration form with no profile configured will only include the event fees and e-mail fields, which is the minimum requirement of CiviCRM to complete a registration. However, in almost every case, you will want to collect additional fields for the registrant, including name, address, phone number, and perhaps some options specific to the event (meal choice, special needs, session attendance, and so on). These will need to be gathered together in one or more profiles and included in your form.

If you have enabled multiple-registrant capability, you also have the option of selecting a different set of profiles for use with the additional registrants. Let's say you are hosting an exhibit or show in which businesses frequently send multiple representatives. Your first registrant form should include details about the exhibit display, such as display size, special needs (such as electricity), and preferred location. You only need the name and contact information for all subsequent registrants. So you create separate profiles for the first registrant, which contains the exhibit-related details, and another for all additional registrants containing the name and contact information.

Profiles are an important part of the event registration tool. If you are not familiar with how they are used, refer to *Chapter 5*, *Collecting, Organizing, and Importing Data*, for a full discussion of how they are configured. Also, review the *Custom data fields* section there, taking particular note of the different ways in which custom fields for event participants can be created. For example, you can create custom participant fields that are role-specific, event type-specific, event-specific, or available for participants in all events. Keep in mind that the creation of a custom field does not itself impact whether it's visible in your registration form; you must also add the desired fields to the profile that will be used in your form.

Note that in Chapter, we walk through profile management through the main management screen (**Administer | Customize Data and Screens | Profiles**). In the context of event configuration, you can perform many of the profile management actions directly on this tab:



If editing or creating a profile through the event configuration screen, CiviCRM will open a window displaying a drag and drop interface to add fields to the form. You can select existing fields and click the pencil icon to edit attributes, such as help text, field label, and whether it is required or not.

The final section in this form controls e-mail-based confirmation and receipting. When registrants complete the form, you generally want them to receive an e-mail confirming that they are registered, detailing the options they selected, and serving as their payment receipt for paid events. In this section, you may add an event-specific message that will appear at the top of the e-mail, specify who the e-mail is from (name and e-mail), and indicate whether it should be CC/BCCed to anyone (such as your event director or staff).

The event-and receipt-related fields are inserted by CiviCRM, but may be configured through **Administer | Communications | Message Templates | System Workflow Messages**. Note that several event-related templates exist there by default. The one impacting the online registration form is titled **Events - Registration Confirmation and Receipt (on-line)**. Depending on what options you selected, other templates may be used as well. In general, the default templates are basic but sufficient, laying out the fields in a table grid format.

After completing the configuration of this form, click on **Save** and advance to one of the remaining tabs. At this point, you have completed the most important steps in the event creation process. The remaining tabs provide additional functionality to help you manage and promote your event.

Schedule reminders

Many people may register for your event when the registration is first opened, which may be weeks or months before the event takes place. As the date approaches, it's possible some may forget about the event altogether, or misplace the information that explains parking, travel considerations, and other event details. Wouldn't it be nice to automatically send registrants a reminder a few days before an event? You can do this through the **Schedule Reminders** tab.

When scheduling a reminder, you begin by determining who the recipients should be, based on the participant status. You then decide when it will be delivered. You can choose to send a reminder on a specific date, or measured from the event's start or end date. You might send a reminder before the event with details about parking, and then send another reminder after the event to thank people for their participation.

Generally, you will enable the option, **Record activity for automated email or SMS**, which will help you keep track of who received the reminder and at what time.

Reminders can be set up as repeatable; for example, you could send the reminder every day for the 3 days prior to the event. Use with caution though—too many e-mails can be perceived as more annoying than helpful.

Configure who the e-mail will come from, and whether there are any additional contacts who should receive it. Then, decide whether the reminder should come as an e-mail, SMS, or through the user's configured preference. Note that if you wish to send an SMS, you must have installed and configured an SMS extension that will handle delivery.

Lastly, provide the subject for the reminder and the content to be used, optionally using a template as the basis. If you are delivering the reminder as an SMS or as the user's preference, keep in mind that the SMS content should be short and succinct compared to what you might typically design for an e-mail.

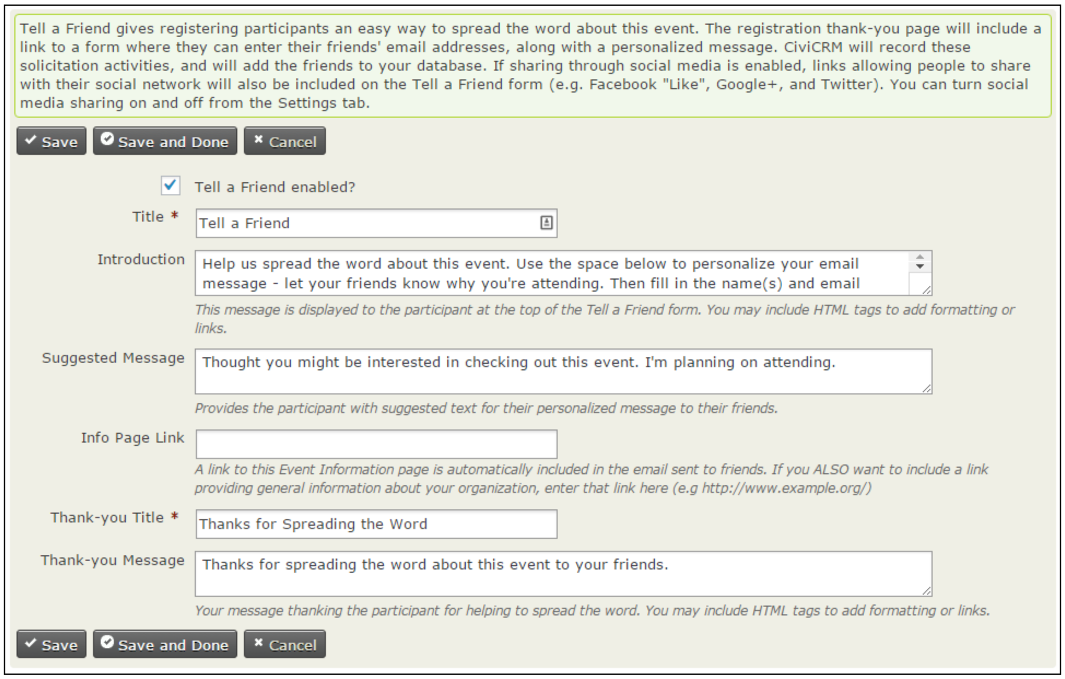
Tell a Friend

The **Tell a Friend** tool enables a social networking feature, providing tools for registrants to tell others about your organization and event. When enabled, registrants will be given a button on the event **Thank You** page, inviting them to share the event with others. The button directs them to a form where they may customize a default message and enter the names and e-mail addresses of those they wish to invite.

You configure the page title, the message given to registrants on the **Thank You** page, encouraging them to tell others, the suggested (default) message that registrants may then customize, and the link provided to recipients. Typically, you will direct people to the event information or registration page, but you have the flexibility to send them anywhere.

After registrants complete the **Tell a Friend** form, they will be directed to a **Thank You** page that you can configure using the last two fields on this form.

The following screenshot shows the options presented in the **Tell a Friend** configuration:



Personal campaigns

Another way to engage your constituents in support of your cause is through a PCP. As the name suggests, you are providing users a way to create their own personal page in support of your organization. We saw these used in *Chapter 8, Fundraising for Your Mission*, when creating an online donation page; in the context of events, they can be used in two ways: individuals can create a page that solicits registrations for this event, or they can create contribution pages that raise money for your organization.

While both are valid tools for encouraging support, it's most likely that you will choose the latter. Consider this example:

> FPAGM holds a community outreach fundraiser every year that is largely sponsored and managed by a committed group of volunteers from area businesses. The fundraiser is held as a banquet where individuals can purchase individual tickets, and where businesses are encouraged to purchase sponsored tables of eight. The area business volunteers recognize that many of their business colleagues are prime prospects for supporting FPAGM, and they want to utilize these relationships to the fullest. They configure the event to collect seat and table sales, and enable personal campaign pages tied to a contribution page for collecting donations. When these business leaders register for the event, they also create a personal campaign page, customized as they desire, and disseminate it to their network of business colleagues. As donations are received through these pages, the business leaders receive a soft credit, recognizing their important efforts to solicit donations on behalf of FPAGM.

Walking through the configuration of this tab, note the following fields that should be reviewed and configured:

- **Campaign Type**: As described previously, decide whether the PCP will promote registrations to this event or will solicit donations through a contribution page. If you choose the latter, an additional field will be displayed to select the contribution page that will be used as the basis for the PCP.
- **Approval required**: There is always some risk when you empower users to create a form to collect funds on your behalf. For example, you may have some people create text or add images that don't align with your organization message. If approval is required, the user will be able to create their page, but it will not become active until you have reviewed and approved it. The **Notify Email** field is used to determine who should receive a notification when a new PCP requiring approval has been created.
- **Supporter Profile**: The supporter profile collects information about the owner of the PCP, not the people who are donating or registering.
- **Owner Email Notification**: You can choose to let the owner be optionally notified when donations are made through their PCP, require that owners are notified, or disable notifications altogether.

- **Tell a Friend**: Enabling this option and setting a value in the **maximum recipients limit** field lets contributors to the PCP share the page with their friends. It basically extends the social networking reach to the next level of contributors.
- **Create Personal Campaign Page link text**: This is the text you will use to encourage people to create a PCP.

If you've not used PCPs in the past, consider experimenting with an event or contribution page and see how your core constituent base responds. It may be a powerful way to extend the reach of your organization.

Repeat

Events may also be configured as repeatable. For example, if the monthly workshop breakfast we've been using as an example is consistently held on the first Wednesday of every month, you could configure it as a repeat event. The configuration for repeated events is similar to other calendaring software you may be familiar with: you configure the start date, rate of repetition, and when it will end—either based on number of occurrences or a specific date. You may also select specific exclusion dates, in order to avoid holidays or create breaks in the pattern for other reasons.

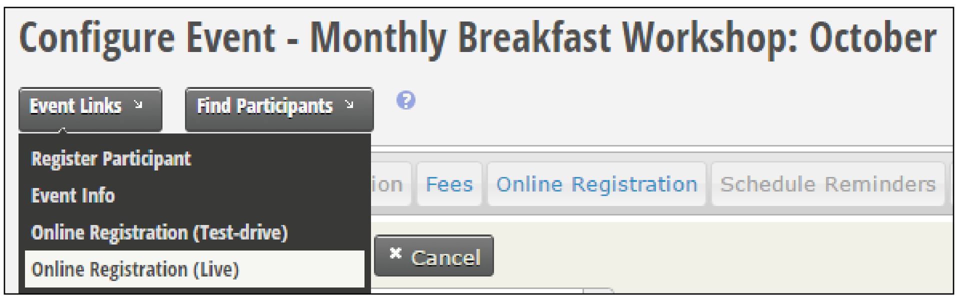
Once you have created a repeating event, you may modify the individual events as needed; they won't be strictly tied to the originating event.

Testing and promoting

At this point, your event is configured and ready to go. The next and very important step is to test your registration form. This is particularly important when you are working with events for the first time and are not fully familiar with the various features. Test the information page and registration form; make sure you are comfortable with how the fees and fields are structured, and how messages are displayed in each step of the process. Be sure to walk through a complete registration so that you can receive and review the receipt e-mail. If you have both credit card and **Pay later** options enabled, exercise both workflows to ensure that you have crafted your text appropriately for all pages and e-mails.

To access event-related links for testing and promotion, use the **Event Links** button from within the event configuration form or the pop-up link in the **Event Management** listing. There are three link options you will review:

- **Event Info**: This option displays the live information page about the event.
- **Online Registration (Test-drive)**: This option displays the registration form in test drive mode. The test drive mode will not actually process a credit card, and the registration will be flagged as a test record for exclusion in your registrant counts. When searching for test registrations at **Events | Find Participants**, you might be confused if your test transactions don't show up. Make sure you select **Yes** in the **Participant is a Test?** field to explicitly include test registrations in the result list.
- **Registration (Live)**: This option displays the live registration form:



> Although CiviCRM does provide the test-drive option, we recommend testing with the live registration link until you are comfortable with the configuration options. You may want to temporarily add a small-value registration fee option for live testing with a credit card in order to avoid the cost of issuing a refund.

The preceding live links (**Event Info** and **Online Registration (Live)**) can be used in your website content, e-mails, and other promotional methods. Joomla! users may construct links to these pages through the creation of a CiviCRM menu item. WordPress users can insert the forms into pages using the shortcode widget. Drupal users will copy the links from this drop-down menu and insert content items as desired.

In addition to direct links to your event pages, you may want to provide access to lists of upcoming events. There are several ways to do that using native CiviCRM methods. From the **Manage Events** page, you will find four icons in the top-right region of the **Find Events** block:

- HTML listing of events
- RSS feed of events
- iCalendar file download of events
- iCalendar feed of events

Each link publishes a list of current and future events that are designated as public. Recall that in the first page of the event setup process, we had the option of setting an event as public; the primary use of that function is to control what appears in these listing pages.

CiviCRM provides Drupal with a block to display events. You can enable it within a Drupal theme at **Structure | Blocks** by specifying a region for the **CiviCRM Upcoming Events** block and clicking on **Save blocks**. Advanced Drupal users interested in more control over the formatting and display of CiviCRM event information within Drupal should use **Views**. The **Views** option provides extensive customization of how you display event information on pages, blocks, and feeds. For more information on using views, refer to **Advanced Help** on your site, or use a good Drupal book on the topic.

An events listing module is also available for Joomla! at `https://github.com/lcdservices/CiviEvent-Joomla-Module`. The module has numerous options for controlling what is displayed in the list of events, including whether it links to the information page or registration page, whether a **Register now** link is included, the event summary, and how you want the list filtered (event type, date range, all current/future, specific events, and so on). For Joomla! users, this presents many useful options for promoting your events.

A WordPress CiviEvent Widget (`https://civicrm.org/extensions/civievent-widget`) extension provides tools for listing upcoming events or highlighting a single event. Both are available for insertion in posts and pages using shortcodes.

Now that you've constructed your event and tested it, get out there and tell people about it!

Breakfast seminar example

One of FPAGM's goals for the year is to provide more training resources for food pantries in the region. Many of these pantries are volunteer-run and managed by churches, community organizations, and other small local groups who are seeking to support their neighborhood. To achieve this goal, they have constructed a series of breakfast workshops where volunteers and pantry workers can come together and discuss a predefined topic. FPAGM will invite speakers to facilitate the discussion around topics such as financial management, volunteer solicitation and coordination, food storage and distribution, and support resources for clients.

Each breakfast seminar will charge a nominal fee to cover the cost of the food provided. FPAGM would like all registrations to go through the website (no mail or phone-based registrations), though they will enable the **Pay later** option for people who wish to pay by cash onsite.

Since they anticipate hosting other types of events, they begin by creating a **Breakfast Seminar** event type to categorize these monthly meetings. They also construct an event template, as each of these meetings will be nearly identical. Since the fee structure is very basic and the template will replicate it from one event to the next, they choose not to construct a price set. They will offer two fee options: standard and supporter. The standard fee will cover the cost of the breakfast and incidentals associated with hosting the event, while supporter will add an additional amount as a way of encouraging people to go beyond the basic cost and help support the association.

Space is limited, as the meetings will take place in the association's conference room, which holds about 30 people. FPAGM sets a max participants value and enables the waitlisting features. They also include a profile to capture basic details such as the individual's name, organization name, and phone number. They choose not to enable the multi-participant option, as they prefer each person to sign up on their own. Once complete, they promote the events through blog-style announcements and provide direct links to the registration form.

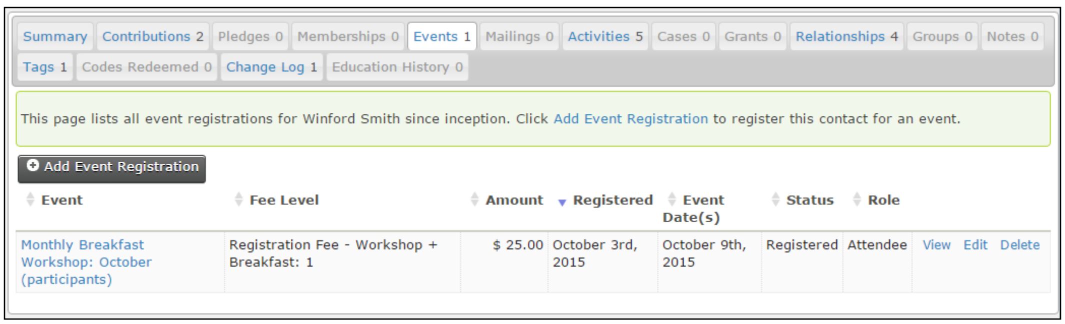
Processing and managing participants

You've configured your event, tested it, and publicly promoted the online information page and registration form. Before you know it, event registrations start rolling in. Now what?

As with so many other areas of CiviCRM, these records may be viewed collectively through search tools or on an individual-contact basis. In this section, we'll walk through the event registration as it is viewed through the contact's record and then briefly review importing participant records.

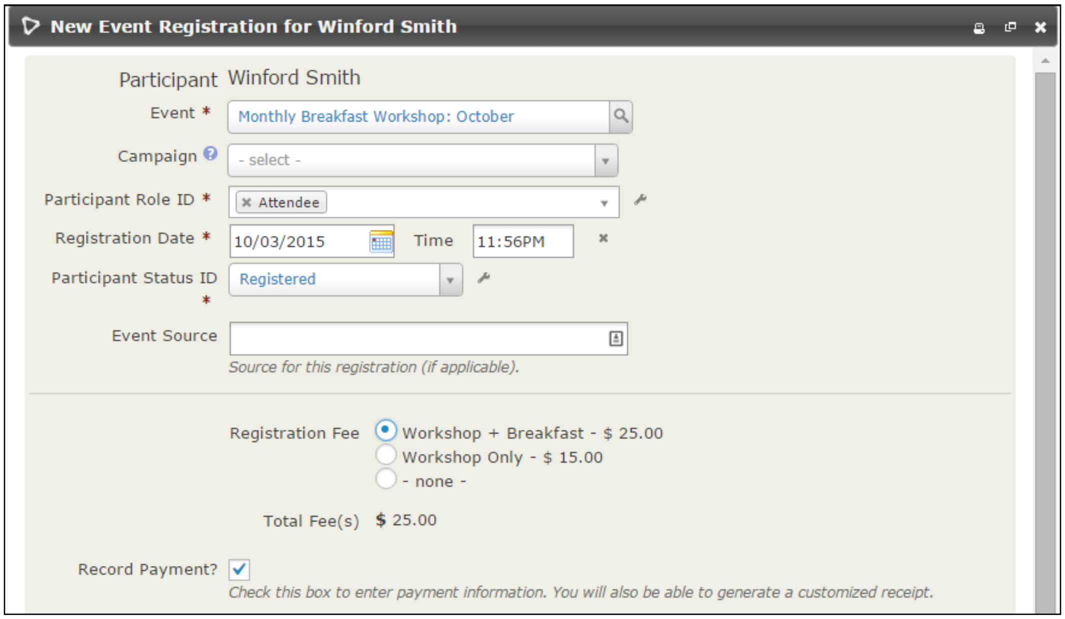
Working with event registrations

A contact's history of event attendance will appear in their **Events** tab. From this tab, you can view, edit, or delete an existing registration, or create a new registration for the contact:



If you have configured an integrated payment processor in your system, there will be two buttons above the event history listing: **Add Event Registration** and **Submit Credit Card Event Registration**. The first listing is used for registrations that do not involve real-time credit card processing through the system. This may include free events, payments by check, cash, EFT, or a credit card that was processed outside of the system. The second button should be used if you will be processing a credit card directly through CiviCRM.

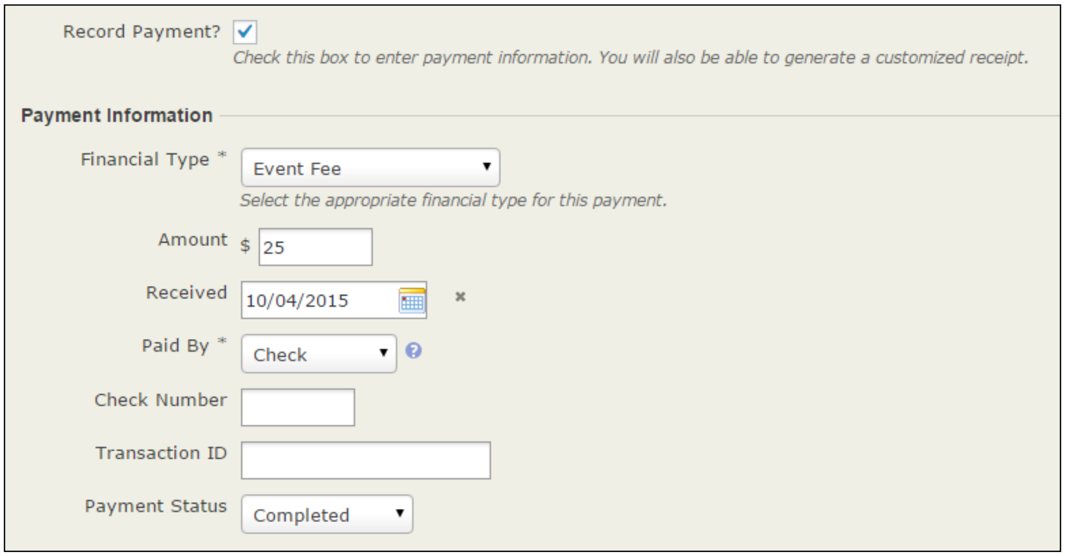
The **add event registration** form allows you to select the event you wish to register the individual for, the fees and fields specific to the event, payment options, and receipting options. The following screenshot shows the top half of the form:



There are several things to note about this form:

- The event drop-down list is searchable; begin typing the name of your event to filter the list dynamically.
- If you have created any custom data fields attached to participants, they will appear and be available only when the selections match their **Used for** criteria. For example, if you have created custom fields for the participant role, **Guest**, they will only appear when you change the role on this form. If you have custom fields attached to the event type, **Conference**, they will only appear if the event selected is associated with that event type. If you are expecting but not seeing a certain custom field, make sure your selections match how that field is configured to be used.

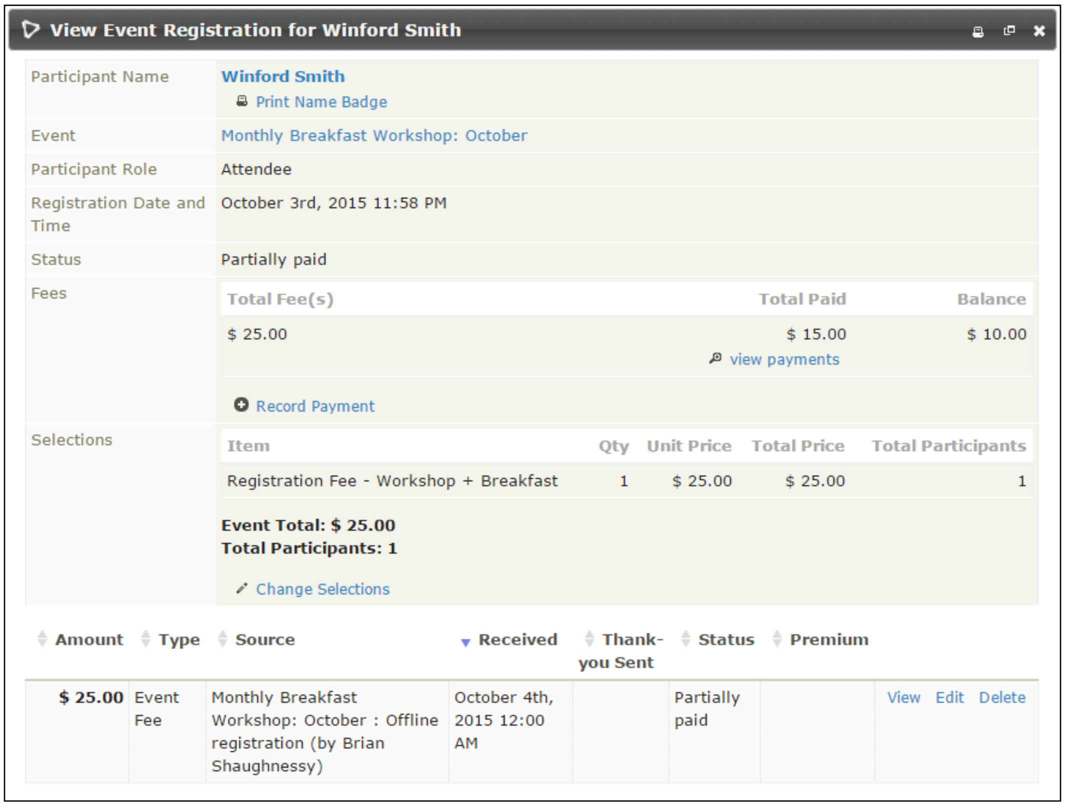
Directly below the event fee block is an option to record a payment with this registration. Checking the box reveals a series of contribution-related fields, as shown in the following screenshot:



It is important to understand that an event registration in which fees are collected involves both an event participant record and an associated contribution record. While you could process these separately, we strongly advise that you manage them through this single interface. In addition to being easier than entering them separately (since you may handle both records at once), doing so creates a link between the two records. If you return at a later date to view this event registration, you will see the related contribution record summarized below it. Likewise, if you enter the associated contribution record, you will see the event record summarized below it. Revenue totals for the event in reports will also reflect the linked records. Entering them separately will not build that connection.

Partial payments

CiviCRM will support partial payments for event registrations. If you add an event registration for an individual, select the payment options, and then adjust the **Amount** value under payment information, CiviCRM will mark the registration as partially paid and allow you to apply additional payments against the record. When viewing a partially paid registration, you will see an option to **Record Payment** and a link to view a listing of all existing payments attributed to the registration:



Once you have recorded payments that cover the full cost of the registration, the status will be automatically changed to **Registered**, indicating no additional amount is now due.

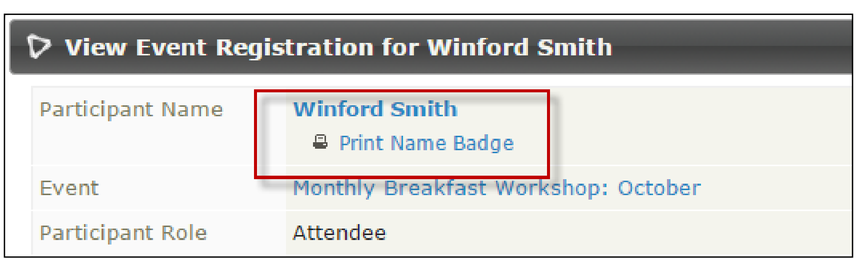
Handling expected payments

Inevitably, you will receive event registrations by mail, fax, or phone, in which payment has not been submitted with the event registration. Though you have not actually received the payment, there is an *expected* payment and consequently, the best practice is to enter the payment as a pending contribution. Use the **Record Payment** option to log the contribution and change the **Payment Status** field to **Pending**.

Why is this recommended? For two reasons: first, it captures the reality of the data better. You have received a registration that implies a commitment to pay. This is different from a registration for a guest, speaker, or other VIP attendee for whom you do not plan to charge a fee. Secondly, it provides better tools for tracking payments due. If each registrant in the preceding scenario has a pending contribution payment, you can easily run a search to find out the total due and process invoices or follow-up communication accordingly. In essence, it gives you a better overview of your actual financial position, and a clear data path to those who owe you payment.

Registrations received through your public-facing event registration page will also have both an event and contribution record created. The **Pay later** registrations will have contribution records with a status of **Pending**, indicating that a payment has not yet been received. When you receive payment, you will want to record the details in the contribution record and change the status to **Completed**. Doing so will automatically change the status of the associated event registration record to reflect that the payment has been received. Note that the reverse action does not have the same effect: changing the status of a *registration* to **Completed** does not likewise change the status of its associated *contribution* record. This supports situations where you want to allow people to attend the event (marked **Completed**) even though they will pay after the event (marked **Pending**).

Before leaving the event record displayed within the contact record, we want to point out one additional feature. From the **Events** tab, click on **View** to see the registration details. From this screen, you'll notice a button to create a name badge. Clicking on this option will direct you to a form where you select the template to be used and trigger the creation of a PDF file with the name badge:



In the *Tracking, searching, and reporting* section, we will review how to create name badges for all event participants in bulk. For now, it's useful to see how an individual name badge can be created. Name badge formats can be defined at **Administer | CiviEvent | Event Name Badge Layouts**.

Importing participant records

As with other areas of CiviCRM, the event functions include a tool for importing event registrations. This is particularly useful when you are initially migrating data from an external database such as MS Access or MS SQL Server. It may come in handy at other times, depending on your organization structure and how CiviCRM is being used.

Let's say your organization consists of five chapters geographically oriented to cover the entire state. Each chapter hosts local events and handles all onsite management through volunteers. The registration process is centralized through the state-wide organization using CiviCRM, so the contact participant list is generated and e-mailed to the chapter coordinator the day before the event.

Suppose some of these events allow walk-in registrations and others include continuing education credits that must have verified attendance in order to be earned. In other words, the organization must not only track if people have registered, but must also track whether they actually attended.

You choose to handle this by sending a `.csv` export file the evening before the event to the chapter coordinator. The coordinator welcomes people as they arrive at the event and uses spreadsheet software to mark each person who attends in the `.csv` file. They also add new rows for walk-ins. This file is sent back to the main office at the conclusion of the event and is imported into CiviCRM in two steps: existing registrants are imported using the **Update** option, where the participant status value reflects who attended, and the new registrants are imported using the **Insert** option, and are then matched with existing records using their name and e-mail.

The import tool is very similar to what we saw in other areas. The four-step wizard consists of loading a file and configuring the import settings, mapping the file's fields to CiviCRM fields, previewing the results, and completing the import. An error file will be generated and will be available for download if any problems are discovered with any records.

To access the import tool, visit **Events | Import Participants**. There are a few things to note that are specific to importing events:

- Participant import only accepts the `.csv` files. You cannot connect to a MySQL database as with the contact import.
- The most significant difference between importing participants and importing contacts is the behavior of the **Update** option for handling duplicates. The **Update** option *requires* the presence of an existing participant record, which *must* be identified using the unique participant ID value (note this is the participant record ID, not the contact ID). Consequently, you will only use it in scenarios similar to the one we just discussed, where the participant list is exported from the system, changes are made, and it is then imported back into the system. If the **Update** option is used, CiviCRM will not process new registration records. In this way, it differs from the contact import that matches and updates existing records *and* creates new records for those that do not match.
- As one might expect, the field mapping options available for the participant import include a number of registration-related fields. Take note of those in red as they are required in order to successfully import these records. They include the **Event ID and Participant Status**. The former can be obtained from the **Manage Events** page. Several of the fields highlighted in red are used for matching to the contact record. Not all of these are required; only ones sufficient for making a valid match are required. For example, you do not need the internal contact ID and the first/last name. Either of these is sufficient for making a match.

Tracking, searching, and reporting

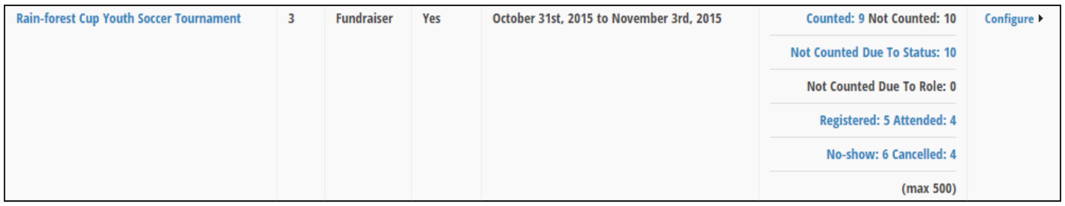
In the previous section, we worked with an individual contact record to see how the registration is created with an associated contribution record. In this section, we will begin working with multiple participant records.

Tracking registrations using the dashboard

One of the most important things for you as an event manager is the ability to quickly see how many people have registered for a given event. CiviCRM provides you with a snapshot to these details on **Events | Dashboard**.

Similar to other areas of CiviCRM, this **Dashboard** page provides a snapshot into key data in a summarized fashion. For events, this consists of a listing of upcoming events with registrant counts broken down into various categories, and a list of recent registrations received.

The registrant counts are very useful and bear some explanation. Review the following screenshot:



CiviCRM helps you *understand* your participant records by breaking them down into categories. We begin with the number of the **Counted** registrants, in contrast to those **Not Counted** registrants. Counted participants include those who have registered, including both those who have paid and those who will pay later. The **Not Counted** option is broken up by status and role. By default, registrants with a status of **no-show**, **cancelled**, **pending from incomplete transaction**, **on waitlist**, **rejected**, and **expired**, will all be excluded from the registrant count. Why? This is because they are not expected to attend or are confirmed to not have attended. In a similar way, participant roles may be configured for excluding them from the total counts. In the example we saw earlier, we created a participant role entitled **Staff**, which should not be included in the count.

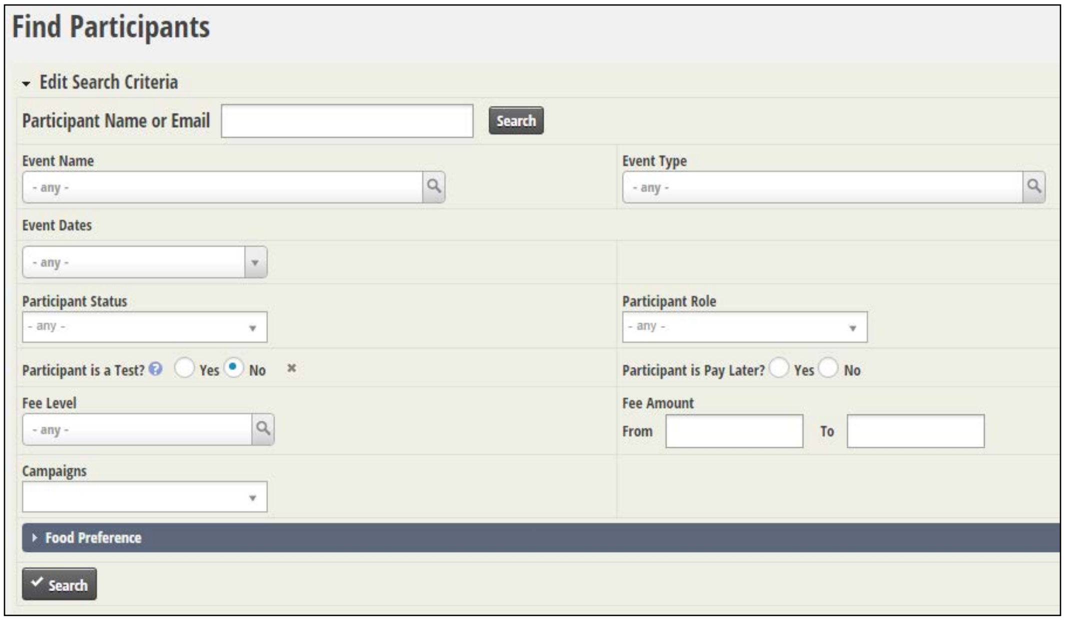
Settings for the participant statuses and roles can be configured through **Administer | CiviEvent** and were discussed earlier in this chapter. What we see in this section is the impact of those settings and how they are used to help you understand the nature of your participants.

The **Registered**, **Attended**, **No-show**, and **Cancelled** counts you see in the screenshot reflect the various participant statuses represented by the records. If other statuses were present, they would be listed as well.

Note that each of these counts is a live hyperlink; selecting the link displays the relevant registrants in that count. This is by far the fastest way to view and work with a segment of your participant records.

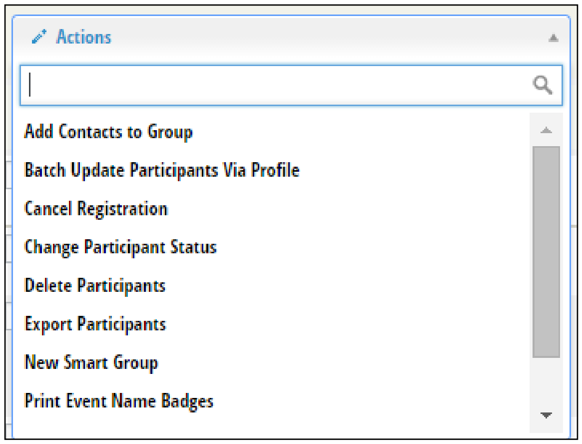
Searching for participants

While the dashboard provides a quick window into a single event, you will undoubtedly want to search for records based on more refined criteria or across multiple events. We do this through **Events | Find Participants**, as shown in the following screenshot:



The fields available through this tool are fairly self-explanatory. You have options to search within a single event, across multiple events within an event type category, by date ranges, or fee ranges. The search fields are restrictive; all criteria must be matched in order to return results. Entering a large number of criteria will result in a smaller number of records returned. The exceptions are the multi-select fields, **Participant Status**, **Participant Role**, and **Campaigns**. Multiple selections within those fields are inclusive, though its interaction with other fields remains restrictive. If you have defined any participant custom data fields and marked them as searchable, they will appear toward the bottom of this page, organized in panels by the custom field group.

Similar to CiviCRM's other search tools, you may take action on bulk records after running a search. First, select all records or choose selected records and then initiate your action from the drop-down menu:



Many of these are standard options we will not review at this time, as they have been covered previously. Take note of several that are specific to event participant handling:

- **Cancel Registration**: This option is used to bulk cancel selected records.
- **Change Participant Status**: This option is used to update the selected participant's status. You will have the option of updating all selected records to a selected status or individually changing the status for records.
- **Print Event Name Badges**: This option is used to generate bulk name badges, following steps similar to what was noted earlier—you select the format for your name badges, and then trigger the creation of a PDF file, which can be used for printing.

> Recall that component searches will retrieve the associated related records, not the contact records, in their results. This means that a single contact may be duplicated if they have multiple event registrations matching the selected criteria. If you are planning to search for registrants for the purpose of mailing, and your criteria is broad enough, it may include multiple registrations for the same individual, and you may want to use the **Advanced Search** tool rather than **Find Participants** in order to ensure no duplicates are generated.

Though this search tool will generally fill most of your needs for isolating records, you may find one particular area where it falls short, namely, the handling of price set fields. Price set fees are tricky because they result in a series of sub-fields associated with a single registration record. When searching and exporting registrations, it becomes difficult to effectively search on and export that data within the context of this form.

The ability to search a price field is actually included in the form; the issue is that you often need a more complete way to generate counts for the fields associated with an event.

To overcome this, CiviCRM ships with a custom search that will break down your event by price set fields. To access it, visit **Search | Custom Searches**. From this list, choose **Price Set Details for Event Participants**. Select an event and trigger the search to return a grid-based breakdown of participants by their price set fees.

A second custom search may also be of value: **Event Aggregate**. This search displays registration fee summary calculations for events. More robust reporting tools that we will review shortly have largely replaced it.

Event reports

Before wrapping up our discussion of event functionality, let's look at how the reporting tools can help you share the story of your event's success. Though a full discussion of reporting tools is covered later in this book (*Chapter 13*, *Telling Your Story – Building Reports*), we will briefly review the five event-specific report templates available to you.

To view existing event reports saved in your system, visit **Reports | Event Reports**. To create a new report from a template, click on **New Event Report**. Note that CiviCRM does not create an initial report instance for all of the templates during installation. You will want to review all of the template options to see what could be of use to you.

- **Event Participant Report (List)**: This option displays a list of participants for a given event.
- **Event Income Report (Summary)**: This option displays a summary overview of event income with status counts. You may filter by event, type, or start/end dates.
- **Event Income Report (Detail)**: This option displays extensive details about events with counts and percentage breakdowns by role, status, and payment method.

- **Participant List Count**: This option displays a list of attendees with various options for column display. This report can group by event or event type, and includes an option to display a blank column at the beginning or end of the report, which can be useful for generating event sign-in sheets.
- **Income Count Summary**: This option shows a listing of events with counts, income, and income statistics. This is useful for comparing events in a simple, summary fashion.

As with report templates throughout the system, it's worth taking some time to familiarize yourself with them so you know what is available when certain needs arise.

Additional tools and options

There are a few remaining event-related options and extensions we want to point out before closing out this chapter with a discussion of events as it relates to your overall CRM strategy. The event component has a few settings that you should review and consider. These are available by visiting **Administer | CiviEvent | CiviEvent Component Settings**.

The **Use Shopping Cart Style Event Registration** option will significantly alter how CiviCRM handles event registration signups by allowing people to register for more than one event at a time. This feature will affect the online registration options for all existing online events, and so should be used cautiously. Further, it is still considered in alpha state, meaning that it is not fully refined and may have some outstanding issues and bugs. For this reason, we want to make you aware of the capability, but do not consider it a key feature in the system. If you are interested in using this functionality, we recommend implementing it on a development site, where you can test it thoroughly before using it on a production environment.

The second option on this page, **Dashboard entries**, will determine how many recent event registrations will appear on the user's **Contact Dashboard** when they log in. By default, only 10 will be listed, but you can alter that value here.

We've mentioned previously that one of the primary ways you can add new functionality to CiviCRM is through extensions. Earlier in this chapter, we pointed out the CiviDiscount extension, which will let you create coupon codes and rule-based discounts for events. In addition, there are several other extensions that should be considered when implementing events.

CiviVolunteer provides tools for managing volunteers for events (`https://civicrm.org/extensions/civivolunteer`). Those interested in volunteering would do so through a link found on the event information page. You manage the process by defining volunteer opportunities that people can sign up for, or allowing them to sign up without committing to a specific role or time, and then you, as the event manager, will designate where they will be placed at a later date. The current version is very strictly connected to events, though work has begun on a new release that can work independently from events.

Several other extensions that integrate with events are noted as follows. When considering using these, be sure to review the version compatibility listing. Some may be listed as compatible with older versions of CiviCRM than what you are using. In such cases, you can still attempt to install and use them (preferably on a development site); it's possible they are compatible with the current version and the developer has either not updated the listing or simply has not fully tested it on the current version:

- **CiviCRM Events Calendar**: `https://civicrm.org/extensions/civicrm-events-calendar`
- **CiviCRM Multiday Event**: `https://civicrm.org/extensions/civicrm-multiday-event`
- **Group-based Pricing**: `https://civicrm.org/extensions/group-based-pricing`
- **Event Additional Signup**: `https://civicrm.org/extensions/event-additional-signup`
- **Limit Max Additional Participants for Events**: `https://civicrm.org/extensions/limit-max-additional-participants-events`
- **CiviCRM Event Receipts**: `https://civicrm.org/extensions/civicrm-event-receipts`
- **Event Registration Based on Participant Roles**: `https://civicrm.org/extensions/event-registration-based-participant-roles`

The preceding list is by no means exhaustive, and is only meant as a representation of the types of tools available to modify and extend CiviCRM as it relates to events. Be sure to visit the online extensions directory for an updated list of available extensions (`https://civicrm.org/extensions`).

Integrating events into your CRM strategy

One of the challenges of writing a book about software like CiviCRM is that it's really easy to remain modularized, and consequently, it would be easy for you to approach the software in a purely modularized way. That's fine to a large extent; you will naturally think and be structured around these blocks of functionality such as events, members, donations, case management, and so on. However, every so often, it's good to think outside of those modularized *boxes* and push beyond to realize the full potential of the software.

You've created an event, published the registration form, collected registrations, pulled your attendance list, printed name badges, and presented a report to your Board of Directors. In short, you've experienced a successful event management process.

However, what have you done to invite attendees to take further action? Perhaps become involved in a committee, sign up for an e-newsletter, or join the organization as a member?

As you construct your event and prepare to publish it, think about what fields you should collect information on that don't necessarily have a direct impact on the event. For example, you could include your newsletter signup option in the registration form, you could provide a checkbox list of interest areas to learn more about your event participants and why they are attending, or you could ask if they are interested in learning new ways to support the organization through monetary donations or volunteer service opportunities.

Do you ask people if this is the first time they are attending your conference or exhibit show, and if so, would they be interested in participating in a first-timers' dinner? Remember that events provide a unique opportunity for people to see the *face* of your organization. Use this opportunity to build commitment among those new to the organization.

After your event, you have a fresh list of people who are clearly interested and engaged enough to attend your conference, meeting, workshop, seminar, training, and so on. While a high percentage of these contacts were likely already in your system, some are inevitably new and merit additional follow-up. Do you send a conference evaluation survey following the event in which you invite people to provide feedback and input for use in future events? This could be done with a CiviCRM profile, enabling you to retain the response directly within the individual's record (assuming you don't need to offer the option to respond anonymously).

The tools to achieve these calls for action and commitment are at your fingertips: use membership tools to encourage people to join, link to donation pages from the event registration thank-you page to solicit monetary support, expand the information you collect in the event registration profile to learn more about your constituents and their areas of interest, and harness the power of CiviCRM's broadcast e-mail capabilities to promote and follow up with your registrants.

Go beyond just event management tools to other CiviCRM capabilities in order to broaden and deepen your organization's relationship with event participants.

Summary

For many organizations, events are the only opportunity that constituents have to see the *face* of your organization. How you manage your event and what tools you have to effectively track and report on the success of the event will ultimately impact your bottom line. CiviCRM provides tremendous tools for generating both simple and complex structures and managing registrants through every phase of the project.

In this chapter, we walked through the configuration of events and discussed in detail the many options available and reviewed how an event registration impacts the contact record. We even registered a contact administratively and understood best practices when working within the backend environment. We discovered how CiviCRM calculates participant counts and how these can be effectively used to track the registration progress. We ran searches for participants and took bulk action on the resulting records, and generated reports to summarize event income details and produce attendee lists.

In the next chapter, we'll turn our attention to CiviCRM's case management tools and explore how you can track communications with constituents as you work toward case resolution.

11
Interacting with Constituents – Managing Cases

We come to a chapter that may not appear at first glance to apply to many not-for-profit organizations. The concept of **case management** is often considered with reference to the human service agencies, such as those within the healthcare industry. This is actually where the original functionality of CiviCRM's case tools was born. Having said that, we actually know of quite a few customers that use the CiviCRM case tool for things such as contract processing, travel arrangements, and volunteer projects.

The concept of case management extends to many other industries and organizations as well. In essence, it is the management of a multistep process, surrounding a single theme, issue, or project, centered on a constituent.

In this chapter, we will cover the following topics:

- Thinking through your case management system
- Configuring cases
- Tracking, managing, and resolving cases

Even if you do not initially think CiviCRM's case management tools are something you would need to use in your organization, consider reviewing this chapter to better understand the core concepts and potential use cases. You may be surprised by the possibilities that case tools offer.

Thinking through your case management system

As with the other areas of CiviCRM, your implementation of the case tools begins with planning. In fact, the planning and configuration step is absolutely essential for working with cases.

However, before we dig into that process, let's take a step back and understand what case management is and how it differs from activity records.

In the opening section, we described a case as the management of a multistep process, surrounding a single theme, issue, or project. In essence, a case is a container for activities and relationships—a mini CRM within CiviCRM. Each case surrounds a single theme, issue, or project attached to one or more constituents. Within this container, we track **case activities** (our multistep processes), **roles** (the staff and key players involved in case resolution), and **relationships** (internal or external contacts who are involved in the case or connected to the contact). By grouping these various pieces of data in a case record, we can group them apart from the rest of the contact's information. This isolation simply helps us track the conversations and key people involved in each specific issue or project. In paper days, we probably would have collected all the papers where this stuff was described in a single file, with the case name handwritten on the file.

In addition, the case tools allow us to build time-based **workflows** into the issue resolution process. These timelines are constructed to ensure that the staff involved in the resolution adhere to your response-time policies and procedures.

If everything described here sounds like a foreign language to you, consider this summary of key case functionalities:

- **Cases group activities**: If you are interacting with a constituent about an issue and find that you have multiple phone calls, documents transferred, meetings, and so on, a case can collect them into a single convenient container.
- **Cases may define workflows**: If you have well-defined multistep processes and want to regulate those steps, case tools can define each step and assign due dates. You can later audit the workflow to see how well staff completed each task as compared with the original expected due date.
- **Cases may define roles**: If you have multiple staff assigned to projects along functional lines, or you need to better manage the roles and projects to which particular staff are assigned, case tools can help you define and assign roles more effectively.

So what's the difference between cases and activities? Why would I build a case when I can track multiple activities in a constituent's record and assign them to my staff as needed?

The two tools are very similar. In fact, the primary make-up of a case record is the ongoing series of case activities. However, while a contact's basic list of activities will grow and be created from multiple sources (both manually-created activities and autogenerated ones), the case record will help manage the multiple pieces of communication, surrounding a common topic by grouping them together. In this sense, think of a case as an upgraded group of activities.

Cases don't replace activities. You will still have periodic general communications to and from constituents that you track as activities directly on their contact record. However, if your relationship with a constituent surrounding a single issue, problem, project, or other matter begins to involve multiple steps, multiple pieces of communication, or multiple people in distinct roles, it's time to upgrade to a case.

Making it real

If you're still struggling to see the potential application to your organization, consider the following use cases:

- **Human services/service delivery**: This use case is where the case tools were first born, and is the most obvious application. If you interact with constituents by helping them resolve issues (as a counselor, consultant, or advocate) or providing direct support to them (on-site care, delivery services, transportation, and so on), you may manage these service and support requests/tickets with a case.
- **Membership/affiliation processes**: If your membership or affiliation application process involves multiple steps in which the applicant must complete forms and interviews, provide supporting documentation and go through a formal approval process, you could manage those steps in a case. While the case record won't directly connect to the membership records, the process and record-keeping involved with the application and approval could be handled here.
- **Donor courting**: While low-end donors may simply have a one-touch relationship with your organization through a contribution page, high-end donors typically involve a longer **courting** process, where key leaders in the organization will meet the donor, discuss specific needs, and perhaps negotiate the recognition that will be received for donation or sponsorship. The ongoing communication surrounding a specific donation or sponsorship solicitation could be grouped in a case record.

- **Grant application**: CiviCRM's built-in grant tools are geared toward organizations disseminating grants and managing communication with grantees. However, if your organization regularly *applies* for grants, you could construct a case type to manage that process, including grant writing, internal review, application submission, response, report tracking, and payment schedule.
- **Government constituent support**: If you are a government official or work for a government entity where you are interacting with constituents and providing support for them, cases can help you track when those requests for support are created, worked on, and resolved.
- **Travel arrangements**: If your organization sends people to other countries where travel agencies need to book tickets, visas needs to be arranged, a hotel needs to be booked, and a pick up from the airport arranged, cases can help you to keep track of all required steps and have an overview in one glance.
- **Volunteer recruitment**: An organization we know recruits many specialized volunteers for short projects. If a volunteer applies, a member of the organization will need to assess if the expertise is applicable, arrange for an interview, and organize introductory training, and so on. CiviCase helps this organization to manage their recruitment process.

These examples are just a few ways in which CiviCRM's case management tools are currently being used, and may stimulate your thinking to find ways in which it could be used in your organization.

However, are there times when a case record should not be used? Perhaps a better question to ask is, what are some potential drawbacks to using case tools over simple activity records or other tools?

While considering the use of cases, one should understand that it does add a process layer to the record. Of course, that is the whole point of the tool. However, that extra layer does mean the individual activities—your records of communication and interaction surrounding an issue—are one step removed from the contact record. If I visit John Doe's record, I will need to enter the relevant case record to see those activities.

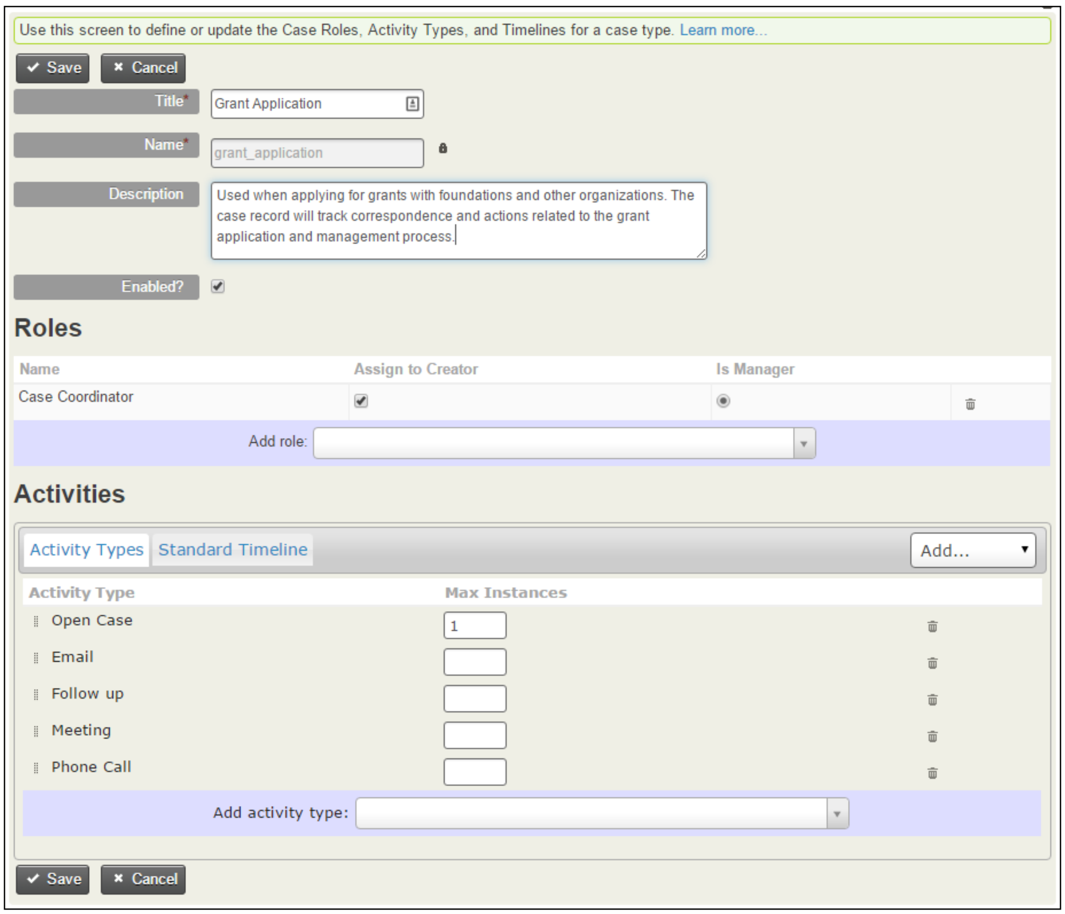
CiviCRM provides some excellent tools for exposing case details and activities to the system dashboard, so it's not as though the information and data is buried. However, you are adding a layer of **middle management**, and if the volume and nature of your record keeping doesn't warrant it, it may be more cumbersome than helpful.

Configuring cases

At this point, you should have a good idea where you want to go with the case management tools and be ready to begin the configuration process. As alluded to earlier, CiviCRM's case configuration is more involved (and a bit more complicated) than other components. This is because each case type is highly customized to the types of activities, workflows, and roles involved in the resolution process. That customization, and the flexibility CiviCRM provides, adds a level of complication.

Your first step will be to define a case type and configure the activities, workflows, roles, timelines, and other elements that may be part of the case. Each case type will have its own configuration.

Define your case type by going to **Administer** | **CiviCase** | **Case Types**:



Give a name in the **Title** field to your case type, and optional description. CiviCRM will populate the **Roles** and **Activities** sections with default settings, which you will want to review and modify.

> FPAGM periodically applies for grants to assist with capital purchases, training programs, or direct support for food pantries in the area. The Association decides to formalize the application and grant tracking process internally by using CiviCRM's case management tools. While they could have relabeled the CiviGrants tool to reflect the grant application requirements (instead of its normal grant-dissemination orientation), their workflow needs and multistep processes were better handled through CiviCase.
>
> They begin by constructing a **Grant Application** case type that collects all communication and other activity records surrounding the grant process.

As mentioned earlier, case roles are used to identify people who play a key role in the case management and resolution process. A case role represents an individual *directly involved* in case resolution—usually your staff. Whereas an individual activity record may have assignees, the case role function goes further by defining the nature (role) of the person's involvement in the case. By attaching them to the case itself (and not just individual activities), we provide another level of management control over the case process.

For example, you will likely want to assign the case to a staff person who will serve as the primary case manager. But you might have a second role type for support staff who should assist the case manager with the work.

Case roles are actually relationship types, but interact with cases in this unique way. To create additional role types, visit **Administer | Customize Data and Screens | Relationship Types**. Remember to return to the case configuration tool to assign the relationship to the case type as a role.

When including a relationship type as a role in a case type configuration, there are two options to consider: **Assign to Creator** (which may be selected for multiple roles) and **Is Manager** (which may be assigned to one role). As the first option suggests, whichever role(s) are designated in this way will be assigned to the individual who initially created the case. The assumption is that the person creating the case is likely someone who will also play a particular role in working on it.

The second option indicates the role that designates the case manager. Although you may have multiple people involved in a particular case, you will generally have one person who is the primary case manager—the person ultimately responsible for bringing the case to resolution. Whoever is given the role flagged as case manager will have his or her name prominently displayed in the case management screen, search tools, and reporting.

When creating your case role relationship types, ask the following questions:

- Who will be involved in the case resolution process?
- Are there clear lines of responsibility that can be defined?
- How will I want to track and report on cases? For example, will I need to pull reports to determine which staff members are involved in what cases and in what capacity?
- Do different roles translate to the different levels (and time) of engagement, such that I can determine staff resource allocation based on their roles?

> FPAGM determines that there are three clear roles with regard to case management: **Case Manager**, charged with overseeing the progress of the case and managing resources, **Case Coordinator**, who is the primary day-to-day person working on a specific case, and **Support Staff**, who will occasionally be assigned to a case based on their expertise and the nature of the case. They use the **Relationship Types** tool to construct these three case roles.

Along with case roles (that is, people directly involved in case resolution), you will generally have additional contacts that are indirectly involved in the case process. These may be outside agencies, government bodies, consultants, or other organizations that assist you and are a general resource for your organization. We call them **case resources** and collect them as a directory of contacts available to the case.

When the case component was first enabled, a new group called case resources was created for the purpose of tracking these contacts. Any contacts you add to this group will appear in the case management page for easy reference when people are working with the case.

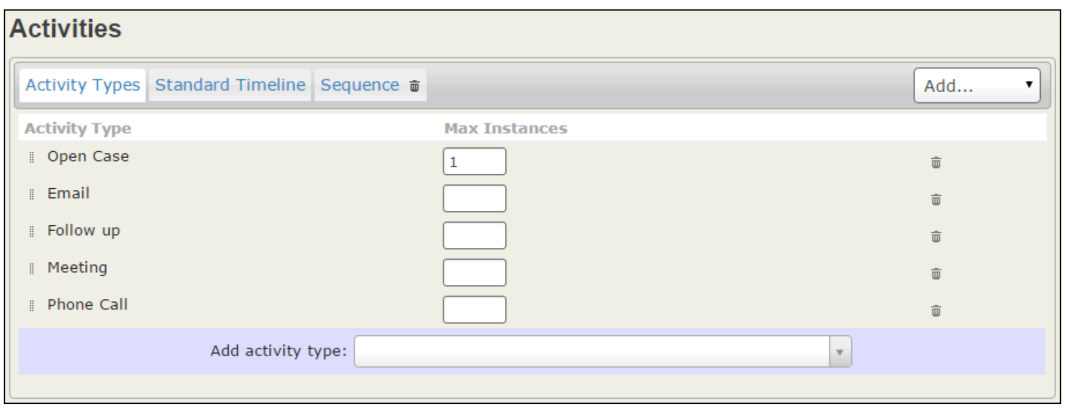
When we begin looking at a case record, we will also see that any existing relationship the contact has (employer, spouse, household, and so on) will be listed within the case relationships panel. This is all for the purpose of putting the most pertinent and useful information at your fingertips while you are working on the case.

The **Activities** configuration section is where you define activities available to the case, and also where you will construct **Activity Timelines**. Any activity type you add to the activities listing will be available to the case. While you may choose to autopopulate the case with activities using the timeline, staff will also need to manually add activities to the record as the need arises.

If you need to define activity types aside from those present in the default installation, do so by visiting **Administer** | **Customize Data and Screens** | **Activity Types**. When you create an activity type, note that you can designate it as intended for use with **Contacts AND Cases**, or **Cases Only**. That's a good way to avoid cluttering the create activity tool, with activity types only pertinent to cases. Remember that as with roles, an activity type is only available to a specific case type if you have configured it to be available.

> Don't forget that specific activity types may be extended through custom data. You may want to plan on collecting additional information when creating certain types of activities.

As you add activities to your case, you may optionally indicate the maximum number of instances where an activity is allowed to appear in your case. The clearest example of where this is useful is with the **Open Case** activity; clearly there should only ever be one activity of that type in your case. By setting this value to **1**, you make sure case workers don't inadvertently add a second activity of that type:



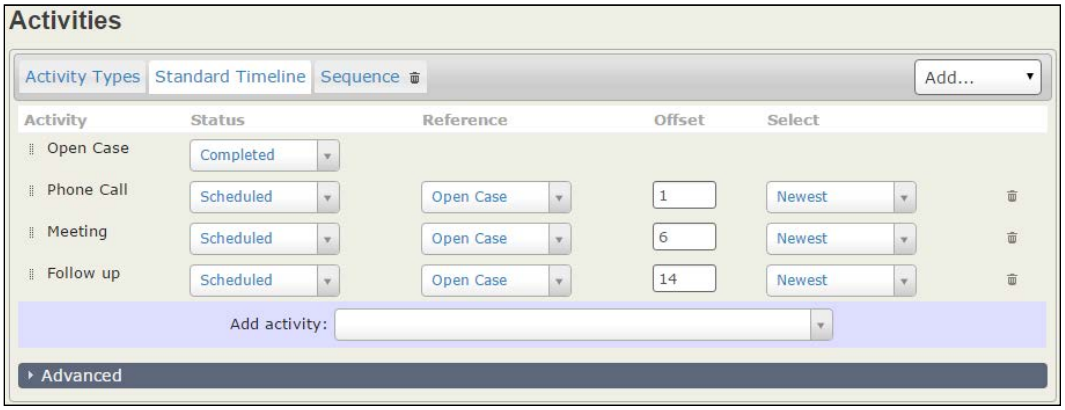
The **Standard Timeline** (and **Sequence**) tabs take those activity options to the next level. A timeline is a series of activities that will prepopulate the case when it is created, and which are defined based on a period of time, typically measured from when the case is first opened. A **Sequence** tab is a series of activities defined by order alone rather than time; in other words, an order of operation for case management or the series of steps that should be taken by the case workers. The **Sequence** activities are only created when the previous activity is marked completed. You add new timelines and sequences using the **Add...** dropdown to the right-hand side of the **Activities** tab header.

The **Standard Timeline** is required, and will be implemented automatically when a case is first created. At a minimum, it will include the **Open Case** activity, which is created when you create a case. Add additional activities to the timeline using the **Add activity type** selector, and then configure these options:

- **Status**: This option indicates the status that the activity type should have. Typically, all the activities will all have a status of **Scheduled**, since they are generally tasks that have not yet been performed, with the exception of the **Open Case** activity.
- **Reference**: Since timelines are time-based, each activity must have a reference point from which you measure when the next activity should be created. Generally, you will use the **Open Case** activity as your reference point, but you have the option of using any previously-defined activity in this way. To be clear, you may only use an activity as a reference that exists in your timeline and precedes the one you are currently configuring.
- **Offset**: This option specifies the number of days from the reference activity that this new activity should be created for.
- **Select**: This option specifies whether the offset should be measured from the oldest instance of the reference activity or the newest. This is only applicable if you have multiple instances of a certain activity type in your timeline.

Take a look at the following screenshot, where we've configured a very basic timeline. Perhaps the goal of this timeline is to make sure constituents' concerns are addressed in a timely fashion. We expect the case worker to make a phone call within one day of the case opening, and schedule a face to face meeting within six days of the case opening. We don't want the case to linger in an open status indefinitely, so we expect some form of follow-up two weeks after it has been opened.

When a case worker manages the case record, as we will see later in this chapter, they will add and modify activities as their primary interaction with the record. If they meet with the constituent five days after the case is opened, they can modify the date and mark the activity as completed. The goal of the timeline is simply to map out certain tasks and time-based expectations; the case worker can modify details as they work on the case:



More than one timeline can be defined for a single case type. The ability to make timelines optional and manually-applied can allow for fairly complex workflow branching. For example, in our **Grant Application** use case, we could construct an initial timeline that takes us through the application process (automatically applied), and then create manually-applied timelines that address the workflow requirements based on our decision tree, whether the application is accepted, declined, or more information is required.

Sequences are configured in the same way, by using the **Add** activity selector to add them to the listing. As sequences are only concerned with the order of operation, and not bound to any time-based configurations, there are no additional options to select. Both activity timeline and sequence activities can be reordered by dragging and dropping the activity type using the icon to the left of the activity name. Both have an **Advanced** panel, which can be expanded to let you relabel or rename the timeline or sequence. The name field is locked by default; click on the padlock icon to unlock it. Be careful when modifying the name—it must be unique and must not include spaces or special characters (other than underscores). The name is never used or referenced in the interface, so there really is no need to modify it.

If you choose to create both a timeline and a sequence, be careful about how they interact. For example, you probably don't want sequence items created, having been triggered by an activity automatically generated as part of the standard timeline.

Case Configuration Files

In the previous versions of CiviCRM, the case configuration process was handled entirely in the `xml` files for each case type. That is where activities, timelines, and roles were all defined. Beginning in v4.5, case configuration is handled through the user interface tools we've just reviewed. However, it is still possible to use case configuration files to define your case rather than the user interface. This is useful in two situations: you have upgraded from an earlier version of CiviCRM and want to continue making use of those existing configurations without recreating them in the interface; or you have a common set of case configurations you plan to use for multiple installations of CiviCRM and want an easy way to implement them without manually configuring in each site using the interface. If you are interested in learning more about this method, search the online documentation, referencing older versions, to view detailed instructions: `http://wiki.civicrm.org/confluence/display/CRMDOC44/CiviCase+Configuration`.

Other configuration options

You may have noticed a few other menu options when you navigated to **Administer | CiviCase**, namely, **Redaction Rules**, **Case Statuses**, and **Encounter Medium**. In addition, there are two other configuration areas relevant to cases to consider when you are constructing your setup: **Custom Data** and **Tags**.

A redaction is a correction or alteration to data. Redaction rules will match and replace text in a way similar to the system-wide word replacement tool at **Administer | Customize Data and Screens | Word Replacements**. The differences are that these redactions will only happen within the context of cases and the match definition may be constructed using regular expressions.

Why would you use **Redaction Rules**? Some organizations may use case management in situations that require sensitivity to privacy concerns. The **Redaction Rules** option provides a way to alter or obfuscate data when you publish reports or send e-mails from the case record. The data is preserved in the system, but your sensitive data is not displayed in the generated reports.

When creating a new redaction rule, you will enter the value to be matched, and the replacement prefix. CiviCRM will append a unique code to the prefix when a match is made. As noted earlier, you can optionally conduct the matching search using regular expressions. Two examples that ship with CiviCRM can provide insight into the proper formatting of these rules.

As with many other areas of CiviCRM, your case record will always have a status assigned to it. By default, CiviCRM ships with three preconfigured statuses: **Ongoing** (that is, open), **Urgent**, and **Resolved** (that is, closed). If you require additional statuses for your workflows, you can create them here. You can also flag one as being the default status to assign when a case is first opened.

Lastly, you can configure the option list for the **Encounter Medium** field. The **Encounter Medium** field is present when you first open a case, and is intended to capture where or how the issue was first identified.

In addition to these case-specific configuration options, you will also want to consider whether custom data fields should be created for the case or any case-specific activity types. Case custom fields will appear on the **Manage Case** screen in a collapsible panel. Cases can also be tagged, which may prove a useful way to categorize your cases or track a list of keywords associated with the case. Create tags by navigating to **Contacts | New Tag**. Take a note of the **Used For** field; this is where you designate where the tag will be used.

Testing and using cases

At this point, you should have fully configured your case type(s) and reviewed the system-wide configuration options for cases. You will now want to run some tests and ensure your configuration is working as expected. Because of the potential complexity of your case configuration—specifically, with regard to any activity timelines you've created—it's important to test thoroughly before rolling out in a production environment where staff begin using the system with real constituents and real data.

To create a new case, enter a contact record, navigate to the **Cases** tab, and create a new case. Alternatively, you could use the **Contact Actions** button or the **Create New** button to create a new case.

> You should create a test case record for each case type you have defined in the system to make sure each one is configured correctly.

After creating the case, you will be redirected to the **Manage Case** screen. Review the entire page, but pay close attention, in particular, to the activity listing. Are the autocreated activities constructed in the order you expected? Are the dates calculated correctly? Are any additional timelines or sequences working as expected?

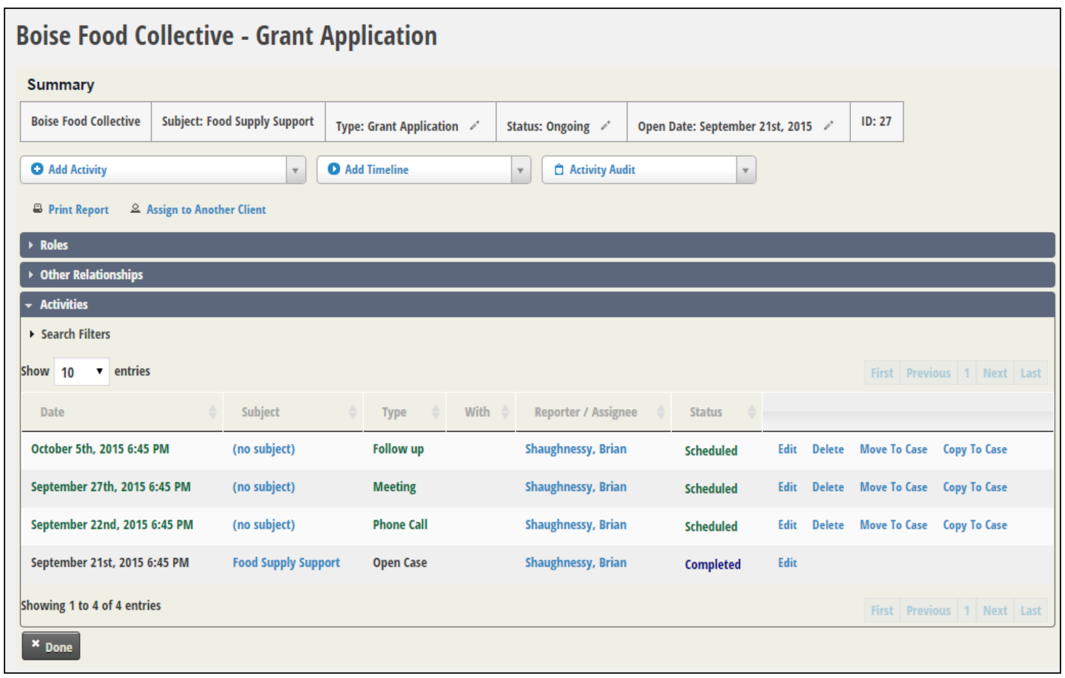
Once you are satisfied the case configuration is working as expected, you can begin to use it with live data.

Tracking, managing, and resolving cases

At this point, you're ready to begin working with cases. This will involve creating case records, working within them toward resolution, and searching/reporting on them.

Creating and managing case records

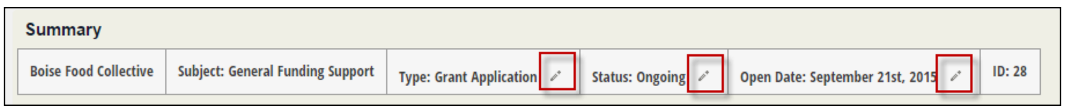
When you first open a new case, CiviCRM collects information, including the type of case you are creating, the status, the subject, and various details that will be stored in the open case activity. Once you've created the case, you will enter the **Manage Case** screen, where you will spend most of your case-management time:



The screen is roughly divided into five sections:

- **Summary**
- **Roles**
- **Other Relationships**
- **Case Tags** (optional; not present in the preceding screenshot)
- **Activities**

The **Summary** section includes the case client, subject, type, status, open date, and reference ID. Below this section, you have tools to create a new activity, add a timeline to the case, run an activity audit report, generate a print-friendly summary of the case, merge the case with another case record, or assign it to another client. In addition, note that in the **Summary** details table, the type, status, and open date values are all appended with a clickable pencil icon. Each of these values can be altered by clicking on the pencil, which opens a dialog box with appropriate options:



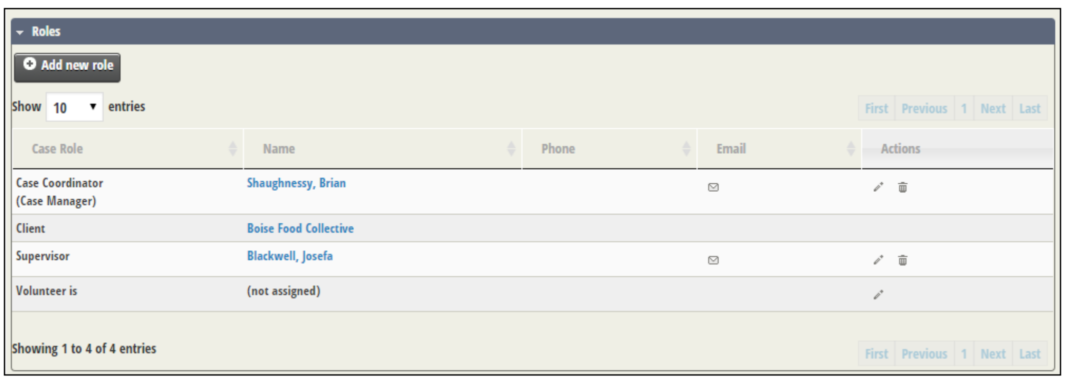
Of these three fields, you are most likely to be actively using the status modifier over the course of the case management process. If you choose to modify the case type with this tool, do so with care: remember that each case type may have different configurations, timelines, activities, and so on, available to it. Altering the case type when you've already begun to record data and build activities could create some confusion and clutter in your case record.

Most of these tools are self-explanatory or have been described earlier. You can add an activity manually, or populate your case with a timeline or sequence. The option to merge a case will only be present if the client you are currently working with has at least one other case present. You can only merge cases within a single contact record. If you need to merge this case with one found on another contact, first reassign one or the other case, and then attempt to merge them.

The **Activity Audit** report was referenced earlier, but deserves further explanation. By audit, we refer to the ability to run a report in which we compare a defined target timeline against the recorded activities. This is useful if you have duration-defined workflows and want to see whether the resolution process kept up with the target deadlines for various activities. The resulting report will flag activities that are not yet complete, based on the activity timeline selected.

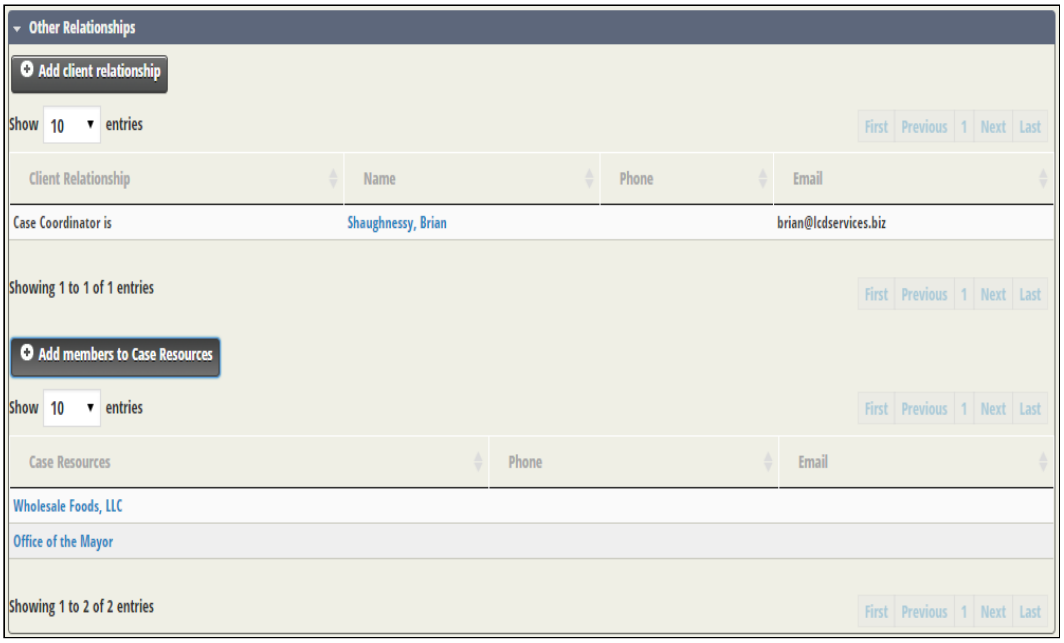
When generating this report, you have the option of suppressing completed activities (thus focusing on those that are still in a scheduled state), and the option to redact the report results. The redaction aspect of this report means the case redaction rules previously discussed are processed when generating the report. Since the redaction rules can be used to remove or obfuscate sensitive information where there are privacy concerns, this ensures the ability to create a "sanitized" report that can be disseminated beyond the primary case managers.

As one might expect, the case **Roles** panel displays a list of the roles you defined in your case and allows you to assign people to those roles or create new role-relationships. Note that although the list is prepopulated with the roles defined in your configuration file, you may add additional roles if needed. For example, you are not limited to having a single person assigned to the **Case Coordinator** role:



You assign or modify the existing roles using the pencil icon to the right of each row. You can easily generate an e-mail to the contact using the e-mail/envelope icon.

The **Other Relationships** panel contains these two pieces of information: a list of any existing relationships attached to the record (such as employer, and spouse), and the list of contacts found in the **Case Resources** group. As mentioned earlier, these are included in the **Case Management** screen for the sake of convenience, and are intended to serve as a directory of contacts you may frequently reference during the case management and resolution process. You can easily add to this group through this screen, or through the other group management tools in the system:



A **Case Tags** panel and button for adding them to the record will appear once you have created a tag at **Contacts | New Tag** with the **Used For** set to **Cases** or constructed a tag set for use with cases. A popup then lets you select from a dropdown list or tag set field to attach one or more tags to the case, as shown in the following screenshot:

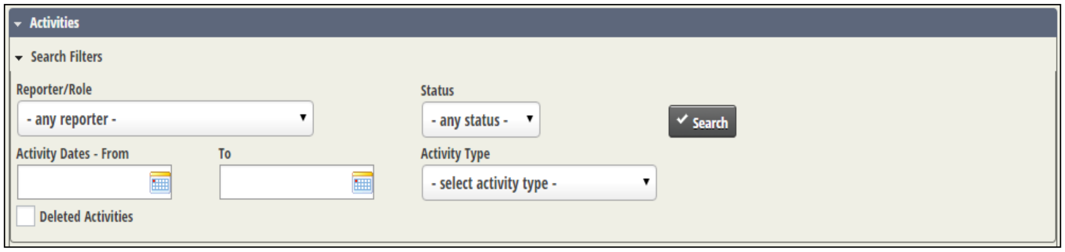
The **Tag** sets are an easy way to classify cases (and other records) using keywords. For the **Tag** sets, tags are created "on-the-fly" with free-text; in other words, you simply begin typing the desired tag value and it will search for an existing tag matching that value, or let you create a new tag if one does not already exist. For more details on creating and using the **Tag** sets, see *Chapter 4*, *CiviCRM Basics – Moving through the System and Working with Contacts*.

The final panel, **Activities**, is where you are likely going to spend most of your time. Since a case is primarily a collection of activities that may be ordered in a timeline, it makes sense that most of your work with cases will involve creating and editing activities.

Anything and everything you do as you work to resolve the case should be tracked as an activity. Whether you are making phone calls, receiving e-mails, changing the status, or even just reviewing the case history, you will benefit from taking the time to track each activity in the system. If someone else becomes involved in the case resolution, they will have a history of all communication that transpired with regard to the case. This will allow them to quickly jump in and begin working toward resolution. Furthermore, should the client raise any issues regarding the timeliness or thoroughness of your response to their issues, a detailed activity history will help you support and confirm your attentiveness to their case.

By default, activities are ordered by date with the most recent first; but the sort order is dynamic and can be rearranged on any column. As with standard activities, scheduled activities will appear in green, and scheduled but overdue activities will be displayed in red. Activities may be edited, and may also be moved or copied to another case (notice the rightmost column with various action links in the earlier **Manage Case** screenshot, in the *activity listings* section). This is useful if a contact has multiple cases open and you inadvertently recorded an activity against the wrong case and now must move it. Alternatively, if there are multiple cases open, surrounding a common issue, and you held a conference call with several involved constituents, you may record the activity against one case and copy to the others.

Be sure to note the **Search Filters** panel that opens up above the activities listing. Open this panel to expose some search/filter tools for your activity list. This will prove helpful if you have large cases that extend for a length of time and have accumulated many activities:



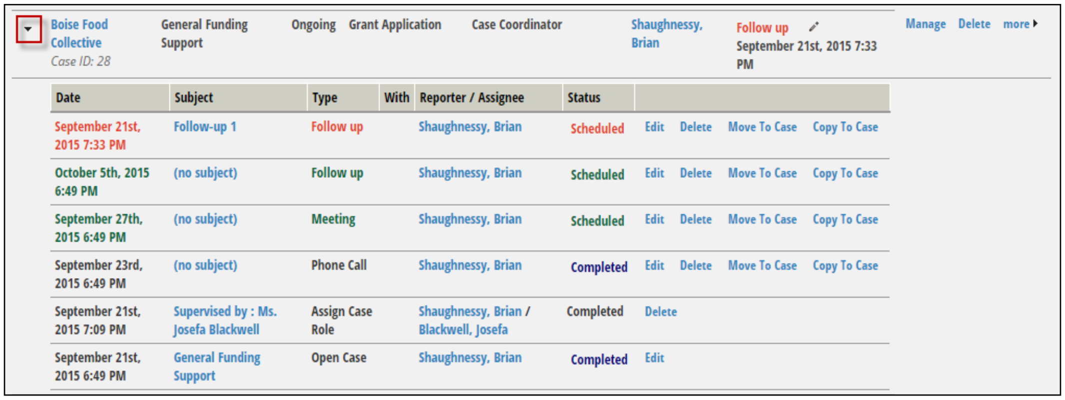
When adding or editing activities within the context of a case, the form and options are identical to those available when you are creating non-case activities, with one important exception. There is an additional panel titled **Send a Copy**, which lists all contacts connected to the case; this includes case roles, relationships, and resource group contacts. If you select any contacts on this panel, they will be e-mailed a copy of the activity.

Any e-mails generated by the case activity records will have a hash value in the subject line that is a unique value associated with the case and originating activity. If you enabled and set up the **Process Inbound Emails** scheduled job, you can reply to the e-mail and your response will be stored as an activity against the case. For more details on setting up scheduled jobs, see *Chapter 6*, *Communicating Better*.

Tracking, searching, and reporting cases

As with most components, you have a **Case Dashboard** and **Find Cases** utility available through the **Cases** menu. The **Case Dashboard** utility includes several useful tools, including a grid listing the number of cases by type and status (hyperlinked for easy retrieval), a list of cases with upcoming activities, and a list with recently performed activities. Both of these lists can display all cases or just those connected with the currently logged-in user (note the toggle toward the upper-right corner of this page).

These lists of cases can be expanded to display scheduled and completed activities. In addition, all three (**All Cases**, **My Cases**, and **Case Dashboard**) are available as the dashlet reports on the user dashboard/CiviCRM home page. If you are overseeing case management, it will be useful to have these dashlets configured for your dashboard so that you can quickly gain a snapshot of case activities when you first enter the system:



The **Find Cases** tool is very straightforward. You can search by the client name or e-mail, case start or end date, case type, status, whether the logged-in user is involved in the case (**Search All Cases** or **Only My Cases**), and tags.

Note the option to search for deleted cases. Similar to the trash function that stores deleted contact records, deleting a case does not permanently remove the record, but rather moves it to the trash. By opting to search for deleted cases, you may restore them should you determine that they were mistakenly deleted. But unlike contact records, cases may not be permanently deleted. This was an intentional design to ensure sound auditing practices for organizations that use cases for sensitive or regulated uses. It helps protect against staff who might want to bury case details that are not complementary to their work effort.

In addition to the single-case detail report that can be generated from within the **Manage Case** screen, CiviCRM includes four reports related to cases that can be accessed at **Reports** | **Case Reports** | **New Case Report**. The reports are as follows:

- **Case Summary Report**: This report displays a summary of cases, listing the client, start/end date, status, duration, and other details.
- **Case Time Spent Report**: This report is geared toward tracking activities associated with cases and summarizing the total amount of time (duration) spent on them. This report can also be used to report on non-case activities.
- **Contact Demographics Report**: This report displays demographics for constituents and includes access to custom contact fields.
- **Case Detail Report**: This report displays case details, including information about the last completed activity performed on the case.

Using the dashboard, search, and report tools, you can easily maintain the oversight of cases as they are worked on and gradually resolved.

Summary

In this chapter, we took a look at cases by first understanding what they are, reviewing potential uses that may not be immediately obvious, and contrasting their benefits/drawbacks/purpose compared to standard activities. We then defined the key terminology and concepts related to cases, namely case activities, timelines, case roles, and case resources, and walked through the construction of a case type configuration. We even tested and began using the newly configured case type, noting key things to look for and review. We discussed the manage case screen, where most of the ongoing case work will be conducted, and reviewed the tools available for monitoring and managing cases through the dashboard, search, and reporting tools.

In the next chapter, we will turn our attention toward CiviCRM's grant management tools, which can be used for organizations disseminating grants and those that need to track details for grantees.

12
Providing Support – Grant Management

We've covered a lot of ground so far, and now come to the last chapter dealing directly with constituent-record data tools. In this chapter, we will discuss grant management. If you are an organization that manages and disseminates grants, CiviCRM provides some basic tools to help you collect and track details related to the grant management process. If your organization is typically on the other side of the equation, that is, applying for grants and not disseminating them, you may still find the CiviGrant tool useful for managing that process. Toward the end of this chapter, we will offer some suggestions for reconfiguring the CiviGrant component in a few small ways so that you can use it more easily to track the grants you are applying for.

In this chapter, we will cover the following topics:

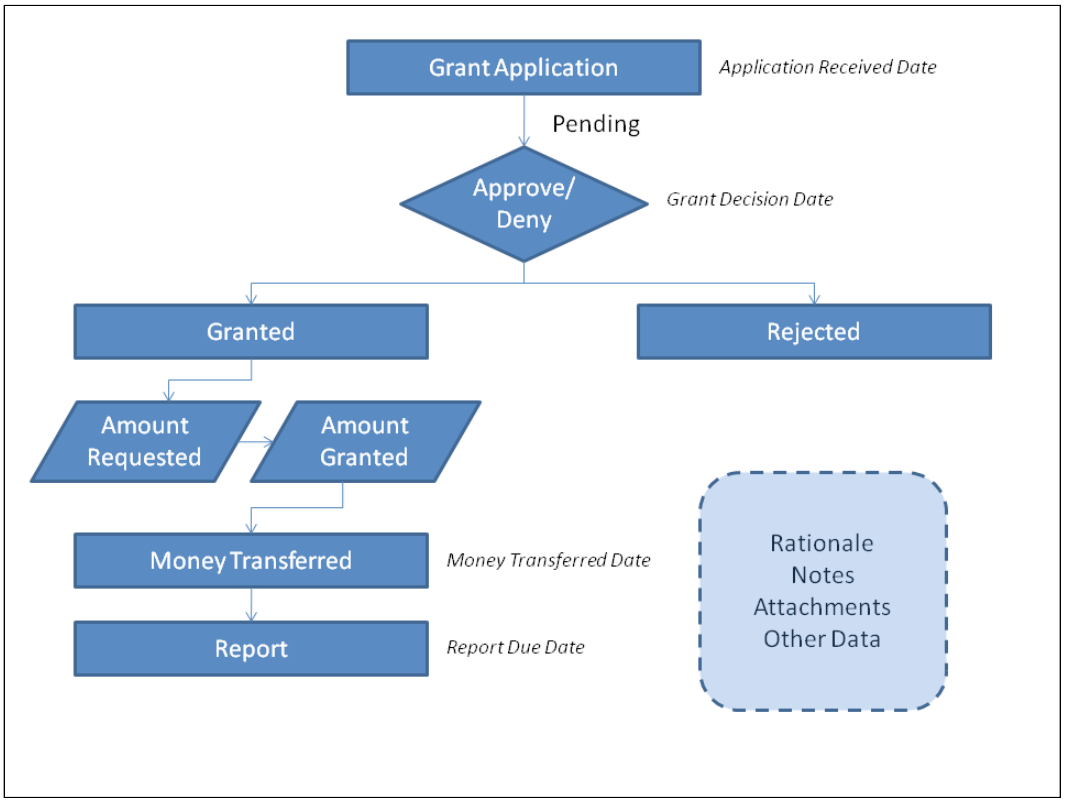
- Defining the grant application process
- Managing grantees
- Tracking grant applications
- Applying for grants

Using these tools helps you integrate this process with your other constituent management activities, making your organization a more efficient and productive financial support provider and/or recipient.

Defining the grant application process

CiviCRM's grant management tools are admittedly basic. However, in the broader context of CiviCRM's other constituent management tools, they provide a very useful set of functions.

Before configuring the grant tools, let's first understand the basic process assumed by CiviCRM as it relates to grant workflows. The following diagram helps to visually communicate the workflow for organizations giving or receiving grants:



The grant application process basically consists of receiving applications, processing them to determine if they are to be approved or denied (that is, granted or accepted), and then tracking the progress as funds are transferred and reports are received from the grantee.

Grant records, like most other areas of CiviCRM, can have custom fields created and attached to them. In this way, you can set up as many additional fields as desired to help in the grant-making or grant-seeking process. The ability to attach documents to records in CiviCRM is particularly useful when it comes to the grant application documents. For example, you could attach the scanned copies of official correspondence to the grant.

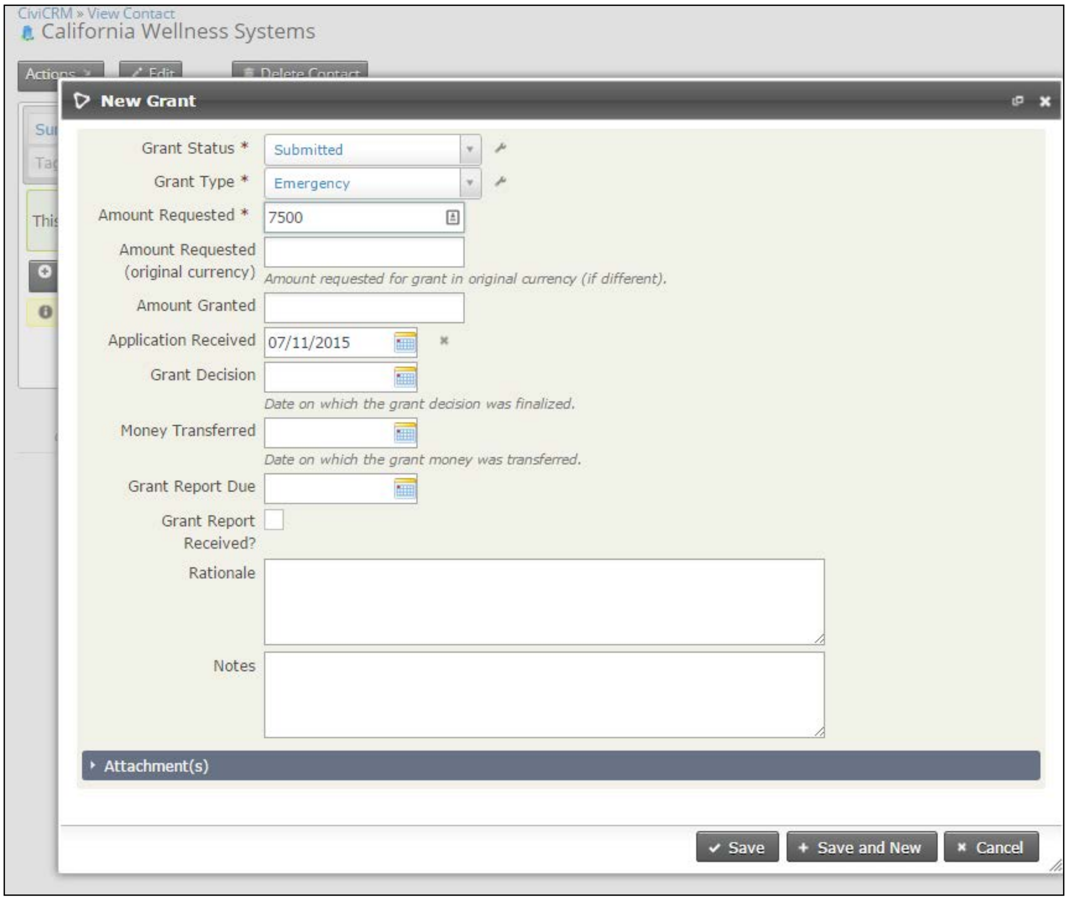
Grants are categorized by type and assigned a status. In this way, you can track the status of different grants organized by type. Before beginning the grant management process, you should review the existing grant types and grant statuses configured by default and add/edit/delete as necessary. You can access them at **Administer | CiviGrant | Grant Types and Grant Status**.

If the **CiviGrant** submenu is not visible, make sure you have the **Grant** component enabled. Visit **Administer | System Settings | Enable CiviCRM Components**. By default, the **Grant** component is disabled. Enabling it will restore the **CiviGrant** submenu under **Administer**, and also the main **Grants** submenu.

Once you've thought through the grant types and status options, created any custom field you want associated with grants, and reviewed the general grant workflow, you can begin managing your grant applications. You may want to plan for some iterations of this process when you are testing your workflow against the configuration of the grants you have created in CiviCRM until you are happy with the overall result.

Managing grantees

As with most areas of CiviCRM, your grant management tools will be available through the main menu and a corresponding tab will be displayed on contact records. Let's begin by visiting a contact and creating a new grant record:



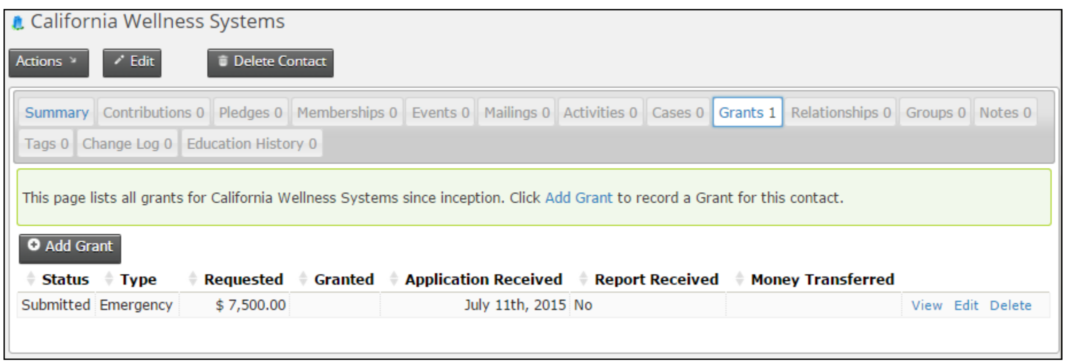
As you can see, the grant record follows the flowchart workflow pretty closely. You select the desired status and type, and complete the other fields as appropriate.

Grant records are a little different from other areas of CiviCRM; in this case, you are likely to return to editing the record multiple times over the course of the grant process. As the grant moves through the application, approval, fund dissemination, and reporting stages, you will return and edit the record to update the dates and record notes or add attachments pertaining to the grant.

As with other related record areas, contacts may have more than one grant record associated with them.

> FPAGM received a significant donation from a local philanthropist to help food pantries develop new healthy eating programs. The programs will educate clients regarding healthy eating and provide guidance on simple recipes using ingredients rather than processed, prepared foods.
>
> The donation will support five programs at food pantries in the area. FPAGM decides to use CiviCRM to track the grant application and management process. They begin by sending out an e-mail to the **Regular** members through CiviCRM with application guidelines. As the applications are received, a new grant record is created.
>
> The application requires food pantries to report details regarding their geographic demographics, and to describe how many people they plan to reach through this program. All of this data is tracked using custom fields, and the hard copy application is scanned and attached to the grant record. In this way, FPAGM ensures that all the details of the process are stored in a centralized location.

The following screenshot shows the grant records as viewed through the **Grants** tab of contact:

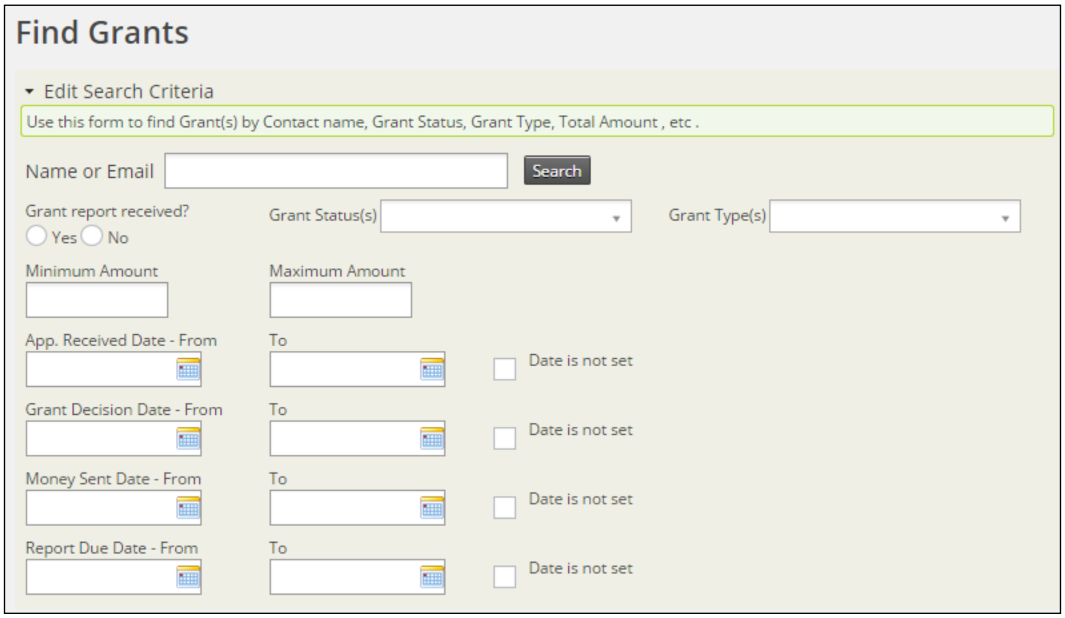


Tracking grant applications

Let's take a look at the tools available in the **Grants** submenu for tracking the grant records. As you might expect, **Grants** follow a similar pattern to other areas by having a **Dashboard** summary of grant statistics, a **Find Grants** tool, and a link to quickly create a **New Grant** record.

The **Dashboard** page summarizes the number of grants by status (with each cell hyperlinked to display a filtered list of records), and a list of recent grant records created.

The **Find Grants** tool provides access to each of the relevant data fields, including ranges for the grant amount and date fields, as shown in the following screenshot:

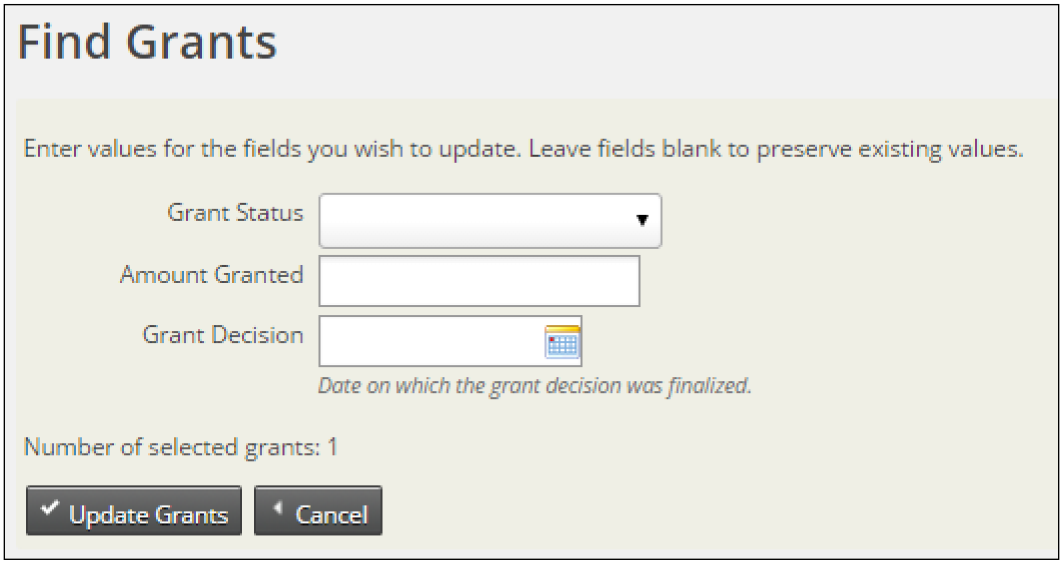


The date range fields provide the additional option of searching by an empty value. For example, if you are looking for an updated list of applicants who have not yet received a funds disbursement, you can select a status of **granted** and **Money Sent Date** of **Date is not set**, and run your search.

After running a search, you have several actions that can be taken on your search results:

- **Delete Grants**
- **Export Grants**
- **Print Selected Rows**
- **Update Grants**

  This action provides a form where you can batch update grant status, amount granted, or the grant decision date. Many times, organizations will have a fixed schedule for their granting process; this tool helps to update certain common values in bulk:



Grant reports

CiviCRM includes two report templates for use with grants, which can be accessed by navigating to **Grants | Grant Reports**. The **Grant Details** report displays the fields found in the grant records and allows you to filter data by using those fields. The **Grant Statistics** report shows the summary statistics by selected options, such as grant type, contact type, and gender. It also includes a breakdown by type with the grant count and total amount awarded.

As with other parts of CiviCRM, you can customize reports or (have someone) develop your own reports.

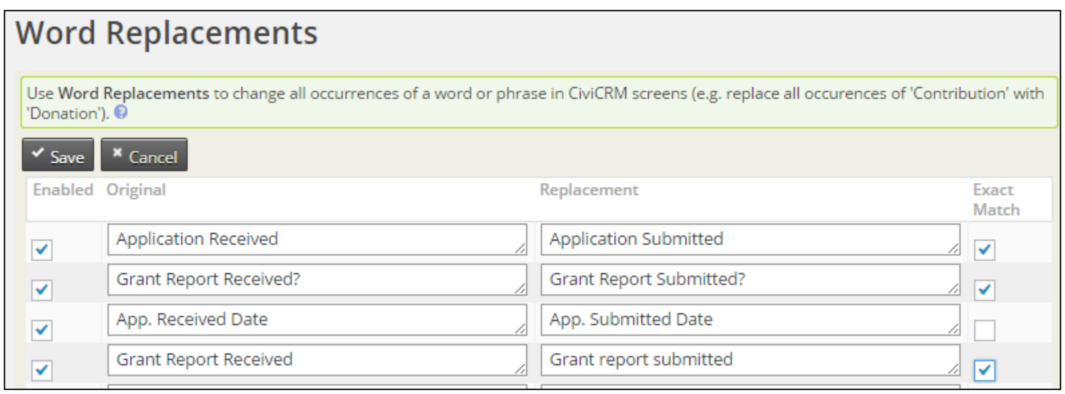
The other side of the coin – applying for grants

Although the CiviGrant component is primarily intended for the grant administration process, presuming that the organization implementing CiviCRM is the grantor disseminating funds, it's worth noting that the grant tools can be adapted easily to manage your organization's applications for grants from other entities.

In this alternate case, the contact record you are working with is the grantor, rather than the grant applicant and potential grantee. You are using CiviGrant to track your application to the organization and subsequent communication transpiring over the course of the process.

Since the workflow is essentially identical, regardless of which direction you are coming from in the process, we simply need to alter the terminology throughout the interface to better communicate your role as a grant applicant. There are two ways this can be accomplished: by modifying the CiviCRM template files, or using the word replacement tool. As a general rule, it is better to use the word replacement tool to the extent possible, as it is more dynamic and avoids having to maintain custom versions of template files. Use the tool to define the existing text and replacement text; wherever the existing text is found in the system, it will be replaced. At times, you may find the text that is not easily isolated (for example, it is too generic or used elsewhere in the system) and cannot be replaced universally. CiviCRM uses the Smarty templating system to present the content and provides the ability to define an override directory in which replacement templates files are stored. Using template overrides, you have full control over the text and layout of your pages. Refer to *Chapter 13*, *Telling your Story – Building Reports*, for more tips on customizing the interface in this way.

Using word replacements, we see several places in the interface that would benefit from being changed to better communicate this alternate grant application perspective. Visit **Administer | Customize Data and Screens | Word Replacements**, and then enter the values shown in the following screenshot:



After you have entered the changes, click on **Save**. Check whether the interface has changed correctly by navigating to **Grants | New Grant** and **Grants | Find Grants**.

If you regularly apply for grants to different organizations and find the tools available through the grant component to be too limiting, consider using CiviCRM's case management tools by creating a case type to track communication with the grantor.

As covered earlier in this book, case records consist of a collection of activity records grouped together around a common issue. Since a grant application is primarily a series of communications and reports passing between the grantor and grantee, a case may serve as a suitable alternative to the grant component.

Summary

The opportunity to support other organizations through financial assistance is coupled with the responsibility to administer those funds and application details carefully. Your funders will expect that you will take as much care administering funds as your grantees do expending them. Using CiviCRM, you have effective tools to handle this process as a part of your overall constituent management program.

In this chapter, we reviewed the grant management workflow and discussed how it translates to the CiviCRM model. We created new grant records and saw how each step in the process is tracked and searched for grants and noted the various field options unique to these records. We also reviewed the available reports for grants. We discussed the possibility of repurposing the grant management tool for your organization's grant application to other entities. We also briefly considered the alternative option of using CiviCRM's case management tools for grant application processing.

In the next chapter, we will turn our attention to CiviCRM's reporting functions and see how we tap into the data stored to generate lists and graphical representations of our information.

13

Telling Your Story – Building Reports

We've spent the last twelve chapters exploring the many ways we can capture and store information about constituents, work with contact records, perform bulk actions on records, create forms, expose data on our site, and build multidimensional depth in our organization's data.

With this increasing breadth of information, our next goal is to retrieve and display our data through reports. In this chapter, we will cover the following topics:

- Discussing the purpose, terminology, and basic concepts of CiviCRM reports
- Reviewing the tools available for generating and publishing reports
- Putting these tools in context within your organization

Getting to the bottom line

What is a report?

Okay, this may seem like a trite question. However, we ask it with sincerity: What is a report? When the Executive Director, Membership Committee Chair, Fundraising Consultant, Board Secretary, or Staff Supervisor in the next cubicle asks you for a report, what are they expecting to receive? What makes a report different from a set of records exported from search results?

Reports present data with a message. More than raw data and more than just a subset of records, reports are meant to tell a story. We can begin to understand their purpose by comparing them to search results. They are similar, but differ in several important ways:

- Reports are more specialized in the types of data that can be filtered, and the way in which that data is rendered.
- Reports are intended for more visual uses, whereas a search result yields a simple list of data, which can be exported or acted upon in other ways. A report may present results with a header, footer, and more visually appealing layout, which can be printed, published to PDF, e-mailed, or otherwise distributed.
- Reports may group data and display summary calculations (sums, counts, and so on) or graphical representations of the results (such as pie and bar charts).
- Occasionally, reports are more like data to be acted upon, such as a walk list of contacts or a report for the bookkeeper, listing every online transaction in a period. But often, these actions happen outside the system.

These practical differences help us to better understand and distinguish reports from a raw set of data. However, what drives a report ultimately is its goal to transfer knowledge and communicate a message.

In this sense, a report is all about the bottom line. When we build a report, we want to see the change over time, the depth of constituent involvement, the breadth of impact with various campaigns, and other metrics that tell us how well we are serving our constituents, reaching our audience, building a network, and generating support.

As we begin to look at specific tools, don't lose sight of the forest through the trees. The tools are a means to an end; they are meant to help you communicate your message to stakeholders (members, donors, and active participants), and decision makers (board of directors, management, and committees). However, the heart of what you're communicating is the message, and not the PDF file or hard copy document, which we call a *report*.

> CiviCRM uses a MySQL database, which you can access quite easily with any reporting or data analysis toolset that allows you to retrieve data from a CiviCRM database. We know of customers that use tools such as Tableau, Rapid Miner, or Pentaho BI Suite for business intelligence. These tools usually also allow you to extract data from more data sources than just CiviCRM.

Toolsets and timing

Reports are accessed from the main navigation menu, and by default are organized into submenus by the type of data they are working with. Within the reporting tool, we have two important concepts to understand: **report templates** and **report instances**:

- Report templates define the features of a report. This includes what fields are available to the report, options for grouping and filtering, display choices (tabular, bar/pie chart), and any other options available.
- Report instances are a saved set of criteria and options you have selected for a specific template. For example, you may want to view a constituent summary report, displaying all contacts in Group A. At a later time, you may create a second instance of the constituent summary report displaying all contacts in Group A and Group B. Report instances are often just referred to as reports.

What's important to understand from these terms is that a single template may be used to create multiple report instances. Many times, people will see the default reports created when CiviCRM is installed and not understand the ability to create new reports from the base templates.

A template will typically be reused many times as different criteria and display options are selected to meet specific needs. After generating a report, you may print it, export it as `.csv`, or publish it as `.pdf`. Occasionally, other options may also be available to certain templates.

> The **comma-separated value** (**CSV**) files are in a format that can be imported into many standard text editors or spreadsheet software packages, such as LibreOffice Calc or Microsoft Excel.

CiviCRM is shipped with a number of report templates, covering all the major data types and purposes you would expect. The construction of a template does require programming skill, though the structure, design, and method of registering them in the system are all designed for extensibility. If you create a report that may have value to a broader audience, or extend an existing one by programming in more features, consider contributing it back to the project for inclusion in core.

In contrast, the process of selecting criteria and options for a report instance is designed to be easily managed by non-technical staff.

When creating a new report or editing an existing one, the configuration options are broken out into a series of tabs. If you are editing an existing report, these tabs will be collapsed by default—selecting one will open the available options. The set of tabs is fairly common to all reports, though there are a few that may or may not have one or two of them. In order to create a new report from a template, you would navigate to the report type you would like to create from the main **Reports** menu. You can then click on **New Contact Report**, and select the template that will be the basis of your report. The main **Reports** menu also includes an option to view **All Reports**.

Let's review each of the standard configuration tabs to understand what our options are. Note that if you are creating a new report from a template, only a subset of tabs will be available until you click on **Preview Report**. CiviCRM will not let you save a report until you have entered valid criteria and produced some results.

Columns

The **Columns** tab lists all the fields available for display in this report template. You simply click on the options that you would like to include. If you have custom datasets defined in your system, any fields marked as searchable will be included in the subpanels grouped by the set.

Grouping

The **Grouping** tab is only present in a few reports, and will list the fields that can be selected for grouping and summarizing statistics. The contribution summary report is an example of one template that makes heavy use of grouping options. Sometimes, there are restrictions placed on how you group records and what field columns can be displayed. These restrictions are mostly discovered by trial and error; if you attempt to select options that are not valid, CiviCRM will return a message, alerting you to the problem and providing some guidance on how to correct it.

Sorting

The **Sorting** tab provides available fields you can sort and group by. You can add multiple fields using the **another column** link and, thereby, have secondary sorting and grouping options. This tool also includes the option to create a page break if the **Section Header/Group By** option is selected. Your printed or PDF report will jump to the next page when the next group is handled.

Filters

The **Filters** tab is where you define your query criteria—where you decide exactly what records should be displayed. Every report is different, and the set of filter options will vary significantly. As with the columns, if you have custom datasets with searchable fields, you will be able to filter them through this tab.

Title and format

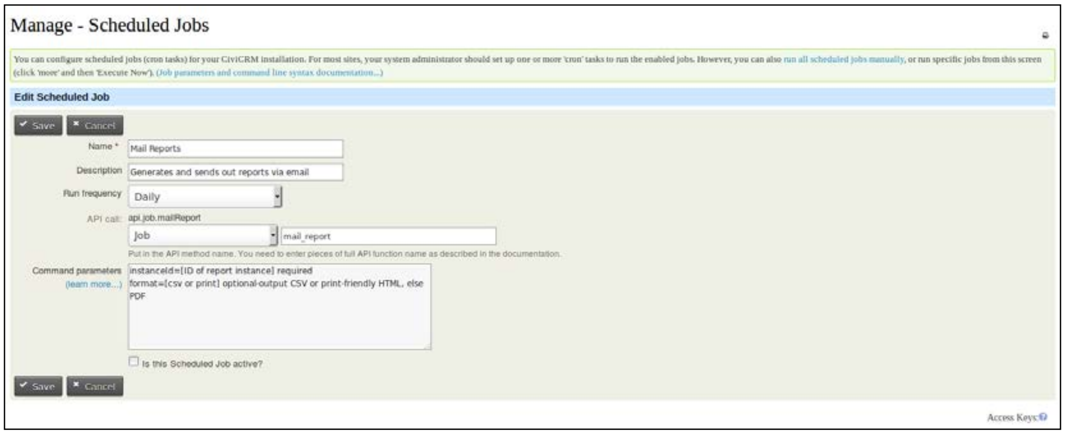
Title and format defines the title for the report, the **Report Description** data you may optionally give, and HTML code that can be used for **Report Header** and **Report Footer**. The header/footer data will be used when using the **Print Report** and **PDF generation** option.

E-mail delivery

One interesting (and often underused) feature of reports is the ability to set up a delivery schedule to autogenerate and e-mail the report to a contact or contacts. Let's say you wanted to e-mail a list of new members to your membership committee chair every Monday morning. You could create the desired report and configure it for delivery to them.

Using this feature does require a bit more configuration than it at first appears. From the report interface, you define the subject for the e-mail and who it should be delivered to. But it does not actually trigger the e-mail or determine the frequency of delivery. This is handled through a **Scheduled Job** option.

Most scheduled jobs will only exist once in your system: for example, you only need one job to trigger mass e-mails, and will typically schedule that to run every time your cron job is run. In contrast, you will need to create a different **Mail Reports** job for every report you wish to have automatically triggered. This is because the job includes several configuration options, such as the format (CSV, PDF, or printer-friendly HTML) and the specific report instance ID. There is some helpful default text you can refer to, or select the link at the top of the scheduled job page to get more details on the job options available:



> The scheduled job interface is somewhat limited in its timing option—you can trigger a job daily, hourly, or every time the cron is run. You may find that you want more control over when your mailing report job is run.
> One option is to set up a separate cron job to trigger that job and pass the desired parameters for the report. The cron interface allows you to do that on specific days or specific times, and to trigger recurrence with much more precision.

Access

The final tab controls access to the report—both in terms of permissioning and where it can be accessed. Let's review each option:

- **Include Report in Navigation Menu**: Selecting this option will open a drop-down box where you can select the parent menu item where this report can be accessed. For example, you might create a submenu for each staff member under the main **Reports** menu, and then encourage people to place the reports they have created under that submenu. If you need to alter these settings or move menu items around at a later time, visit **Administer | Customize Data and Screens | Navigation Menu**.

- **Reserved Report**: If this option is selected, only users with the **administer reserved reports** permission will be able to modify the report. Any user with one of the **access reports** permissions will be able to view the report; they just will not be able to modify it. This is a very useful option if you, as an administrator, want to create a set of fixed reports and prevent lower-level staff from inadvertently (or purposely) altering them.
- **Available for Dashboard**: Recall earlier that we mentioned in passing the ability to display reports on your user dashboard; here is where you enable that option. Not every report is appropriate for display on the dashboard; only choose this option if you plan to use it in this way. Also keep in mind that the dashboard screen real estate is somewhat limited. If you're creating a report for this purpose, you probably want to only select a few display columns so as not to crowd the report when displayed on the dashboard.

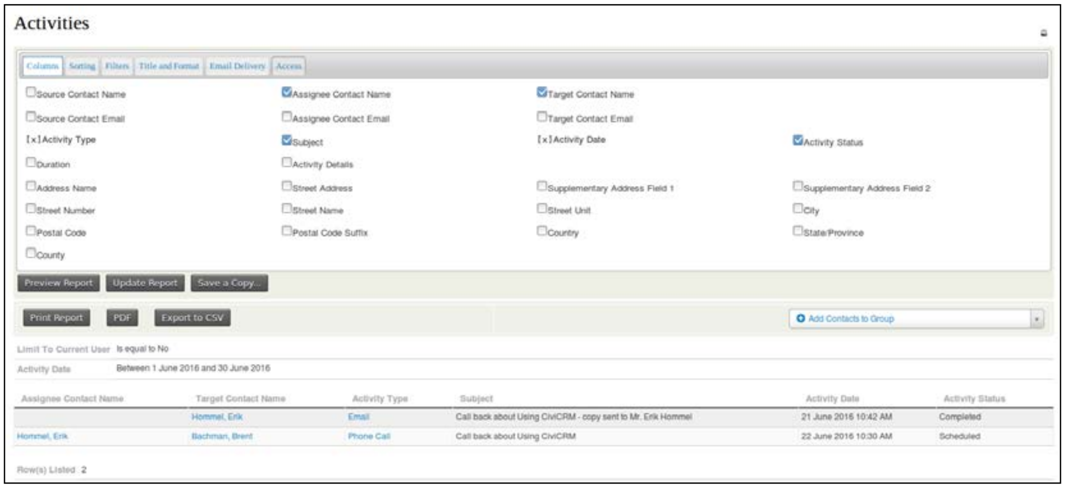
Saving and working with reports

After you've created a new report or modified an existing report, you will generally want to save it. If you click on **Preview Report**, the report will be refreshed with whatever new settings and criteria you've made. This is important to ensure that the filters and columns you've selected are indeed what you intended. If this is a new report, you will have the **Create Report** option for creating the reports (after first previewing it). If it is an existing report, you can click on **Update Report** (saving over the existing instance), or **Save a Copy**, which will save a new report with the selected name.

> Understand that updating a report will save whatever new settings you have selected, overwriting the previous selections. These new configuration settings will impact everyone who uses the report. If you suspect this report is used by other staff, you may want to review the changes with them before you save them, or consider creating a new report rather than modifying the existing one.

Some reports will also include options to display results in alternate formats (for example, as a bar or pie chart), and to save the results to a group. Most reports will include the option to view in a printer-friendly format, export to PDF, and export to CSV.

The following screenshot displays the **Activities** report with the first tab expanded:



> Depending on how you configured CiviCRM, you may have already noticed that certain report types are not visible in your system. CiviCRM categorizes reports according to the component they work with, and will only display available reports for those components that you have enabled. For example, if you are not using the membership component, you will not see any reports that display membership records.

One note about saving your report as a PDF file: you may run into difficulties if your report is particularly long. The PDF generation engine is very resource-intensive. Depending on the quality of your hosting environment, you may experience server timeouts while creating the large PDF files. If you find this happening, consider restricting your criteria to generate the smaller subsets of your report for the PDF generation, or consider upgrading your hosting environment to a more robust solution.

Another option is to implement the **wkhtmltopdf** utility. This utility runs on the command line and is much more efficient at generating PDF files than the default library. However, it does take some work to implement. If you are interested in using this utility, visit **Administer | System Settings | Misc** (Undelete, PDFs, Limits, Logging, Captcha, and so on), where you will need to configure the **Path to wkhtmltopdf executable** field and follow the link to understand how you will implement the utility.

Available templates

CiviCRM ships with over 45 report templates, covering everything from constituent lists, bookkeeping reports, event participation, memberships, and case review. The following list, organized by the CiviCRM component, provides a brief description of each template available at the time of writing this book.

> Note that new report templates are continuously added to the system; review the list on the **Create New Report from Template** page for a description of reports available with your current version. Also investigate the extension directory to look for additional reports that may be available.

Contact report templates

The contact report templates are as follows:

- **Constituent Report (Summary)**: This template provides a list of addresses and contact information for constituent records.
- **Constituent Report (Detail)**: This template provides contact-related information on contributions, memberships, events, and activities.
- **Activity Report**: This template provides a list of constituent activity, including activity statistics for one or all contacts during a given date range (required).
- **Current Employer Report**: This template provides a basic report detailing contacts in an employer/employee relationship. The report includes details about the relationships, such as the relationship start date (employed since).
- **Relationship Report**: This template filters constituents by relationship type for either side of the relationship, and by groups, tags, and address fields.
- **Database Log Report**: This template is a log of contact and activity records created or updated in a given date range (changelog data).
- **Activity Report (Summary)**: This template shows activity statistics by type/date, filtered by status or priority.

Contribution report templates

The contribution report templates are as follows:

- **Contribution Summary Report**: This template shows contribution statistics by month/week/year, country/state, and type.
- **Contribution Detail Report**: This template lists detailed contribution(s) for one/all contacts. The contribution summary report points to this report for specific details.
- **Repeat Contributions Report**: Given two date ranges, this template shows contacts (and their contributions) who contributed in both the date ranges with percentage increase/decrease.
- **Contributions by Organization Report**: This template displays a detailed contribution report for organization relationships with contributors. This includes the contribution record from an employee of some organization or from that organization itself.
- **Contributions by Household Report**: This template provides a detailed report of contributions made by contributors (or the household itself) who have a relationship with the household. For example, a contributor is the head of household for some households, or is a member of the household.
- **Top Donors Report**: This template provides a list of the top donors during a time period you define. You can include as many donors as you want (for example, the top 100 of your donors).
- **SYBUNT Report**: The **Some year(s) but not this year** (**SYBUNT**) template provides a list of constituents who donated at some time in the history of your organization, but did not donate during the time period you specify as the current year.
- **LYBUNT Report**: The **Last year but not this year** (**LYBUNT**) template provides a list of constituents who donated last year, but did not donate during the time period you specify as the current year.
- **Soft Credit Report**: This template provides soft credit details. Contacts may be manually marked for soft credit when the contribution record is created, or they may be automatically marked for the same, if the contribution originated through their personal campaign page.
- **Bookkeeping Transactions Report**: This template provides contribution details geared toward the regular reporting needs of bookkeepers.
- **Personal Campaign Page Report**: This template lists personal campaign pages that have been created, with statistics regarding the amount of contributions raised through them.

- **Contribution Aggregate by Relationship**: This report provides insight into your donors through their relationships. It is particularly helpful if you want to measure a person's potential impact to your organization beyond their direct donations.
- **Recurring Contributions Report**: This template details recurring contributions received through the system.

Member report templates

The member report templates are as follows:

- **Membership Report (Summary)**: This template provides a summary of memberships by type and join date
- **Membership Report (Detail)**: This template provides a list of members along with their membership status and membership details (join date, start date, and end date)
- **Membership Report (Lapsed)**: This template provides a list of memberships that have lapsed, or will lapse before the date you specify
- **Contribution and Membership Details**: This template lists membership records along with the contribution history associated with the membership

Event report templates

The event report templates are as follows:

- **Event Participant Report (List)**: This template provides the lists of participants for an event.
- **Event Income Report (Summary)**: This template provides an overview of event income. You can include key information such as event ID, registration, attendance, and income generated, to help you determine the success of an event.
- **Event Income Report (Detail)**: This template helps you analyze the income generated by an event. The report can include details by participant type, status, and payment method.
- **Participant List Count Report**: This template shows the participant list with participant count.
- **Income Count Summary Report**: This template shows the income summary of events with participant count.

Pledge report templates

The pledge report templates are as follows:

- **Pledge Report**: This template displays pledge details filtered by date, amount, or status
- **Pledged but not Paid Report**: This template displays contacts who have pledged, but have outstanding or overdue payments
- **Pledge Summary Report**: This template displays the summary of pledges received, including the amount paid, status, balance due, amount received, and so on

Case report templates

The case report templates are as follows:

- **Case Summary Report**: This template provides a summary of cases and their duration by date range, status, staff member, and/or case role.
- **Case Time Spent Report**: This template aggregates the time spent on case and/or non-case activities by activity type and contact.
- **Contact Demographics Report**: This template displays demographic breakdown for case clients (and/or non-case contacts) in your database. It also includes custom contact fields.
- **Case Detail Report**: This template lists cases with details such as status, type, role, and so on.

Grant report templates

The grant report templates are as follows:

- **Grant Report (Detail)**: This template generates a report filterable by any of the grant data fields, including date range options
- **Grant Report (Statistics)**: This template generates a statistics report for grants, with the ability to group by type, gender, country, and other options

E-mail report templates

The e-mail report templates are as follows:

- **Mail Bounce Report**: This template details bounce records from mailings
- **Mail Summary Report**: This template summarizes statistics for mailings, including delivered, bounce, opened, click counts, and rates
- **Mail Opened Report**: This template displays a list of contacts who have opened e-mails
- **Mail Clickthrough Report**: This template displays a list of contacts who have clicked links within selected e-mails
- **Mail Detail Report**: This template displays contacts who have received mailings with details such as delivery status, opt-out status, replies, and forwards

Campaign report templates

The campaign report template are:

- **Survey Report (Detail)**: This template provides details about campaign surveys, including contact details and survey response information

> A few report templates come in a disabled state. Visit **Administer | CiviReport | Manage Templates** to view and manage the status of report templates registered in your system.

FPAGM staff members deal with the several levels of leadership and key stakeholders who expect to receive reports on a regular basis. This includes the executive director, who is concerned with membership numbers and total donations; the marketing committee chair, who requires monthly membership status reports; and the development committee chair, who wants to see the total contributions of major donors over specified periods of time.

During system configuration, for each requested report, they review the list of templates, and select and configure the one they believe will be most appropriate for their needs. Since the executive director has much on her plate, she looks for reports that support bar and pie charts, as it provides a visual snapshot of the organization's activity that can be interpreted quickly.

The marketing committee chair wants to receive reports on a monthly basis. The staff members use the **Membership Report (Summary)** template to construct a report that breaks down membership by type, grouped by month, and displays data for the previous 12 months. The e-mail settings are configured and a cron job is set up to have this report e-mailed to the chairperson on the last day of the month, freeing staff from the responsibility of generating and sending the report.

Likewise, a **Top Donors** report is constructed, displaying the activity for the previous 6 months. Since this report is only provided as requested, staff members save it to the **Contributions** menu for easy access.

Customizing and building your own templates

Though the reports that ship with CiviCRM seek to anticipate the bulk of your potential reporting needs, it is possible that you may have needs not addressed by existing report templates.

While it is beyond the scope of this book to delve into specific details regarding the development of new report templates, it is important to note that the report tools anticipate these needs. The code to build templates is very self-contained, modularized, and somewhat more accessible to beginner programmers than other areas of the software. You still need some familiarity with PHP and the MySQL database in order to build your own report template, but you may find it easier to work with than other areas of the CiviCRM code base.

If you are interested in exploring this further, visit the following online documentation for guidance on creating a template: `https://wiki.civicrm.org/confluence/display/CRMDOC46/Create+a+Report-Template+Extension`.

Summary

Let's circle back to the original premise set forth at the beginning of this chapter: a report is primarily about telling a story—it is data with a message.

We began this chapter thinking about what a report truly is, and guarding ourselves against missing the forest while staring at trees. After having reviewed the mechanics of creating and working with reports and outlining the various report templates available, it would be easy to lose sight of this broader context.

The reporting tools covered in this chapter are a means to an end. You will select your report fields, define data filters, and choose your display options with the goal of communicating to other staff, organization leaders, or yourself the story of your constituents. This story takes shape through the lens of activities, contributions, pledges, memberships, events, cases, grants, or other windows into your data.

In this chapter, we set the context for working with reports and understanding the goal of reporting, and defined key terminology used in the CiviCRM reporting tools, including the report templates and report instances. We also reviewed the available report criteria and configuration options and summarized available report templates that are included with a base installation of CiviCRM. We even reviewed the core purpose and goal of reporting.

In the next chapter, we will briefly review customization considerations and talk about the CiviCRM community.

14
Customization, Community, and Cooperation

In this closing chapter, we want to tie up some loose ends and point you forward in your implementation of CiviCRM. We will cover the following topics:

- Future versions and the project roadmap
- Customizing and extending
- Community and cooperation
- Getting support and assistance
- Supporting the project

Future versions and the project roadmap

At the time of writing version 4.7 is the current stable release and 4.6 (which we used for this book) is the **Long Time Support** (**LTS**) version. On average, CiviCRM releases two major releases a year, along with numerous minor revisions to deal with bug fixes. In general, the CiviCRM development cycle typically follows the open source mantra of *release early, release often*. There is also continuing discussion on the road forward; the latest vision is to first release new functionality as extensions.

The core team relies heavily on the CiviCRM blog to provide information to the community. Continue to watch the blog for more information.

Customizing and extending

Earlier in this book, we presented CiviCRM's open source licensing as one of the chief selling points of the software. Open source means the source code is readily available and can be altered or added to without infringing on the license. In short, it means you can open up the hood and tinker with it to your heart's content.

Of course, *tinkering* isn't really what benefits you. It's the ability to truly customize, expand, add on, restructure, or do whatever you need to make sure that this software suits the needs of your organization. Then you can share with the community so that they can benefit from your efforts to improve, document, support, and extend the software—and in turn, you can benefit from what other's share. This is the true value of open source. Unlike proprietary closed source software, you're not wholly dependent on the roadmap plans of the company that owns the software (crossing your fingers in hope that they build your desired functionality), nor are you required to work through their support desk to achieve software modifications. Open source means you can modify the code yourself, or hire a developer to help achieve your needs.

While it's beyond the scope of this book to delve fully into the CiviCRM customization, we want to leave you with some best practices and general direction for effectively pursuing your own customization efforts.

Built to be customized

First of all, realize that CiviCRM was built to be customized. If you were to have a conversation with the core team, they would tell you that they built the software with the express purpose of making it as easily extendable as possible. They don't want you to be hamstrung by the code. They want to help you achieve your customization needs quickly and efficiently. There are several ways in which this is realized.

Extensions, hooks, and overrides

The first way the software supports customization is through the extension architecture. Similar to how Drupal, Joomla!, and WordPress encourage customization through their module/extension/plugin models, CiviCRM has its own native extension structure to help developers build new features and functionality into their installation.

The primary benefit of creating a native CiviCRM extension over modifying the original source code of CiviCRM, overriding the CiviCRM files with your own stuff or making an extension that works only with your CMS, is the opportunity to share your work with others in the community regardless of what CMS they are using. There is a growing library of resources available through the extension directory that speaks to the power of community and its willingness to share for the sake of the common good. Before beginning any new customizations to your site, take a few minutes to search through the extension directory to see if something exists that meets or comes close to meeting your needs: `https://civicrm.org/extensions`.

> Before using extensions, there are two configuration options you must review and set. Visit **Administer | System Settings | Directories** to set the location where your extensions will reside, and **Administer | System Settings | Resource URLs** to set the URL location for that directory. Note that the two settings must coordinate.

A number of solid resources are available to help you get up and running, building your first CiviCRM extension. These are available from the CiviCRM wiki's developer area. Specifically, visit `http://wiki.civicrm.org/confluence/display/CRMDOC/Create+an+Extension`.

There are a few things to note on this wiki page:

- A command-line tool called **Civix** is available and is very useful for building an extension. Civix accepts numerous parameters to expedite the creation of pages, forms, installation routines, custom fields, and many other tools you may need in your extension.
- There is a helpful guide available from this page to walk you through the creation of a module extension (in the CiviCRM extension terminology, a module is a generic extension, which may be used for many different purposes).

Sometimes, you may find that you can't adequately achieve your needs through the CiviCRM extension structure. For example, your required customizations may need a high level of interaction between CiviCRM and your CMS—perhaps utilizing Drupal hooks, Joomla! event triggers, or the WordPress API. In such cases, you can just as easily create a Drupal module, Joomla! plugin, or WordPress plugin that interacts with CiviCRM through hooks and the API.

Whether you're creating a native CiviCRM extension or a CMS-specific one, you will primarily interact with the application through **hooks**. Hooks provide tools for injecting your code into existing processes, and are the cleanest (and generally most upgrade-friendly) path to customization.

Think of a hook like a bookmark in the code where you can insert your custom code through an external file. The hook locations are defined in various places and for various purposes, such as when a form is being built, a list of actions defined, an e-mail being delivered, or a record being saved. Each hook will pass relevant data, often as a reference so that you are informed of what is happening at that point in the code and can modify or act on it as you desire.

Your hook implementation will consist of calling the hook function, limiting its scope (if appropriate), and altering or adding to the code behavior as needed. For example, you can use the `buildForm` hook to alter default values on a profile form displayed on your site. The `buildForm` hook passes the form name and form object (as a reference), allowing you to see the fields that will be constructed and in our case, to alter the default values. Here is a code snippet demonstrating how we would implement the `buildForm` hook inside a CiviCRM extension to set the prefix field to `Dr.` when a new individual is being created:

```
function misc_civicrm_buildForm($formName, &$form) {
  if ($formName == 'CRM_Contact_Form_Contact') {
    $defaults = array(
      'prefix_id' => 4
    );
    $form->setDefaults($defaults);
  }
}
```

Let's talk through what's happening in this code snippet. First, we define our function, `misc_civicrm_buildForm($formName, &$form)`. The prefix `misc_` is a reference to our extension name (see the reference earlier to documentation on creating an extension)—every hook we call within this extension will be prefixed in this way. The next part of the extension name references the specific hook we are calling—in this case, the `buildForm` hook. The two variables passed to the hook are determined by the hook definition.

The first thing we do is condition our code based on a specific form. We don't want our code to run on every form—we just want it triggered on the contact form. We then define our array of default values and call the `setDefaults` method on the form object. To determine the correct field and default value, we used the browser inspection tool to locate the correct field, view the list of select list options available, and set our array accordingly. In this case, the `prefix_id` field has four options by default, and `Dr.` has a value of `4`.

After installing and enabling our extension, we can reload the contact page and see that `Dr.` is set by default.

For a list of available hooks and specific guidance on implementing them, visit `https://wiki.civicrm.org/confluence/display/CRMDOC/Hook+Reference`. Many of the hook references here have examples to help you better understand the ways they could potentially be used.

> It can be difficult to understand how specific hooks are used in the code when you are first starting out. If you identify a hook that you think may be helpful for your needs, try inserting some debug code to print the variables to screen or log to file. Then perform the action through the interface and track when and how the hook is called. It can also be helpful to download some existing extensions, review the code, and try to understand how they are impacting the application processes. And you can always ask questions and get help on the CiviCRM StackExchange site at `http://civicrm.stackexchange.com/`.

Hooks are clean and are generally preferred because you are typically working with and only impacting the code that pertains to your specific needs. In the preceding example, where you are altering a default form value, the hook allows you to zero in on the specific form and alter just the desired field, without touching or impacting any other field or process in the form class. Your customization "footprint" is kept to a minimum.

However, you might, in exceptional cases, have customizations that cannot be accomplished with a hook, or for which no hook is currently available. In those cases, CiviCRM provides the ability to define the override directories for both PHP and the template (`.tpl`) files.

> Although this is possible, note that this is extremely exceptional. So if you find you are considering this route, we would recommend you sincerely check whether you cannot achieve your requirement with hooks; it has been years since we encountered a problem we could not solve with a hook.

An override directory, as the name suggests, is a location distinct from the core code in which you place the modified versions of files that will override the the core files. Before using the override directories, you must define them in your global settings. Visit **Administer | System Settings | Directories** to set those locations, taking note of the recommended settings found in the help text (depending on your CMS). Once configured, you will place your modified copy of the original core file in the corresponding folder path inside the override directory.

For example, suppose your PHP override directory for a Drupal installation of CiviCRM is `/var/www/example.org/public_html/sites/example.org/files/civicrm/php/`. To override the `form` file used to create a new case, you place your modified file at `/var/www/example.org/public_html/sites/example.org/files/civicrm/php/CRM/Case/Form/Case.php`.

In Joomla!, the standard location to place the override files is in your media directory, for example, `/var/www/example.org/public_html/media/civicrm/php/CRM/Case/Form/Case.php`.

The same pattern can be implemented to override Smarty template files (using the directory you've configured).

> The template files for specific profiles, contribution pages, and events can be overridden separately from those for other profiles, contribution pages, and events. Insert an extra directory with the ID of the profile, page, or event to override just above the file. For example, `/var/www/example.org/public_html/sites/example.org/files/civicrm/tpl/CRM/Contribute/Form/Contribution/11/Main.tpl` will override the contribution page with an ID of `11`.

There are several important things to note when using the override files:

- The PHP override folders must be built from the CRM directory, as exemplified previously. Template overrides will be built from `/templates/CRM/`. In other words, the structures are built from the CiviCRM subfolders (in your core files).
- The override file itself should be a modified form of the original file. Even if you are only altering a small portion of the file, the entire file will replace the corresponding core file, and thus, must include all necessary code. This is the key difference between hooks and override files—whereas hooks may alter code at the line level, the override files alter at the file level.

- Be sure to work with the correct version of the core file and maintain updates in both your core and override files. For example, if your site is running v4.6.6, don't use the core file from v4.6.2 as the basis for an override customization. By using an older version of the core file as the basis for your modification, you may be missing new features or bug fixes that have been implemented. When upgrading your site to a newer version or revision, you should plan to carefully compare code in your override files and re-implement your modifications using the new core version.

Both of these customization methods help you achieve an important principle in development: don't mess with the core files. Wherever possible, you should avoid altering the core code files. Failing to do so will impede your ability to cleanly upgrade the code base and leave you vulnerable to overlooking (and losing) important modifications.

A few additional notes before we end this section. The discussion about implementing hooks in a native extension is nearly identical to implementing them in a CMS-specific extension (a Drupal module, Joomla! plugin, or WordPress plugin), except that the method for calling the function may differ slightly. See the online documentation cited previously for more details specific to your environment.

When discussing the override file capabilities earlier, we noted the common directories that can be configured and used for this purpose. You can also override files through your extensions. If using Civix to build your extension, code will be added to the `config` hook to support the templates and CRM directory where your Smarty and PHP file overrides can reside. Many times, when you need to override a directory, it's specific to certain functionality or a part of a larger piece of customization you are implementing. In such cases, it can be helpful to store the override with the rest of the customizations in their own extension. This is also helpful for version management. As extensions are associated with a certain version or versions of CiviCRM, and the override files must also be maintained as version-specific, you can tie the two together by handling overrides through your extension.

> While using the `.tpl` override files is a legitimate and useful way to modify the user interface for a given form, there are new tools available that may be preferable from a code management perspective. Many of the public-facing pages now have regions defined in their templates. A region in the `.tpl` files is similar to a hook in your PHP files—it is a "bookmark" in the code where you can insert code. In the case of regions, you define the code through a PHP hook, but define the region in the `.tpl` file it should be injected into. This allows you to add the form elements to the page, and use jQuery to modify the behavior or location. For more details about their usage, visit `http://wiki.civicrm.org/confluence/display/CRMDOC/Region+Reference`.

APIs

If your customizations take place within the CiviCRM environment, you can easily access and make use of the classes and methods throughout the code. However, if you are extending CiviCRM outside of that environment (such as a Joomla! extension, Drupal module, or WordPress plugin), you may want to make use of CiviCRM's public API.

You can view detailed documentation about using CiviCRM APIs at `http://wiki.civicrm.org/confluence/display/CRMDOC/Using+the+API` or through the API explorer, which is available through your installation. It may be helpful to reference it through the CiviCRM demo site available at `http://drupal.sandbox.civicrm.org/civicrm/api/explorer`.

APIs can be invoked through the PHP code in your site, the CiviCRM REST interface, in JavaScript or AJAX, through the Smarty templates, through the Drush module in Drupal, or even by creating standardized wrappers in other languages, such as Perl. Depending on your access method, you will adapt the function calls with associated parameters accordingly.

It's beyond the scope of this chapter to delve into the specific use of the API. For more details about implementing the API through these various methods, visit the API links provided.

> Note that there are quite a few examples provided in the GitHub code repository that are often quite useful in helping to understand what parameters can be passed and what values are returned when a certain API call is made: `https://github.com/civicrm/civicrm-core/tree/master/api/v3/examples`.

Code management

CiviCRM's core codebase is managed through a Git repository on GitHub. The move to Git and GitHub was very intentional: Git is a decentralized version control system that, in many ways, encourages contributions from developers outside the core development team. The CiviCRM project actively promotes code contributions through pull requests, to fix bugs or add new functionality to the software. The steps to make code contributions are detailed here: `https://wiki.civicrm.org/confluence/display/CRMDOC/Contributing+to+CiviCRM+using+GitHub`. Take the time to set up your local repository and understand the requested methods for contributing code.

Developer documentation and sample code

In the spirit of community, CiviCRM encourages developers to share the code snippets and suggestions through the online wiki. Developer resources are largely collected at `http://wiki.civicrm.org/confluence/display/CRMDOC/Develop`, though there are other locations throughout the wiki where code resources may be found. From this page, you'll find access to documents detailing the code architecture, **Entity-relationship diagrams** (**ERD**) of the database schema, hooks, APIs, sample code, and other tips and tricks to assist with development.

This page also includes many reference documents regarding code standards and core code structure that is worth familiarizing yourself with—especially if you expect to be contributing patches back to the core project.

With the growth of the extension framework and growing library of available extensions through the directory, many tips and tricks that previously would have been contributed through the wiki are now distributed as extensions. That said, not all code is extension-worthy—some may be small snippets that may be helpful and useful for others to view. If you implement the customizations you feel would be useful for the community at large, be sure to add them to these wiki pages for the benefit of others.

StackExchange, forums, IRC, and JIRA

Inevitably, your customization, configuration, or general use of the system will lead you to a host of questions. Where do I find a certain file? How does the form process work in a certain place? How does a certain feature work? Is there a hook that will impact a certain process at the place I need it? How do I structure my arrays correctly? Why is a certain tool not working the way I expect it to?

The CiviCRM codebase is fairly large and can be overwhelming. It uses many external libraries and packages and a variety of technologies. However, it's also very consistent, which means the learning curve to resolve customization needs for a specific component will generally translate quickly to the file and code structure in other components.

Nevertheless, you'll have questions and will want to know where to turn to have them answered. There are three places you can go, depending on your needs:

- **StackExchange** (`http://civicrm.stackexchange.com`): In 2015, CiviCRM successfully completed the application process to have a StackExchange site created for the software. If you're not familiar with StackExchange, it's a website that provides tools that are similar to a forum (users ask questions and others join the discussion), but provides additional features, such as the ability to select a response as the answer to the question, and to up- or down-vote responses. When reviewing questions/answers at a later time, these additional features help you wade through the responses to find the one most likely to resolve your issue. We strongly encourage you to search and use StackExchange as your first resource for resolving questions.
- **Forums** (`http://forum.civicrm.org`): CiviCRM has maintained forums since very early in the history of the software. That length of use highlights both the pros and cons of referring to past discussions and using them for current discussions: much of the content found on the forums is very outdated and may be somewhat misleading in that it could be providing guidance in a way that is no longer applicable for the current version of the software. That said, it is still actively used, and may be an appropriate place to discuss current topics if the information you are seeking does not fall into the question/answer model of StackExchange.
- **IRC channel** (`irc://freenode/civicrm` or `http://webchat.freenode.net/?channels=#civicrm`): Many developers, as well as the core team, hang out on the IRC channel throughout their working day, and are more than willing to help answer questions. The primary advantage of the IRC channel is the opportunity to discuss your issue with someone in real time. When troubleshooting or debugging an issue, this can be very valuable. However, traffic ebbs and flows throughout the day, so you cannot be assured of having someone qualified or available to help you through your issue at any given time. It does seem to be a place where relationships are formed and established, which may have longer-lasting benefits over time.

You may also want to become familiar with the public issue tracker, using the JIRA software (`http://issues.civicrm.org`). It is used by the development team and is open to the community for bug and feature tracking.

If you come across what appears to be a bug in the software, don't immediately create a new issue ticket. It may be something that is specific to just your implementation of CiviCRM, or it may be a bug that has already been reported or even fixed in more recent versions. A good place to start is by searching StackExchange or the forums for relevant posts. If you don't find anything, try to reproduce the error on the latest stable version of CiviCRM running on the demo site at `http://demo.civicrm.org`. Then post your problem, especially including the text of error messages, what you were doing when it happened, and whether you can reproduce it on the demo site. Within a few hours, or a day, you'll probably have a helpful response. It may be a suggested fix or workaround, a link to a relevant page in the wiki, or a request to create a new issue on the bug tracker.

If you are able to solve the problem you posted in StackExchange or the forum, it's a good idea to update the thread with what worked to help others who may face the problem, and to provide feedback to those assisting you. Remember that they are people too. Many who help out on the forums aren't paid for their time there. A "thanks" and a respectful tone go a long way toward getting people to help you, while an abusive or entitled tone is more likely to be met with a cold shoulder.

Once you file an issue in the JIRA tracker, someone from the core team or the community will generally review the issue and provide some feedback within a few days. Feedback can vary, but may include some of the following responses:

- The responder may report being unable to replicate the issue, or may request additional information on how to replicate. Take the time to attempt to replicate on the demo site or a clean install of CiviCRM (to rule out causes related to any customizations or extensions you may have implemented). Be as clear and concise as possible when providing steps to recreate the problem.
- A core team member may mark the issue as requiring funding, or indicate that if you can supply a patch it would be helpful. While CiviCRM does have a core team that works on the software, its resources are limited. If an issue is an edge case or seems like it is less mission-critical than other open issues, the core team may decide it cannot budget resources to address it. That is an unfortunate scenario, but a reality when working with limited resources. If you have in-house developer resources you can assign to look at the issue, that is the best way to resolve the problem—making sure they submit a patch so that the fix is contributed back to core. If you do not have those resources readily available, you could discuss further with the core team and offer to sponsor a fix. The core team would provide you an estimate, which you would approve, and they would be able to assign staff to look at the issue and work with you to resolve it.

It can be frustrating to experience bugs or find that things don't quite work the way you need them to. It can be even more frustrating if you are unable to get timely responses to your questions through StackExchange, the forums, IRC, or the issue tracker. Keep in mind that CiviCRM is open-source software that relies heavily on the community to help maintain and develop the software—and to keep it free. In such a circumstance, it may be a prime opportunity for you to step up your commitment and contribution to the software by sponsoring development, either through the core team or by contracting with a CiviCRM developer to investigate and resolve your issue.

Community and cooperation

As alluded to in the last section, CiviCRM is as much about a community of developers, integrators, implementers, administrators, and end users, as it is an *off-the-shelf* piece of software. The reason CiviCRM can be offered for free and has such a robust history of new features and new versions is because organizations and developers have supported it financially and through active code contributions.

Whether you intended to or not, when you began using CiviCRM you became part of that community. The more you get engaged in that community, the more opportunities you will have to grow, learn from, and contribute to the community. There are several ways to get more involved.

A growing way to learn about and share experiences with CiviCRM is local meet-ups. These relatively informal events generally include demonstrations of how people in an area are using CiviCRM, perhaps some technical discussion, and a chance to chat and ask questions. So far, there have been meet-ups in cities around the world, including Albany, Berlin, Boston, Bristol, Brussels, Apeldoorn, Buffalo, Chicago, Dallas, Fort Worth, Dresden, Dublin, Geneva, London, Montreal, Mumbai, New York, San Francisco, Seattle, Taipei, Toronto, Warsaw, and Washington. Refer to `http://civicrm.org` to see whether there is one near you, and consider starting one if there isn't.

The core team and a growing number of other providers are also putting on user, administrator, and developer training events. These are typically advertised through the CiviCRM blog.

Perhaps the highlight of CiviCRM community involvement is the annual CiviCon conferences, held in the United States and Europe every year. These events are packed with hands-on sessions geared toward different-level audiences (developers/implementers/end users). They provide tremendous opportunities to learn from how other organizations are using CiviCRM and to network with others in the community. Getting to meet people face-to-face provides an invaluable human dimension to the sharing and socializing that takes place in the community spaces online.

As a result of the benefits to you and the community, we strongly encourage you to participate in the community in whatever ways you are comfortable. That might be finding advice on the wiki, posting a question to StackExchange, going to a meet-up, or attending CiviCon. Many people find that it is more than worth the time and effort they invest in these ways.

Supporting CiviCRM

We've already described a number of ways you can support CiviCRM—by contributing code, reporting issues, discussing and answering questions through StackExchange and the forums, and attending events—but you can also support CiviCRM more directly, through financial contributions. While CiviCRM is free to download and install, it is not free to develop and maintain. The health and future of the software depends on organizations demonstrating their commitment through financial support.

There are several ways you can show support financially:

- **Becoming a member** (`https://civicrm.org/become-a-member`): Membership is the first step in demonstrating support. It is an affordable way to recognize the benefit of CiviCRM to your organization and help contribute to its sustainability.
- **Becoming a partner** (`https://civicrm.org/become-a-partner`): Partnership elevates your level of commitment to the next level. Partners value the significance of CiviCRM to their organization or business and recognize how critical it is to invest in its future.
- **Donating** (`https://civicrm.org/civicrm/contribute/transact?reset=1&id=47`): If you prefer to make a one-time or recurring donation, without becoming a member or partner, you may do that as well.

It may seem counterintuitive for an organization offering free software to also seek contributions in support of the software. However, it very much speaks to the history and heart of CiviCRM: you are not obliged to support CiviCRM financially; you are not bound to (and limited by) a license-based contract; you are not prevented from contributing to the future of the software, held captive to the development roadmap set by the corporate hierarchy. Rather, you are invited to use it freely, and encouraged to become involved in the future of the software you likely will rely on for system-critical functions in your organization.

Summary

In this closing chapter, we looked at the upcoming versions of CiviCRM and the overall roadmap, and briefly reviewed key considerations when customizing your installation. We walked through the basics of code development and outlined why and how you can participate in the growing CiviCRM community. We also learned how you can cooperate to advance the project.

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