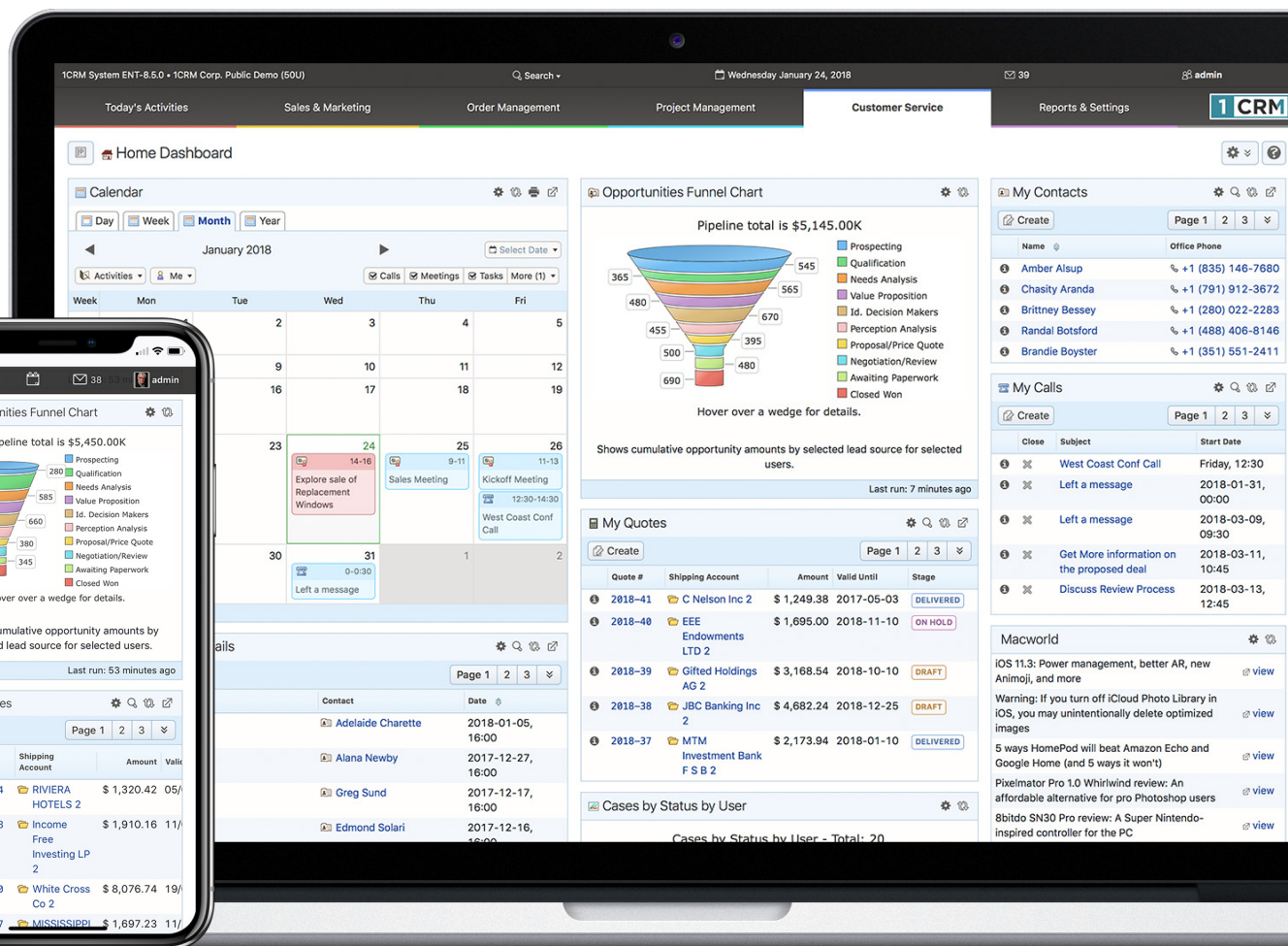# 1CRM IMPLEMENTATION GUIDE

A Comprehensive Guide to Implementing and Administering 1CRM

Navigating This Guide:

This Guide has been designed to be helpful both as a printed document, and as an electronic document accessed on your computer screen. If you are accessing it via a PDF viewer such as Acrobat Reader or Mac Preview, please notice:

1. The Table of Contents entries are all live hyperlinked to the pages to which they refer.
2. At the top of each page there is a link back to the start of the Table of Contents.
3. Be sure to use the search feature of your PDF reader.

Version 8.5, November, 2018. This document is subject to change without notice.

Disclaimer

While every effort has been made to ensure the accuracy and completeness of information included in this document, no guarantee is given, or responsibility taken, by 1CRM Systems Corp. for errors and omissions.

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1.0 Welcome

Thank you for using the 1CRM Customer Relationship and Business Management (CRBM) System from 1CRM Systems Corp. 1CRM is designed to help you enable your organization to efficiently collect and maintain information which is crucial to many aspects of your business. The 1CRM system:

- Provides integrated management of corporate information on customer accounts and contacts, sales leads and opportunities, plus activities such as calls, meetings, and assigned tasks.

- Offers a Product Catalog, plus the ability to create Quotations, Sales Orders and Invoices using products from the Catalog. Incoming Payments may be received and allocated against invoices, and the system can produce PDF documents for Quotes, Sales Orders, Invoices, Receipts, and Statements. Purchase Orders may also be created, and Outgoing Payments recorded against them.

- Tracks financial performance of current projects, and organises a history of all project-related documents, status reports and activities. It also provides information about resource utilisation on projects.

- Supports inbound and outbound email, enables sharing of business documents from HR policies to price lists, manages a photographic staff directory, and organises a calendar of scheduled activities.

- Offers a series of graphical Dashboards to track your sales pipeline, the most successful lead sources, service statistics, the costs and revenues from ongoing projects, and key financial metrics.

- Includes a free Self-Service Portal and eStore for 24/7 sales and service support of your customers and sales channel partners.

- Includes 1CRM Mobile Access and Telephony Integration.

- Offers an optional 1CRM Finance for QuickBooks add-on, which is an advanced integration of the QuickBooks accounting system with 1CRM, via the QuickBooks Web Connector from Intuit Inc.

Most importantly, the system seamlessly blends all of these capabilities into an intuitive and friendly tabbed interface.

1.1 About this Guide

This guide is written for those individuals tasked with implementing the 1CRM System. It is current with the details of operation for 1CRM System 8.5. It is designed to deal with implementation topics, issues and choices, to instruct technically capable individuals in the installation of 1CRM on a Linux, macOS or Windows server, or the Windows Azure Cloud, and to provide details of how to administer the 1CRM system on an ongoing basis.

Readers are required to be familiar with the use of a personal computer, and Internet browser software such as Microsoft Edge or Mozilla Firefox, as well as having a basic familiarity with the Linux, macOS or Windows Server operating systems, and database principles.

1.2 Who Should Read this Guide?

This 1CRM *Implementation Guide* is intended for system administration personnel who need to install and configure the system as part of its initial implementation, or who need to manage the system and its users on an ongoing basis. It is also meant for business managers who must guide the implementation of the 1CRM System.

It is not intended for conventional users who wish to record and track company activities and outcomes – those topics are dealt with in the 1CRM *User Guide*.

1.3 Additional Documentation

The 1CRM Customer Relationship and Business Management (CRBM) system offers extensive documentation for the installation and use of its various components. Click on any image to download that document:

User Guide	Mobile User Guide	Implementation Guide	Developer Guide
Portal Guide	QuickBooks Sync	1CRM Brochure	Editions & Pricing
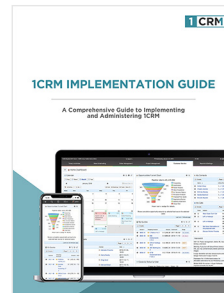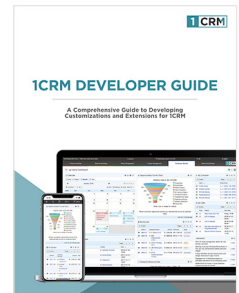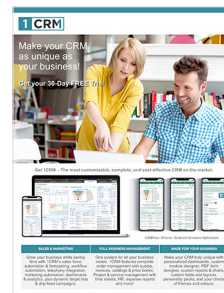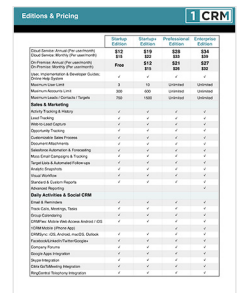
2.0 Implementing 1CRM in Your Business

A CRM system is to some extent, a groupware application for managing your business. Groupware is a term used to describe computer software designed to help a group of people work together cooperatively. As such, a CRM helps everyone in the business (especially all those in direct contact with customers) to know the historical and planned activities of the business which involve(d) a specific customer. This is clearly very useful to avoid miscommunications with the client resulting from lack of communication within the business. Everyone in the business can record all of their interactions with a client, helping all their co-workers understand the current state of any issues, sales opportunities, and so on.

Even more importantly, a CRM records all new business leads, and keeps track of promising qualified leads as specific opportunities. These opportunities are recorded with an expected date on which the business will be closed, the current stage of the sales cycle for this opportunity, and the percentage likelihood of closing the business currently assigned to this opportunity.

This information, aggregated across the business, provides a clear view of the organization's sales pipeline. Visual charts of this information are typically "live-linked", making it easy to drill down to view the individual data items which were aggregated to build the chart. Classification of opportunities by sales person, by lead source, or by expected close date is a simple activity, easily performed and fantastically informative.

A properly implemented CRM, used by all customer-facing staff, will help you track the sales performance of your business more closely with less work. It will also help you see the future more clearly, and plan more effectively.

Just as the customer is the focus that ties together all business activity, your CRM can be the business tool that ties together all your business information, particularly with custom integration into other business systems such as your public web site, and the creation of new customer self-service web sites for building orders, creating and reviewing service cases, and managing their own information profile.

Another key area in which a CRM can help greatly is in customer communications. After all, a CRM knows who all your customers are, is connected to the Internet, holds all your key marketing documents in it, and can typically send and receive email. For sending out customer newsletters on a monthly or quarterly basis, for selecting only those customers who have purchased specific products, or for keeping track of any customers who have indicated they do not want to receive marketing emails, there are few things as useful as a CRM.

These powerful capabilities add up to make big changes at most businesses where they are adopted:

- Sales are increased by: Using the new marketing communications capabilities.
- Costs are reduced by: Only typing in information once.
- Costs are reduced by: Automatically sharing information with everyone instantly.
- Costs are reduced by: Everyone in the business knowing right away where to find information, without wasting time looking for it.
- Customers are happier: Dealing with employees who now seem to know more about them and what's going on in their account.
- The business is managed better: Sales pipelines are better understood.

- The business is managed better: The most productive lead sources and sales staff are clearly identified.
- The business is managed better: Any business downturn is visible well before it represents a commercial risk to the business.

2.1 Identifying the CRM Needs of Your Business

There are many high-level characteristics of a business that cause one business to have very different CRM requirements from another. These include:

- The Business Model – One location, or many? Franchises? Regional Sales Offices? Products or services? High or low unit sales value?
- The Customers – Where are they? Who are they - businesses or individuals?
- The Scale – How many employees – 2? 25? 50? 100? 200?
- The International Needs – Multiple language support? Date format? Currency format?

Compensating and adjusting appropriately for these varying requirements will make the difference between a CRM that suits your needs, and is quickly embraced and adopted, and a CRM that never feels like a good fit, and quickly falls into disuse and is abandoned.

To genuinely understand why a CRM typically needs some measure of customization to become a truly effective tool within an organization, we need only examine what it is that a CRM is meant to accomplish. Some basic CRM functions include:

- Salesforce automation – including lead capture, and the promotion of leads to Opportunities.
- Opportunity tracking with sales stages and percentage likelihood.
- Sales pipeline tracking, with graphical charts that offer drill-down from the bar or segment of the chart to the data that underlies it.
- Lead source analysis of sales and opportunities.
- Service case tracking, and other service/support capabilities such as tracking software bugs, building and maintaining a knowledge base, and managing support contract renewals.
- Corporate calendar management, for arranging meetings.
- Corporate directory, for contacting fellow employees.
- Interface consolidation, bringing into the CRM environment additional everyday needs in order to make a company web site that employees can 'live in' – including news feeds, views of financial metrics, integration of external web links and applications, and integrated web-based email.
- Document management and revision control, for managing and retaining reference copies of important corporate documents.

To be an effective tool, a CRM must perform all of these functions within an intuitive and easy to use graphical interface, be available at all times, and be accessible using a wide variety of devices.

Depending on the nature of your business, some additional more advanced capabilities that may be usefully included within your CRM are:

- Project tracking and management;
- Management of e-marketing campaigns;
- Advanced report generation;

- Definition of sales teams and territories, to manage information sharing, and track sales performance by territory.
- Integrated views of financial metrics and performance.
- Product catalog management, and tracking sales inventory, corporate assets, and client products covered by support contracts.
- Creation of client quotations and/or invoices, bills, purchase orders, and other documents associated with order management.

2.2 Setting the Scope of Your CRM

As you approach the process of implementing a CRM within your business, one of the more important decisions you must make is the application scope of your CRM. You must make a high-level choice as to your philosophy about your CRM – are you using it uniquely to manage the sales process, or do you see it having a major role in your overall approach to business management?

You need to examine the lists of capabilities above, and decide which of these you will implement in the CRM for your business – at least for the initial implementation phase.

To help you sort through these topics, and help you make better informed choices, they are explained here in greater detail with an emphasis on the kinds of choices, customizations, and variations commonly seen in smaller businesses.

Deciding which of the basic application areas to include in your CRM implementation is the first stage of identifying the set of customizations your CRM installation will require. Later on we will discuss in detail how to actually perform many customizations to your 1CRM installation using the Studio feature available to system administrators, but for now our task is merely to identify the areas of the application which are most likely to require customization, based on the nature and needs of your business.

Beyond the basic CRM capabilities are the more advanced functions such as project management, advanced report generation, e-Marketing, managing a product catalog and asset register, and generating quotes and invoices. While 1CRM lets you do all these things, for now we will just go over the initial list of standard capabilities.

2.2.1 Accounts and Contacts

At its fundamentals, a CRM captures information about your accounts, and the contacts you have at those accounts. By accounts, we mean the complete set of other firms you do business with – partners, suppliers, and customers.

This much is true of CRM use at most businesses, but even this basic capability needs modification at many firms. Some firms focus much more on contacts, as they sell to individuals, while others focus almost uniquely on accounts, as they sell only to businesses. Many firms go to the extreme of having a CRM which does not show both accounts and contacts in the navigation system, but instead has only one or the other. Others choose always to show both at once.

To resolve these differences, clearly it would be useful for the CRM to have the ability to remove unwanted functions, or types of data, from the user interface. The good news is that nowadays, most quality CRMs include this capability – and certainly 1CRM does.

⟳ 2.2.2 Tracking Targets, Leads, Accounts, Contacts and Opportunities

The next major differentiator between firms and their associated CRM implementations lies in the area of targets, leads, accounts, contacts and opportunities. Targets, leads and contacts are all types of information in a CRM which represent people you hope to sell to, but at increasing (from targets to contacts) stages of maturity of the data and of the relationship. There are two common business models:

In one business model, the company frequently purchases lists of 'Targets'. These are potential clients, but very little is really known about them. By operating a variety of different types of marketing campaigns, such as email or tele-marketing campaigns, these targets are qualified. Does the contact information for them actually work? Do they have any interest in any product or service offered by your organization? If so they can be *promoted* to being a qualified lead. If not, they can be marked as such, and either discarded, or at least put to one side for now, for potential recycling into another campaign.

Note that one key consideration for targets is that the quality of data is typically not up to the level you will want for leads and contacts. Only when the accuracy of target data has been established and verified should it be considered for inclusion in lead and contact data.

In this business model, the next step is to have relatively more skilled and senior sales staff contact these qualified leads, and try to convert them to clients. During that process, if things go well there will develop a need to prepare a quotation for this potential client, and a need to document an opportunity to make a sale with them. In 1CRM, as in many CRMs, this is the user's cue to convert the lead into an account and a contact, and potentially create an opportunity as well. The potential client is still not a customer yet, but they are close to becoming a customer, and need to have the account and contact records created for them in order to associate either an opportunity or quote with them.

This highlights two key principals of most CRMs:

1. Targets and leads are unified records that contain early stage client information. They contain information about both a person and the company for which they work. The company name is just another text field on the record, an attribute of the person - not a full account record of its own.

   A contact record on the other hand has no company information in it, it is just related to an account record which has all the company name and address information in it. This is consistent with the fact that most CRMs are account-centric, with everything that is important happening to an account. Most other types of information need an account to be related to them to tie them into the overall CRM data model.

2. The two activities that typically cause a lead to be converted to a contact and an account are preparing a quote, and documenting an opportunity. Quotes and opportunities both need an account to which they are related, and leads do not normally have related accounts, so in order to prepare a quote or document an opportunity, the lead has to be converted or promoted into a contact with an associated account record.

In this first business model, a company that generates, data mines, or purchases a lot of sales targets, you need to distinguish between a target, a lead and a contact/account pair. And only the contact/account pair can have an opportunity associated with it, or a quote prepared for it.

The second business model is a company that does not have a lot of low-level target information to deal with. It tends to have new clients enter the sales process as well-qualified leads, perhaps from selling horizontally across existing accounts, or by receiving a lot of web form data from potential clients themselves. In a company that operates with this business model, you might well prefer to dispense altogether with the concept of a target, and deal simply with leads, contacts/accounts and opportunities.

In this simplified business model, it might be useful to be able to customize the CRM user interface so as to remove any menus or navigation associated with targets. Most good CRM solutions provide this capability, as does 1CRM.

Different firms have many different ways of generating leads: from a form on an Internet site, provided by a partner or a supplier, from advertising, by word of mouth referral, and so on. It is important to track what your most successful lead sources are, to gain the knowledge of where to focus your marketing efforts. So creating a list within the CRM software of the lead sources your firm uses is important. And then with each new lead, it can be characterized as to source by simply choosing an option from a dropdown box on a screen form.

Populating dropdown boxes with options that are uniquely relevant to your business is a very common form of CRM customization, and one that is becoming widely supported by mainstream CRM systems, again including 1CRM.

Another dropdown box whose options often need customizing is the sales stage of an opportunity. While there are relatively standard industry-accepted terms for the different stages of the sales process, they can vary quite a bit by the nature of the business involved – its size, its customers, and the length of the typical sales cycle. The list of stages of the sales cycle you intend to track is another candidate for a customization you may want to make to your CRM.

Related to the sales stage is the percentage likelihood of a sale, ranging from 0% to 100%. Some organizations pay little attention to the percentage likelihood, and track opportunities based on sales stage. Other organizations do just the opposite and rank opportunities by percentage likelihood, paying little attention to the sales stage. And some track both. You need to decide which is important to you, and make sure that the list of opportunities and the charts of sales in the pipeline present that information, and give you the ability to filter and focus on opportunities based on that information.

➡ 2.2.3 Salesforce Automation

One very important productivity tool that a CRM can provide is often referred to as salesforce automation. While this can include such functions as the *dashboard*, dealt with in the next section on sales pipeline, at its fundamentals salesforce automation is an automated flow of sales leads into the CRM, their conversion into contacts, accounts and opportunities, and their tracking to a successful or unsuccessful conclusion. Included in this are such features as:

- Lead capture from a public web site, or from partners
- Conversion of a lead to a account with a related contact and opportunity once the lead has been qualified
- Automatic email notifications to sales people when a new lead or opportunity is assigned to them
- The tracking of current and historical account activities against both contact and account records
- The association of key documents to accounts and contacts, such as proposals, contracts and agreements, and marketing collateral

Automated lead capture into your CRM from a lead form on your public web site, or from leads sent to you from a supplier or other partner, is a key productivity improvement. If you have a current supply of sales leads, you should identify how to automate their entry into your CRM. Many CRMs, such as 1CRM, have a SOAP-based (Simple Object Access Protocol) web service to which external systems can be linked in order to pass on lead data. If you do not have a current supply of sales leads, perhaps you should create a lead form on your public web site, and devise a strategy for driving traffic to your web site.

Once a lead has been qualified as a genuine sales opportunity, it needs to be re-classified as an account with a related contact and opportunity within the CRM system. Most CRMs (including 1CRM)

have the ability to convert a lead into an account/contact pair, with the option of creating a related opportunity (and perhaps even the first appointment) at the same time.

Your CRM system will be connected to the Internet, and will have an email system available to it. Because of this, it has the capability to automatically email salespeople when they are assigned a new lead or opportunity. Typically your CRM (as does 1CRM) will let you enable or disable this automated notification system, and you will need to decide if your CRM will use it or not.

2.2.4 Tracking the Sales Pipeline

Each opportunity in a CRM system has an expected sales value, and an expected closing date. Adding this information up across all the opportunities in the system produces a prediction of the future sales of the business, known as the sales pipeline.

The sales pipeline is a key tool for anyone managing a smaller business. Usually a smaller business has more limited financial resources to buffer them from a downturn in business, making it that much more important to be able to detect a negative sales trend at the earliest possible moment.

Like most software designed to summarize financial activity for management personnel (known as Executive Information Systems – EIS, or Decision Support software, or Business Intelligence software – BI software), most CRMs (including 1CRM) present the sales pipeline in a graphical chart form, frequently with the ability to highlight some portion of the chart and 'drill down' to the source data that underlies that portion of the chart.

A series of charts which support sales and business management functions is often called a *dashboard*, or a *digital dashboard* – and can be a powerful tool for ensuring that sales are on track in the coming months, and diagnosing and uncovering shortcomings in the sales process, product features, pricing, and personnel.

A fundamental choice has to be made when presenting the sales pipeline, and that is whether or not to discount the opportunities in the pipeline by the percentage likelihood of their closing. Should a $100,000 opportunity which is 25% likely to close in June be counted as $25,000 in June, or $100,000? Both practices are very common, and only you can decide which behavior you feel is correct for your business.

2.2.5 Tracking Service Cases and Support Contracts

Most CRMs, including 1CRM, offer at least basic customer service and support features. Some of the capabilities typically offered include:

- Case Management: A service incident, trouble ticket, or case (different systems and industries use different terminology) can be created with a date/time stamp, contact information for the customer reporting the issue, and a description of the nature of the problem. If a potentially defective product is involved, the type or model of the product and the serial number of the unit may be tracked. Similarly there may be a related service contract.
- Software Bug Tracking: If a service case involves a defect or issue in some customer software system (yes, this is only going to happen if your business is involved in creating, or supporting, computer software programs) then a bug report is created, and it will note the software product involved, its revision, the nature of the issue (bug or desired enhancement). It will also track the status of the issue, who is assigned its resolution, and will record the eventual disposition of the issue.
- Service Contract Management: Service Contracts are often tracked using a model of a master agreement for each account, with any number of sub-contracts per master agreement. Each sub-contract may have related to it any number of customer assets being supported. And each sub-contract, and asset, will have a service incident history

associated with it, to track the case history by item of equipment, and by sub-contract. A mechanism usually exists to remind account managers when service contracts are nearing their renewal dates, so that a proposal for the renewal may be prepared and sent to the customer.

Not every business needs these service and support features. You will need to identify what your business requires in the service and support area, and decide if the standard features are a good fit for you, if some need to be hidden as they are not required, or if some extended capabilities need to be custom-built for you. This area is a frequent source of customization requirements.

2.2.6 Corporate Calendar Management

Your CRM is almost certainly the best place for you to enter all your appointments, meetings, scheduled calls, and planned tasks – all the business activities which have a time and/or date associated with them. Not only does entering this information in the CRM help to associate the activities with the related accounts and contacts, helping to generate accurate account history, but the CRM provides a groupware environment for scheduling meetings that is aware of the all the scheduled activities for everyone in the company.

Prior to adopting a CRM, many small and medium businesses use Microsoft Outlook, Outlook Express, and/or Microsoft Exchange to fulfill their corporate calendaring needs. Other popular solutions include Lotus Notes, Novell GroupWise and many other groupware products. While Outlook is a reasonable solution for calendaring for an individual, and Exchange helps to link together calendars across a business, this solution can never help you to position these activities within the larger CRM context, and automatically generate and track account history.

If all this talk of Outlook and Exchange, Lotus Notes, Outlook Express, etc.. is all foreign to you – don't worry. They are simply other ways of addressing needs that your CRM will satisfy nicely, and satisfy more effectively from the perspective of managing relationships with your customers.

Sometimes a counter argument to using a CRM for calendaring is that for many CRMs the synchronization options for linking the data in smartphones like iPhone, BlackBerry and Windows Mobile devices to your CRM data can be severely limited or non-existent. If mobile access to calendar information is important for your firm, check out your synchronization options before making the move to CRM-based calendaring.

1CRM has the ability to sync its calendar information with the Google calendar, and (using the CRMSync feature of 1CRM) with iOS, Android, macOS and Outlook. The iOS and Android sync capability can get your calendar data onto your mobile device such as iPhone or iPad. 1CRM also has a Mobile access feature which provides web access to 1CRM specifically formatted for iPhone, Android and other mobile devices.

Ultimately you must decide if adopting 1CRM for your corporate calendaring requirements is an approach that suits your organization and its people, or if it is best to stay with the tools people already know. But there is great value in using the CRM to link appointments to Contacts and Accounts, creating a high quality history of every customer 'touch'.

2.2.7 Corporate Email

How you will manage your corporate email once you add a CRM to your business is a very important and potentially difficult decision. Some of the considerations are:

- Like Calendar information, emails within a separate system like Outlook can never help you to position the email exchanges within the larger CRM context, or become an easily accessed part of account history.
- Your staff are presumably already using an existing tool to access their email, and may be unwilling to learn a new system.

- You don't want to stuff your CRM with emails. You only want emails to and from clients or potential clients, not personal emails, and not a lot of the intra-office emails. You only want emails that are still important and relevant history for each client's current situation. Too much data in your CRM may create a situation where useful information is hard to come by.

- It can be very handy to send email from within your CRM. From the screen showing details for a particular client, it is a real time-saver to just click on *Compose Email* and send off a short email, knowing it is automatically addressed properly, and automatically becomes a part of that client's history in the CRM.

- CRMs are useful places from which to perform email campaigns as well, as they have all the right information within them, and you'd like to track as part of each client's history which campaigns they have been exposed to, and track the overall effectiveness of each campaign.

- CRMs are not email servers. You can bog them down if too many people store too many emails in them. For a typical business with perhaps 50 employees and 1000 clients, you should aim to keep the number of emails within the CRM below 100,000, and certainly below 200,000. To do this it can be very handy to have some facility in the CRM, as there is in 1CRM, that automatically removes emails when they get to a certain age.

The end result of all these factors is that most commonly, our optimal recommendation for most businesses up to 250 employees is to adopt the following solution:

1. Users should keep using their current email client for day-to-day email.

2. Link their email client software to their email server using the IMAP protocol.

3. In each user's email client, create a folder called CRM at the same level as the INBOX (not indented under the INBOX). Because of how IMAP works, this will create a CRM email folder on the email server for that user as well.

4. Every time a user has an email they feel should be filed in the CRM, they drop a copy in the CRM folder within their email client.

5. Through IMAP, this will put that email in the CRM folder for that user on the email server.

6. Create a 1CRM Monitored Mailbox that retrieves email using IMAP from that email account for that user - not from folder INBOX, but from folder CRM (this is the key to this approach!).

7. Now - every email that is dropped in the CRM folder in any user's email client will turn up in the CRM automatically - and will be automatically linked to any related Leads, Contacts or Accounts, as well as to the User that filed it in the CRM.

8. Users are free to use the CRM to send emails to customers. Records of campaign emails are only kept within the CRM, but to make sure that other individual emails composed within the CRM and sent to customers are also filed within the user's normal email client, the CRM should be configured to blind copy to the user's normal email account every individual email sent out from the CRM. (1CRM has an *Auto-Bcc* option you can set to do this.)

9. Finally, you can if you wish add another Monitored Mailbox to monitor your Sent items folder. If you do, check the box marked *This Folder Contains Sent Emails*, and select *Sent* as the *Deliver to Folder*. This will bring in to 1CRM all the emails you send using another email client, correctly mark them as Sent emails, and drop them in your Sent folder in 1CRM.

Implemented properly, this solution addresses every one of the initial considerations for an email solution, and obviates the need for any messy, administratively intensive, and sometimes unreliable email client plugins.

While Outlook and ThunderBird email client plugins are available to integrate to 1CRM, we still strongly recommend the above solution be implemented whenever possible. You will need to examine your organization's requirements and decide if you are in a position to act on these recommendations.

For organizations currently using Outlook, there are frequently user concerns about the migration to the use of a CRM. Outlook can be used for EMail, Calendar, Contact Management, and Task Management. While Calendar, Contact and Task Management be transferred by all users into the CRM, or left to be managed with Outlook and synched to the CRM using CRMSync, Email can (and usually should) remain in Outlook, with the above scenario implemented.

Look in the User Guide for more details on CRMSync. With this feature of 1CRM, users can sync their Calendar, Contacts, and Tasks bi-directionally with any of iOS, Android, Outlook and macOS. With CRMSync, users can add, delete or edit contact, task and calendar items on their phones or tablets - even while offline - and have their CRM data updated automatically to correspond with these changes.

For organizations currently using Mac computers, users can use the Mail email client and pursue the same CRM folder strategy as outlined above. The local Mac Calendar can subscribe to the user's calendar in 1CRM, which is a handy feature. Mac clients can also use the bulk vCard export feature to export bulk contact data to a block of vcards - and then import them into the address book application, which makes all of them available within Mail as email addresses. So that gives the user contacts, calendar and email integrated between 1CRM and the Mac client software. (Note that 1CRM also supports the use of the Safari web browser found on the Mac.)

2.2.8 Corporate Directory

If your business has only a handful of employees, then a corporate directory is likely unnecessary, and you may want to remove it from the user interface of your CRM system.

But as a company grows, and reaches 25, 50, even 100 employees, it gets harder and harder to remember everyone's extension number, their email address, their position, even their face. Even a smaller business will make good use of a corporate directory if it is spread out across multiple regional offices.

A corporate directory is a very handy list of everyone's contact information, and often (like the one in 1CRM) includes a thumbnail image of them for those situations where you just can't put a name to the face, or a face to the name.

2.2.9 Interface Consolidation

Interface consolidation refers to a series of tools and techniques used within a CRM to allow employees to spend much of their day logged in to the CRM, with few business activities not integrated in some way within the CRM.

Some of the activities and features commonly integrated within a CRM (as they are within 1CRM) just to reduce the need to jump out of the browser interface to perform miscellaneous business tasks include:

- News feeds (RSS, Atom)
- World Weather
- Stock Market Info
- Integration of external web links and applications
- Integrated web-based email

Clearly, by adding in news, email and commonly used external web sites, the CRM becomes an environment that your employees can live in, one that they can log in to in the morning, and leave up all day.

You should give some thought to what news headlines sources to include, and what external web sites to link into your 1CRM implementation.

2.2.10 Document Repository

A document which is only stored on the hard drive of the PC of one of your employees is not a company resource. A document which has a copy stored on every hard drive in the company is not standardized or revision-controlled. In between these two situations is the right answer – the document repository within your CRM system.

Typically your CRM (and 1CRM provides every feature discussed in this section) will let every employee store documents on the system, and give them a title, a description, a file type, a status and a revision. Some keywords are also normally entered, to make it easier to find the document. Unlike your PC, a document repository usually allows the user to update a document with a later revision, while keeping each previous revision intact in case it is ever required. A document's status indicates if it is a Draft document, an old archived document, or an Approved current version.

A web-based document repository provides key benefits for any business, allowing all important business documents – medical claim forms, HR policies and guidelines, employee handbook, designs, specifications, sales collateral, contracts, etc.. – to be accessed remotely and downloaded.

A document repository is a vital capability for any business, and you need to decide what sorts of documents your business needs to store in your CRM, and how to organize them.

2.3 Business Models and Their Specific Requirements

In the previous section, we looked at many different business activities that can be managed and tracked by your CRM. We also looked at some of the ways that businesses perform those activities differently, and why sometimes, your CRM might need to be customized to adapt it to the way your business does them. In this section, we look at your business itself, and examine the nature of your business for requirements that might need special handling or customization in the CRM in order for the CRM to suit your business perfectly.

Businesses vary widely in their fundamental nature. Who do they sell to, and how? What do they sell – a product or a service, and how expensive is it? Where is the business itself located, and does it have multiple locations? Let's look at some of these distinguishing characteristics of a business, and see how they affect the CRM needs of a business.

2.3.1 B2B or B2C?

One of the first differentiators in CRM needs is who your customers are. To use acronyms associated with the worst days of the Dot Com crash at the end of the last millennium, are you a B2B or B2C business model? Meaning – do you sell to individuals (Business to Consumer, or B2C) or to Businesses (Business to Business, or B2B)?

In a firm with a B2B business model, the typical CRM data model of accounts and contacts is usually a good fit. In extremes, some firms will prefer to remove menu access to contacts, and focus on the accounts – leaving contacts only as names associated with accounts.

But in a B2C business model, many firms prefer to remove the navigation access to accounts, leaving a focus on the contacts – the individuals with whom the business does business.

At present 1CRM offers a choice of B2B or B2C business models, with a merged Account & Contact record being used when B2C is selected. Some businesses would find it useful to support a mixed

B2B and B2C model - where there were clients of both kinds in the one system, but 1CRM does not support this capability as yet.

2.3.2 Products or Services?

What sort of business do you have? Do you make or re-sell products? – anything from ceramics to washing machines. Do you sell services, such as house painting, landscaping, or window cleaning? Or do you do both on a regular basis? – like the car mechanic who charges for his labor by the hour, but also sells the replacement parts he uses when making repairs.

If you only sell products, what about the product support, or warranty services? Or does the product regularly wear out or need service on a predictable time line, giving you an automatic new sales opportunity – such as a car that needs regular oil changes?

If you have an element of product warranty or support in your business, you will want to be able to record which customer has what duration of support on what products. If your product needs regular service, such as a car dealership, you may want to record when would be a good time to contact each of your customers for service.

In a CRM, products and services are dealt with rather differently. Products are usually held in a catalog, and are very standardized. When they are sold, they generate a one-time income event.

Services are often sold by the hour, such as an appliance repair technician that might bill 2 hours to repair a washing machine in your home. You can address this by creating a product in your catalog which is an hour's time for technician with a specific set of skills, and invoice the service to the client as a product, where the quantity would be the number of hours billed. (**Note:** 1CRM can do things this way, but can also quote or invoice for services in a different way, not involving products from the catalog. Sections of a quote or invoice in 1CRM can be characterized as being for products, for services or for support, and each is handled in its own specific way.)

If your products have significant value, and have some support service sold with them (such as computer equipment – a PC or a printer) your CRM will need to capture the make and model (ideally the serial number as well) of the product and link it to the customer record to track entitlement to contracted support services. Now your CRM will need to understand the concept of an asset in an asset register, and a service contract as well. (**Note:** 1CRM calls these assets *Supported Products*, and tracks both the asset's initial cost, as well as the cost for support renewal.)

If your business delivers services to its customers, and those services are delivered over a significant period of time, your CRM will need to be able to model a sales opportunity which is not a one-time income event, but rather a stream of income (and potentially costs) over time. Kelly Girl, for example, delivers a service – the services of temporary office staff. If a Kelly Girl temp were placed on an assignment for three months from June to August, then the sale should be modeled as an income stream of $X in June, $Y in July, and $Z in August. And there will be a corresponding cost stream over the three months, of the actual salary paid by Kelly Girl to the worker involved.

These sorts of sales are often modeled as a project which delivers over time, and if your business sells these kinds of services, your CRM will need to be able to track these 'income stream' opportunities, as well as the regular 'income event' opportunities.

2.3.3 Average Transaction Value, Sales Cycle, and the Recurring Business Model

If your business has a reasonably high average transaction value – say over $1000 – then it generally makes financial sense to track your customers and your opportunities to sell to them, especially if you have a sales cycle of a few weeks or more in which to track the opportunity. This is the classic CRM application – tracking accounts and contacts, and the sales opportunities associated

with them, then rolling it all up into a sales pipeline that gives you a good feel for how sales will go over the next couple of months.

But what if your usual sales cycle is less than an hour? And your average transaction value is more like $20 than $1000?

If you have a business like a CD music store, a video rental store, or a specialty frozen meats store, then you have lots of smaller transactions, each of them bordering on impulse purchases by the customer. In this case, your real reason for implementing a CRM is to enhance your recurring business model. If you typically get these same customers coming back again and again, you will get great benefit from tracking those customers in your CRM for marketing purposes. Opt-in email marketing campaigns, membership in a discount club as a loyalty mechanism – these are going to be some of your key activities. And you will need a CRM that can provide the kind of e-marketing and loyalty marketing capabilities that will propel your business to success. (Yes, as you might have expected by now, 1CRM can do all this.)

In this case, you will still keep track of accounts and contacts, but leads and opportunities have much less significance. And your sales pipeline is also bordering on irrelevant. If yours is this type of business, recognize that fact, and understand the sorts of changes your CRM will need in order to help you and your staff focus on what's important – not what would be important in another sort of business.

2.3.4 Location, Location, Location

Where do you sell? In your shop or office? In your clients' businesses? Over the Internet?

Where are your staff? In the office, or out servicing and selling to customers? Do they work from a single central office, or are they spread across multiple regional offices?

These are some of the most important variables in your CRM equation. After all, if we are trying to manage customer relationships, we need to know where those relationships are happening! And that means knowing where your customers are, and where your staff are.

If your business only generates sales within a single location – your store or office – then clearly your communications challenges are not as great as a business with a dozen outbound international sales representatives working out of their homes.

One of the key questions you need to answer is: when you or anyone in your business with a customer-facing role is in contact with customers, are they sitting at their computer and online? If not, you may need special CRM facilities so that they can access customer history when they need it, and so that they can enter updated information as it develops.

Let's study two of the more common scenarios:

Multiple regional offices: If these are white collar offices with primarily inbound staff, there is not necessarily any issue. Your CRM implementation can be located anywhere in the world, and staff in all offices can access it via a browser with user name/password access – securely and with good performance – as long as the office has a fast and reliable connection to the Internet. Smaller businesses with multiple regional offices are prime candidates for CRM installations, as they are likely to benefit greatly from the improved communications plus accurate and up-to-date account information provided by the CRM.

Outbound sales people: No matter how many offices you have, these are the most difficult people to service well. Some of the ways they can use the CRM, other than via the web browser on their home or office PC include:

1. Using their laptop on a hotel room's high speed Internet connection overnight to update the system from the day's activities, and look up information in preparation for tomorrow's calls.
2. Connecting their laptop to the Internet at any time using high speed wireless data services like 3G services, available from most wireless carriers.
3. Using a smartphone browser for handheld access to a limited subset of the CRM capabilities.
4. Using a smartphone that has the appointment and contact data within its native applications wirelessly synchronized with CRM data.
5. Using their laptop with a stand-alone 'offline' installation of the CRM, or other offline tools that can be synchronized with the CRM. When they return to the office, their offline data can be synchronized to the main CRM, to update any new data from the trip.

With 1CRM you can use the first three scenarios for outbound sales people. Some third-party applications are in development at present to offer the fourth option. And we expect that in the medium term, initiatives such as HTML5, and Google Gears, in conjunction with applications such as Google Apps, will provide solutions like the fifth option.

2.3.5 Size Does Matter: Two or Two Hundred?

The size of your business affects how you manage your CRM, the features you need from your CRM, and even the importance of the CRM to your organization.

In a smaller business, employees have broader responsibilities – and these narrow as the organization grows. The narrower the responsibilities, the greater the need becomes for continuity of business process, communication, and documentation.

A business with fifty employees also has so many more employee-to-employee information pathways within it, compared to a business with five employees. Because of this, a CRM has even more to offer the larger firm.

As well, in a larger firm where not everyone knows everyone else's business, staff turnover can create a real risk that sales leads and opportunities created through work paid for by the business, may walk out the door when an employee leaves. With a CRM there is an element of the ISO (International Organization for Standardization) principle that the process should transcend the individual. The employee may leave, but their data lives on in the CRM, and another salesperson will be hired, and they will have all the account history to work from.

The larger firm also has other issues not likely found in the smaller firm. With a certain scale of organization, information privacy becomes more important. Sales leads will not be entered into the system if sales people are concerned that another sales team or person may steal their leads. In a smaller firm, there is a tendency to have everyone know everything. If a lead is stolen, everyone will know who it really belonged to. But after a point, an organization becomes more compartmentalized and impersonal, and protecting leads and opportunity data becomes a real and valid concern.

All of this gives rise to a complex requirement for a Data Access Control model, or a Permissions Management Infrastructure (PMI) as it is sometimes called. In this sort of system, roles and teams are defined. The permission to view certain types of data, and to perform certain actions, is assigned to roles. Users are assigned to zero or more Teams. Then users and teams are assigned to roles, and the permissions from multiple roles just add to one another to give each employee their effective aggregate set of permissions.

In a North American sales organization, for example, accounts might be split into geographical areas such as the West Coast, East Coast, Central USA, and Canada. Most sales people would only see leads and opportunities within their region, but sales managers could see leads, opportunities, and sales pipelines for broader geographies.

Lastly, the size of a business determines what a realistic budget figure is for the acquisition and deployment of a CRM. In a firm of five people, a CRM implementation budget might be $3,000 - $5,000. In a firm of fifty people, that budget would more likely be $25,000 - $50,000. As well, the smaller firm is less likely to have any internal technical support capability – and running a CRM server in the office may be beyond their abilities.

You should give some thought to your firm's needs for data security and permission management, as well as setting an implementation budget for the CRM, and deciding if you have the internal capacity to manage a CRM server.

2.3.6 International Needs

If your employees live and work in multiple countries, the odds are that your CRM may need to support more than one operating language. Language support has many aspects to it, including:

- The language used for information you enter into your CRM;
- The language used in the user interface of the CRM application;
- The language used in the online help system; and
- The language used in the written documentation for the CRM.

You will need to decide on the language to be used for data entry into your CRM, choosing one that you feel most users can understand, even if it is not their first language.

Many languages need to be able to use a set of characters and accents that do not exist in the English language, so your CRM will need to be able to enter, display and print these different sets of characters if you need international support. Printing them can be particularly difficult, but 1CRM includes full UTF-8 support in the PDFs it generates, and so can print any character set in common use.

You should find out what operating languages you will require for your CRM, and make sure that they are available. 1CRM has support for many different operating languages via loadable language packs, although many languages are supported only via a non-validated user-created translation.

Another aspect of international support is the format in which dates are displayed. Your CRM should store dates in its own internal format, but display them to users in whatever format each user has selected as their preference. Common formats include 12.23.2006, 23.12.2006, and 2006.12.23. (Note: 1CRM handles all these formats just fine.)

In addition to dates, different countries have differing formats in which numbers and currency are presented. The decimal separator in North America is '.' and the thousands separator is ',' - but in much of Europe (Germany for example) the decimal separator is ',' and the thousands separator is '.'. Thus what in North America is $12,234, 678.90 in Germany is 12.345.678,90 €. If your CRM needs to be able to present numbers and currency values to users in the format they are accustomed to use in their country, then you will need to set this preference differently for each user of the system. (1CRM supports the display of multiple international number and currency formats.)

Another difference in convention from country to country is their address format. In some countries the post code or zip code is right at the end of the address, whereas in other countries it is up around the street address. 1CRM supports many different international address formats.

2.4 How Do I Make Shrink-Wrapped Software Suit My Business?

CRM systems are known to need customization rather more frequently than other business applications – after all, the average Sales, Purchase, and General Ledger accounting system works pretty much the same way for any business – just set up your structure of initial account codes, and away you go. CRM systems are not like this!

CRM customizations tend to fall into several classes:

- Minor cosmetics: Changing color schemes, adding company logo.
- Minor user interface changes: Suppressing certain features from being seen by certain users, or perhaps all users; re-arranging screen layouts, adding and deleting fields from screens, changing field names, and editing the set of options presented on drop-down boxes.
- Major application changes: Adding whole new modules to the application, or making major changes to the business logic and function of existing modules.
- Application integration: Linking the CRM application with other business applications and processes, to more thoroughly automate and integrate your business operations.

Minor cosmetic changes might need the skills of someone who knows how to use computer graphics software, and some simple HTML (HyperText Markup Language – the code used to describe the appearance of web pages). If you don't have those skills in one of your employees, you might need the services of a local web development and graphical design company. However 1CRM has a feature that lets you load your own company logo and have it become part of the user interface of the CRM. As well, 1CRM offers a number of user interface *themes* with different colour schemes and screen layouts. However, you might decide you want to build your own theme for your organization, with a specific layout, and company colours.

Historically, user interface changes were fairly difficult and expensive to perform, but that has all changed now. With the release by salesforce.com of the Customforce tool for customizing the user interface of their CRM, the bar was raised to a significant degree in this key area. Salesforce.com deserves recognition as an innovator in this field of technology, and it has caused something of a revolution in CRM. Today, most mature CRM products offer this extremely important and useful capability.

In 1CRM for example, the *Studio* functions allow system administrators to add new fields to screens, delete unwanted fields, rename fields, or just move fields around. Dropdown option lists may be customized, menu options may be renamed or suppressed, and external web sites may be linked in to new menu items.

You can either learn to use these customization tools, and see if you can make all the minor UI changes you want that way, or you can hire a firm that specializes in customizing CRMs to do this work, as well as any major customization work you may need. There is some value in getting all the customizations done by one supplier, and this particular type of customization may take no more than a few days to do.

These changes involve tailoring a CRM to manage aspects of a business that are not uniform across the gamut of small businesses.

Major application changes, and application integration work, will almost always need to be developed by professional CRM consulting, development and customization firms. These changes involve tailoring your CRM to manage aspects of your business that are not uniform across the gamut of small businesses. We recommend you only proceed on this type of customization work when you have checked off these gating issues:

- The original developer of your CRM, 1CRM Systems Corp., recommends the services of the customization firm.
- You can see that the firm is not a general web development firm, but specializes in CRM implementation and customization – you want a partner with more CRM experience and knowledge than you have, not less.
- Sample work of similar complexity and size from the customization firm has been examined and approved by you.
- You have written up a requirements document, with rough drawings of what new screens should look like, including details such as what values each dropdown box should have, what the names and data types (text, number, date or time) are for each field, what fields are editable, what fields are shown as columns in the list view, and what fields may be used to filter the list.
- You have a written quote from the proposed customization firm detailing how they will implement this requirement, how many days of effort they believe it will take, and quoting a firm fixed price for the work. As well, the firm should explicitly describe their warranty or acceptance period for the software developed, and detail an acceptable schedule of payments which allows you to view work as it progresses, and see and test the final solution (possibly operating on one of their servers) before final installment payments are made.

You may wish to make your customizations in a step-wise fashion, to ensure each step is affordable, and yields measurable real-world benefits, as well as to test the supplier. Take care not to get into a front-loaded agreement that has you shelling out most of your budget for customization before you see changes that give you some level of comfort with the supplier.

More recently, in the field of application integration, Salesforce.com has been at it again, and has introduced the their force.com platform as a service, and its associated web services API. This API offers a well-documented and open programming interface to link other business applications to the salesforce.com programs and data hosted by salesforce.com for your business.

This has created a similar disruption in the CRM industry, and many firms have responded in kind. 1CRM, for one, has its own web services APIs - one based on SOAP and another based on REST. These support such handy capabilities as filing leads captured by forms on your public web site into your 1CRM lead database. These APIs are also used to link the Self-Service Portal and eStore to the core CRM.

2.5 Key Steps to a Successful CRM Implementation

As you undertake your CRM implementation, before we get into a lot of specifics, you should understand that there is one overriding attribute to any successful CRM implementation. This common factor is open and frequent communication and collaboration.

The typical groups (or to use the recent term – stakeholders) that are going to be significantly affected by a new CRM system, and therefore will need to be involved in its selection, development, and delivery are the following:

- Executive sponsor
- Project Manager
- Implementation team
- Lead trainer
- Internal or external network administration and MIS
- Finance management

- Sales management
- Sales general staff
- Administration management
- Administration general staff

This group will be your CRM implementation team.

Successful CRM implementations share another important factor. The implementation team should manage the project relatively conservatively - set realistic goals, phase the implementation in modest steps, and view the entire process as one of continual improvement, not as a one-time event. To quote Clint Oram of SugarCRM "Think big, start small, and move quickly."

Another important factor in any successful CRM implementation is to review the different user groups – especially the last five groups listed above – and make sure that in your first implementation each of these groups perceives some value to them personally in making the effort and commitment to support the development and to use the system once it is implemented.

For example – sales general staff may be motivated if the system calculates commission reports – and will be receptive to the argument that the numbers will only be correct if all opportunities and closed sales are in the system.

2.5.1 Planning the Implementation

Now that we have those most important principles in the front of your mind – let's plan your implementation.

First – you need to look at the list above, and translate it into the right people, and the right number of people, in your organization. Clearly, the size of the group and the planning effort should be appropriate to the size of the business. For a ten-person organization, likely 3-4 people need to be involved in the implementation. For a company of about 25 people – probably 6 or so people have a role to play. This quickly tapers off, and in a 200-person business you will still need no more than 10-12 people to be involved in the CRM implementation process.

Your two most important players are the executive sponsor, and the project manager. Your project manager will provide the drive to ensure the project is executed successfully, and your sponsor will provide the encouragement and resources to all other participants to play their part as well.

Commonly, the executive sponsor may be the President or owner, the finance chief, or sometimes the sales manager. If you have an in-house MIS group, the sponsor should not be someone from that group. You need the business and people part of this equation to work out properly, as well as the technology – and really, the technology part is not the biggest risk. You need to be sure that the CRM implementation is being undertaken because of perceived business process shortcomings, and that the chosen solution has been selected because it best addresses them. Your project should not be driven by a technology push, but by a business pull.

Your project manager needs to be someone inside your organization, not someone contracted for the job. They can work closely with their opposite number on a vendor's implementation team, but they need to be someone that all the stakeholders know and trust. As well as being a person known for being very competent and detail-oriented, you need someone who is also known for communicating openly, taking suggestions, and not being overly political. If the people participating in the implementation team feel they are just window dressing, and not really involved in the process, they will quickly turn negative. If the solution feels 'imposed' staff will react with cynicism, resistance, and at best low commitment.

Your project manager needs to be your champion – someone with the people skills to get employees throughout the organization excited about the new CRM system. And as the implementation will require a lot of work from your project manager, you need to address their normal workload to make room for the CRM-related work.

Like any initiative, it is likely best to work from something other than a blank sheet of paper. While you do not want to present the CRM implementation team with a fait accompli at the first meeting,

neither do you want to simply ask them what you think should be done – what are the goals, and what are the potential technology solutions?

In order to focus and manage the process of agreeing a specific set of goals, a specific technology solution, and a particular vendor for customization (if that is within the scope of your first implementation), it would be advisable for the project manager and the executive sponsor to prepare an initial briefing note for the first meeting – stating what some of the key perceived shortcomings are in the current business processes, some of the potential solutions, the make-up of the CRM implementation team, the proposed timeline, and candidates for the technology to be used.

In terms of the technology candidates, it is best if all solutions on the short list of candidate systems have demo versions available for members of the team to try out. Clearly, given that you are reading this document, it seems that 1CRM has been selected for the CRM technology. But it is essential that all opinions on the subject be heard.

By having the CRM implementation team meet regularly for a few weeks, and do offline investigation and preparation between meetings, you should quickly get to a set of business goals, as well as an agreed-upon technology base and specifications for customization. These specifications can be as simple as printed copies of screen layouts with changes marked on them.

That is where you need to get to before you talk to anyone outside your company.

As a checklist, here is what your planning needs to achieve:

- Executive sponsor identified
- Project manager identified
- Members of the CRM implementation team agreed
- Initial briefing note generated for the first team meeting
- First meeting held
- Responsibilities assigned for investigation and team briefing on key topics – these topics include:
    - Business processes needing improvement
    - Suggested improvements
    - Identifying the top three goals for the implementation
    - Base technology to be used
    - Candidates for vendor to perform implementation and customization
    - Suggested goals for phase one of the implementation
    - Suggested implementation schedule for multiple phases
    - Approach to data migration
    - Approach to training
    - Approach to stepwise introduction within the organization
- Briefings delivered at later meetings, and key decisions made on the topics above

Clearly a larger organization will perform a more comprehensive and slower version of the process above, and a smaller one will have a more abbreviated and faster process.

2.5.2 Some Common Pitfalls

Just to underscore the points made in the section above, and to highlight the importance of planning and communications to the CRM implementation process, here is a list of some of the classic mistakes we unfortunately see at more client sites than not:

- Failure to get someone to take ownership of the process from start to finish.
- Failure to involve your stakeholders, especially the end-users, right from the requirements gathering stage.

- Not having a focus on the current business process, the intended business process improvements, and the specifications for a system that will effect that change.
- Thinking that implementing a CRM means buying CRM software, installing it on a server, and then telling the people who need to use it.
- Not making a particular and continuing effort throughout the project to communicate the benefits specific to each user and stakeholder, to ensure their buy-in.
- Biting off too big an initial project phase, or simply proceeding as if phases are for sissies. This will load too much expenditure up front, delay implementation, and make the gap in time between initial good will and early project successes too great to bridge.
- Pursuing too rigid a development process. CRM systems are more about people than they are technology. A process such as Agile Programming (Google will show you a nice article on the topic by Martin Fowler) is the sort of approach that you should use. In this approach early prototypes are used to generate feedback, and successive iterations of the user interface ensure that users feel involved, empowered, and happy. Few business users can picture every last detail of a system or screen at the outset. And few system architects know exactly what users want. Get fairly close, then try it out, and make adjustments. Repeat if necessary!
- Not training your trainer early enough, not giving them enough resources to train all users thoroughly, and not planning the roll-out to allow for sufficient training time.
- Failing to define what a successful implementation looks like at the beginning of the project.
- Failing to institute a periodic review of the CRM system, and continuing phases of development, to further improve business processes and user satisfaction.

2.5.3 It Takes a Team to Win

As we saw above, a CRM implementation needs the involvement of a whole team of participants. Yes, the executive sponsor and the project manager are of particular importance, but each person or group represented on the team is important, and must be continually involved in the process from beginning to end.

This continual involvement, and the ongoing effective and frequent communications between all team members, is the one thing all successful CRM implementations have in common.

Like the introduction of any new business initiative, people know when they are truly involved, or just being invited to meetings guided by an elite few in an attempt to win their cooperation.

The team members that are in management positions should typically be involved in the odd 'pre-meeting meeting' to ensure they are familiar with a specific CRM system, or a solution to a business problem, in advance, so that they can back it up in front of the whole group, or help make a change before it goes to the whole group.

One of the most common errors seen on CRM implementations is not paying enough attention in the team collaboration process to input from general sales, operations and admin staff. The whole nature of a CRM is that management will have no data to analyze if these people do not use the system regularly. These people need to be onboard for two very good reasons. One is the functional reason that they can best determine what is an efficient data entry process, and what list views and reports are needed for everyday use. The second is the human element - the implementation needs to win these people over, and everyone reacts more positively when they are involved and have their input heeded, than when a solution is imposed on them.

Some of the techniques you may wish to use in managing the CRM implementation team (depending on the size of your business) will include:

- Define email groups to keep the entire team up to date – psychologically it makes everyone on the team a peer.
- Have the team meet physically once a week throughout the requirements definition process, and have the entire team physically sign off on the requirements.

- During development, the team can meet once every two weeks to review progress against the schedule, and to review any escalated issues.
- Once the first pass of development has been completed, the team should again meet once each week. Continue this until the entire organization has been deployed.
- Assuming there are no critical issues, have the team meet again a month after deployment has been completed, to review initial feedback, and make or plan adjustments.
- Meet again, three months and six months after initial deployment, to perform further reviews.

2.5.4 Setting Project Goals and Specifications

In the initial briefing note presented at the first meeting of the CRM Implementation team, you should include suggested project goals, couched in terms of current business processes and the manner in which they should be improved. You should also have suggested timelines and phases to the implementation process (if required).

After some initial discussion, and depending on the scale of your business and the CRM implementation, one or more team members should be tasked with documenting in detail the suggested project goals. These can be presented and agreed at later meetings.

It will help to first simply agree the manner in which each business process can be improved, and not focus on CRM technology.

This approach enables the team to first address the business requirements, and then assign one or more members to identifying a suggested shortlist of candidates for the core CRM technology to be used for the project.

That shortlist should then be presented to the entire team, and a winning candidate agreed, that appears best suited to satisfying the agreed business requirements, and which also has credible references.

Then the team can generate and agree some sketches and specifications of suggested screen layouts for list, detail and edit view screens. These may be only minor variants of the existing CRM screens, or they may require heavy customization. The overall project timeline and phases foreseen to complete it should also be discussed and agreed at this stage.

Once the team has developed and agreed a set of detailed project business goals, identified the desired project timeline and phases, agreed a core CRM technology (at this point we suspect you picked 1CRM!), and developed detailed drawings and specifications, it is time to look for the CRM development partner who will put your CRM all together for you, and will in effect join the (previously internal members only) CRM implementation team.

2.5.5 Selecting a CRM Development Partner

If you think you can do this without external help – think again. Ask yourself these questions:

- Have I worked through dozens of CRM implementations and gained insights into what can go wrong and why?
- Have I got experience in data import and massaging techniques gained from years of CRM implementations?
- Am I comfortable with my ability to interpret a business process into software workflow and screen designs?
- Will I inspire the confidence internally that an external domain expert can?

Your first task in the process of finding the right partner is to assemble a short list of candidate firms. Look in the yellow pages under Customer Relationship Management, by all means, to get started.

One of your best sources of good information is your peers who are running their own businesses – ask your professional colleagues if they have any positive recommendations of firms focused on this type of work.

Another way to find potential partners is to look on the web site of the CRM software you intend to implement, and look for their approved development partners. Make sure you find a partner focused not just on selling or hosting the software, but also on the development of custom enhancements to the standard software – as you will need some without doubt.

1CRM, for example, on www.1crm.com, has a list of their partners organized by country, with links back to the homes pages of each of those organizations. Nor should you necessarily rule out a partner because they are not in your city or country.

A final suggestion for building your short list of candidates to become your CRM development partner is to simply google the name of the CRM you intend to use, and look at the advertisements on the right, as well as the links on the left.

Once a member of the team has the short list of candidate firms assembled (between 2 and 4 is the number you want), then they should bring the list back to the CRM implementation team to be approved, and to assign the evaluation work.

Do not split up the evaluations – the same one or two people should speak to all candidates firms, and come up with a report and a recommendation to the team. Emphasis should be placed on personal compatibility with the internal Project Manager, demonstrated competence and knowledge, high quality reference implementations, a credible and acceptable proposed project timeline, and acceptable pricing with perceived high value for the budget.

Before you make your final selection of a partner, the team should likely make a tentative selection, based on initial specifications and the candidate firms' estimated development budget. Then you should work together to jointly develop a final agreement with a very detailed specification, and a fixed development cost. If you can do that successfully, you have your CRM development partner.

Once you make the final selection of your CRM development partner, you will likely have to make a substantial initial deposit against the development work to be undertaken and then you are off and running!

2.5.6 System Development

The typical CRM development process, even within a single phase of an overall CRM implementation program for your business, is broken down into a number of major areas – such as enhancements to be made to the accounts model, to contacts, to projects, etc.. as well as the custom reports and charts you may well need.

While some of these alterations may interact with each other, many of them will not, and clusters of functionality can typically be identified which are fairly independent of each other.

Usually the best practice is to have the partner develop these off site, and then introduce each new function-cluster to you for evaluation one at a time (typically through a development web site which is exposed just to you). Unless you have spent the time and money to develop a remarkably detailed specification, there will always be issues such as "I thought that control would be a drop-down, not a radio button", or " I wanted the tab order of these fields to go like this …", or "When you select a value in that field – this other field is meant to be pre-populated".

Performing initial acceptance testing on each function-cluster one at a time lets the internal CRM implementation team focus on it clearly, and ensure that they get it implemented exactly as they need it. Then they can move on to the next function-cluster, and so on until a full first pass of the application has been implemented and accepted.

Now full acceptance testing on the integrated CRM application should be performed by your team, and a formal sign off performed against a specific revision of the software on the evaluation web site.

Once that has been done, the CRM application is either hosted by a hosting supplier (which may be your CRM development partner again), or the now custom CRM application software is delivered to

you for installation on your own server hardware. If the latter, you will need a further brief acceptance test of the application as installed on your own server.

2.5.7 Data Migration

While the acceptance testing is going on, any past CRM or contact manager data which you wish to import into your CRM solution should be getting prepared, converted, and imported. Data import, checking and cleanup can itself easily take weeks to perform (when there is lots of data, and it comes from an awkward and complex source format) – so make sure to allow sufficient time.

Do not think that the big job is to get the data into the CRM, and that you can clean it up afterwards. The big job is to get the data cleaned up. Ask yourself – are there any transformations that should be performed on the data while it is outside a CRM - the assignment of accounts to users, for example – by postcode perhaps? Will you design and run a scan for duplicates?

When you have signed off on the software customization and development process, and your imported data looks just right – you are ready to start introducing your new CRM to the most important people in the process – its users.

2.5.8 Pilot Testing

Pilot testing of the CRM is a critical step of the process. Each section of the CRM should be tested by a user that is most dependent on that section working optimally. Sales management should test the pipeline charts. Sales staff and Finance should test the commission reports. Sales, service and admin general staff should test the usability of account, contact, opportunity, lead and case screens. Admin should evaluate management reports, and so on.

I always look at it this way. A year after your implementation, no one will remember clearly if it was on time, or on budget. All they will remember is if you produced a system which is now a critical part of the organization's business processes, if they like the system, and if they felt a part of its introduction.

So – project managers - don't be afraid to send the system back for re-work if the initial pilot testing indicates significant dissatisfaction with the usability of the system, or the accuracy with which it adheres to the desired business processes.

2.5.9 The CRM Training Process

CRM training has two goals – and only one is to make the user base familiar with the system and how to use it. The other goal is to generate positive momentum for the implementation, and enthusiasm in the user base.

To accomplish this latter goal, you need to make sure people generally like what they see - especially the general sales staff, and to some degree the general administrative staff – as these are the two most likely sources of resistance and negatives reactions.

Therefore your approach should be as follows:

Session 1: Initial Management Training and Product Exposure

Goals:
- To create awareness in Senior Management, to stimulate questions, and to discover any shortcomings early, within a controlled group that consists of those individuals most likely to be supportive of the CRM implementation and its goals.
- To finalize and clarify all system access details with MIS.

Attendees:
- Lead trainer

- Project Manager
- Executive sponsor
- Internal or external network administration and MIS
- Finance management
- Sales management
- Administration management

After the first session, all the attendees should be encouraged to go off and use the system, enter live data, and take note of any problems, questions or dislikes.

Next Steps:

- A week later, this same group should re-assemble for session 2.

Session 2: Management Training Completion and Issue Management

Goals:

- To complete the management training, so that senior management has a good understanding of the system's capabilities, and how to operate the system.
- To make management enthusiastic about the system.
- To ensure management's full support of the broad introduction of the CRM system.
- To allow management to answer questions about the system knowledgeably, and to correct any misinformation later on from staff.
- To address any management concerns about the system function, clarify any misunderstandings, and identify any last-minute system shortcomings that must be addressed prior to general introduction of the system. .

Attendees:

- Same as session 1. MIS optional.

Next Steps:

- Any mandatory fixes must be identified, documented, summarized, agreed by the CRM implementation team, and then developed and applied.
- If any fixes were required, this same group should re-assemble for session 3 to review the fixes.

Session 3: Present Final System Adjustments (Optional)

Goals:

- To reinforce the perception that the system will evolve over time, and will genuinely be guided by the needs of its users
- To ensure management's full support of the broad introduction of the CRM system.

Attendees:

- Same as session 1

Next Steps:

- Schedule session 4 a week later.

Session 4: General User Training Session

Goals:

- **Note**: There may be multiple classes scheduled for session 4. No class should have more than 6 users in it. Separating users by department is a good idea – Sales will have questions on different topics than Admin.
- To present the CRM system capabilities and method of operation in a comprehensive and logical manner.
- To stimulate class participation and questions.
- To record user feedback and open questions.
- To define initial goals for scope of use. (Departmental management participation is mandatory for this.)

Attendees:

- Lead trainer
- Project Manager (not all sessions if there are many)
- Sales management
- Sales general staff
- Administration management
- Administration general staff
- All other general staff that will use the system

Next Steps:

- Optional follow-up session 5, two weeks later.

Session 5: Training Completion (Optional)

Goals:

- To close off any open questions
- To address any questions which have arisen in the last two weeks
- To re-present training sections where users seem uncertain
- To ensure a positive attitude on behalf of all users
- To record any outstanding concerns or issues

Attendees:

- Lead trainer
- Project Manager
- All staff that wish to participate

Next Steps:

- Presentation of training results to CRM implementation team, including any outstanding issues identified

⤵ 2.5.10 CRM Training Materials

The most important pre-requisites for the CRM training sessions are:

- A good trainer that can understand the business context, as well as relate to the users at their level.
- A quiet training room, with overhead projector connected to the laptop/PC of the trainer, a meeting table, and plenty of room for all attendees.
- A group of no more than six attendees, to create a constructive learning environment, and to prevent any impersonal 'mob rule' negative feedback events from having a chance to start.
- All users to have been pre-configured in the system prior to the session, so they can see themselves already set up as users, and so they can use the CRM system immediately after the session if they wish.
- Optionally – you may wish to allow users to have their own PCs or laptops in the training session, to experiment with the system. If so – only allow laptop/PC use after initial orientation in the system is complete. Be prepared with slips of paper with sign-on URL, user names and passwords if you do this.

Expect each training session to be about 90 minutes long. Any longer and attendees will want to avoid them - attention spans will only stretch so far.

While the various sessions outlined above have different goals and attendees, the material to be presented at the main sessions (1 and 4) as well as used for backup material at the reinforcement sessions (2 and 5) is largely common.

The remainder of this section contains suggested content to be used to make up a set of overhead slides for use as training material for these sessions.

While you present these slides, it is a useful technique to switch back and forth between the slideshow software, and the web browser with a live session on the go, to illustrate general points with specifics from the live software.

Always be prepared to stop the presentation to answer (somewhat sane and valid) questions – the users must always feel that the company is listening to them.

Slide 1: What is a CRM System?

- A system which manages the information and processes surrounding your organization's relationship with its customers
- Principle goals are to improve customer satisfaction & retention, plus sales efficiency & performance
- Sales as well as service/support, plus administration and even finance
- Not a contact manager – it is typically based on the distinction between an Account and a Contact
- Includes opportunity tracking and sales pipeline, lead source analysis
- Even corporate calendar, RSS news feeds, to-do lists, and email

Slide 2: CRM Deployment Options

- Cloud-Hosted
- On Premise, or Self Hosted Application Software
- 3rd Party Hosted Application Software

Slide 3: What are our business goals?

- For you to fill in the goals identified by your CRM implementation team
- On your list somewhere will likely be –

      ○   To improve customer satisfaction & retention
      ○   To improve sales efficiency & performance

Slide 4: What functional areas of CRM we will use most?

- Again – you need to fill in the key areas of focus for your organization
- Will you use simply the core basic CRM capabilities, or broaden its use to include Marketing Campaigns, project Management, Document Management, etc…?

Slide 5: What is 1CRM?

- A leading CRM implementation for Small-Medium businesses from a vendor in Canada
- Based on the LAMP stack - Linux, Apache, MySQL, PHP
- Delivers CRM capabilities (and more) into any web browser
- What are the customizations you have had developed?
- What vendor developed those changes?
- Where do users go for support - internally and externally?

Slide 6: CRM Basics 1 – System Access, Screen Layout, Navigation

- Logging In – user name, password, selecting language and theme
- Principal Screen Layout Elements
- Navigating 1CRM – top menu or side panel navigation, shortcuts
- List, Detail & Edit Views
- Main panel and sub-panels
- Logging Out

Slide 7: CRM Basics 2 – Accounts & Contacts

- Account information content
- Contact information content
- Relating Contacts to Accounts
- Permissions and Security – who sees my information?

Slide 8: CRM Basics 3 – Opportunities & the Sales Pipeline, Home Tab

- Opportunity information content
- Home Tab – My Pipeline, My Top Opportunities
- Dashboard Charts

Slide 9: CRM Basics 4 - Calendaring

- Today Screen Calendar
- Calendar Module – Day, Week, Month Year Views
- Shared Calendar Information
- Making a Quick Appointment

Slide 10: CRM Basics 5 – Activities (Calls, Meetings, Tasks, Notes)

- Creating a Task
- Scheduling a Call
- Scheduling a Meeting
- Making a Note – file attachments

- My Upcoming Appointments
- My Open Tasks

Slide 11: CRM Basics 6 - Email

- Entering Your Email Settings
- Sending a single email
- System Email Reminders
- Email Templates

Slide 12: CRM Basics 7 – Advanced Interface Features

- Printing
- Getting Help
- Mass Update
- Quick New Item Box
- Input Business Card
- Create from vCard

Slide 13: Extending CRM 1 – RSS News & External Sites

- Interface Consolidation Concepts
- RSS News Feeds

Slide 14: Extending CRM 2 – Marketing Campaigns

- Prospects vs: Leads and Contacts
- Prospect Lists
- Marketing Campaigns
- Email Marketing Program
- Mass Emailing Queue

Slide 15: Extending CRM 3 – Document Management

- Document Information content
- Document Revisions
- Document Upload
- Document Download

Slide 16: Extending CRM 4 – Project Management

- Project Information Content
- Project Tasks
- Monitoring Project Status
- Timesheets

Slide 17: Extending CRM 5 – Customer Service Management

- Service Cases
- Bug Tracker
- Case & Bug History

Slide 18: Extending CRM 6 – Always in Touch

- Pros and Cons of Various Remote Access Techniques
- External Access Details
- Wireless Handheld Browser Access – iPhone, BlackBerry, etc..

Slide 19: Extending CRM 7 – Reaching Out

- Website Lead Collection
- Customer Self-Service Portal

2.5.11 Going Live: Stepwise Introduction

Once employees have been introduced to the new CRM and fully trained, it is time to go live.

A common technique is to conduct general user training in sections by department, and to take each department live after they have been trained. If you adopt this approach, be sure to allow enough time after each department is trained for them to come to grips with the system and ask their questions of support staff, before the next group goes through and the support staff is overwhelmed.

This is typically the approach we use ourselves at 1CRM Systems Corp. with our clients. The only caveat we would recommend is that you make absolutely sure that you have an accurate reading on user acceptance in all departments and roles of the organization (from acceptance testing and pilot testing) if you are going to use this approach. Once you have taken one group live, if another group provides significantly negative feedback in their training session, you have a serious problem.

2.5.12 Continuous Feedback and Enhancement

Just as every business itself does, every CRM system needs continuous evaluation and enhancement. As your business changes, so must your CRM system. And as the competitive business environment gets steadily more intense, your CRM must evolve and improve to maintain and advance your competitive standing in your industry.

Until the CRM system achieves a high level of internal user satisfaction, it should be reviewed at least once every business quarter for usability improvements, and any potential extensions to automate additional business processes.

Once the system is popular internally, it should be reviewed at least once every six months for potential improvements and enhancements. In particular, opportunities should be sought for more advanced methods (typically involving external connectivity) of improving your customer relationships and satisfaction, such as customer self-service portals, automated website lead collection, automated client emails advising of product shipments and problems resolutions, as well as email marketing campaigns.

2.6 Deployment Alternatives

Simply put, if you want to use 1CRM as the CRM solution for your business, you will need to be able to connect to an Internet-accessible server which is running 1CRM. You will then use it by typing the web address of that server into the address bar of the browser on your PC – no matter where your PC may be as long as it to is connected to the Internet.

So – you need to think about whose server that will be, where it will be, who will install 1CRM initially and who will take care of that installation going forward.

You have four basic options:

- 1CRM Cloud (Also known as On Demand): In this situation, you rent use of the 1CRM application by the month (or year), and by the user. You don't own the server it is operating on, nor do you have to take care of it at all. The supplier (often called an Application Service Provider, or ASP) backs up the server, makes sure it is always available, and makes sure that adequate bandwidth is available to ensure good performance. There are many 1CRM sales partners that provide the 1CRM Cloud Service - if you have trouble finding one, please get in touch with us for a recommendation.

- Server Collocation: With this option, you buy your own server, or use one you already own. You load it up with exactly the software image you want, and then take it down to your local Internet Service Provider (ISP), who hosts it for a monthly charge. Again, the supplier backs up the server, makes sure it is always available, and makes sure that adequate bandwidth is available to ensure good performance.

- On Premise (a.k.a. Self-Hosted): This option should be fairly self-explanatory – you buy your own server or use one you already have, load up the desired software on it, and then connect it to the Internet connection at your office, making it externally accessible for use by employees at home or on the road.

- Shared Server: The cheapest and lowest capacity option – you have your 1CRM instance hosted on a server at an ISP, and that server is also used by the ISP to host applications and web sites of several more of their customers.

Let's look at a comparison chart of these options:

	Cloud-Hosted	Collocated	On Premise	Shared Server
Initial Cost	Low	Medium	Medium/High	Low
Ongoing Cost	Medium	Medium	Low	Low
Initial Setup	Easy	Somewhat Complex	Complex	Medium
Ongoing Effort	Low	Medium	Medium	Low
Custom Fit	Variable	Excellent	Excellent	Often Poor
Data Security	Excellent	Excellent	Up to You	Excellent
Performance	Excellent	Excellent	Likely Excellent	Low Capacity

Figure 1: 1CRM Deployment Options

At the time you first set up your own server, or prepare it for delivery to an ISP for collocation, your expenses will be higher than the Cloud-Hosted option. You have to buy a server, unless you already have a suitable server candidate available, and you may also need to buy a server operating system (if you choose to use Windows instead of Linux). You may also have some costs associated with developing a backup solution. And you need someone with a least a bit of a technical bent working for you to perform the software installation.

Once you get going, however, the Cloud-Hosted service may prove to be somewhat more expensive – costing around $30 US per user per month (still low compared to the $100-125 US per user per month figure common with salesforce.com or NetSuite). Depending on your business, that may seem a good deal for relieving yourself of the need to buy and maintain a server, or it may not.

The Shared Server approach is the easiest way to get a taste of what it is like to use 1CRM, and is cheap to run and fairly easy to set up, but has limitations on how much customization you can do, and the size of organization you can expect to run on it. As well, these installations are typically very light on disk space, so if you are using Documents a lot, or generating a lot of PDF files, or other binary attachments to Notes or Emails, this can make this option less viable. As well, these shared server offerings often have tight limits on bandwidth you may use – which will likely be exceeded greatly if you are uploading and downloading a lot of Documents and Email attachments. This option is typically only applicable to businesses with at most 10 employees.

For most businesses with more than 10 employees, as should be clear from the table above, the choice between the deployment options is a tradeoff of cost vs. complexity and effort.

- Going with a Cloud-Hosted service is easy to do – except for once a month when you write the check.

- Hosting the system yourself will take some effort to set it up, require some funds for a server, and take some ongoing effort to make sure the system runs reliably and your data is safe and secure. But it is the cheapest option by far – at least in terms of direct costs.

- Somewhere in between is the collocation option, which takes a little effort to set up, none or very little to manage month to month, all at a price somewhere between the Cloud-Hosted and On Premise models.

One important point to note: When you go with a Cloud-Hosted service, there is usually less accommodation for substantial customizations to the CRM software to suit your business. The hosted application tends to be very standardized – that is how the ISP/ASP controls costs of managing multiple servers for multiple clients. In the collocation option, you get to load the software on your own server, and then deliver it to the ISP – so a fully customized software image is no problem. It is also usually easy to update later on, without removing it from the ISP. In the On Premise model, of course, your solution can be as customized as you like, and it may also be easier to link the CRM server to your other business systems (accounts, intranet, customer portal) which may reside securely behind your company's firewall.

➲ 2.6.1 Making An Informed Choice of Deployment Option

If you decide to go with the On Premise option, or the collocation option, you will need to know about computer server hardware, server operating systems, and the choice of the LAMP stack vs. WAMP. These topics are covered in the following sections.

Even if you go with the Cloud-Hosted option, it is still useful to gain an overview level of understanding of these topics, as this information will make you an informed consumer of the product offered to you by Cloud-Hosted vendors. Will that bandwidth be enough for me? Will that server offer good performance and scalability? What about your backup procedures!

➲ 2.6.2 Choosing a Server Operating System

Just as a server may physically resemble a PC while differing from it greatly, a server operating system may look a lot like a desktop operating system while being in actuality very different. A desktop operating system, like a PC, is optimized to give good service to the user to whom is it dedicated. A server operating system has to be talented at getting work done for many people at once, while keeping them all happy. It also typically has less need for a rich powerful graphical user interface, as it is frequently used and managed remotely.

Server and network operating systems have been around for a long time. While many years ago Novell Netware and Banyan Vines, plus many variants of Unix (including notably Solaris from Sun Microsystems) were major players in this marketplace, today the largest players in network/server operating systems for small to medium applications are Windows Server, and Linux. While Unix still has a very large share, it is growing slowly, and relates much more to the high end of the market.

While Windows Server comes only from Microsoft, Linux exists in many versions, from many sources. Red Hat Enterprise Linux (RHEL) is perhaps the best known product (or distribution, as different versions of Linux are called), with Suse (originally a German Linux vendor, now owned by Novell) a close second. Ubuntu is a more recent success. Suse tends to be the preferred vendor in Europe, and Red Hat in the USA. Major commercial Linux distributions while still mostly open source, are far from free, as they command substantial annual support contracts, and initial licensing costs.

There are also many non-commercial Linux distributions of a very high quality, including Fedora Core Linux and CentOS - both of which are heavily linked to the RHEL code. These are the cheapest server operating systems on which 1CRM can be installed, as they are free. For this reason, Chapter 3 which describes installing 1CRM on Linux uses CentOS 7 Linux as the reference platform.

How to choose between Windows Server and LInux? The choice often comes down to spending more to get the familiar Microsoft user interface, or paying less, and dealing with the potentially less familiar Linux user interface.

Performance is also an issue, as a given server will typically run 1CRM 10-15% slower under Windows than if it were running under Linux. Adding extra memory can reduce this gap.

Additionally, you may well already have servers deployed in your network, and trained network administrators and company standards, which between them may well dictate your choice.

Or, if you have no network administrator on staff, you will need someone local at the very least to be on call in case of emergencies, perhaps to come in and set things up for you in the beginning, and possibly to perform backups each week. There are many independent network and server support people who make their living working as the outsourced computer support technician for perhaps ten small businesses.

Working with one of these people might cost you $5,000 - $10,000 per year, and depending on your circumstances, could well be right for you. Or is the $30 per user per month at the Cloud-Hosted supplier starting to look better now!

2.6.3 Web-Based Application Platforms

In today's computing world, there are three major web-based application development and delivery platforms:
- Microsoft's .proprietary NET platform;
- Sun Microsystem's partially open Java platform; and
- The Open Source LAMP (Linux-Apache-MySQL-PHP) platform.

Each of these environments provides a comprehensive set of tools for developers to build and test new web-based applications, and for users of the applications to run them.

Microsoft's .NET platform has very good cross-language development capabilities, but is tied to Microsoft-proprietary products, including their operating system and other server products.

Sun's Java platform is widely popular across many vendors (Sun, HP, IBM, etc..) as a scalable platform that is largely hardware and Operating System independent, and non-proprietary.

While the Java platform has world-class scalability, and an excellent security model, it has been recognized that it is not the most cost-effective environment for developing reliable business applications with expensive development resources.

Accordingly, while .NET will likely remain the platform of choice for Microsoft's partners and users who don't mind being irretrievably tied to Microsoft products, there has been a big need in the market for a non-proprietary platform with Open Source components and the practical ability to build applications in a particularly cost-effective manner. That platform is the LAMP stack.

LAMP stands for Linux, Apache, MySQL, and PHP (plus Perl and Python – two other popular Open Source scripting languages we will not discuss further here). The LAMP stack looks like this:

PHP Hypertext Preprocessor
MySQL Database
Apache Web Server
Linux Operating System
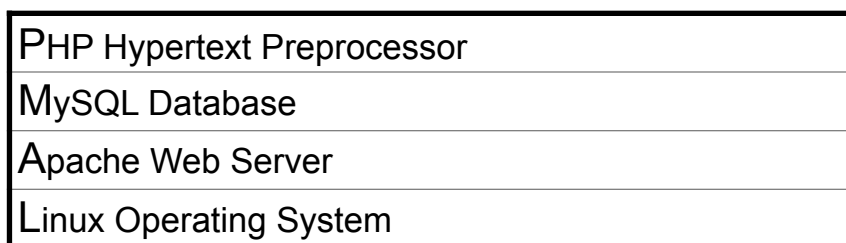
Figure 2: The LAMP Stack

As you can see, Linux and Apache are the base on which LAMP is built. And what a solid base – between them they are the two most successful Open Source initiatives in the world. The Apache

Open Source web server is the world's number one web server - by a mile. The November 2012 Netcraft Web Server survey reports that 57% of all web servers are Apache web servers, and 17% use Microsoft Internet Information Server.

Linux is the world's number two server operating system, behind Windows Server, and is the fastest growing server operating system in the world.

The PHP and MySQL components of the LAMP stack do pretty well too. PHP is used on over 20 million web sites, and Security Space reports that nearly 40% of all Apache servers run PHP. PHP (PHP: Hypertext Preprocessor) was originally developed as a general purpose scripting language particularly suited for web development by Rasmus Lerdorf. Version 1.0 was known as the Personal Home Page (PHP) tool set, and was released Jun 8, 1995.

My SQL, the world's most popular Open Source database, is also 17 years old, and has over 6 million server installations. Developed and released into Open Source by MySQL AB of Sweden, it is known for speed, scalability, and reliability. It would be fair to say it is also known as a less sophisticated database, lacking some advanced capabilities such as stored procedures and triggers – features that were finally delivered in the 5.0 release of MySQL. If MySQL is a Ford Mustang – simple, fast, and reliable, then Oracle, the leading commercial database, would have to be characterized as a Bentley – smooth, slick, fast, and expensive. We know which one suits the smaller business. And with 6 million servers using it already, it is a pretty safe bet!

2.6.4 LAMP vs. WAMP vs: MAMP

While the four elements of LAMP work very well together, they can be used in different combinations. Other than the use of alternative scripting languages, the most common change to LAMP is to make it WAMP, by using Windows Server underneath it, rather than Linux. Or MAMP - running on a Mac.

Another possible change might have been to make it WIMP, by using Windows Server and Microsoft Internet Information Server (IIS – the Microsoft web server) underneath MySQL and PHP - but 1CRM does not support the use of IIS.

Generally speaking, Windows Server has a much greater memory footprint than Linux – so WAMP will require the server it is installed on to have more memory than if LAMP were utilized. For an average 25 person business, your CRM server can often get away with just 4 GB of memory if you use the LAMP stack, but 8 GB is a safer bet if you want to use WAMP. Otherwise, there are no other significant drawbacks to running WAMP – and potential advantages as Windows Server presents a user interface that many more people are familiar with.

2.6.5 Specifying Your Server Hardware

At home, most of us use our PCs as isolated workstations for work or play. A few may connect several PCs at home into a network, in much the same way they are connected at the office. When several PCs are connected in a network, there is often value in attaching one or more special computers to the network, designed to act as a shared resource for all users. These special - typically more powerful - computers are called servers.

Most of us are familiar enough with a home or office desktop or notebook computer - PC or Mac. While a computer server can look quite similar to a desktop PC, it usually has a number of quite fundamental differences, as summarized in the table below:

	PC or Low-End Server	**Full Server**
Form Factor	Desktop, Tower	Tower, Rackmount
Memory Type	Non-parity	Error Checking and Correcting (ECC)
Memory Size	2-8 GB	4-32 GB
Hard Disk Technology	IDE / SATA / SSD	SCSI / SSD
Hard Disk Speed	5,400 – 10,000 RPM	10,000 – 15,000 RPM
LAN Interface	Ethernet 100/Gig E, Wireless	One or more Gig-Ethernet
Power Supply	Single 250W – 400W	Redundant 400W
Processor (CPU)	Single Core i5 or i7	One or more Xeon
Video	Often High Performance for Gaming	Low Performance
Users	One – local	Many - Remote

Figure 3: Comparison of Server and PC Characteristics

Note that there are plenty of low-end servers from the likes of HP and Dell that use non-parity memory, SATA disk drives, and a single power supply. They have pretty much the same hardware technology as a PC, but run a server operating system. They can be used for 1CRM installations up to say 20 users fairly effectively. For larger installations than that our recommendation is for a higher capacity, and better level of reliability, using what one might call a *full* server. Most of the differences in a full server are there to make the server more reliable than a PC, and to make it better suited to handling the needs of many users at once.

ECC memory for example, has the ability to detect and correct the most common forms of errors that could be made by semi-conductor memory when it starts to fail. Similarly, a server power supply often has two actual power supplies connected in a redundant manner, so that when one fails, it is reported, but the system carries on running on the one power supply that remains, giving you a chance to buy a replacement power supply, and schedule down time to replace it.

System memory size is often one of the biggest differences between a server and a PC. Most PC users (other than those doing graphics design and other demanding tasks) work happily with 2-8 GB of memory in their PC. By contrast, few servers use less than 4 GB of memory, and many use 6-32 GB – or more. With more memory, the work being done for many users can stay in memory beside each other as it is performed, rather than being sent temporarily out to the hard disk if memory gets too full. As system memory is at least 100 times faster than the hard disk, anything that involves the hard disk will slow down the system substantially.

Servers are used for many tasks. A network may have a specific server to act as a database server, for example. That type of server would be optimized for fast and reliable disk storage and high memory capacity. Another server might be an application server – one on which applications are run, with the results being communicated to the users on the PCs using those applications. An application server is typically optimized with lots of memory and CPU power – to get through all that application processing quickly. An example of an application server is an 1CRM server – the 1CRM application is actually running on the server – and multiple user PCs are just running web browsers that display web pages which communicate to the users what is going on in their particular session.

For a business with up to 20 users, we have configured below a powerful low-end 1CRM server, to be used as a combined database and application server.

	Component	Price ($US - Nov '12)
Model	Mac Mini Late 2012	$799.00
Memory	16GB 1600MHz DDR3 SDRAM -2x8GB	$300.00
Hard Disks	1 TB Fusion Drive (SSD+HD)	$250.00
Processor	2.6GHz Quad-Core Intel Core i7	$100.00
Video	Intel HD-4000	NA
Total Price		$1,449.00

Figure 4: 1CRM Low-End Server Configuration

As you can see, a very powerful application server need not be expensive.
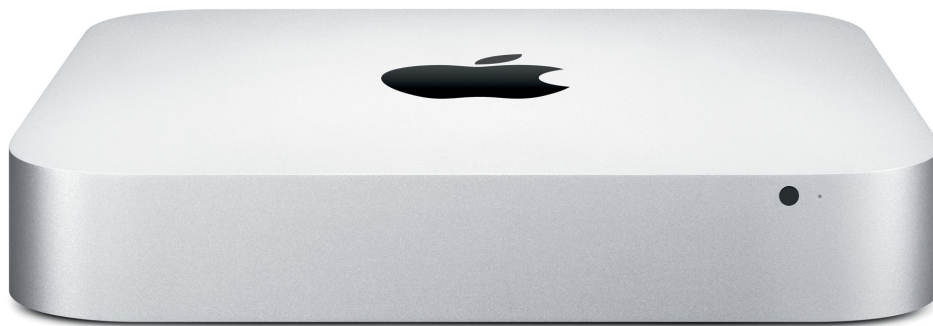
Figure 5: 1CRM Low-End Server, the Mac Mini Server

Note: For interest's sake, these servers are what we historically used at 1CRM Systems Corp. for our trial and demo servers - they hold several hundred trial sites each - although of course trial sites are often only lightly used.

For a business with perhaps 20-50 users, a reasonable configuration might be along these lines:

- 1TB GB of SCSI storage, mirrored or some other RAID configuration
- 16 GB of ECC memory (depending on the operating system used)
- Dual Quad Core Xeon processors
- A single Gig-Ethernet connection to the network
- An Uninterruptible Power Supply (UPS)

For a business with 100 users, the recommended recommendation would move up to something more like:

- 2 TB of SCSI storage, in a RAID configuration
- 32 GB of ECC memory
- Dual modern Quad Core Xeon processors
- A dual Gig-Ethernet connection to the network
- An Uninterruptible Power Supply (UPS)

Most ISPs and ASPs use fairly low-end hardware for their servers, and seem to charge a lot of money for them each month when offered as dedicated servers. If you use 1CRM as a Cloud-Hosted service, you will in all likelihood not have a whole server dedicated to running 1CRM for your business. Instead, your ISP/ASP will likely be using a shared server facility – a controlled portion of the resources of a physical server – to support your business's CRM.

If you are planning to use your CRM to house a lot of shared documents for your business, you should check with your Cloud-Hosted service provider what your disk space and bandwidth limitations are – they are often surprisingly low.

Clearly if you collocate your own server at an ISP, or use it at your own premises, you will likely have a better hardware platform to run on, and it will offer some room for expansion, compared to the Cloud-Hosted situation. But collocation can be expensive too, and managing your own server is not for everyone.

In the end, you will need to make a choice balancing several factors – your access to technical staff (and the cost of it), how difficult it is for you to invest in a server, what price you can find for a Cloud-Hosted service of good quality, and how much customization you feel your installation of the software will require.

2.6.6 Backup and Security Considerations

Backup and security are the two things that are most likely to suffer if you host your server yourself, compared to housing it at a professional hosting centre. If you are going to be hosting your own server, and have little experience with servers, backup, and network security issues, this is an important section for you.

Clearly, when you have got your dream CRM up and running, you will want everyone in the organization to be using it, and the business to be largely run from it. With such a vital role in the organization, and all your business' vital data on it, you will not be able to afford to have the system fail and lose your data, or produce prolonged down time.

Accordingly, you will need to devise a data backup strategy. One solution is to buy a data backup device – which historically might have been tape-based, but today is more likely to involve directly attached disk storage. With massive hard disks costing less than $100, disk based backup can be fast and inexpensive. Whatever you do, adopting a reliable backup plan is completely mandatory.

Whatever solution you adopt, the most likely cause of failure will be because you did not use it regularly, or properly – or did not test that the backups it made could be successfully restored. So pay more attention to the policies and procedures for backup, and testing restores than you ever do to your choice of backup technology. We recommend that once a month you test your backups by identifying several data items that have been recently created and checking they can be successfully restored from the backup.

2.6.7 Server Security

Your CRM server will likely be permanently accessible via the Internet, and will house your most vital and sensitive business information. Right away, bells should be going off in your head, warning you to make sure that the server is properly secure. Malicious attacks, or the attempted theft of your competitive information, are two among many very real threats you must plan for.

For a start, security specialists will always tell you that nothing is completely secure. There are simply levels of security – each more cumbersome and expensive than the last, and you need to implement a level of security that is sensible and appropriate in your business context.

Some minimal security measures you should consider include:

- A UPS (Uninterruptible Power Supply) to save your server from crashing when there is a power outage. Windows and Linux both have utilities that can receive a message from the UPS notifying the server when the UPS has gone over to battery backup, so that the server can be shut down in a controlled manner if the power remains out for too long;

- A locked server room, so only authorized employees can access the server, reducing its chances of being stolen, being damaged, or having its data compromised or stolen; and

- A firewall between the server and the Internet connection, with only limited and specific access to the web server being permitted from the Internet.

If you are installing the 1CRM server at your own offices, you will typically position the server behind your firewall to the outside world, but allow external access by opening ports on the firewall to the web server on your 1CRM server. From a security point of view, it would be even better to actually have separate web and application servers, with security rules between them – but likely not a necessary security measure for smaller firms.

If your 1CRM server will be collocated at an ISP, a similar networking configuration should be used – talk to your ISP.

If you are using a Cloud-Hosted service – none of this will be vital to you, except insofar as you may wish to ask your ASP what security architecture is in place, and how they handle the web server and application server issues.

In either case, to protect your data as it travels over the Internet, you may well want to implement a Virtual Private Network (VPN) solution, or certificate-based Secure Sockets Layer (SSL) encryption.

2.6.8 Bandwidth Capacity and Reliability Considerations

We have all been on Internet sites where we liked the information it provided, but were frustrated by the slowness of the site. We need to make sure no one using your CRM ever feels that way about it!

Bandwidth, or connection speed, is an important link in the chain of good performance for a web-based CRM.
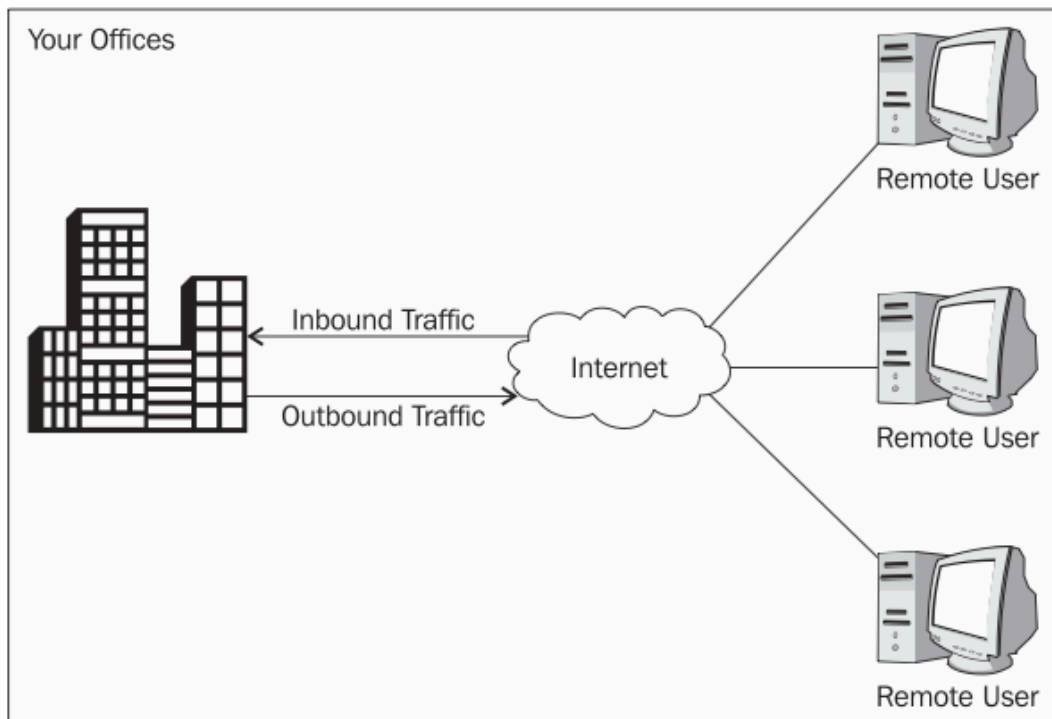
Figure 6: 1CRM Internet Connection

In the diagram above, the Outbound traffic leaves your offices for the Internet at a speed called the uplink, or upload speed. Inbound traffic arrives at your building at the downlink, or download speed. Notice that with the server at your office, for a remote user it is important that the uplink speed be good, for data to get from the office to the remote user quickly.

Usually, your employees will complain if the office download speed is slow, as web browsing, or retrieving email from an external email service, will be slow if the office has a poor Internet download speed (traffic moving in the direction of the Inbound traffic in the diagram above).

Now we see that employees will also complain (at least the ones who access your CRM while away from the office) if the office's Internet connection has a slow uplink speed (traffic moving in the direction of the Outbound traffic in the diagram above).

So the conclusion we must draw is that if you intend to house your CRM server at the office, you need to make sure the office now has not just a good download speed on its Internet connection, but a good upload speed as well.

What is a good speed? Well, that depends on how much each employee has to use the Internet to do their work. In a software development company, the Internet bandwidth required per employee will likely be much greater than in a T-shirt printing firm. For the average (if there is such a thing) white collar business, for each 25 people in the company, you will need something like five megabits of download bandwidth. With a CRM server at the office being accessed by remote employees during the day, or at night from home, you will likely need at least five megabits of upload or uplink speed for each 25 people in the company.

It is usually best to avoid an uplink speed lower than 1 Megabits for remote access to 1CRM. It will still work on slower connections of course, but you may find the response becomes sluggish – and there's really no room for that in business these days!

Many Internet connections tend to be faster in the download direction than the upload direction. These connections are referred to as 'Asymmetric'. If your CRM server is located at your offices, your business becomes a candidate to have an Internet connection that is closer to being Symmetric, or balanced, in its upload and download speeds.

When you use a Cloud-Hosted service for your CRM, or have your server collocated at an ISP, your server benefits from the fact that the Internet connection at the provider's location is much faster in both directions than it is at your offices, and as well it is more reliable. Typically, an ISP or ASP has multiple suppliers of its Internet connection 'pipes', so that if the connection provided by one supplier fails, those from the other suppliers will automatically carry on moving traffic.

This redundancy of Internet connection is something that is hard to afford for the smallest businesses – and so you may have to accept that your level of service (reliability) for a self-hosted CRM won't be quite as good as if your server were professionally hosted and managed. Check out pricing for redundant connections in your area, and as well, check out the level of guaranteed availability offered by the ISPs in your area, and their reputations amongst your business associates.

Lastly, if you choose the Cloud-Hosted or collocated server options, be sure to check out how much bandwidth you are allowed to consume (per user, or for your whole server) before bandwidth surcharges come into effect. With many suppliers the standard bandwidth allowance is very small, to help generate another couple of hundred dollars of income for the supplier each month from charges for excessive bandwidth use.

2.7 Customer Centric Business Management

Most of this chapter deals with the issue of helping you implement a CRM that is suitable for your business. However neither 1CRM, nor indeed any other truly effective CRM, deals only with that narrow-defined set of topics which originally constituted a CRM system.

From product catalogs, quotes and invoices to service contract management, and from email marketing campaigns to project management and resource tracking, extending your CRM into a customer centric business management system is gaining increasing recognition as an appropriate and effective technique for small and medium businesses.

At its heart, a CRM system is about consistently excellent communication – both inside and outside the business. As an exercise in understanding the flow of information in your business, map out on a sheet of paper the various departments within your organization, and overlay on it the typical paths that information takes between those departments as customer transactions are processed. Think about pre-sales requests for information, quotations, order processing, customer queries about shipments they are waiting for, shipping, and after sales support and service.

For each transaction think about where new information originates in your organization, and examine which other parts of the business need that information to perform their jobs properly. Jot down notes on what items of information in your industry are key to delivering an outstanding customer experience to your customers. Note where these items of information enter your business or are created, and where they move within the business.

Now examine your CRM system, and check the various relevant functions to see if they keep track of all the information that you need to deliver excellence to your customers, and if they model all the transactions that are most important for your customers. Where they do not, you are identifying gaps in your CRM implementation. These gaps should be addressed by extending your CRM to cover them, managing the information for those transactions, and ensuring that all appropriate employees always have access to the latest information about those transactions.

Now of course, every good CRM implementation has multiple phases, and many of these gaps will not need to be addressed in your initial phase of rolling out the CRM. But just as all good IT systems should be subject to ongoing periodic reviews for the purposes of continual improvement, you should track your CRM to-do list, and continue to make your CRM system as useful and comprehensive, yet practical and cost-effective, as you possibly can.

Now let's get on with installing your CRM so you can put what you have learned in this chapter into action. Chapter 3 contains instructions on installing 1CRM on a CentOS 7 Linux server, and Chapter 4 has the instructions for installing on a Windows Server 2012. Chapter 5 covers installation on an macOS Sierra server, and Chapter 6 deals with installation in the Microsoft Azure Cloud. After that, Chapter 7 has the details of the administration tools available to you for the initial setup and ongoing management of your 1CRM system. Chapter 8 offers information on importing data into your CRM, and exporting it back out, while Chapter 9 deals with some frequently asked questions.

3.0 Installing 1CRM on CentOS 7.3

3.1 Linux Server Reference Platform

Before we start, a word of caution. As ever, User and Implementation guides are written, but not always read! We encourage you to make sure that this chapter on installing your new software on CentOS 7.3 is something that you do read – if only because *if you do not follow the instructions here, we cannot effectively support your installation*.

Particularly critical are the php.ini configuration instructions in section 3.5, and the chart of compatible software revisions at the end of this chapter. This chapter, like the three that follow, is written to document how to install 1CRM on a specific reference platform.

If you ever have a need to call for support, our technicians will make sure that your server environment complies with the one documented here (or one of the other reference platforms), before any incident can proceed further.

If you have chosen to install 1CRM on a Linux version other than CentOS 7.3, that's fine, but if you call for support and your environment or its configuration (rather than the 1CRM software itself) is found to be the cause of your issue, the support incident will unfortunately be billable.

Our support staff can't be expert at all variations of every environment, and neither can we document how to install 1CRM on every conceivable environment that might support it. So we chose a few that we felt would be popular ones.

3.2 Getting Started

To install 1CRM on Linux, we recommend, and have documented here, the use of the CentOS 7.3 Linux distribution. You will need a CentOS 7.3 installation DVD, as well as the 1CRM installation Zip file.

An ISO image of a CentOS 7.3 (64-bit) installation DVD may be downloaded (although it is 4.38 GB, so be ready to wait a while) from http://centos.org.

The filename is `CentOS-7-x86_64-DVD-1611.iso`.

Once downloaded, you must use a DVD burning program capable of burning a disk from an ISO image. On Apple Macs, the Disk Utility program included with macOS will do the job nicely.

3.3 Install CentOS 7.3 Linux

1. Insert the CentOS 7.3 Linux installation DVD and boot your server from the DVD drive. (Make sure the server's BIOS is configured to be able to boot from the DVD drive.)

2. Simply follow the normal installation process until you see the CentOS 7.3 desktop as shown below.

    Note: Make sure your server is connected to the Internet for this entire process.
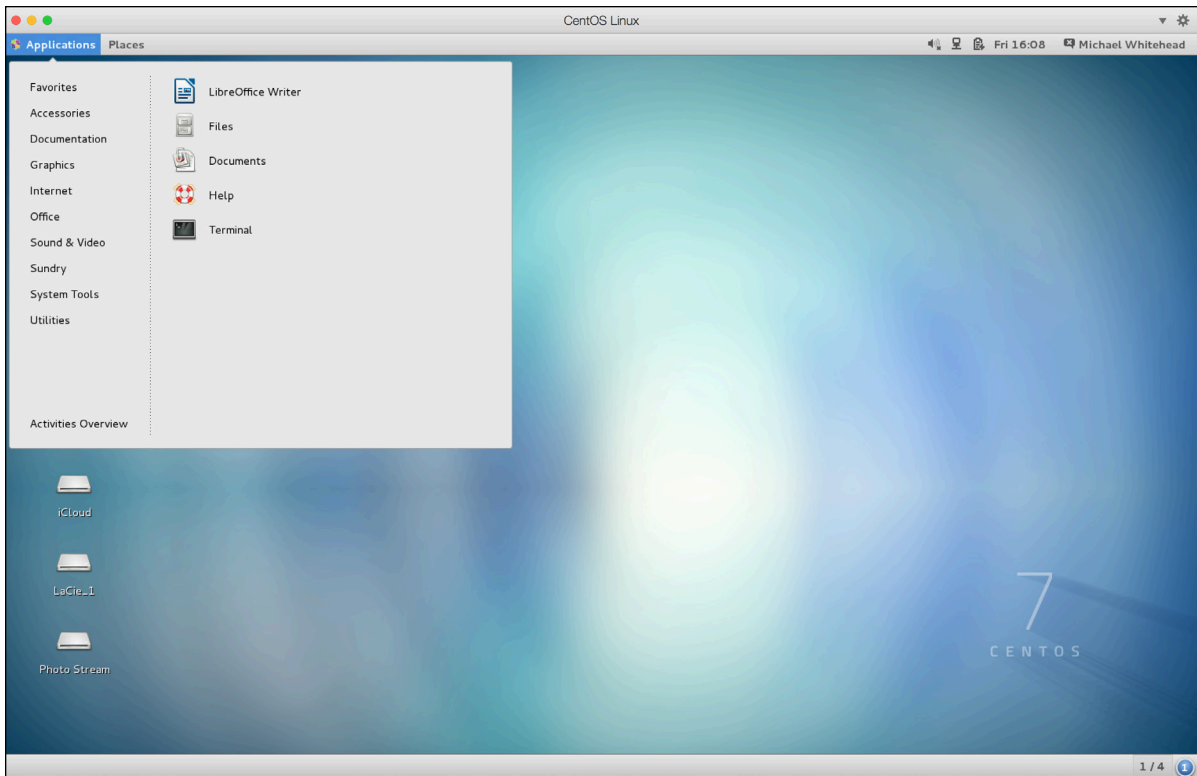
Figure 7: CentOS 7.3 Login Screen

3. Use *Applications – System Tools – Software Update* to make sure your system has all the most recent patches. Once you click on *Install Updates*, the update will take a few minutes.

4. Use *Applications – System Tools – Software* to load additional software components.

    Choose *Web Services* on the left side menu, then scroll down the list.

    - Web Server - Apache HTTP Server (2.4.6-45)

    Choose *Databases* on the left side menu, then scroll down the list.

    - MariaDB Database Server - The MariaDB server and related files (mariadb-server-1:5.5.52)

    Choose *Applications* on the left side menu, then scroll down the list.

    - Internet Browser - Mozilla Firefox Web Browser (firefox-52.1.0)

    Click *Apply Changes* to install these components.

5. Close the *Add/Remove Software* window, and use *Applications – Favorites – Terminal* to enter the following commands:

- su　(to gain admin privileges - you'll need to provide the root password)
- `rpm -Uvh https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm`
- `rpm -Uvh https://mirror.webtatic.com/yum/el7/webtatic-release.rpm` (enables yum to search elsewhere for latest php 7.1)
- `yum install -y mod_php71w php71w-cli php71w-common php71w-gd php71w-mbstring php71w-mcrypt php71w-mysqlnd php71w-xml php71w-imap php71w-pear php71w-soap php71w-pecl-apcu php71w-opcache`

  Note: This command loads a number of PHP extension modules. You may be asked to confirm the action to be taken by this command once it resolves dependencies.

- `systemctl start mariadb.service`　(to run the mariadb mysql service)
- `systemctl enable mariadb.service`　(to run the mariadb mysql service at every boot)
- `mysqladmin -u root password `*yourpassword*　(use your own password here)
- `systemctl start httpd.service`　(to run the apache service)
- `systemctl enable httpd.service`　(to run the apache service at every boot)

6. Now use *Applications – Favorites – Firefox Web Browser* to browse the the URL *localhost*. You should see the Apache Test Page. If you do, you know Apache is now running properly.

3.4　Test Apache and PHP

1. Use *Applications – Favorites – Terminal* to enter
   - `sudo gedit /var/www/html/info.php`　(edits a sample php file)
2. Enter

   `<?php phpinfo(); ?>`

   and then save the file and quit *gedit*.

3. Now use *Applications – Favorites – Firefox Web Browser* to browse the the URL *localhost/info.php*. You should see the results of *phpinfo()* displayed on the screen, providing a lot of configuration information about your PHP installation. This confirms that both Apache and PHP are running, and that they are getting along with each other. If you examine the *phpinfo()* display in detail, you should see the following software is installed and running:

   PHP 7.1.4, Apache 2.4.6, MariaDB: MySQL 5.5.52

   Note: As of release 7.8.10 1CRM requires a PHP version in the range of 5.5.x to 7.1.

3.5 Configure php.ini and apcu.ini

In this section you need to edit the *php.ini* file, found in */etc*. Several values in the file will need to be changed, and then you save the file and exit the editor.

Use *Applications – Favorites – Terminal* to enter

- `sudo gedit /etc/php.ini` (edits the php.ini file)

Session Save Path

The default value for session.save_path is:

`;session.save_path = "/tmp"` (commented out)

It is possible you may need to change this value, but normally this default value will work fine.

Set output_buffering, zlib.output_compression & output_handler

1. Search for *output_buffering*, and set it to *On* (rather than a number - it is likely 4096 by default). This setting and the next two are used to optimize the performance of 1CRM.

2. Search for *output_handler*, and make sure it is commented out (*;output_handler =)*

3. Search for *zlib.output_compression*, and make very sure it is set to *Off*.

Set Timeout Limits

1. Search for *max_execution_time*, and set it to *300*. This will allow any PHP instruction up to 300 seconds to complete. Without this, large activities, such as a large import of data, will terminate with an error, as they will exceed the maximum execution time.

2. Also set *max_input_time* in the next section of the file to *300*. This allows a 5 minute window for large files to be uploaded.

Set memory_limit

1. Search for *memory_limit*, and set it to 200M. This will allow 1CRM to consume up to 200M of memory. Without this setting, complex actions may run out of memory.

Set display_errors

1. Search for *display_errors*, and make sure it is set to *Off*. This will suppress the display of warning messages which will otherwise disrupt the display.

Set post_max_size and upload_max_filesize

1. Search for *post_max_size*, and set it to *25M* to allow large documents to be uploaded.

2. Now search for *upload_max_filesize*, and set it to *22M*. (Together these two changes will allow a 20M Document file to be uploaded to the system. A third setting (*$upload_maxsize* in *config.php*), is automatically set to exactly 20M by the installation script.)

Set mysql.default_socket

1. Search for *mysql.default_socket*. Make sure it is set to an empty value so that it uses the MySQL defaults.

Set session.gc_maxlifetime (Session Timeout)

1. Search for *session.gc_maxlifetime*. Note that by default it is set to *1440* seconds, (24 minutes). This controls the length of time a 1CRM session can be idle before the session is terminated. Set it to *1800* for 30 minutes, *3600* for an hour, and so on.

Note: Make sure that when setting all the above values in *php.ini*, that the entire line is not preceded by a semi-colon unless intended – it means that the line is just a comment, and not to be processed.

Save the Updated php.ini File

1. Perform a *File - Save* using the menu of the *gedit* application. Then close the application.

Edit apcu.ini File

1. Use *Applications – Favorites – Terminal* to enter

   - `sudo gedit /etc/php.d/apcu.ini` (edits the apcu.ini file)

2. Search for *apc.serializer*. Edit that line of the `apcu.ini` file to read: `apc.serializer='php'`

Save the Updated apcu.ini File

1. Perform a *File - Save* using the menu of the *gedit* application. Then close the application.

Restart Apache

1. Use *Applications – Favorites – Terminal* to enter the following commands, to restart Apache:

   - `su` (to gain admin privileges - you'll need to provide the root password)

   - `systemctl restart httpd.service` (to restart the apache service)

Exchange 2007 Settings

Note: The PHP IMAP module does not work correctly with Exchange 2007. To make 1CRM retrieve mail from Exchange 2007, the IMAP module should be disabled in your PHP configuration file (the line *extension=imap.so* should be commented out). This makes 1CRM use the IMAP library written in pure PHP, which works fine with Exchange 2007.

3.6 Install 1CRM

1. Download the 1CRM Zip file (use *Applications – Favorites – Firefox Web Browser* to browse to the download URL). Next, unzip it within your downloads folder (use *Applications – Favorites – Files*). Now make a folder called *1crm*, inside your downloads folder, containing all the files resulting from the unzip operation.

2. Download these files from our website, and drag and drop then into the */docs* folder within the *1crm* folder just created:

   • [User Guide](#)

   • [Implementation Guide](#)

   Rename them as simply *UserGuide.pdf*, and *InstallGuide.pdf*. These are the PDFs of the documentation for 1CRM. The Implementation Guide PDF (*InstallGuide.pdf*) is accessed via a link available in the installation wizard (coming up soon). The User Guide PDF (*UserGuide.pdf*) is linked from the online help system available to all users.

3. Now open a Terminal window (*Applications – Favorites – Terminal*), and enter:

   `su` (to gain admin privileges - you'll need to provide the root password)

   `mv /home/username/Downloads/1crm /var/www/html/`

   `chgrp -R apache /var/www/html/1crm`

   `chmod -R g+rwX /var/www/html/1crm`

   `semanage fcontext -a -t httpd_sys_rw_content_t '/var/www/html(/.*)?'`

   `restorecon -Rv /var/www/html`

   Note: The `mv` command moves the 1crm folder from your *username/Downloads* folder into the root folder from which Apache serves web content. Replace the *username* in that first command with the username you are logged in as.

   Note: The last two commands configure SELinux to allow Apache to execute PHP scripts in the `/var/www/html` directory, to write there, and ensure this persists after a reboot

4. Now use *Applications – Favorites – Firefox* to browse to the URL *localhost/1crm*. You should see the 1CRM Installer Welcome screen, as shown in the figure below. You're getting close to the finish line!
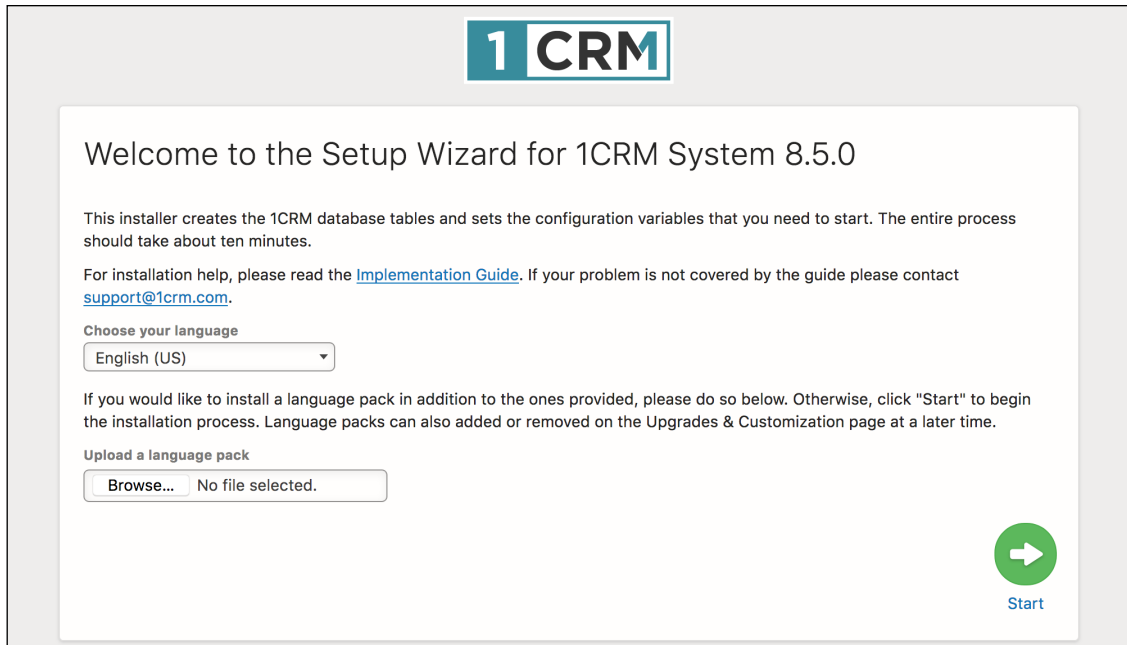
Figure 8: Installer Welcome Screen

Just click on the *Start* button. The 1CRM license acceptance screen is the next one you will see:
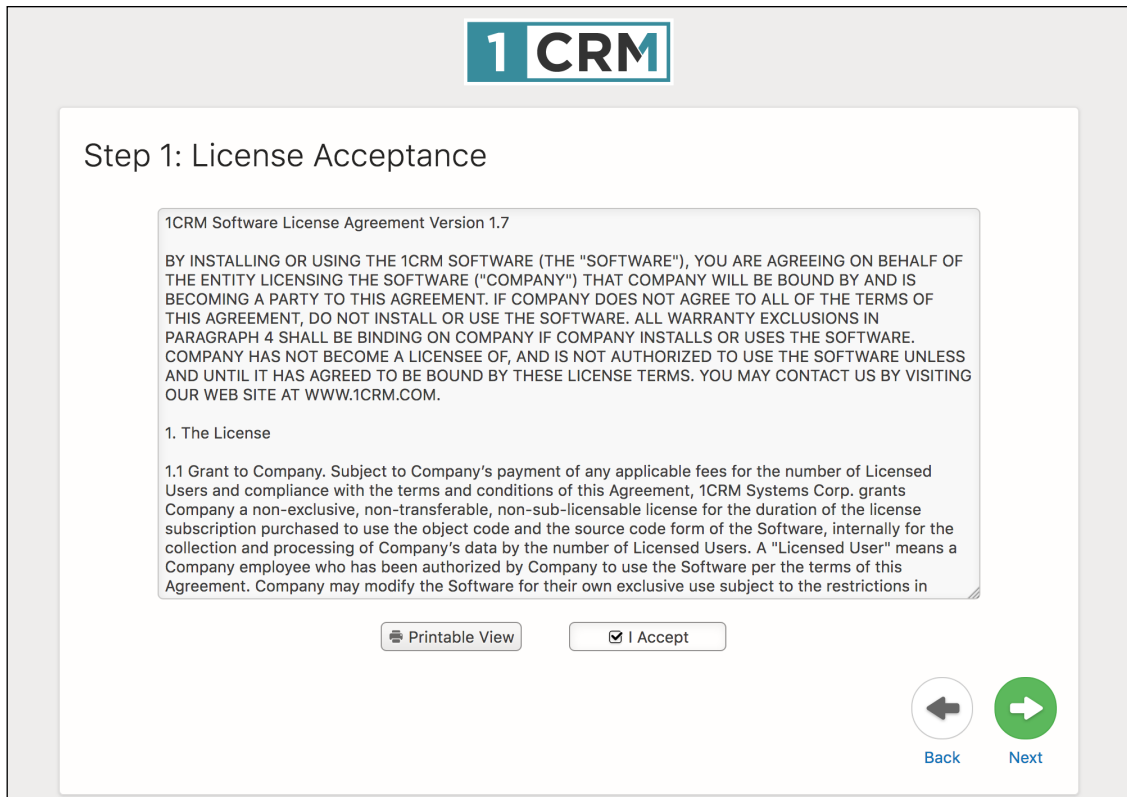
Figure 9: Install Step 1 – License Acceptance

5. Install Step 1: License Acceptance - Click on the *I Accept* checkbox, and then on the *Next* button.

6. Install Step 2: System Check - Now you see the 1CRM system check screen. The 1CRM installer checks several aspects of the installation environment, and reports their status to you on this screen. You will see a series of green (and perhaps a few red) status messages down the right hand side of the screen. They need to be all green for the installation to proceed.

Figure 10: Install Step 2 - System Check

If they are all green, click on the *Next* button to proceed to the next step of the 1CRM installation process.

If they are not all green you should act on any diagnostic details provided beside the highlighted issue, and go back to your server setup to see where things went wrong.

7. Install Step 3: Database Configuration (see the figure below) - Set *Host Name* to *localhost*, *Database Name* to *onecrm*, *Database User Name* to *onecrm*, and *Database Password* to whatever you like (*crm77dbpsw* is one suggestion).

    Click on *Create Database* and *Create User* if this is a new installation.

    Click on *Drop & Recreate Existing Tables* only if this is a re-installation.

    Click on *Populate database with Demo Data* if you would like some test data created for you.

    Set the *Privileged Database User Name* to *root*, and the *Privileged Database User Password* to the root password for MySQL (as defined in the section *Configure MySQL*).

    Then click on the *Next* button.

Figure 11: Install Step 3 – Database Configuration

8. Install Step 4: Site Configuration – As shown in the figure below, enter the new password you wish for the 1CRM Admin user, and confirm it. You can set the URL as you like - but ***make sure it is an absolute URL not a relative one, and that is is a URL that is usable externally, not a LAN IP address or similar***. This is a critical point - if you do not do this correctly, you will have many severe issues down the line with your installation.

   Note: Make certain the URL of the 1CRM Instance field is set to an absolute URL that is addressable externally! Also make sure that the URL can be resolved locally on the server running 1CRM. This is of critical importance.

   Then click on the *Next* button to proceed to Install Step 5.

Figure 12: Install Step 4 – Site Configuration

Note: The checkbox *Save Installer Configuration* is used at Step 4 of the installation process to tell the installer that you want to make an 1CRM installation template from this installation session. Later on, at Step 7 (if installing without demo data) or Step 9 (with demo data) you will see a link to download the *installer_config.zip* file.

9. Install Step 5: Locale Settings – As shown in the figure below, you can upload language packs at this time. You can also set your installation's default localization values for date, time, currency and character sets, etc.. Once you have done that, then click on the *Next* button to proceed to Install Step 6.

Note: Selecting your default currency on this screen is a critical item. You cannot change it after the system is installed and running. This is your only chance to set a default currency other than US$.

Figure 13: Install Step 5 - Locale Settings

10. Install Step 6: Confirm Settings - This screen (see figure below) simply shows you all the settings you have provided for the 1CRM installation. If they look correct, click on the *Install* button to proceed with the actual 1CRM installation.

1 CRM

Step 6: Confirm Settings

Please confirm the settings below. If you would like to change any of the values, click "Back" to edit. Otherwise, click "Next" to start the installation.

Database Configuration

Database Name	onecrm (will not be created)
Database Username	onecrm (will not be created)
Drop and recreate existing 1CRM tables	Yes
Populate database with demo data	Yes
Privileged Database Username	root

Site Configuration

URL of 1CRM Instance	http://localhost/1crm/
Server Timezone	America/Vancouver

Advanced Site Security

Use a custom session directory for 1CRM?	No
Use a custom log file?	No
Provide your own application ID?	No

Locale Settings

Default Date Format	2006-12-23
Default Time Format	23:00
Default Language	English (US)
Default Name Format	Mr. John Doe
Default Address Format	Britain/US/Canada
Outbound Email Character Set	UTF-8
Import/Export Character Encoding	UTF-8
Default List Export Format	csv
Default Currency	US Dollar
Currency Symbol	$
Currency Code (ISO 4217)	USD
Default Number Format	12,345,678.90

← Back   ✓ Install

Figure 14: Install Step 6 - Confirm Settings

11. Install Step 7: Perform Setup - You should see a screen like the first figure below. Note it will take a minute or two to complete – so be patient! The progress bar goes from left to right for each step of the process. When a step is complete, it gets a check mark, and the next step begins. By the time the setup is complete (as shown in the second figure below) your 1CRM installation is ready to go - unless you chose to have demo data installed. If demo data is being installed, Install Steps 8 and 9 will be performed, as shown below. If not, just skip down to paragraph 15 below, which begins with "Congratulations - you're done.".
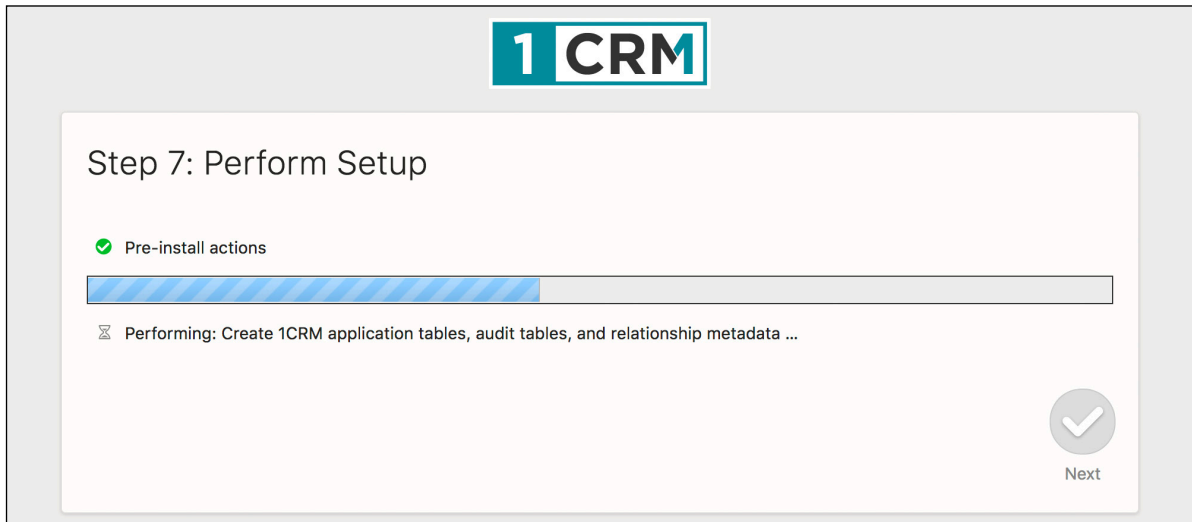
Figure 15: Install Step 7 – Perform Setup (In Progress)
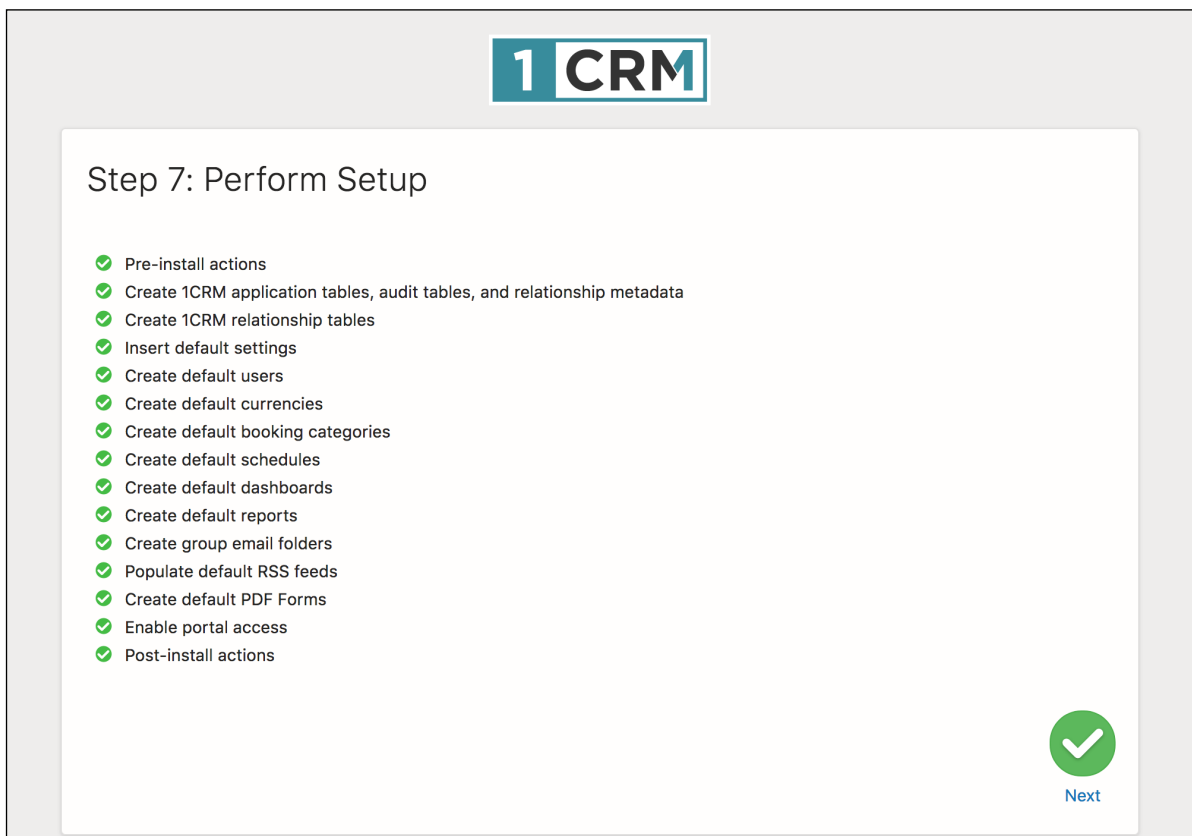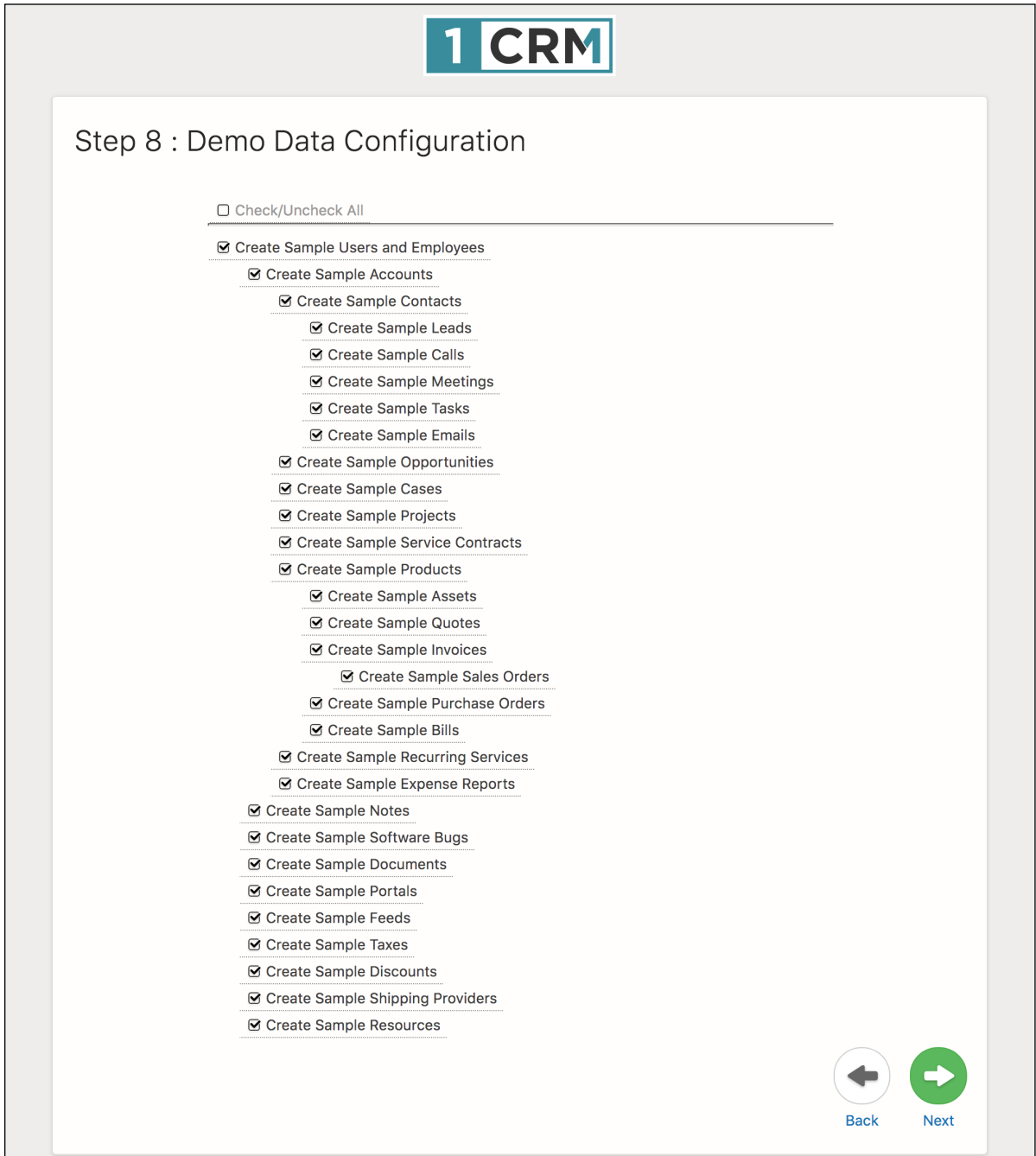
Figure 16: Install Step 7 – Perform Setup (Complete)

12. Install Step 8: Demo Data Configuration - On this screen you select what demo data you would like to have installed. At the top of the screen is a convenient checkbox to select or de-select all of the items. Notice that some items will automatically select other items, as there are dependencies between various items of data.

Step 8 : Demo Data Configuration

☐ Check/Uncheck All

☑ Create Sample Users and Employees
   ☑ Create Sample Accounts
      ☑ Create Sample Contacts
         ☑ Create Sample Leads
         ☑ Create Sample Calls
         ☑ Create Sample Meetings
         ☑ Create Sample Tasks
         ☑ Create Sample Emails
      ☑ Create Sample Opportunities
      ☑ Create Sample Cases
      ☑ Create Sample Projects
      ☑ Create Sample Service Contracts
      ☑ Create Sample Products
         ☑ Create Sample Assets
         ☑ Create Sample Quotes
         ☑ Create Sample Invoices
            ☑ Create Sample Sales Orders
         ☑ Create Sample Purchase Orders
         ☑ Create Sample Bills
      ☑ Create Sample Recurring Services
      ☑ Create Sample Expense Reports
   ☑ Create Sample Notes
   ☑ Create Sample Software Bugs
   ☑ Create Sample Documents
   ☑ Create Sample Portals
   ☑ Create Sample Feeds
   ☑ Create Sample Taxes
   ☑ Create Sample Discounts
   ☑ Create Sample Shipping Providers
   ☑ Create Sample Resources

Back   Next

Figure 17: Install Step 8 – Demo Data Configuration

13. Install Step 9: Demo Data Installation - This screen is a bit like Install Step 7, in that a series of progress indicator bars are generated, each leaving behind it a step of the demo data installation with a check mark once it is completed. Eventually your screen should resemble the one below, once all the demo data selected has been added to your database.
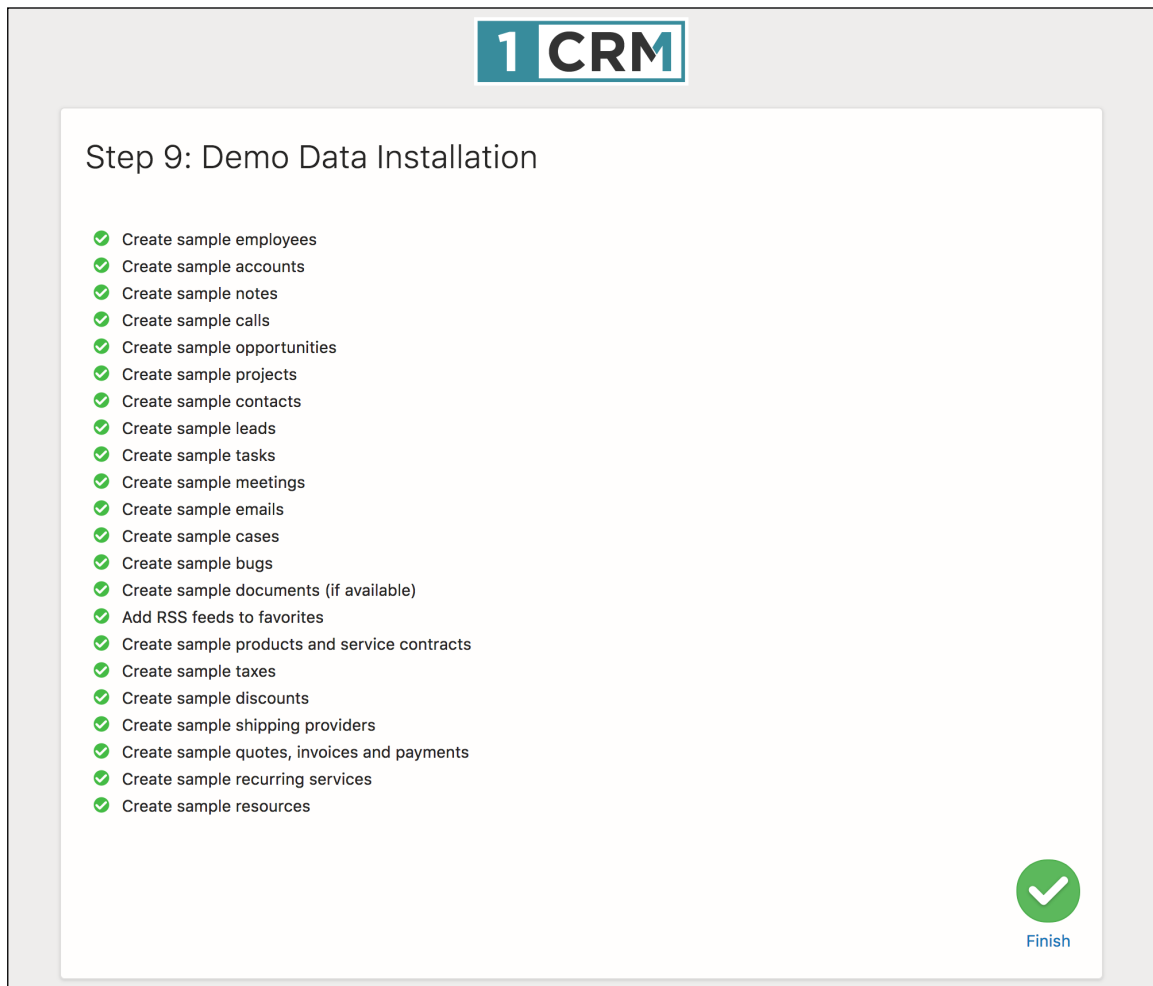
Figure 18: Install Step 9 – Demo Data Installation

Note: The checkbox *Save Installer Configuration* is used at Step 4 of the installation process to tell the installer that you want to make a 1CRM installation template from this installation session. Later on, at Step 7 (if installing without demo data) or Step 9 (with demo data) you will see a link to download the *installer_config.zip* file (see Figure above). Once you have downloaded the file, it may be used as part of the one-step installer process - typically by system admins making trial sites or sandboxes for testing.

To perform a one-step install, browse to `http://yoursite.com/install.php?auto`. A screen similar to the *Step 3: Database Configuration* screen above is displayed. It contains a set of options that are unique to each 1CRM instance (db configuration, mainly). The *installer_config.zip* file can be uploaded from this screen. If it is uploaded, any options chosen when creating the config file (localization, demo data, language packs etc) will apply to this new installation. (The Admin user password is always set to *admin*.) After clicking *Next*, the installation begins without any further input.

The installer can be launched via command line as well. Enter `php install.php --help` to see the list of command line options. We recommend you `su` to the web server user before running the installer. The *installer_config.zip* file can also be used with the command line installer.

14. Congratulations – you're done. Just click on the *Finish* button to login to 1CRM for the first time.
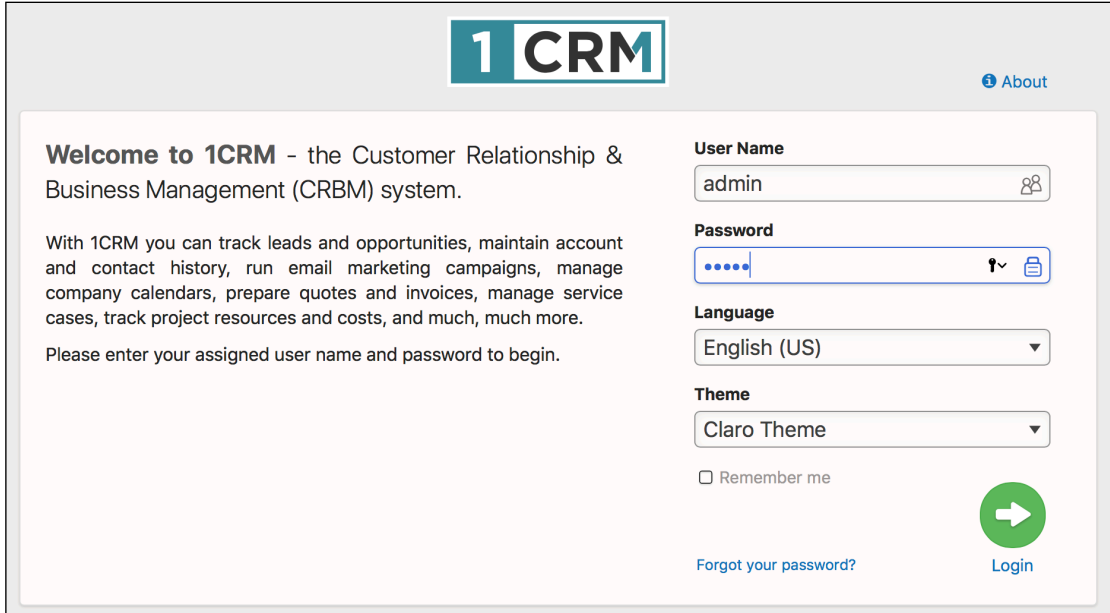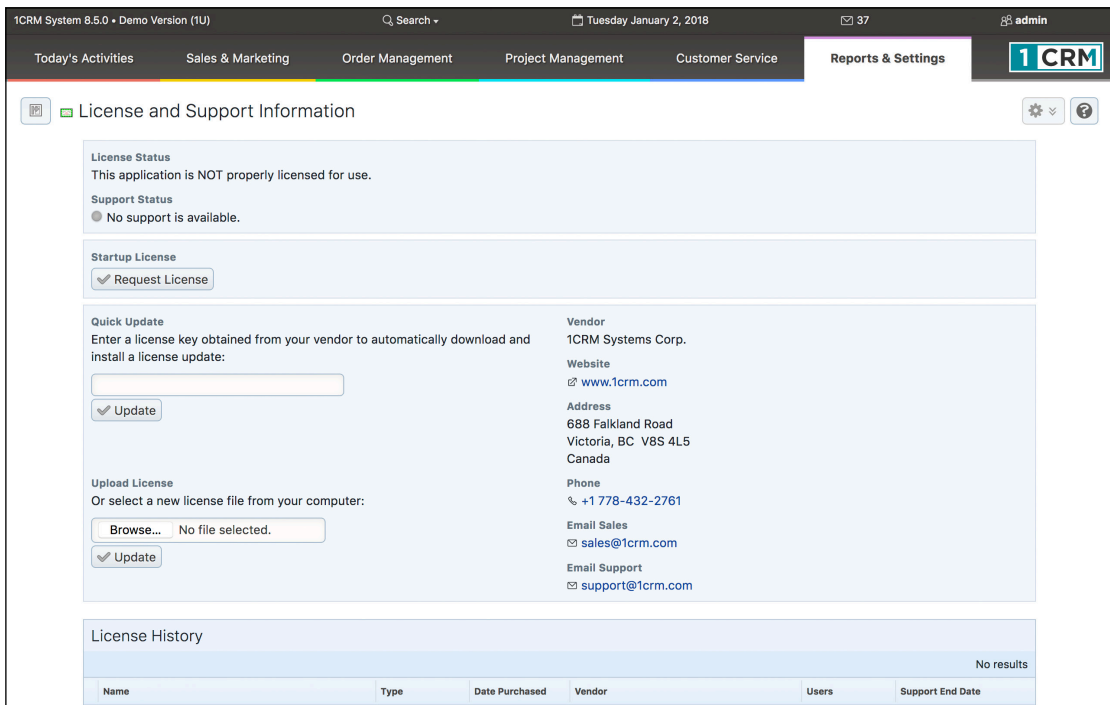
Figure 19: Install Complete, Ready to Login

15. Log in, using the user name *admin*, and the admin password you provided in step 9 (Install Step 4) above.

16. The first time you login, the system will take you automatically to *License & Support* on the Admin menu screen. (***Note:*** Before you get to the license screen, you may first see a System Bulletin for the highlights of this release, and be asked to set your time zone.)

Figure 20: Applying the License Key

17. Enter your license key in the *Quick Update* box, and click on the *Update* button. You will see a screen like the one below, confirming that the license key has been applied successfully. If you are installing the *1CRM Startup Edition*, instead of entering a license key just click on the *Request License* button, enter your license and registration information into the popup form that appears, and then click on the *Send Request* button.

(*Note:* Your server must be connected to the Internet as you perform this step.)
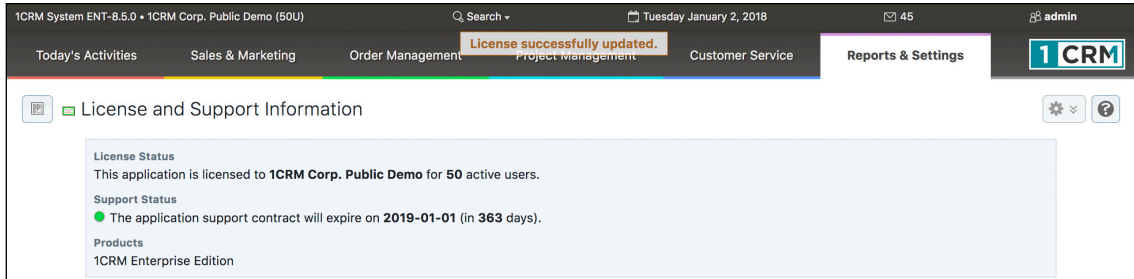
Figure 21: License Key Applied Successfully

18. Click on *Return to List*, and you should see your license information displayed somewhat like this:
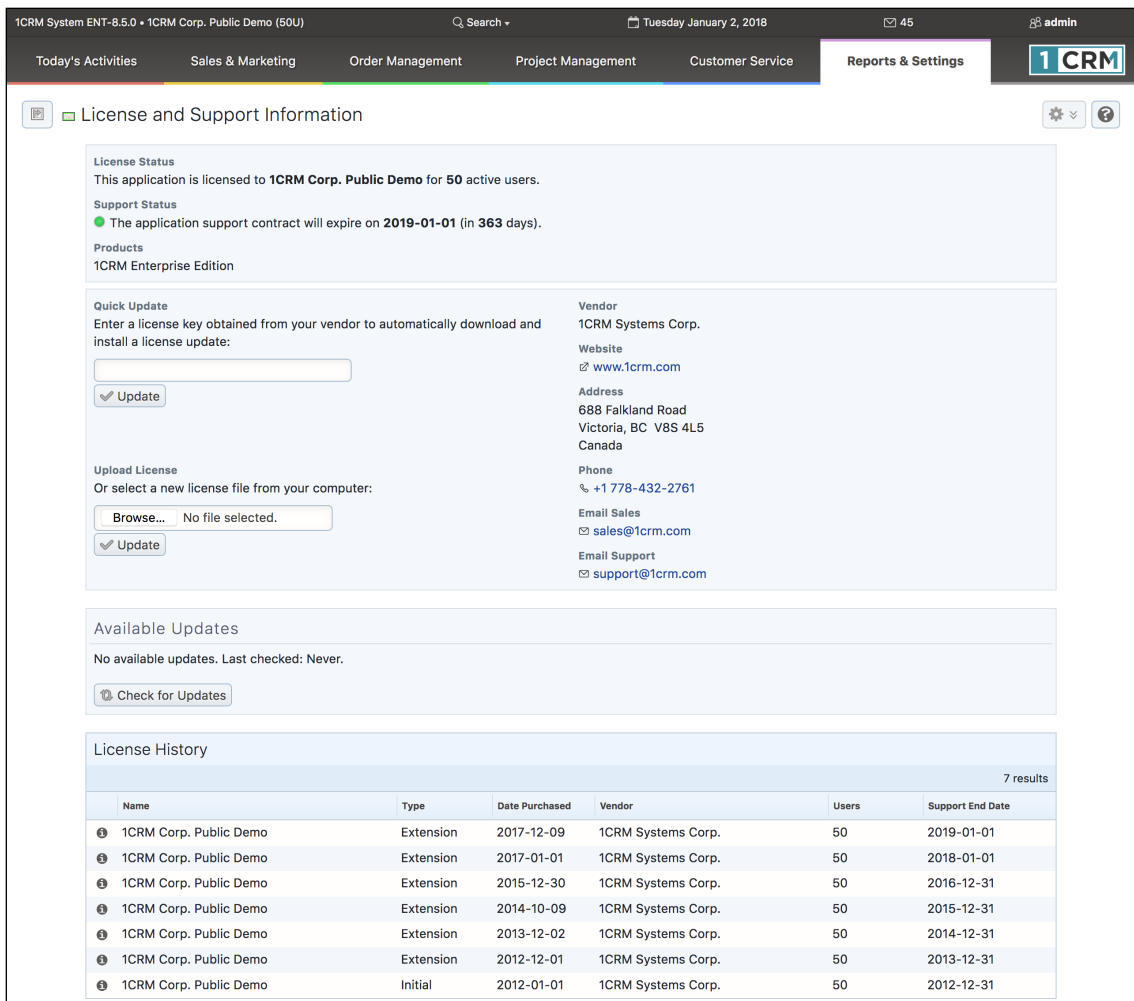
Figure 22: License & Support Screen With License Details

3.7 Configure Installation Settings

⬭ **Email Server and Scheduler Configuration**

1. Ensure that your 1CRM installation is configured in the Admin area to use the SMTP Mail Transfer Agent (MTA), unless you choose to configure sendmail on your server. Configuring sendmail on a Linux server is an advanced topic, not covered here.

2. Add the scheduler to your list of scheduled tasks in *crontab*, as per the instructions in the *Scheduler Setup* section later in this guide. This is required to enable incoming email, as well as to enable all other scheduled tasks within 1CRM.

Congratulations – you have completed the installation of the 1CRM System. We hope you enjoy using it, and that it makes a significant contribution to the effective management of your organization.

3.8 Linux Server Software Stack

Stack Components	Versions	Comments
Operating System		
Linux	*CentOS 7.3*	*64-bit version*
Web Server		
	Apache 2.4.6-45	*Supports any version that runs PHP*
Database		
	MariaDB: MySQL 5.5.52	*MyISAM Tables required*
PHP		
	7.1.4	
		Zend Server is supported
Browser		
	Microsoft Edge 38 or better	
	Firefox 12 or better	
	Chrome 12 or better	
	Safari 5 or better	

Figure 23: 1CRM Linux Software Components & Compatibility

Note: MySQL 5.1.x or later is required.

⬭ Reference Platform for Linux

CentOS 7.3 Linux Software Components

- PHP version 7.1.4
- MariaDB: MySQL 5.5.40
- Apache 2.4.6
- CentOS 7.3, 64-bit

Note: As of release 8.5 1CRM requires PHP 7.x as a minimum, and supports up to PHP 7.1

4.0 Installing 1CRM on Windows Server 2012

4.1 Windows Server Reference Platform

Before we start, a word of caution. As ever, User and Implementation guides are written, but not always read! We encourage you to make sure that this chapter on installing your new software on Windows Server 2012 is something that you do read – if only because *if you do not follow the instructions here, we cannot effectively support your installation*.

Particularly critical are the php.ini configuration instructions in section 4.3, and the chart of compatible software revisions at the end of this chapter. This chapter, like the other installation chapters, is written to document how to install 1CRM on a specific reference platform.

If you ever have a need to call for support, our technicians will make sure that your server environment complies with the one documented here (or one of the other reference platforms), before any incident can proceed further.

If you have chosen to install 1CRM on a Windows version other than Windows Server 2012, that's fine, but if you call for support and your environment or its configuration (rather than the 1CRM software itself) is found to be the cause of your issue, the support incident will unfortunately be billable.

Our support staff can't be expert at all variations of every environment, and neither can we document how to install 1CRM on every conceivable environment that might support it. So we chose a few that we felt would be popular ones.

Note: MS-SQL Server and Internet Information Server (IIS) are not supported, and will not work with 1CRM – Apache is the only web server we support.

4.2 Installing WampServer 2.5

This installation of 1CRM is documented using Windows Server 2012 (not 2012 R2) with the GUI option selected when performing the installation of the server operating system, as seen below:
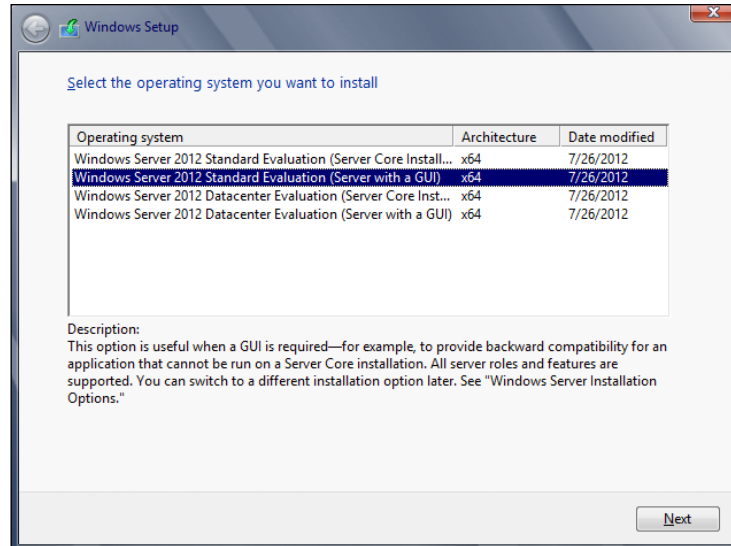
Figure 24: Installing Windows Server 2012

First, you should begin by bringing up the Server Manager tool, and configure the server so that Windows Update is running (so you get the latest security patches). Then set a server name, turn off IE Enhanced Security Configuration, and disable the firewall, as shown below.

Figure 25: Windows Server 2012 Server Manager Settings

Now open Edge, and go to http://www.wampserver.com.

On this site, within Downloads, choose *WampServer (32Bits and PHP 5.5) 2.5 (see Figure 26)*.

Now you'll see the dialog shown in Figure 27. From this dialog you should click on the *Visual Studio 2012 : VC 11* download link, and download the file:

    VSU_4\vcredist_x86.exe

And also follow the link labelled *download directly*, to download the wampserver zip file:

`wampserver2.5-Apache-2.4.9-Mysql-5.6.17-php5.5.12-32b.exe`

Figure 26: Installing Windows Server 2012
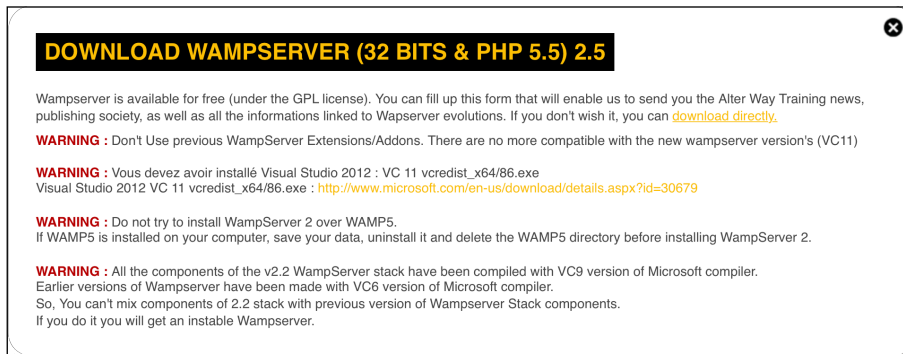
Figure 27: Installing Windows Server 2012

Once you have downloaded these two files, run the install for Visual Studio 2012. After that has completed, run the install for *WampServer*. You should proceed through the following ten screens:
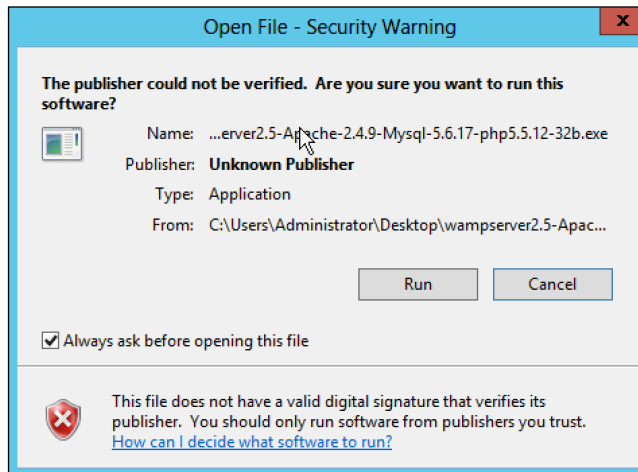
Figure 28: WampServer Installer - Step 1
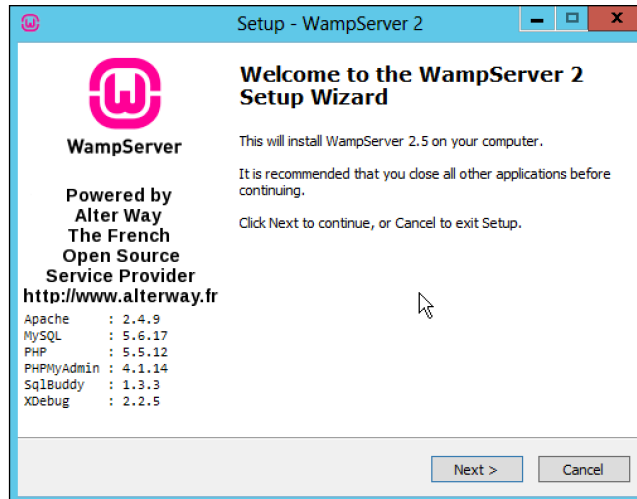
Figure 29: WampServer Installer - Step 2
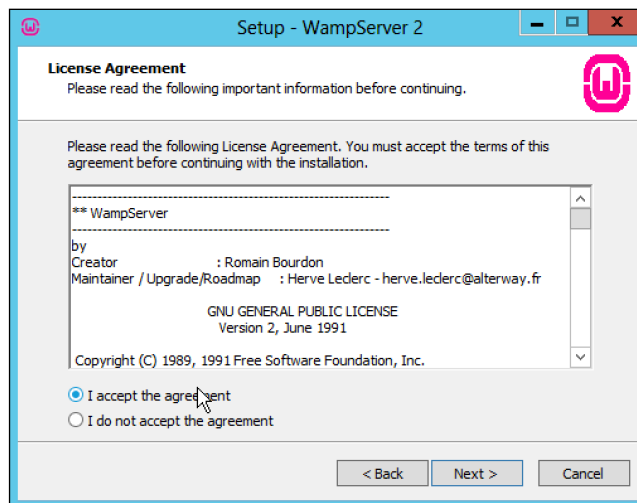
Figure 30: WampServer Installer - Step 3
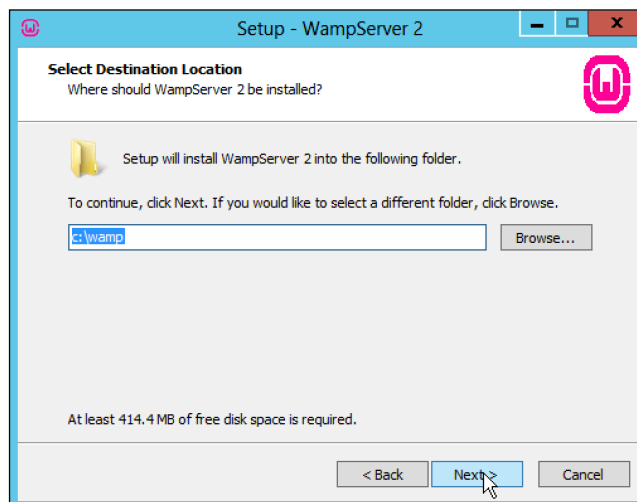
Figure 31: WampServer Installer - Step 4
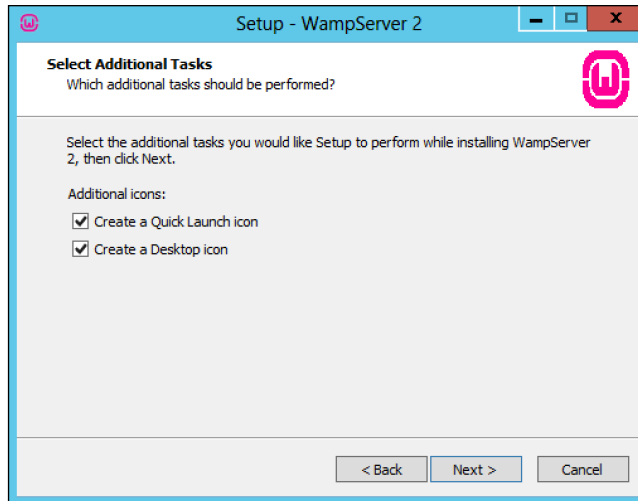
Figure 32: WampServer Installer - Step 5
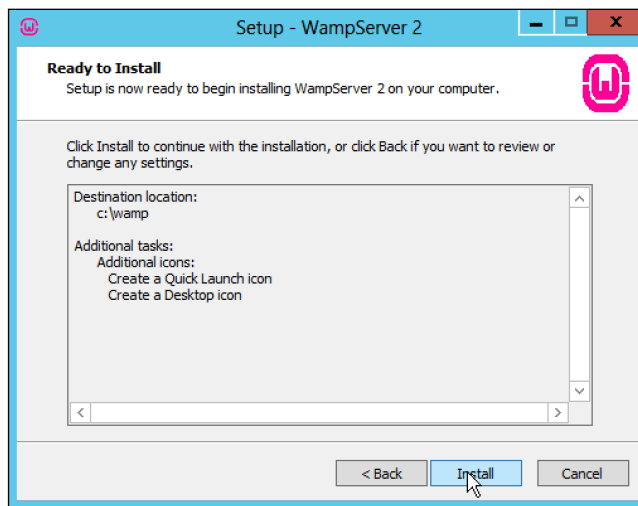
Figure 33: WampServer Installer - Step 6
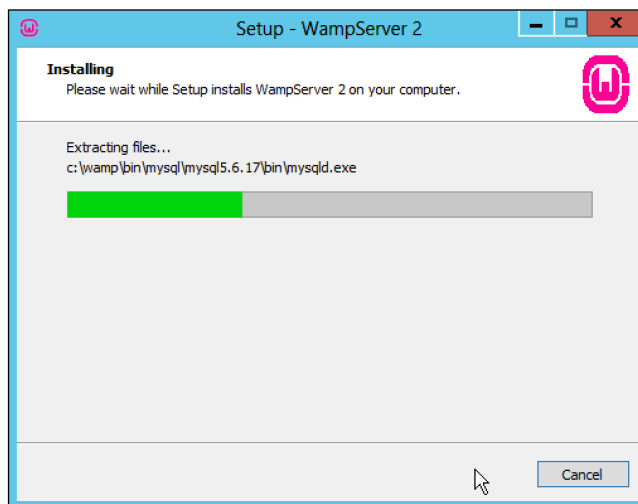
Figure 34: WampServer Installer - Step 7
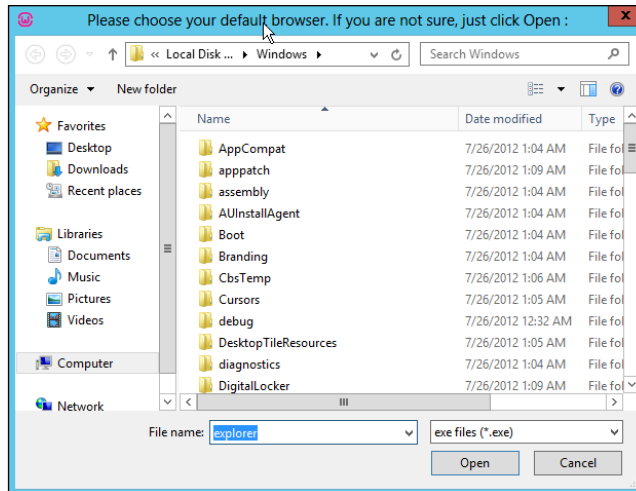
Figure 35: WampServer Installer - Step 8
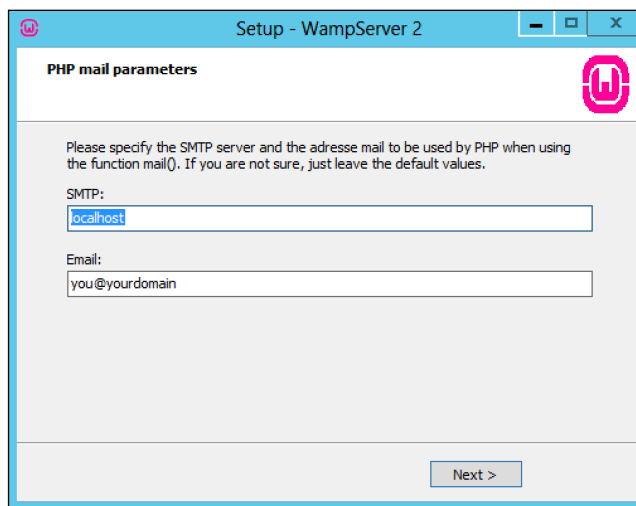
Figure 36: WampServer Installer - Step 9
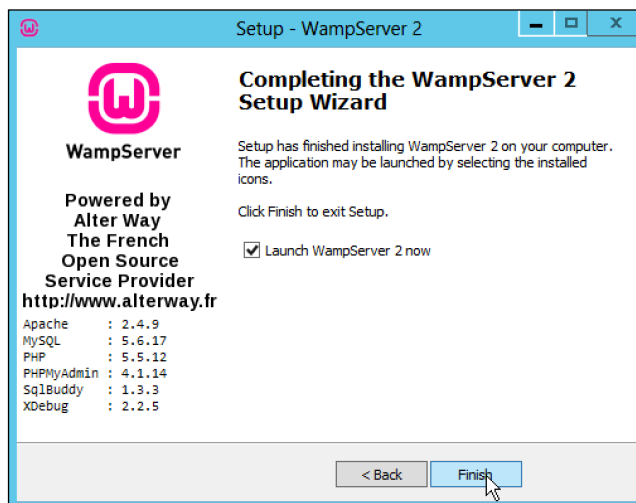
Figure 37: WampServer Installer - Step 10

Once you are running *WampServer*, you will notice a new icon in the icon tray:

Figure 38: WampServer Icon in the Icon Tray

If you click on the *WampServer* icon, you will see:
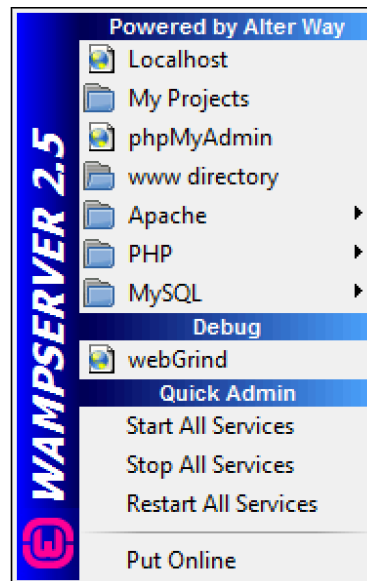
Figure 39: WampServer Menu

Make sure *WampServer* is *Offline*, and then *Stop All Services*. The icon should be Red.

4.3 Configure PHP & MySQL
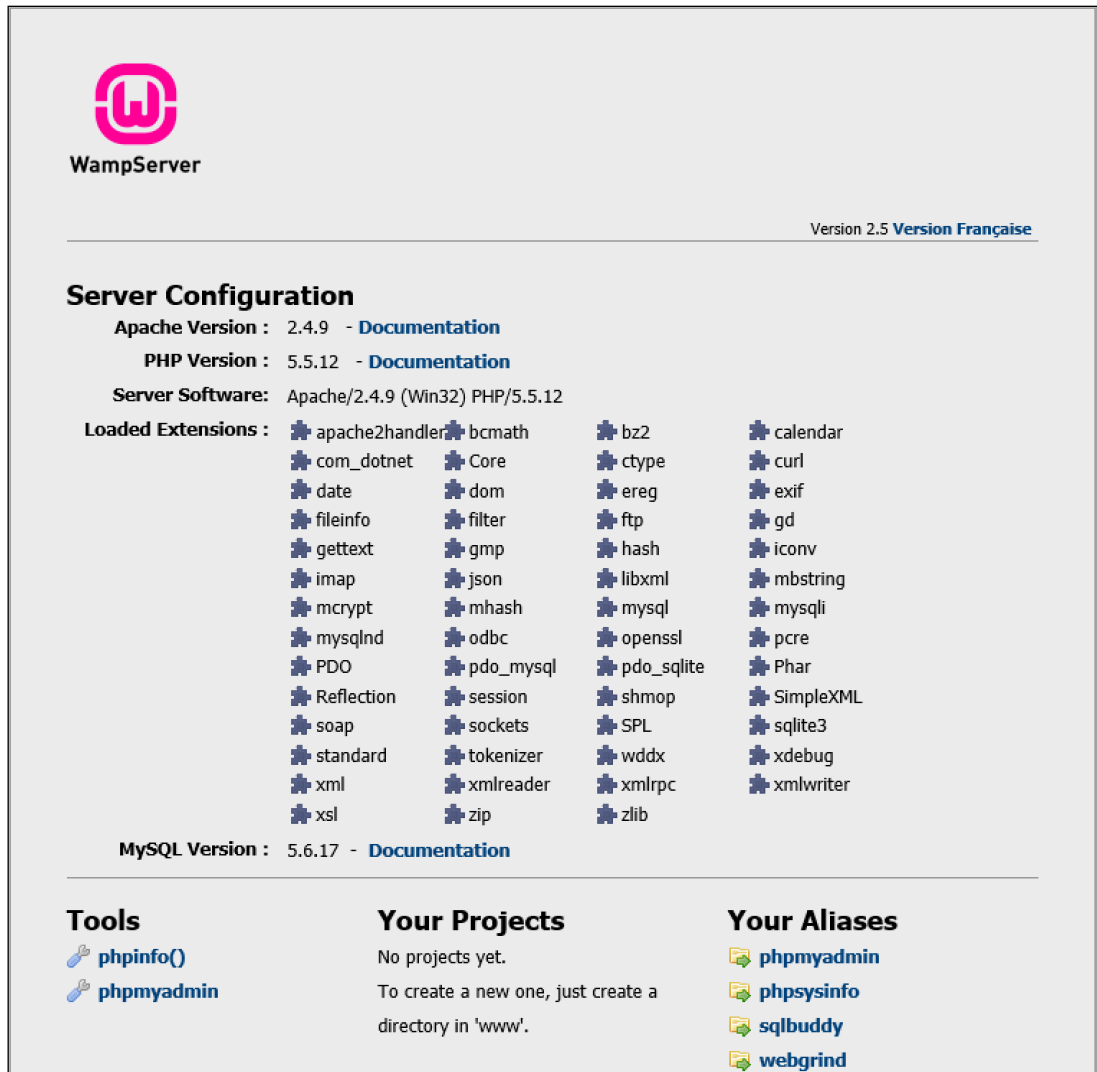
1. Browse to http://pecl.php.net/package/APCu/4.0.6/windows and click on the link 5.5 Thread Safe (TS) x86 to download the file *php_apcu-4.0.6-5.5-ts-vc11-x86.zip.*

2. Unzip this file, and then from the folder produced, take the *php_apcu.dll* file and move it to *C:/wamp/bin/php/php5.5.12/ext/.* This is the folder where all the PHP extension dll files are kept. (You have to do this because the WampServer 2.5 PHP does not include it.)

3. Use the WampServer menu to choose *PHP – php.ini,* This lets you edit the php.ini file. (**Note:** The *php.ini* file will be located in *C:\wamp\bin\apache\apache2.4.9\bin\.* When you install the 1CRM software, the installation screens will also show the location of the *php.ini* file they are using.)

4. Search for *output_buffering*, and set it to *On* (rather than a number).

5. Search for *opcache.enable*, and set it to 1. Also remove the semi colon commenting it out.

6. Search for *max_execution_time*, and set it to *300*. This will allow any PHP instruction up to 300 seconds to complete. Without this, large activities, such as a large import of data, will terminate with an error, as they will exceed the maximum execution time.

7. Also set *max_input_time* on the next line of the file to *300*. This allows a 5 minute window for large files to be uploaded.

8. Search for *memory_limit*, and set it to 200M. This allows 1CRM to consume 200M of memory as it executes. Without this setting, complex actions might run out of memory.

9. Search for *post_max_size*, and set it to *25M* to allow large documents to be uploaded. Then search for *upload_max_filesize*, and set it to *22M*. The effect of these two changes will be to allow a 20M Document file to be uploaded to the system. A third setting (*$upload_maxsize* in *config.php*), is automatically set to exactly 20M by the installation script.

10. Search for *session.gc_maxlifetime*. Note that by default it is set to *1440* seconds, (24 minutes). This controls the length of time an 1CRM session can be idle before the session is terminated. Set it to *1800* for 30 minutes, *3600* for an hour, and so on.

11. Search for *extension=php_xsl.dll*. Don't change that entry, but on the line after it, add *extension=php_apcu.dll* so that you load the apcu extension which acts to accelerate php.

    Note: Make sure that when setting any value in *php.ini*, that the entire line is not preceded by a semi-colon – this indicates the line is merely a comment, and not to be processed.

12. Perform a *File – Save*, and exit the *Notepad* editor.

13. Use the WampServer menu to choose *MySQL – MySQL console*. You will be prompted for the password, which has not been set, so just press *Enter*. Enter the following commands into the MySQL prompt, changing 'psw' to be your choice of a secure password for the MySQL root user.

    ```
    GRANT ALL ON *.* TO 'root'@'localhost' IDENTIFIED BY 'psw' WITH GRANT
    OPTION;

    quit
    ```

4.4 Test Apache and PHP

1. So far, WampServer has been stopped and offline. Now use the WampServer menu system and *Start All Services*. If necessary, also use the WampServer menu to put the server online.

2. Choose *Localhost* from the WampServer menu system. It should open a browser window with a splash page like the one below. If so, Apache and PHP are both running correctly!

Figure 40: WampServer Welcome Screen

4.5 Install 1CRM

1. Put the 1CRM installation Zip file you received from us on the desktop within your session on your server. Right click on it, and select *Extract All*. This will create a folder on the desktop that contains all the 1CRM files you need to install.

2. Rename that folder to *www*.

3. Download these files from our website, and drop then into the */docs* folder within the *www* folder just created:

    •   User Guide

    •   Implementation Guide

    Rename them as simply *UserGuide.pdf*, and *InstallGuide.pdf*. These are the PDFs of the documentation for 1CRM. The Implementation Guide PDF (*InstallGuide.pdf*) is accessed via a link available in the installation wizard (coming up soon). The User Guide PDF (*UserGuide.pdf*) is linked from the online help system available to all users.

4. Using *File Explorer*, navigate to *C:/wamp*. Rename the *www* folder inside it to *www-old*. Now drag and drop the *www* folder from your desktop into *C;/wamp*. The result should resemble the Figure below.
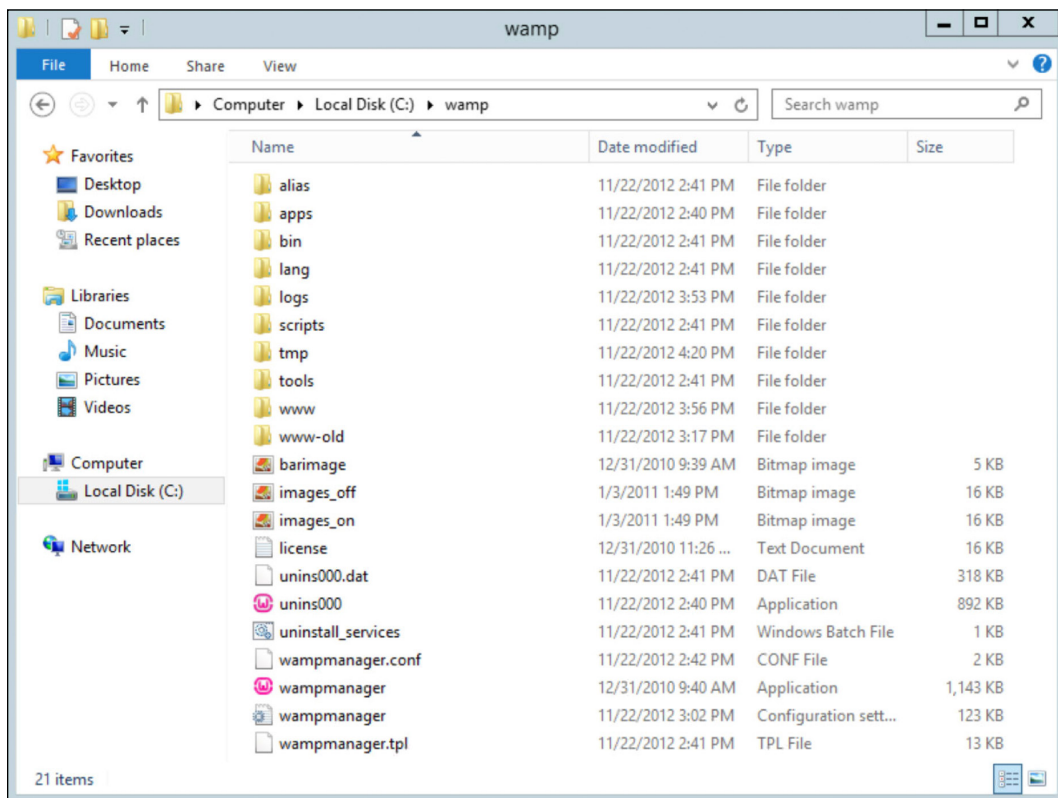
Figure 41: Windows File Explorer

5. Choose *Localhost* from the WampServer menu system. You should see the 1CRM Installer Welcome screen, as shown in the figure below. You're getting close to the finish line!
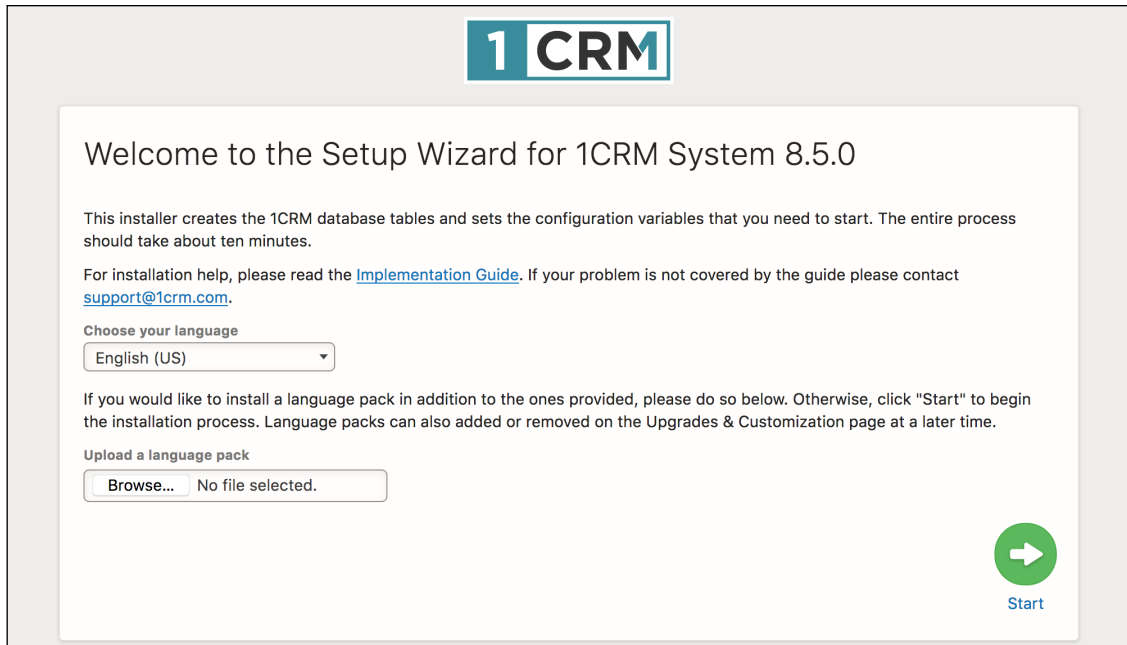
Figure 42: Installer Welcome Screen

5. Just click on the *Start* button. The 1CRM license acceptance screen is the next one you will see:
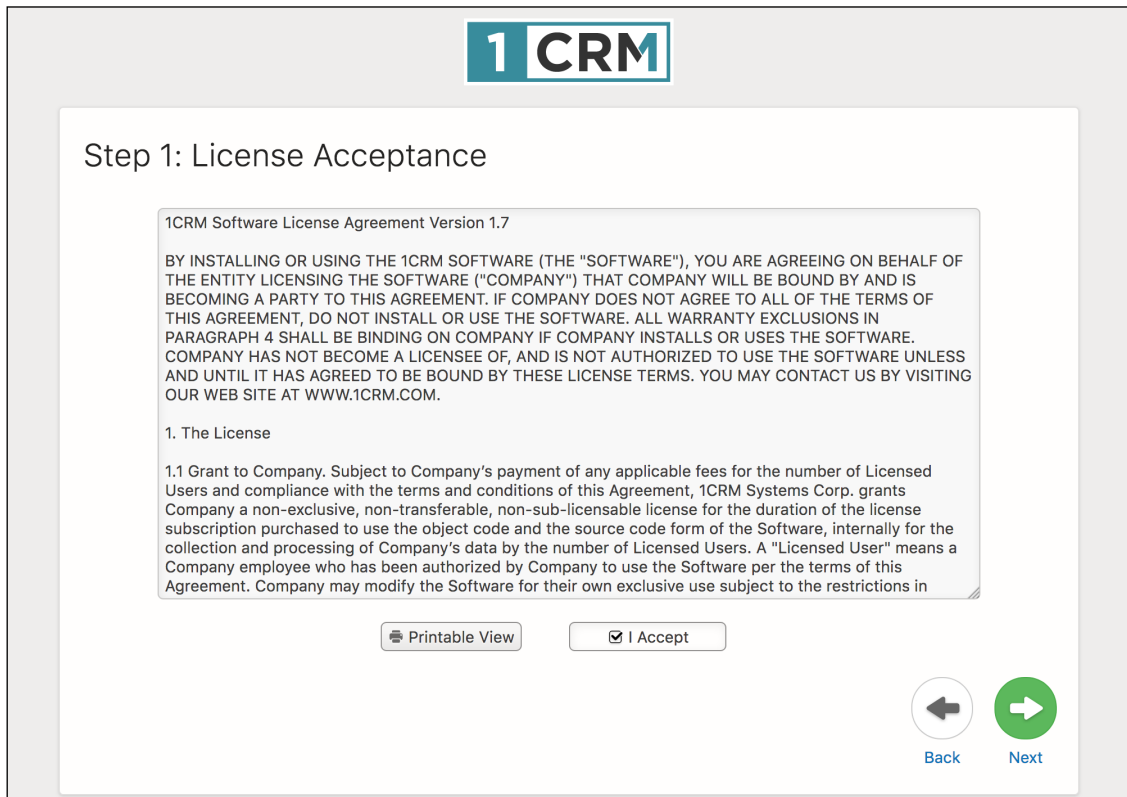
Figure 43: Install Step 1 – License Acceptance

6. Install Step 1: License Acceptance - Click on the *I Accept* checkbox, and then on the *Next* button.

7. Install Step 2: System Check - Now you see the 1CRM system check screen. The 1CRM installer checks several aspects of the installation environment, and reports their status to you on this screen. You will see a series of green (and perhaps a few red) status messages down the right hand side of the screen. They need to be all green for the installation to proceed.

Figure 44: Install Step 2 - System Check

Now click on the *Next* button to proceed to the next step of the 1CRM installation process.

If they are not all green you should act on any diagnostic details provided beside the highlighted issue, and go back to your server setup to see where things went wrong.

8. Install Step 3: Database Configuration (see the figure below) - Set *Host Name* to *localhost*, *Database Name* to *onecrm*, *Database User Name* to *onecrm*, and *Database Password* to whatever you like (*crm77dbpsw* is a suggestion).
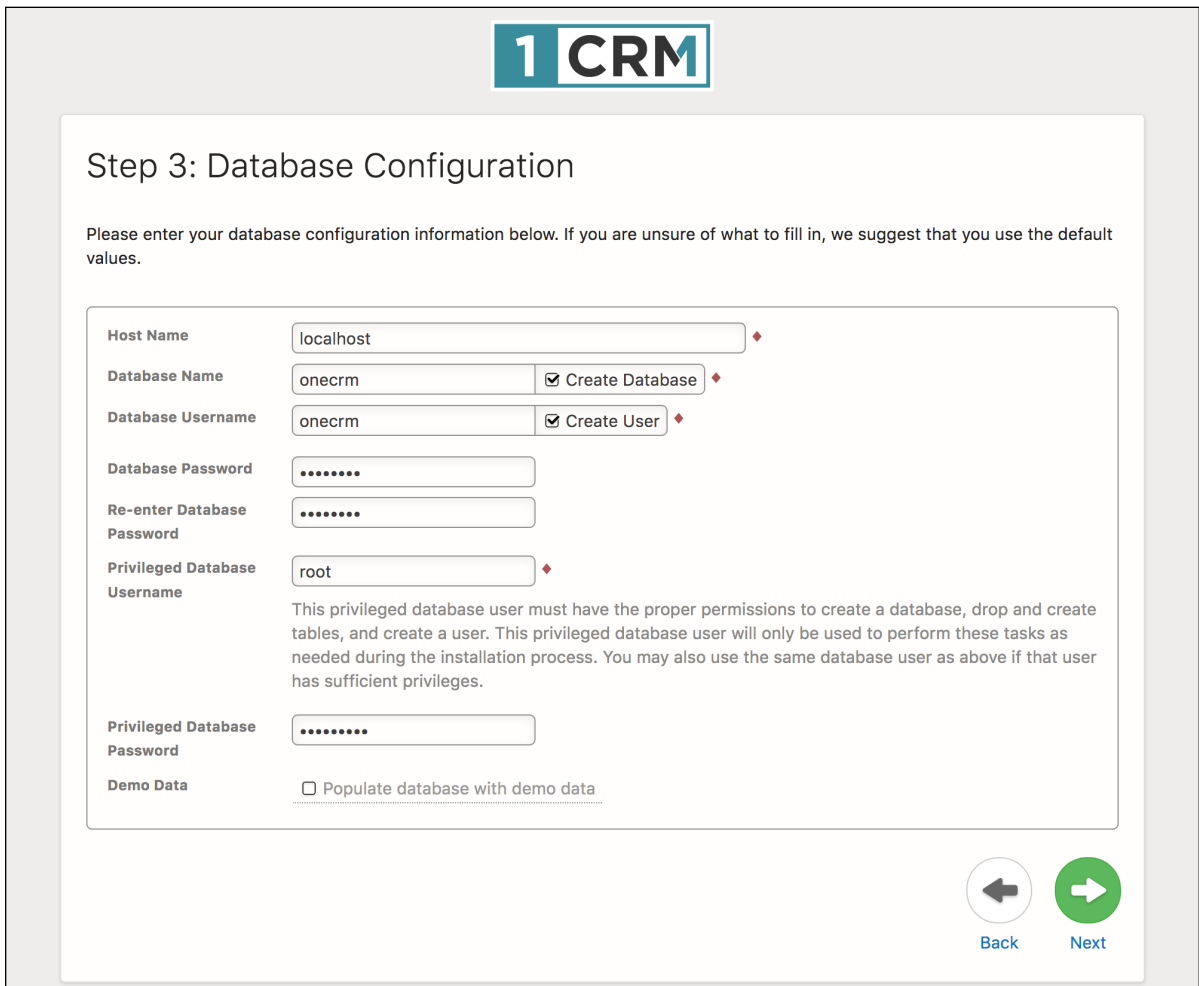
    Click on *Create Database* and *Create User* if this is a new installation.

    Click on *Drop & Recreate Existing Tables* only if this is a re-installation.

    Click on *Populate database with Demo Data* if you would like some test data created for you.

    Set the *Privileged Database User Name* to *root*, and the *Privileged Database User Password* to the root password for MySQL (as defined in the section *Configure PHP & MySQL*).

    Then click on the *Next* button.

Figure 45: Install Step 3 – Database Configuration

9. Install Step 4: Site Configuration – As shown in the figure above, enter the new password you wish for the 1CRM Admin user, and confirm it. You can set the URL as you like - but *make sure it is an absolute URL not a relative one, and that is is a URL that is usable externally, not a LAN IP address or similar*. This is a critical point - if you do not do this correctly, you will have many severe issues down the line with your installation.

    Note: Make certain the URL of the 1CRM Instance field is set to an absolute URL that is addressable externally! Also make sure that the URL can be resolved locally on the server running 1CRM. This is of critical importance.

    Then click on the *Next* button to proceed to Install Step 5.

Figure 46: Install Step 4 – Site Configuration

Note: The checkbox *Save Installer Configuration* is used at Step 4 of the installation process to tell the installer that you want to make a 1CRM installation template from this installation session. Later on, at Step 7 (if installing without demo data) or Step 9 (with demo data) you will see a link to download the *installer_config.zip* file.

10. Install Step 5: Locale Settings – As shown in the figure below, you can upload language packs at this time. You can also set your installation's default localization values for date, time, currency and character sets, etc.. Once you have done that, then click on the *Next* button to proceed to Install Step 6.

Note: Selecting your default currency on this screen is a critical item. You cannot change it after the system is installed and running. This is your only chance to set a default currency other than US$.

Figure 47: Install Step 5 - Locale Settings

Figure 48: Install Step 6 - Confirm Settings

11. Install Step 6: Confirm Settings - This screen (see figure above) simply shows you all the settings you have provided for the 1CRM installation. If they look correct, click on the *Next* button to proceed with the actual 1CRM installation.

12. Install Step 7: Perform Setup - You should see a screen like the first figure below. Note it will take a minute or two to complete – so be patient! The progress bar goes from left to right for each step of the process. When a step is complete, it gets a check mark, and the next step begins. By the time the setup is complete (as shown in the second figure below) your 1CRM installation is ready to go - unless you chose to have demo data installed. If demo data is being installed, Install Steps 8 and 9 will be performed, as shown below. If not, just skip down to paragraph 15 below, which begins with "Congratulations - you're done.".
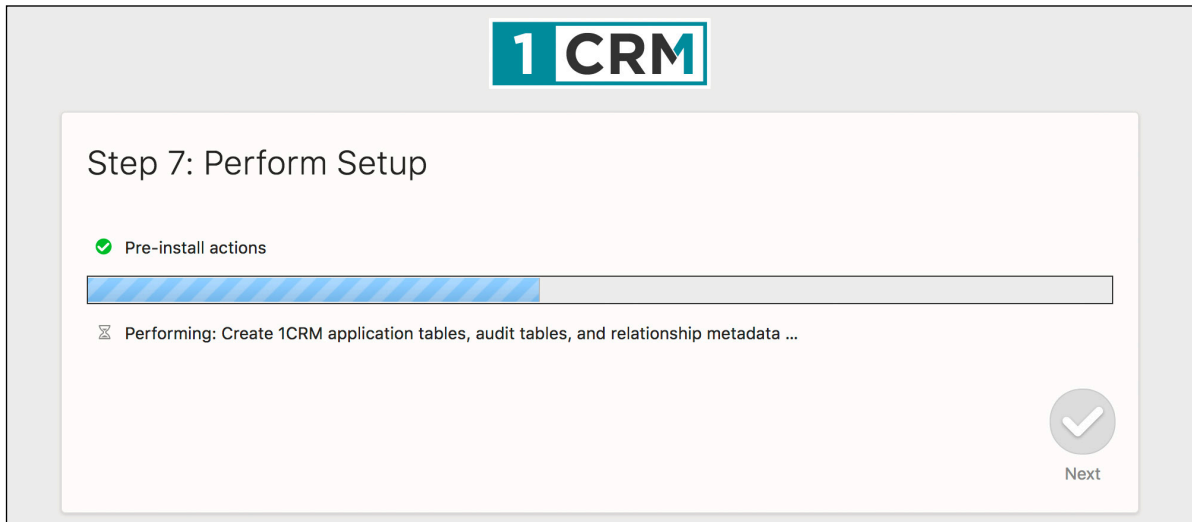
Figure 49: Install Step 7 – Perform Setup (In Progress)
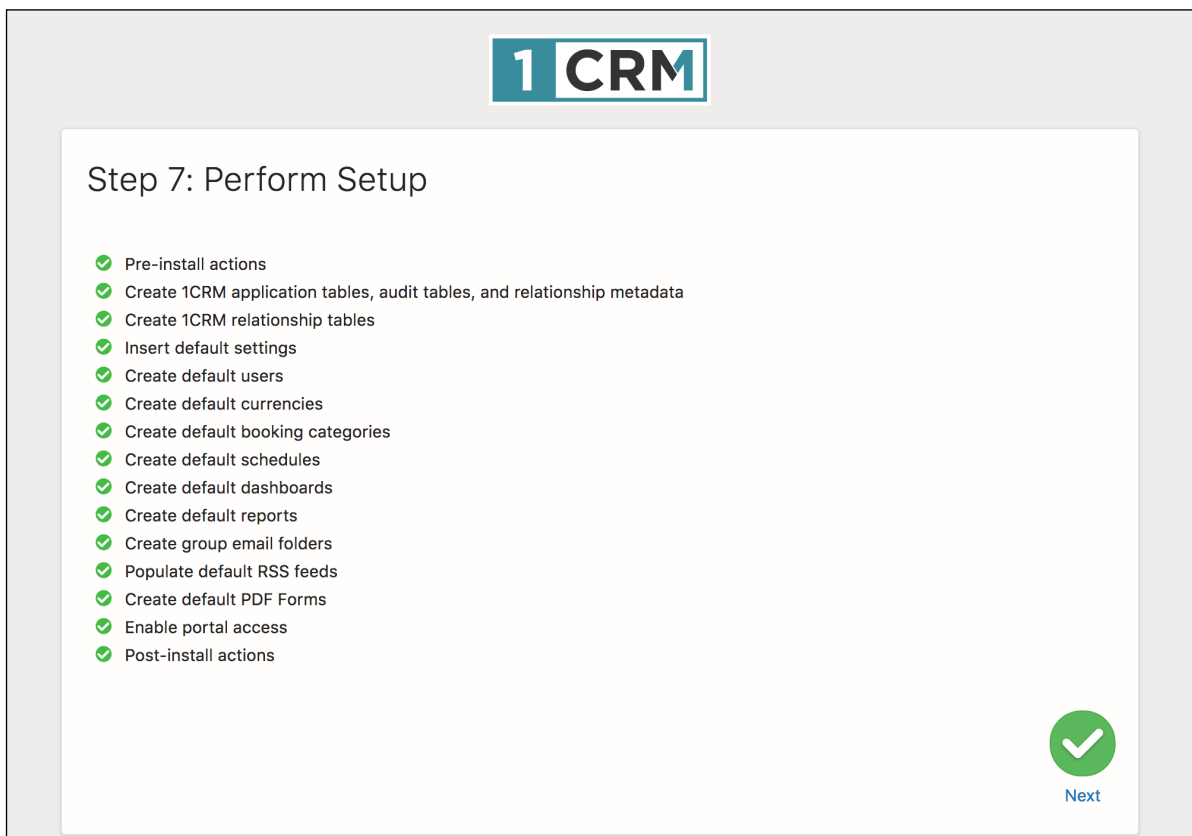
Figure 50: Install Step 7 – Perform Setup (Complete)

13. Install Step 8: Demo Data Configuration - On this screen you select what demo data you would like to have installed. At the top of the screen is a convenient checkbox to select or de-select all of the items. Notice that some items will automatically select other items, as there are dependencies between various items of data.
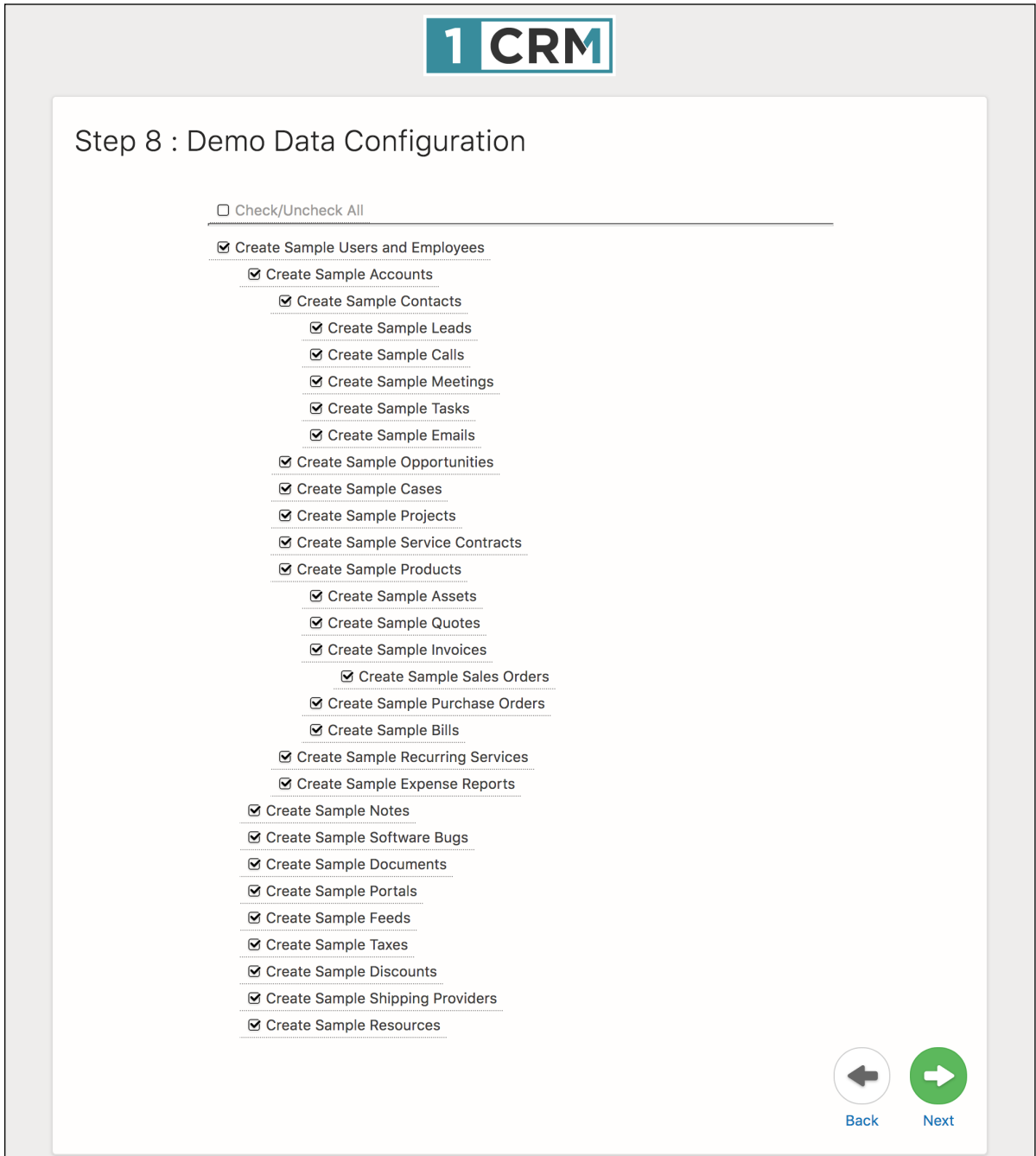
Figure 51: Install Step 8 – Demo Data Configuration

14. Install Step 9: Demo Data Installation - This screen is a bit like Install Step 7, in that a series of progress indicator bars are generated, each leaving behind it a step of the demo data installation with a check mark once it is completed. Eventually your screen should resemble the one below, once all the demo data selected has been added to your database.
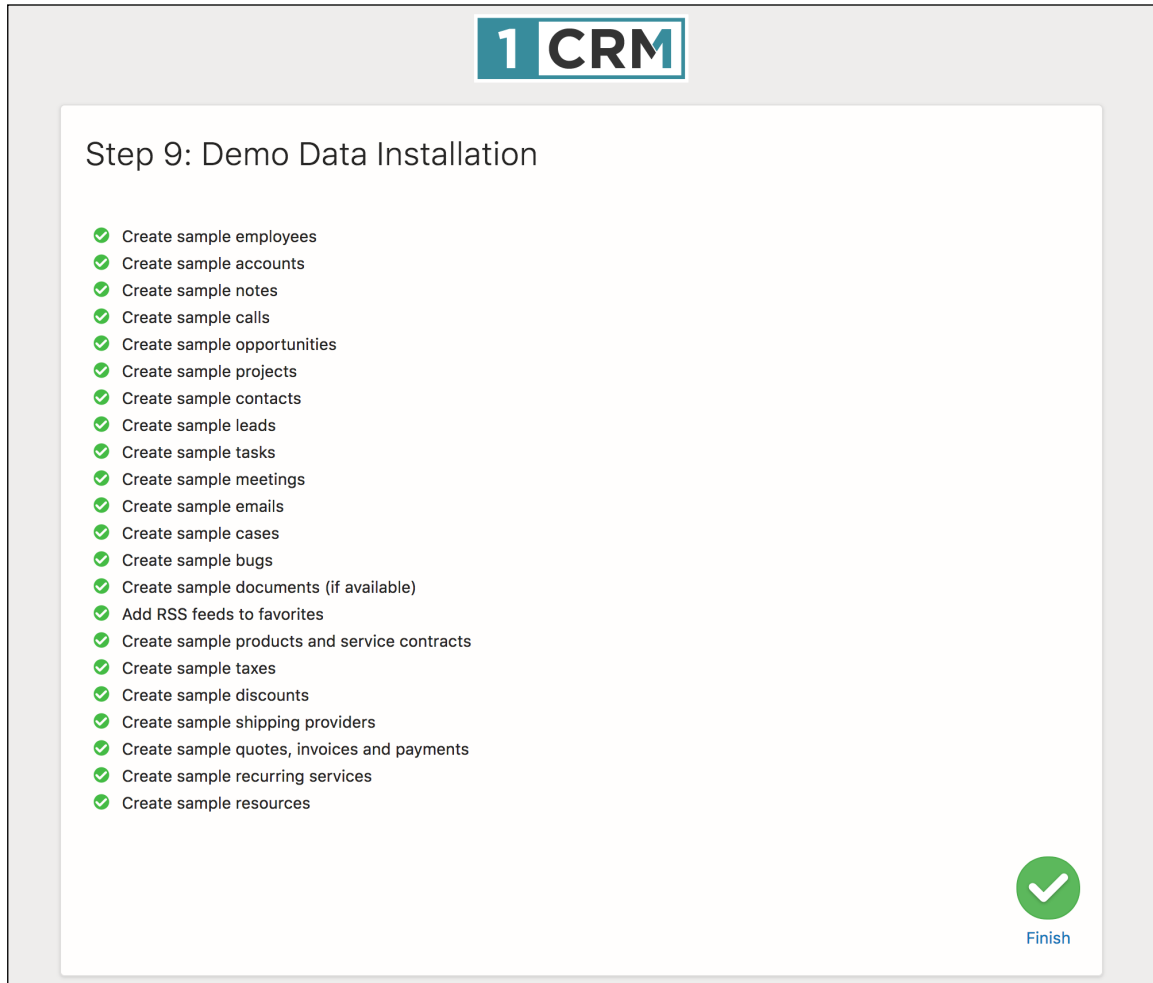
Figure 52: Install Step 9 – Demo Data Installation

Note: The checkbox *Save Installer Configuration* is used at Step 4 of the installation process to tell the installer that you want to make a 1CRM installation template from this installation session. Later on, at Step 7 (if installing without demo data) or Step 9 (with demo data) you will see a link to download the *installer_config.zip* file (see Figure above). Once you have downloaded the file, it may be used as part of the one-step installer process - typically by system admins making trial sites or sandboxes for testing.

To perform a one-step install, browse to `http://yoursite.com/install.php?auto`. A screen similar to the *Step 3: Database Configuration* screen above is displayed. It contains a set of options that are unique to each 1CRM instance (db configuration, mainly). The *installer_config.zip* file can be uploaded from this screen. If it is uploaded, any options chosen when creating the config file (localization, demo data, language packs etc) will apply to this new installation. (The Admin user password is always set to *admin*.) After clicking *Next*, the installation begins without any further input.

The installer can be launched via command line as well. Enter `php install.php --help` to see the list of command line options. We recommend you `su` to the web server user before running the installer. The *installer_config.zip* file can also be used with the command line installer.

15. Congratulations – you're done. Just click on the *Finish* button to login to 1CRM for the first time.
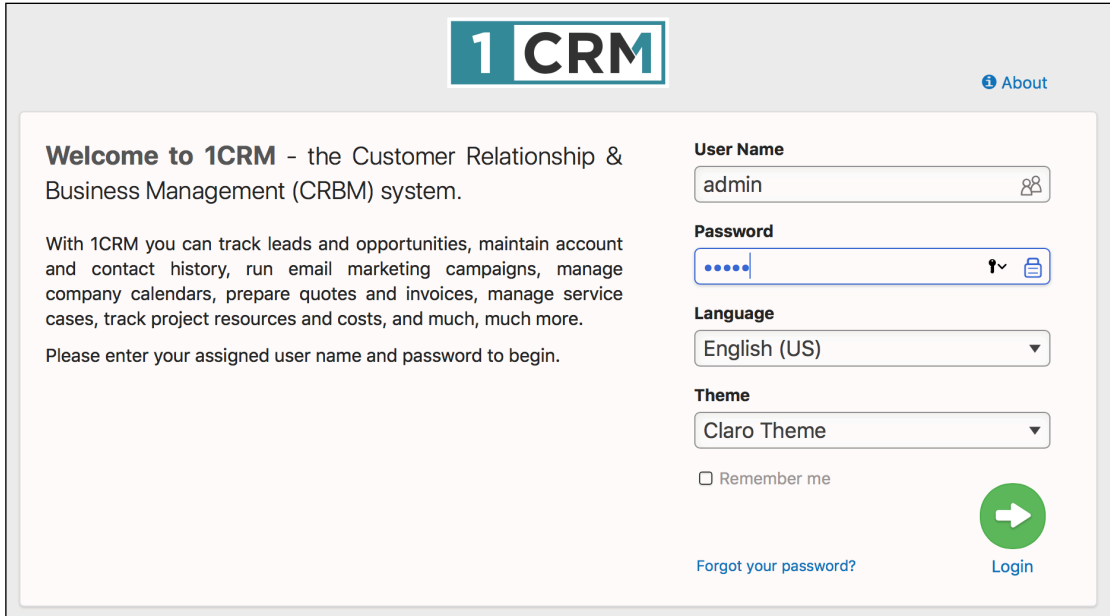
Figure 53: Install Complete, Ready to Login

16. Log in, using the user name *admin*, and the admin password you provided in Install Step 4 above.

17. The first time you login, the system will take you automatically to *License & Support* on the Admin menu screen.
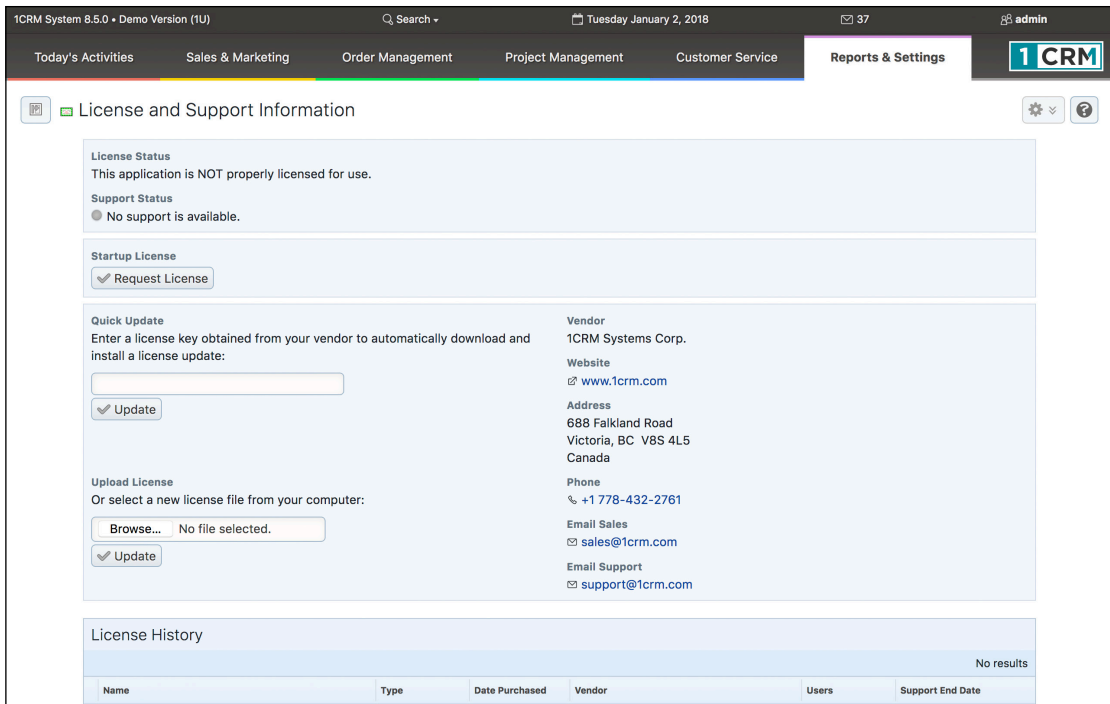
Figure 54: Applying the License Key

18. Enter your license key in the *Quick Update* box, and click on the *Update* button. You will see a screen like the one below, confirming that the license key has been applied successfully. If you are installing the *1CRM Startup Edition*, instead of entering a license key just click on the *Request License* button, enter your license and registration information into the popup form that appears, and then click on the *Send Request* button.

(*Note:* Your server must be connected to the Internet as you perform this step.)
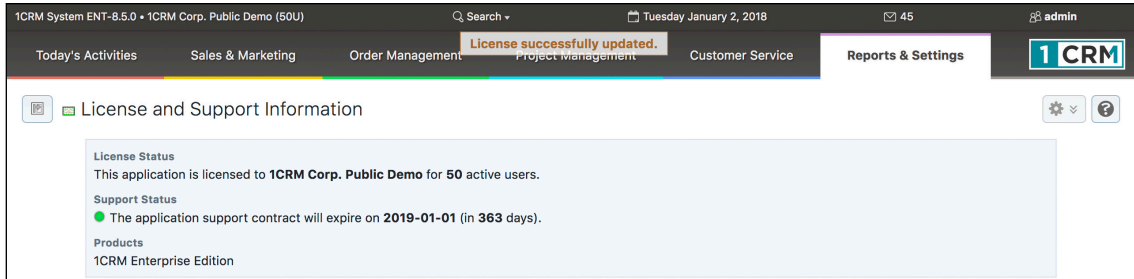
Figure 55: License Key Applied Successfully

19. Now log out of 1CRM and then log back in. Navigate back to the License & Support screen, and you should see your license information displayed like this:
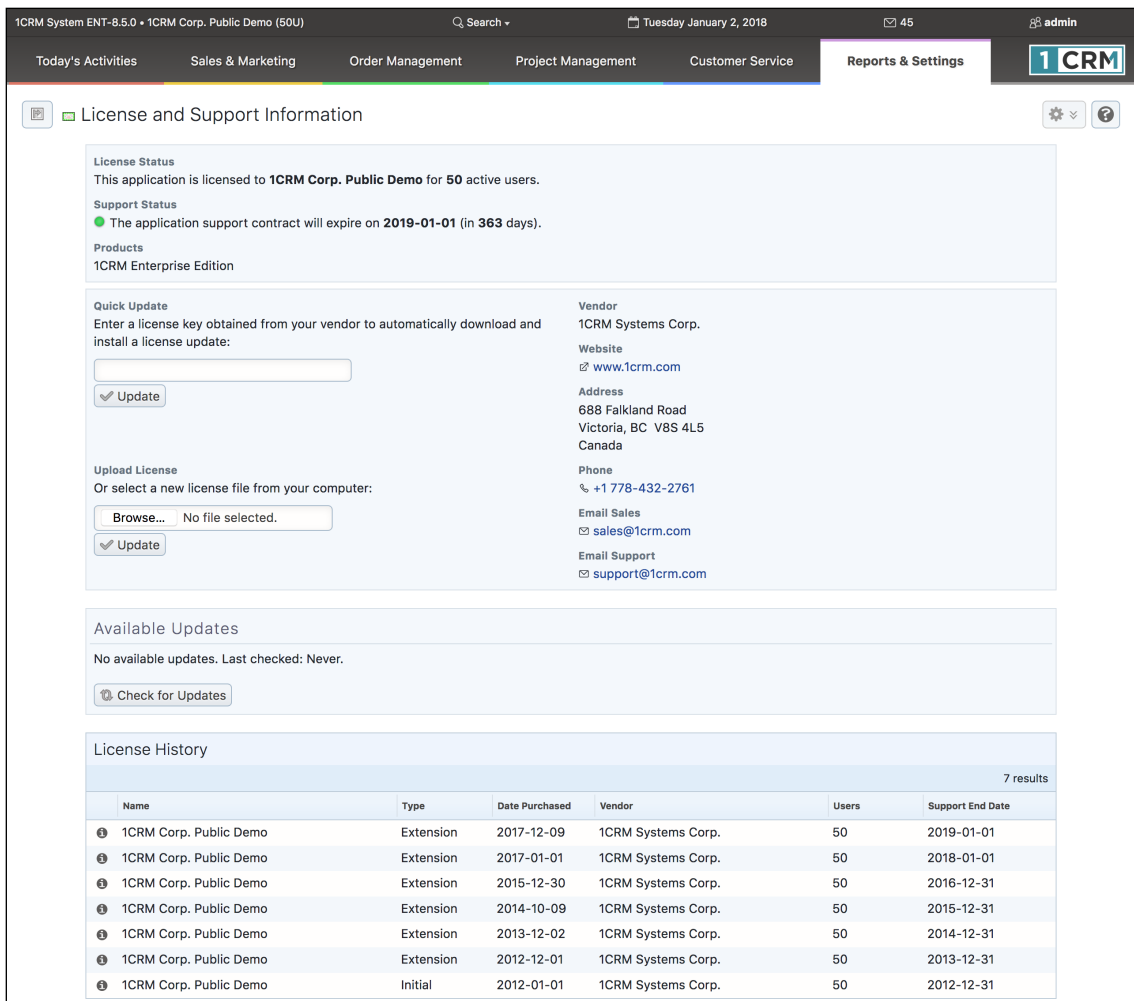
Figure 56: License & Support Screen With License Details

4.6 Configure Installation Settings

➲ Email Server Integration

1. Ensure that your 1CRM installation is configured in the Admin area to use SMTP by going to Admin – Email Settings and selecting SMTP from the *Mail Transfer Agent* dropdown.

2. If your SMTP server requires authentication check *Use SMTP Authentication* and enter the correct *SMTP Username* and *SMTP Password.*

3. Add the scheduler to your list of scheduled tasks in *Admin - Scheduler*, as per the instructions in the *Scheduler Setup* section later in this guide. This is required to enable incoming email, as well as to enable all other scheduled tasks within 1CRM.

Congratulations – you have completed the installation of the 1CRM System. We hope you enjoy using it, and that it makes a significant contribution to the effective management of your organization.

4.7 Windows Server Software Stack

Stack Components	Versions	Comments
Operating System		
	Windows Server 2012	*With GUI option, WampServer 2.5 x86*
Web Server		
	Apache 2.4.9	*Supports any version that runs PHP*
Database		
	MySQL 5.6.17	*MyISAM Tables required*
PHP		
	5.5.12	*Zend Server is supported*
Browser		
	Microsoft Edge 38 or better	
	Firefox 12 or better	
	Chrome 12 or better	
	Safari 5 or better	

Figure 57: 1CRM Windows Software Components & Compatibility

➲ Reference Platform for Windows Server

Windows Server 2012 Software Components

- PHP version 5.5.12

- MySQL 5.6.17

- Apache 2.4.9

- Microsoft Windows Server 2012, with GUI Option and WampServer 2.5 x86

5.0 Installing 1CRM on macOS High Sierra

5.1 macOS Server Reference Platform

Before we start, a word of caution. As ever, User and Implementation guides are written, but not always read! We encourage you to make sure that this chapter on installing your new software on macOS is something that you do read – if only because *if you do not follow the instructions here, we cannot effectively support your installation*.

Particularly critical are the php.ini configuration instructions in section 5.6, and the chart of compatible software revisions at the end of this chapter. This chapter, like the other installation chapters, is written to document how to install 1CRM on a specific reference platform.

If you ever have a need to call for support, our technicians will make sure that your server environment complies with the one documented here (or one of the other reference platforms), before any incident can proceed further.

If you have chosen to install 1CRM on a macOS version other than High Sierra (macOS 10.13.0 or later), that's fine, but if you call for support and your environment or its configuration (rather than the 1CRM software itself) is found to be the cause of your issue, the support incident will unfortunately be billable.

Our support staff can't be expert at all variations of every environment, and neither can we document how to install 1CRM on every conceivable environment that might support it. So we chose a few that we felt would be popular ones.

5.2 Getting Started

To install 1CRM on macOS, we recommend, and have documented here, the use of macOS 10.13.6 High Sierra. You will need the 1CRM installation Zip file. You will also need a system with at least a 2 GHz processor, 4 GB of memory, and at least 10 GB of available hard disk space. As ever, more is better. We used High Sierra 10.13.6 on a MacBook Pro with 16 GB of memory, a 2.7 GHz Quad Core i7, and a 1 TB SSD drive.

We will use the Apache version 2.4.33 which comes preinstalled with macOS High Sierra, and we will install MySQL 5.7.22, and PHP 7.1.19 in the following sections.

5.3 Install & Configure MySQL

Browse to the URL http://dev.mysql.com/downloads/mysql/, and scroll down to see the display in the Figure below. Select the macOS operating system then click on *Looking for previous GA versions?* towards the top right. You should now see the 5.7.22 release info. Choose the file:

```
macOS 10.13 (x86, 64-bit), DMG Archive
(mysql-5.7.22-macos10.13-x86_64.dmg)
```
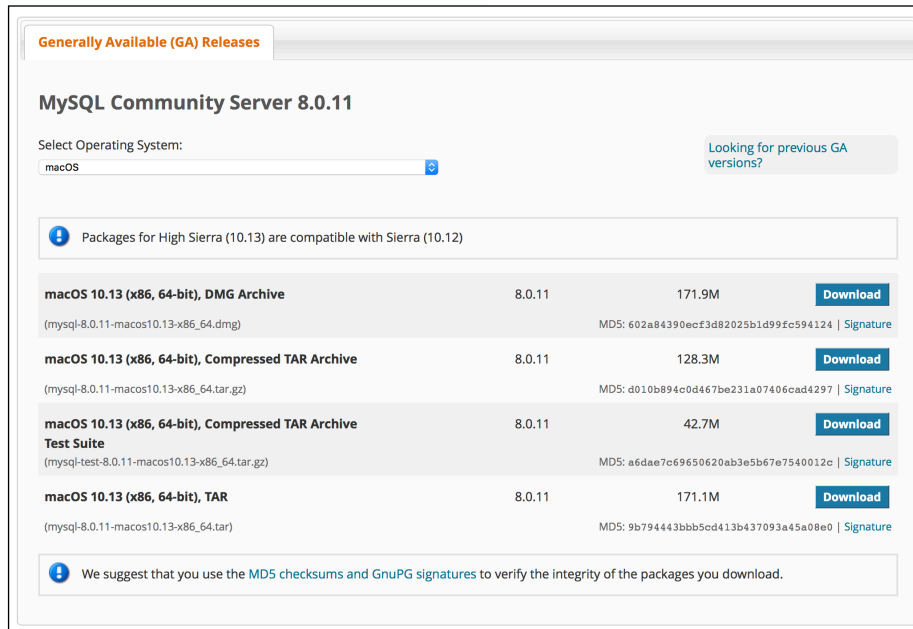

Figure 58: Choosing the Correct MySQL Version

Download the DMG (Drive Image) file and then open it. It is about 370 MB. (Look for the link *No thanks, just start my download* as you download it, to avoid providing personal information.) Once you unzip the downloaded file, you should see contents as shown in the Figure below:
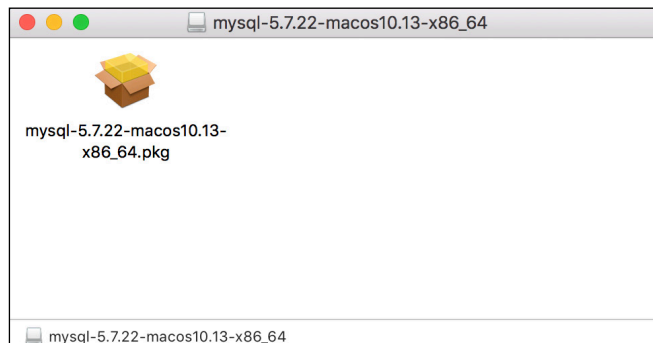
Figure 59: The MySQL DMG File Contents

This will be used to install MySQL 5.7.22 (***Note:*** Latest tested version as of July 2018). First, double click on the file shown. Follow the sequence of screens as shown in the figures below, to install MySQL:
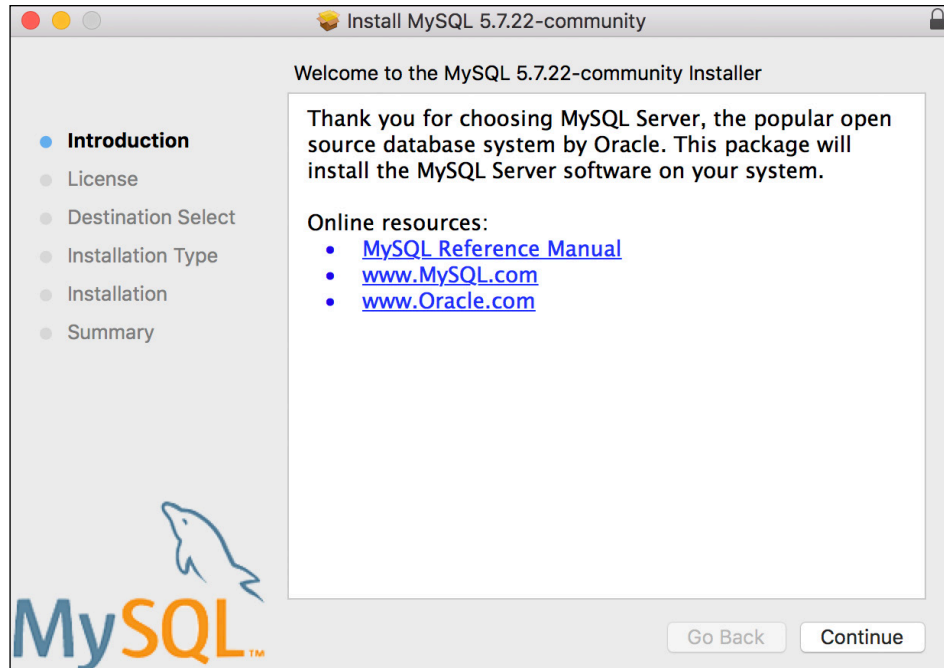
Figure 60: Installing MySQL - Click on *Continue*
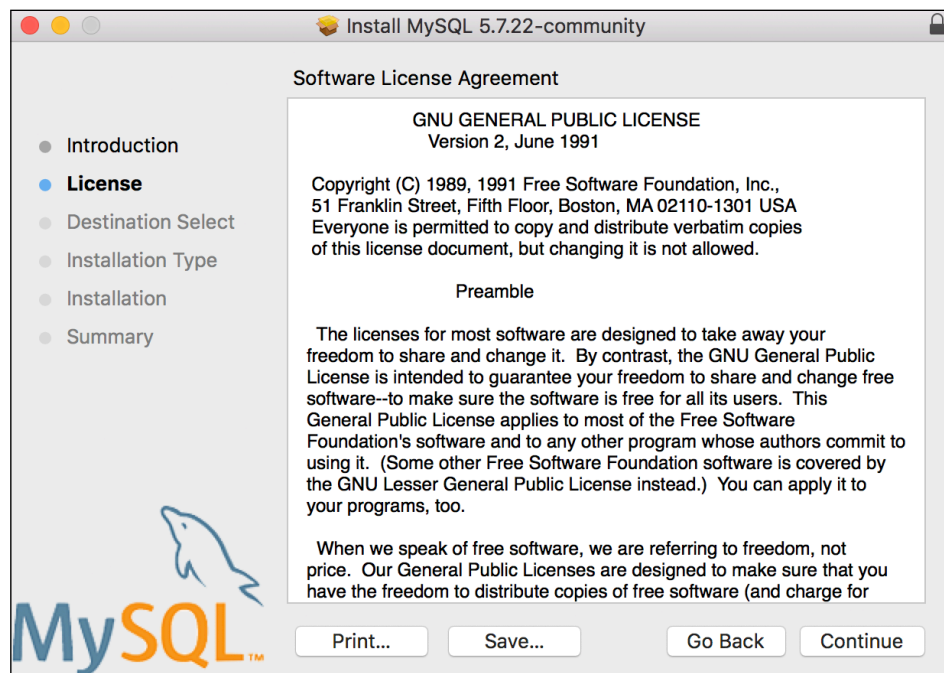
Figure 61: Installing MySQL - License - Click on *Continue*

On the screen entitled: *Select a Destination* choose the option *Install for all users of this computer*, and then click on *Continue*.
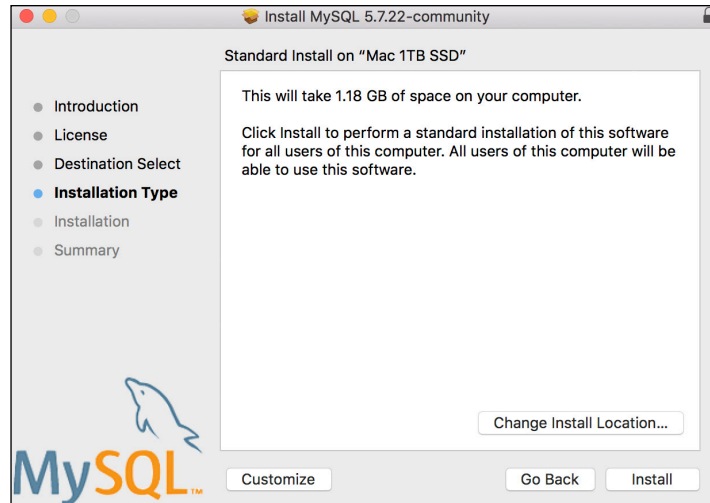
Figure 62: Installing MySQL - Standard Installation - Click on *Install*

During the next step, take care to note the MySQL root password which is generated and displayed.
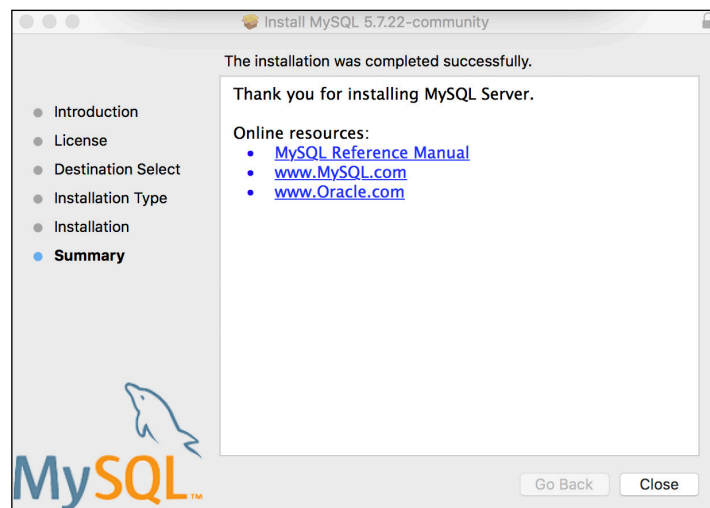
Figure 63: Installing MySQL - Installation Complete - Click on *Close*

Finally, go to System Preferences, and click on the MySQL icon to see the MySQL System Preferences panel.

Figure 64: MySQL System Preferences Panel Installed

Be sure to check the option to *Automatically Start MySQL Server on Startup*. And then click the button to start the server now, so your preferences panel resembles the Figure above.

Now open up *Terminal* (found in the *Utilities* folder within *Applications)* and issue this command to use the *vi* editor:

```
vi .bash_profile
```

Use the 'i' key to go into insert mode, then enter this line:

```
export PATH=/usr/local/php5/bin:/usr/local/mysql/bin:$PATH
```

Hit the *Escape* key to exit insert mode and type *:wq* and hit *Enter* to write and quit the editor.

Close the *Terminal* application fully, then open a new *Terminal* window. You can then enter this command to go to the MySQL console prompt:

```
mysql -u root -p     (you will then be prompted to enter the password you noted after the
                      step shown in Figure 62)
```

Enter the following commands into the MySQL prompt, changing 'psw' to be your choice of a secure password for the MySQL root user.

```
ALTER USER 'root'@'localhost' IDENTIFIED BY 'psw';
GRANT ALL ON *.* TO 'root'@'localhost' WITH GRANT OPTION;
quit
```

5.4 Install PHP

Enter this command in a *Terminal* window:

```
curl -s http://php-osx.liip.ch/install.sh | bash -s 7.1
```

This currently installs PHP 7.1.19 on your Mac, at `/usr/local/php5`.

5.5 Test Apache and PHP

1. Open up *Terminal* and issue this command to use the *vi* editor:

   ```
   sudo vi /Library/WebServer/Documents/info.php
   ```

2. Use the 'i' key to go into insert mode, then enter this line

   ```
   <?php phpinfo(); ?>
   ```

   Hit the *Escape* key to exit insert mode and type *:wq* and hit *Enter* to write and quit the editor.

- Now use Safari to browse to the URL *localhost/info.php*. You should see the results of *phpinfo()* displayed on the screen, providing a lot of configuration information about your PHP installation. This confirms that both Apache and PHP are running, and that they are getting along with each other. If you examine the *phpinfo()* display in detail, you should see the following software is installed and running:

- PHP 7.1.19

- Apache 2.4.33

- MySQL 5.7.22

Now that you have PHP active, Apache configured properly, and MySQL running and configured, you are almost ready to see if all of this is working properly. But first we need to configure some settings used by PHP, in the php.ini file.

5.6 Configure php.ini

We want to edit this file and save it, but we can't, due to file and folder permissions. So drag and drop a copy of the php.ini file to your desktop, edit it there with *TextEdit* or preferably *TextWrangler*, and then drag it back to its proper folder. You will need to provide the admin password to drop it and over-write the original file.
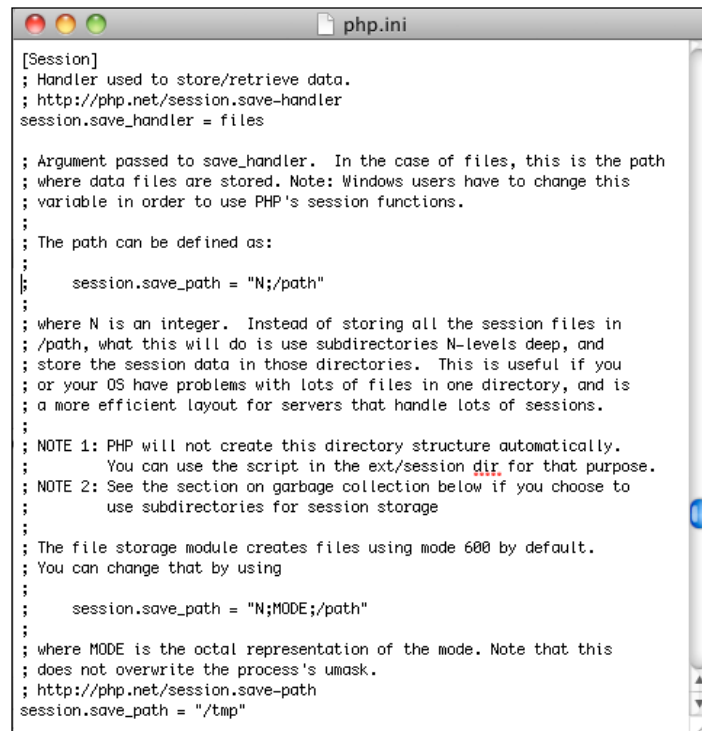
The file is the *php.ini* file, and it is in the **/usr/local/php5/lib/** directory. You can use the *Finder* to bring up the folder, using the *Go | Go to Folder…* menu option. Then drag a copy of the file to your desktop and edit it. Remember to use it to replace the real file after you finish all the edits below.

Set the Session Save Path

First you need to search for the line containing the text:

```
session.save_path = "/tmp"
```

Simply uncomment this line by removing the semi-colon at the start.


```
[Session]
; Handler used to store/retrieve data.
; http://php.net/session.save-handler
session.save_handler = files

; Argument passed to save_handler.  In the case of files, this is the path
; where data files are stored. Note: Windows users have to change this
; variable in order to use PHP's session functions.
;
; The path can be defined as:
;
;     session.save_path = "N;/path"
;
; where N is an integer.  Instead of storing all the session files in
; /path, what this will do is use subdirectories N-levels deep, and
; store the session data in those directories.  This is useful if you
; or your OS have problems with lots of files in one directory, and is
; a more efficient layout for servers that handle lots of sessions.
;
; NOTE 1: PHP will not create this directory structure automatically.
;         You can use the script in the ext/session dir for that purpose.
; NOTE 2: See the section on garbage collection below if you choose to
;         use subdirectories for session storage
;
; The file storage module creates files using mode 600 by default.
; You can change that by using
;
;     session.save_path = "N;MODE;/path"
;
; where MODE is the octal representation of the mode. Note that this
; does not overwrite the process's umask.
; http://php.net/session.save-path
session.save_path = "/tmp"
```

Figure 65: Editing *php.ini* to Set the Session Save Path

Set Timeout Limits

1. Search for *max_execution_time*, and set it to *300*. This will allow any PHP instruction up to 300 seconds to complete. Without this, large activities, such as a large import of data, will terminate with an error, as they will exceed the maximum execution time.

2. Also set *max_input_time* in the next section of the file to *300*. This allows a 5 minute window for large files to be uploaded.

Set opcache.enable

Change the default value for opcache.enable:

Change this: `;opcache.enable=1`   `(commented out)`

To this: `opcache.enable=1`

Set memory_limit

1. Search for *memory_limit*, and set it to 200M. This will allow 1CRM to consume up to 200M of memory as it executes. Without this setting, complex actions may run out of memory.

Set error_reporting, display_errors

1. Search for *error_reporting*, and set it to the appropriate production value of:
E_ALL & ~E_DEPRECATED & ~E_STRICT

2. Search for *display_errors*, and make sure it is set to *Off*. This will suppress the display of warning messages which will otherwise disrupt the display.

Set post_max_size and upload_max_filesize

1. Search for *post_max_size*, and set it to *25M* to allow large documents to be uploaded.

2. Now search for *upload_max_filesize*, and set it to *22M*. (The effect of these two changes will be to allow a 20M Document file to be uploaded to the system. A third setting (*$upload_maxsize* in *config.php*), is automatically set to exactly 20M by the installer.)

Set session.gc_maxlifetime (Session Timeout)

1. Search for *session.gc_maxlifetime*. Note that by default it is set to *1440* seconds, (24 minutes). This controls the length of time a 1CRM session can be idle before the session is terminated. Set it to *1800* for 30 minutes, *3600* for an hour, and so on.

Note: Make sure that when setting all the above values in *php.ini*, that the entire line is not preceded by a semi-colon – as this indicates that the line is merely a comment, and not to be processed.

Save the Updated php.ini File, Restart Apache

1. Perform a *File - Save*, and exit *TextEdit*. using the menu of the TextEdit application. Then you may also close the *TextEdit* application.

2. Now remember to drag the edited *php.ini* file back into */usr/local/php5/lib/* to overwrite the original *php.ini* file there, as we discussed initially.

3. Now you must restart Apache, to make sure that all the new settings in *php.ini* take effect. Do this using the Terminal window:

sudo apachectl restart

Exchange 2007 Settings

Note: The PHP IMAP module does not work correctly with Exchange 2007. To make 1CRM retrieve mail from Exchange 2007, the IMAP module should be disabled in your PHP configuration file. This makes 1CRM use the IMAP library written in pure PHP, which works fine with Exchange 2007.

The line *extension=imap.so* should be commented by adding a semicolon at the beginning:

`;extension=imap.so`

PHP Version 7.1.19	php
php-osx.liip.ch by Liip (originally developed by **www.local.ch**)	

System	Darwin Michaels-MBP.gv.shawcable.net 17.7.0 Darwin Kernel Version 17.7.0: Thu Jun 21 22:59:54 PDT 2018; root:xnu-4570.71.2~2/RELEASE_X86_64 x86_64
Build Date	Jun 25 2018 09:37:30
Configure Command	'./configure' '--prefix=/usr/local/php5' '--with-apxs2=/usr/sbin/apxs' '--with-config-file-scan-dir=/usr/local/php5/php.d' '--with-libxml-dir=shared,/usr' '--with-openssl=/usr/local/php5' '--with-zlib=/usr' '--with-zlib-dir=/usr' '--with-gd' '--with-ldap' '--with-xmlrpc' '--enable-exif' '--enable-soap' '--enable-wddx' '--enable-ftp' '--with-iodbc' '--enable-sockets' '--with-bz2=/usr' '--enable-zip' '--enable-shmop' '--enable-sysvsem' '--enable-sysvshm' '--enable-sysvmsg' '--enable-mbstring' '--enable-bcmath' '--enable-calendar' '--with-mhash' '--enable-fpm' '--with-mysql=mysqlnd' '--with-mysqli=mysqlnd' '--with-pdo-mysql=mysqlnd' '--enable-pcntl' '--enable-dtrace' '--disable-phpdbg' '--enable-opcache' '--with-icu-dir=/usr/local/php5' '--with-xsl=shared,/usr/local/php5' '--with-imap=shared,../imap-2007f' '--with-kerberos=/usr' '--with-imap-ssl=/usr/local/php5' '--with-gettext=/usr/local/php5' '--with-curl=shared,/usr/local/php5' '--with-png-dir=/usr/local/php5' '--with-jpeg-dir=/usr/local/php5' '--enable-gd-native-ttf' '--with-freetype-dir=/usr/local/php5' '--with-pgsql=shared,/usr/local/php5' '--with-pdo-pgsql=shared,/usr/local/php5' '--with-mcrypt=shared,/usr/local/php5' '--with-tidy=/usr/local/php5' '--with-gmp=shared,/usr/local/php5' '--with-readline=shared,/usr/local/php5' '--with-libxml-dir=/usr/local/php5' 'CFLAGS=-Os -mmacosx-version-min=10.10 -I/usr/local/php5/include -arch x86_64 -no-cpp-precomp -DENTROPY_CH_ARCHS='
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/usr/local/php5/lib
Loaded Configuration File	/usr/local/php5/lib/php.ini
Scan this dir for additional .ini files	/usr/local/php5/php.d
Additional .ini files parsed	/usr/local/php5/php.d/10-extension_dir.ini, /usr/local/php5/php.d/20-extension-opcache.ini, /usr/local/php5/php.d/40-curl.ini, /usr/local/php5/php.d/40-openssl.ini, /usr/local/php5/php.d/50-extension-apcu.ini, /usr/local/php5/php.d/50-extension-curl.ini, /usr/local/php5/php.d/50-extension-gmp.ini, /usr/local/php5/php.d/50-extension-igbinary.ini, /usr/local/php5/php.d/50-extension-imap.ini, /usr/local/php5/php.d/50-extension-intl.ini, /usr/local/php5/php.d/50-extension-mcrypt.ini, /usr/local/php5/php.d/50-extension-memcached.ini, /usr/local/php5/php.d/50-extension-mongodb.ini, /usr/local/php5/php.d/50-extension-mssql.ini, /usr/local/php5/php.d/50-extension-pdo_pgsql.ini, /usr/local/php5/php.d/50-extension-pgsql.ini, /usr/local/php5/php.d/50-extension-propro.ini, /usr/local/php5/php.d/50-extension-raphf.ini, /usr/local/php5/php.d/50-extension-readline.ini, /usr/local/php5/php.d/50-extension-redis.ini, /usr/local/php5/php.d/50-extension-solr.ini, /usr/local/php5/php.d/50-extension-ssh2.ini, /usr/local/php5/php.d/50-extension-xdebug.ini, /usr/local/php5/php.d/50-extension-xsl.ini, /usr/local/php5/php.d/60-extension-pecl_http.ini, /usr/local/php5/php.d/99-liip-developer.ini
PHP API	20160303
PHP Extension	20160303
Zend Extension	320160303
Zend Extension Build	API320160303,NTS
PHP Extension Build	API20160303,NTS
Debug Build	no
Thread Safety	disabled
Zend Signal Handling	enabled
Zend Memory Manager	enabled
Zend Multibyte Support	provided by mbstring
IPv6 Support	enabled
DTrace Support	available, disabled
Registered PHP Streams	https, ftps, compress.zlib, compress.bzip2, php, file, glob, data, http, ftp, phar, zip, ssh2.shell, ssh2.exec, ssh2.tunnel, ssh2.scp, ssh2.sftp
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, sslv3, tls, tlsv1.0, tlsv1.1, tlsv1.2
Registered Stream Filters	zlib.*, bzip2.*, convert.iconv.*, string.rot13, string.toupper, string.tolower, string.strip_tags, convert.*, consumed, dechunk, mcrypt.*, mdecrypt.*, http.*

This program makes use of the Zend Scripting Language Engine:
Zend Engine v3.1.0, Copyright (c) 1998-2018 Zend Technologies
    with Zend OPcache v7.1.19, Copyright (c) 1999-2018, by Zend Technologies
    with Xdebug v2.6.0, Copyright (c) 2002-2018, by Derick Rethans

zend engine

Figure 66: phpinfo Display (Top Section)

5.7 Install 1CRM

1. Put the 1CRM folder (unzip it from the 1CRM installation Zip file you received from us) onto the desktop of your server. This folder contains all the 1CRM files you need to install.

2. Use *Finder* to go to the folder */Library/WebServer/Documents/*. Drag and drop the 1CRM folder into the Finder window. You will be prompted for the admin password. Change the folder's name to simply *1crm*.

3. Download these files from our website, and drop then into the */docs* folder within the *1crm* folder just created:

    • [User Guide](#)

    • [Implementation Guide](#)

    Rename them as simply *UserGuide.pdf*, and *InstallGuide.pdf*. These are the PDFs of the documentation for 1CRM. The Implementation Guide PDF (*InstallGuide.pdf*) is accessed via a link available in the installation wizard (coming up soon). The User Guide PDF (*UserGuide.pdf*) is linked from the online help system available to all users.

4. Open a Terminal window, and enter:

    sudo chgrp -R _www /Library/WebServer/Documents/1crm

    sudo chmod -R g+rwX /Library/WebServer/Documents/1crm

    You will be prompted for the admin password. These commands set the *1crm* folder's group to _www (which is the user that apache runs as), and makes the files writable for all users in that group. You can close the Terminal application once this is complete.

5. Run the Safari browser and enter *localhost/1crm/install.php* as the URL. You should see the 1CRM Installer Welcome screen, as shown in the figure below. You're getting close to the finish line! Click on the *Start* button.
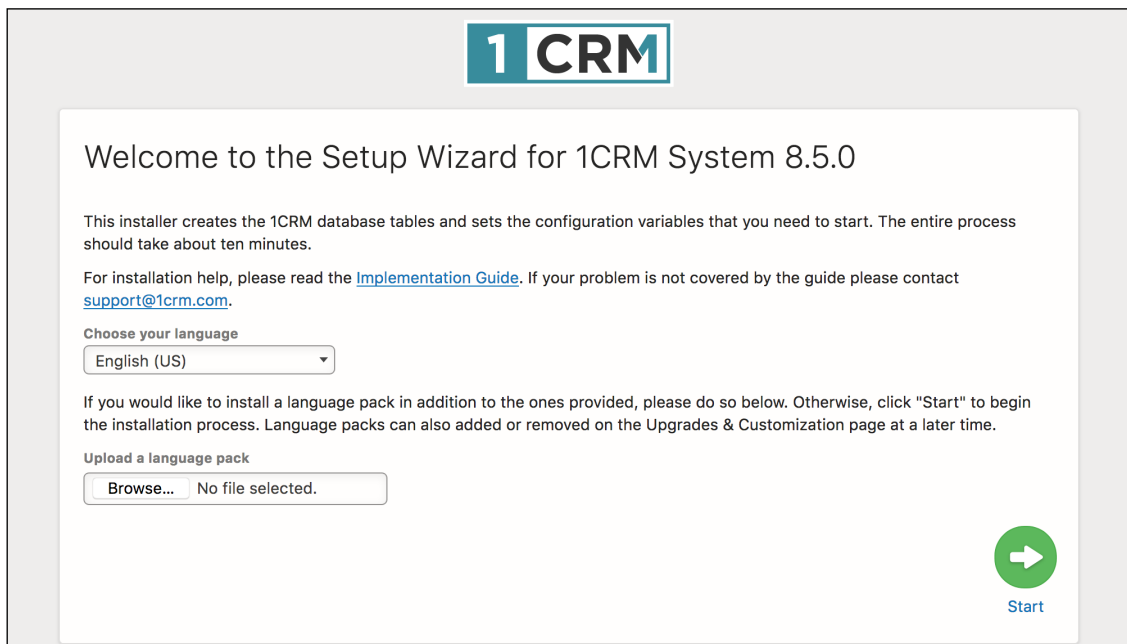
Figure 67: Installer Welcome Screen

6. Just click on the *Start* button. The 1CRM license acceptance screen is the next one you will see:
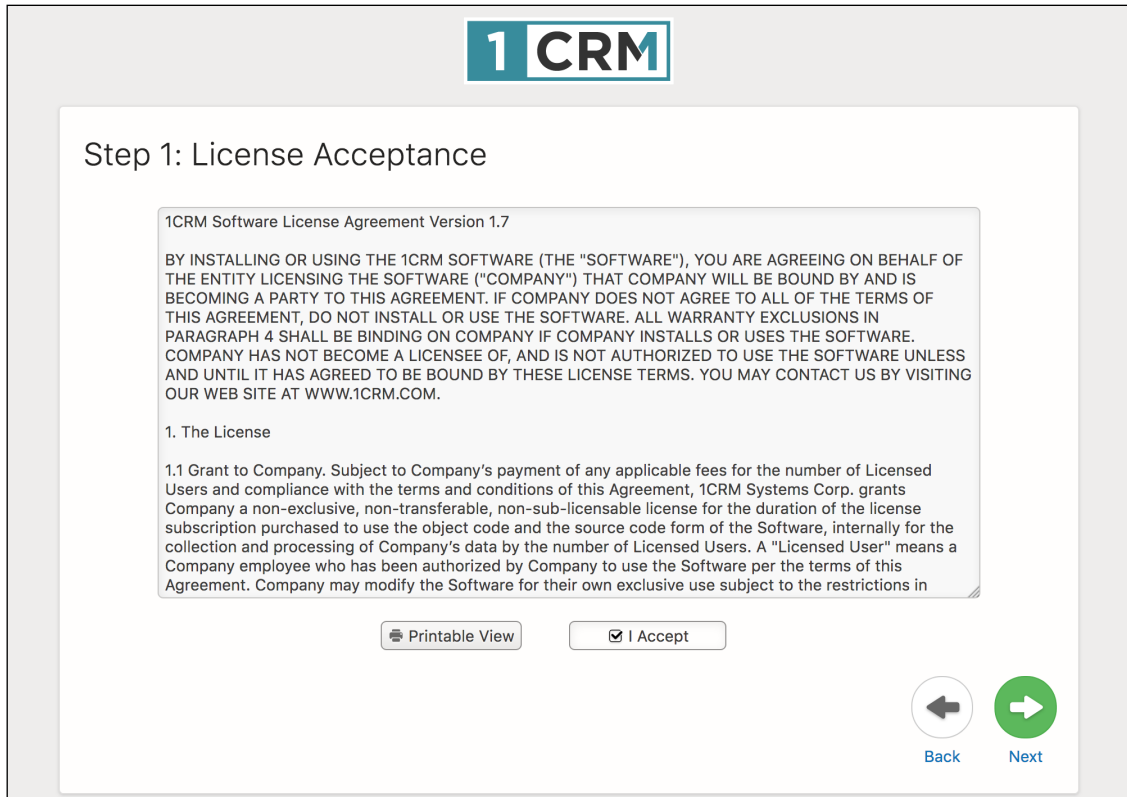
Figure 68: Install Step 1 – License Acceptance

7. Install Step 1: License Acceptance - Click on the *I Accept* checkbox, and then on the *Next* button.

8. Install Step 2: System Check - Now you see the 1CRM system check screen. The 1CRM installer checks several aspects of the installation environment, and reports their status to you on this screen. You will see a series of green (and perhaps a few red) status messages down the right hand side of the screen. They need to be all green for the installation to proceed.

Figure 69: Install Step 2 - System Check

If they are all green, click on the *Next* button to proceed to the next step of the 1CRM installation process. Also take a note of the location of your php.ini file, as shown on the screen above.

If they are not all green you should act on any diagnostic details provided beside the highlighted issue, and go back to your server setup to see where things went wrong.

9. Install Step 3: Database Configuration (see the figure below) - Set *Host Name* to *localhost*, *Database Name* to *onecrm*, *Database User Name* to *onecrm*, and *Database Password* to whatever you like (*crm80dbpsw* is a suggestion).

   Click on *Create Database* and *Create User* if this is a new installation.

   Click on *Drop & Recreate Existing Tables* only if this is a re-installation.

   Click on *Populate database with Demo Data* if you would like some test data created for you.

   Set the *Privileged Database User Name* to *root*, and the *Privileged Database User Password* to the root password for MySQL (as defined in the section *Configure MySQL*).

   Then click on the *Next* button.

Figure 70: Install Step 3 – Database Configuration

10. Install Step 4: Site Configuration – As shown in the figure below, enter the new password you wish for the 1CRM Admin user, and confirm it.

    You can set the URL as you like - but ***make sure it is an absolute URL not a relative one, and that is is a URL that is usable externally, not a LAN IP address or similar***. This is a critical point - if you do not do this correctly, you will have some serious issues down the line with your installation.

    Note: Make certain the URL of the 1CRM Instance field is set to an absolute URL that is addressable externally! Also make sure that the URL can be resolved locally on the server running 1CRM. This is of critical importance.

    Then click on the *Next* button to proceed to Install Step 5.

Figure 71: Install Step 4 – Site Configuration

Note: The checkbox *Save Installer Configuration* is used at Step 4 of the installation process to tell the installer that you want to make a 1CRM installation template from this installation session. Later on, at Step 7 (if installing without demo data) or Step 9 (with demo data) you will see a link to download the *installer_config.zip* file.

11. Install Step 5: Locale Settings – As shown in the figure below, you can upload language packs at this time. You can also set your installation's default localization values for date, time, currency and character sets, etc.. Once you have done that, then click on the *Next* button to proceed to Install Step 6.

Note: Selecting your default currency on this screen is a critical item. You cannot change it after the system is installed and running. This is your only chance to set a default currency other than US$.

Figure 72: Install Step 5 - Locale Settings

12. Install Step 6: Confirm Settings - This screen (see figure below) simply shows you all the settings you have provided for the 1CRM installation. If they look correct, click on the *Next* button to proceed with the actual 1CRM installation.

Figure 73: Install Step 6 - Confirm Settings

13. Install Step 7: Perform Setup - You should see a screen like the first figure below. Note it will take a minute or two to complete – so be patient! The progress bar goes from left to right for each step of the process. When a step is complete, it gets a check mark, and the next step begins. By the time the setup is complete (as shown in the second figure below) your 1CRM installation is ready to go - unless you chose to have demo data installed. If demo data is being installed, Install Steps 8 and 9 will be performed, as shown below. If not, just skip down to paragraph 16, which begins with "Congratulations - you're done.".
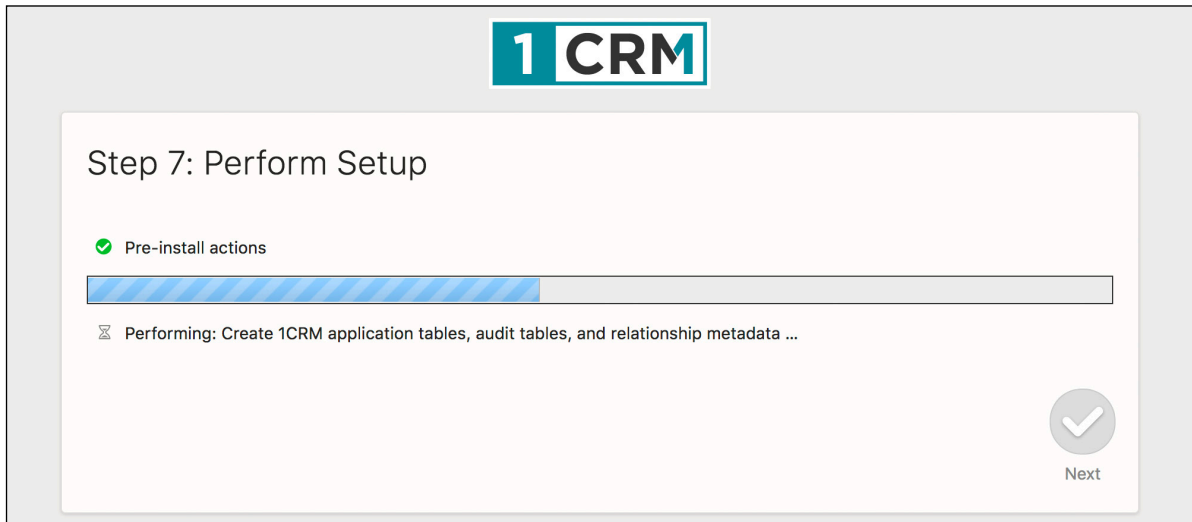
Figure 74: Install Step 7 – Perform Setup (In Progress)
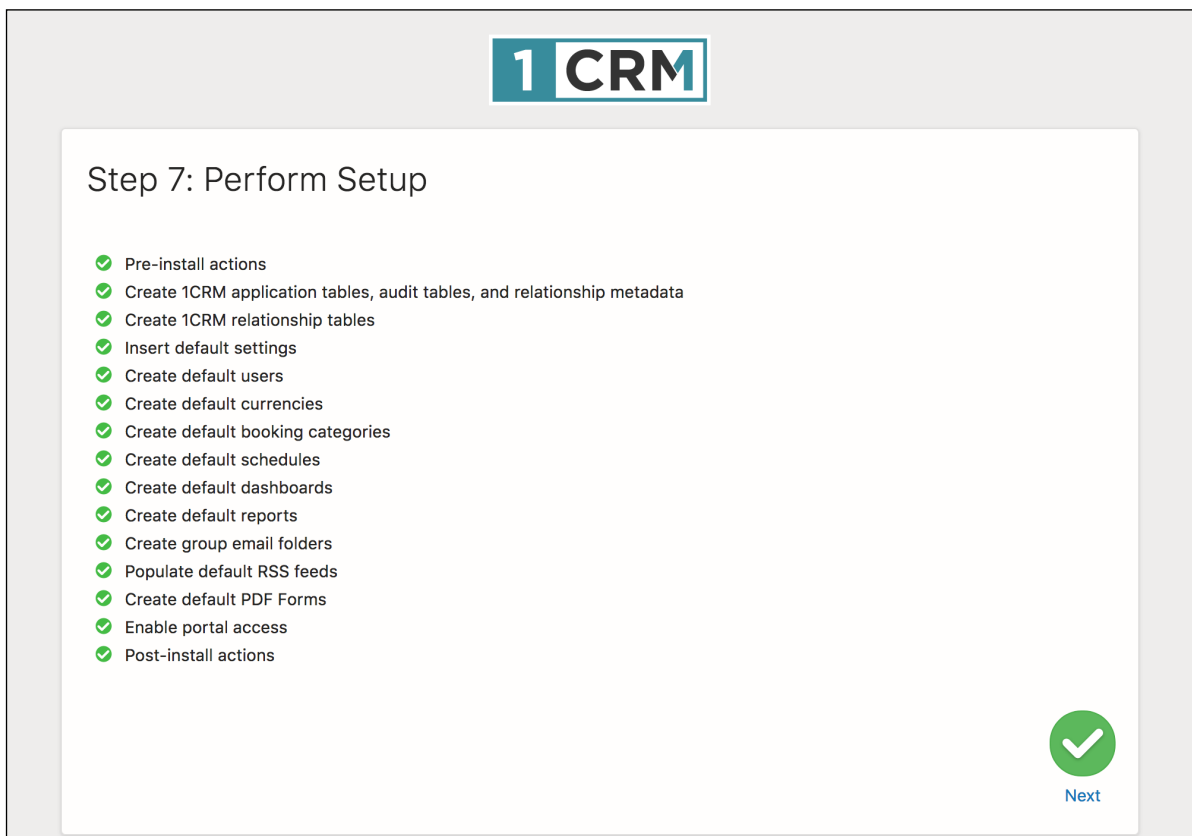
Figure 75: Install Step 7 – Perform Setup (Complete)

14. Install Step 8: Demo Data Configuration - On this screen you select what demo data you would like to have installed. At the top of the screen is a convenient checkbox to select or de-select all of the items. Notice that some items will automatically select other items, as there are dependencies between various items of data.
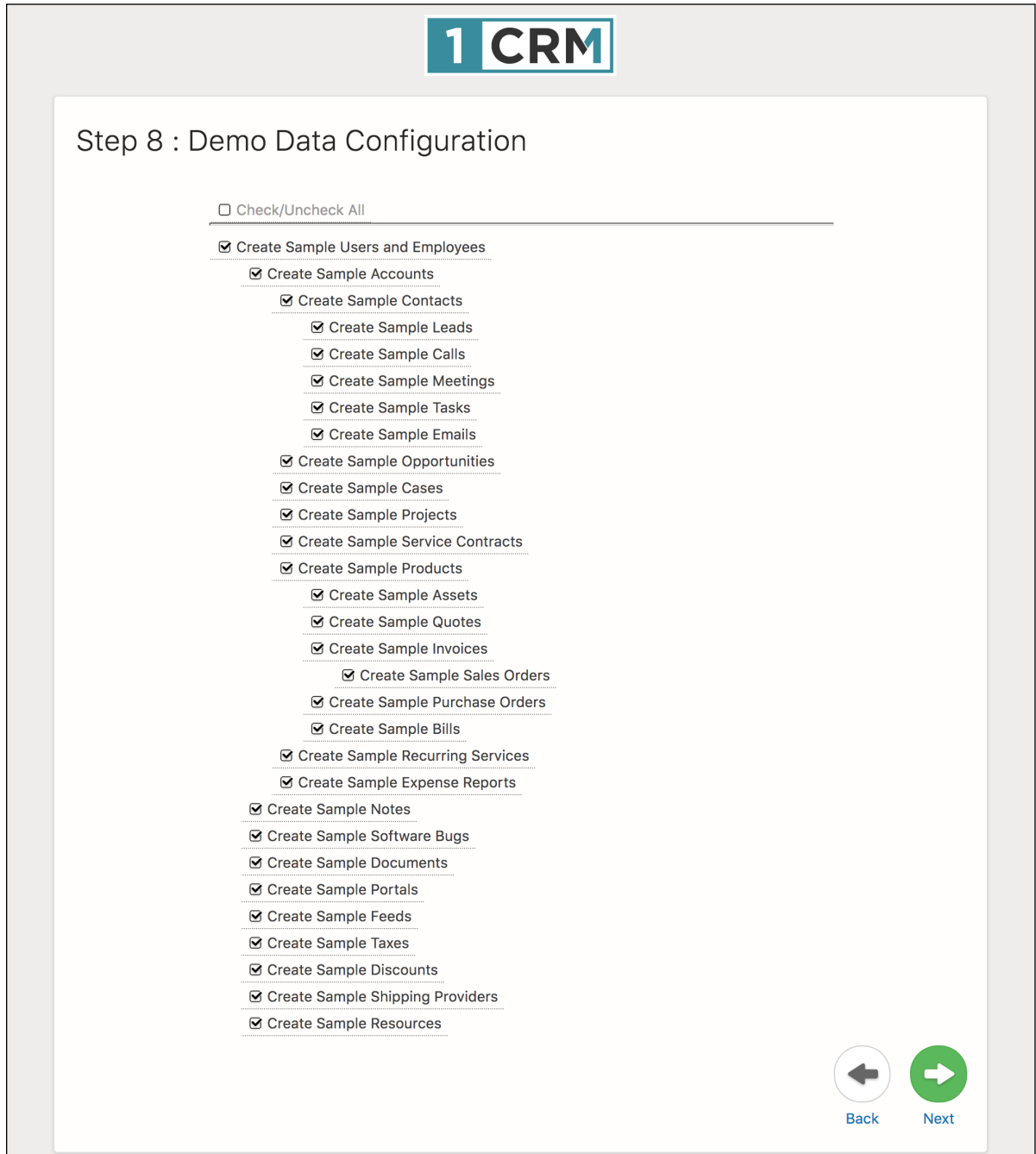
Figure 76: Install Step 8 – Demo Data Configuration

15. Install Step 9: Demo Data Installation - This screen is a bit like Install Step 7, in that a series of progress indicator bars are generated, each leaving behind it a step of the demo data installation with a check mark once it is completed. Eventually your screen should resemble the one below, once all the demo data selected has been added to your database.
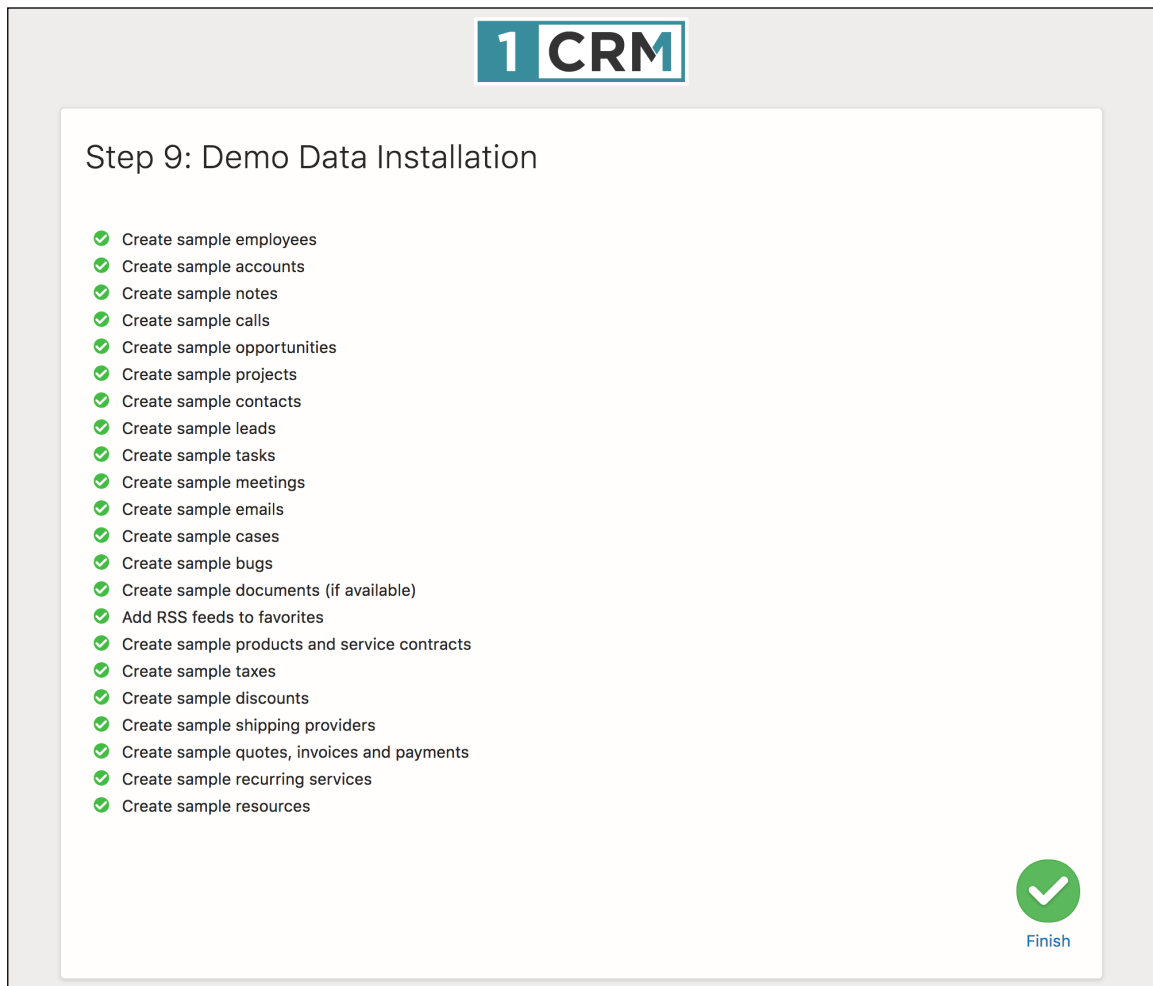
Figure 77: Install Step 9 – Demo Data Installation

Note: The checkbox *Save Installer Configuration* is used at Step 4 of the installation process to tell the installer that you want to make a 1CRM installation template from this installation session. Later on, at Step 7 (if installing without demo data) or Step 9 (with demo data) you will see a link to download the *installer_config.zip* file (see Figure above). Once you have downloaded the file, it may be used as part of the one-step installer process - typically by system admins making trial sites or sandboxes for testing.

To perform a one-step install, browse to *http://yoursite.com/install.php?auto*. A screen similar to the *Step 3: Database Configuration* screen above is displayed. It contains a set of options that are unique to each 1CRM instance (db configuration, mainly). The *installer_config.zip* file can be uploaded from this screen. If it is uploaded, any options chosen when creating the config file (localization, demo data, language packs etc) will apply to this new installation. (The Admin user password is always set to *admin*.) After clicking *Next*, the installation begins without any further input.

The installer can be launched via command line as well. Enter `php install.php --help` to see the list of command line options. We recommend you `su` to the web server user before running the installer. The *installer_config.zip* file can also be used with the command line installer.

16. Congratulations – you're done. Just click on the *Finish* button to login to 1CRM for the first time.
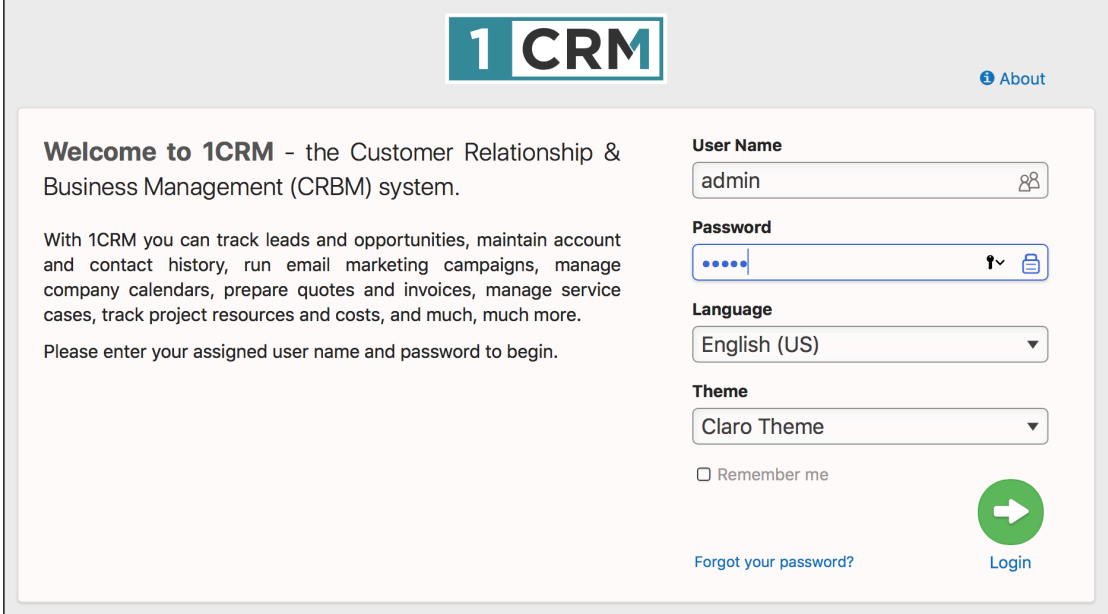
Figure 78: Install Complete, Ready to Login

17. Log in, using the user name *admin*, and the admin password you provided in step 10 (Install Step 4) above.

18. The first time you login, the system will take you automatically to *License & Support* on the Admin menu screen.
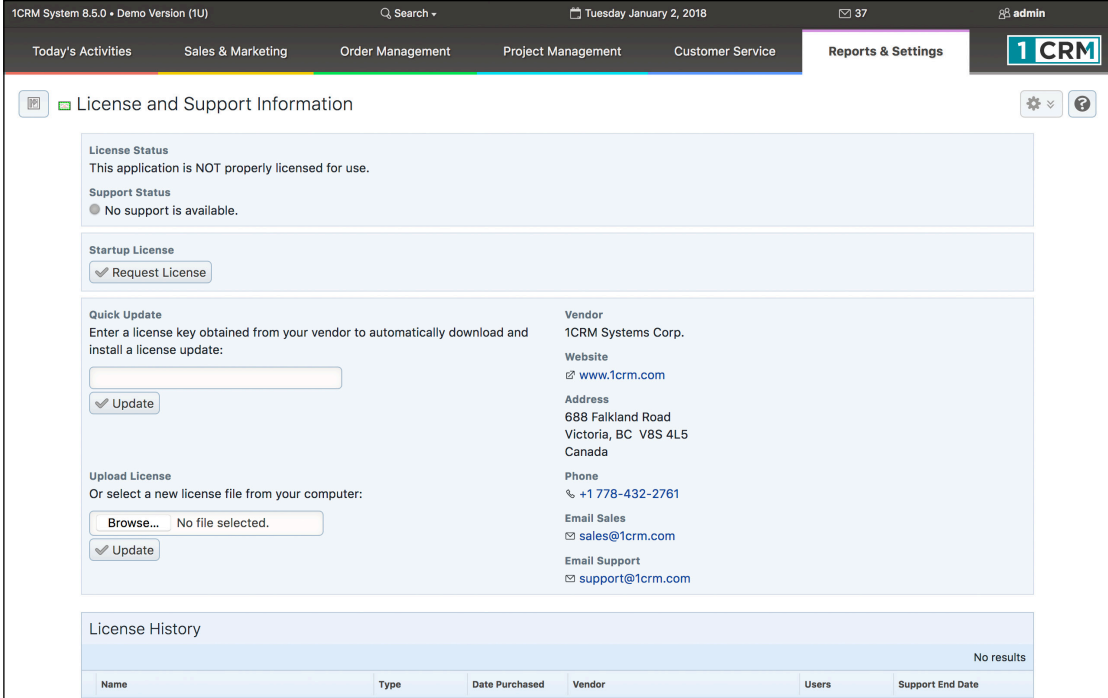
Figure 79: Applying the License Key

19. Enter your license key in the *Quick Update* box, and click on the *Update* button. You will see a screen like the one below, confirming that the license key has been applied successfully. If you are installing the *1CRM Startup Edition*, instead of entering a license key just click on the *Request License* button, enter your license and registration information into the popup form that appears, and then click on the *Send Request* button.

(***Note:*** Your server must be connected to the Internet as you perform this step.)
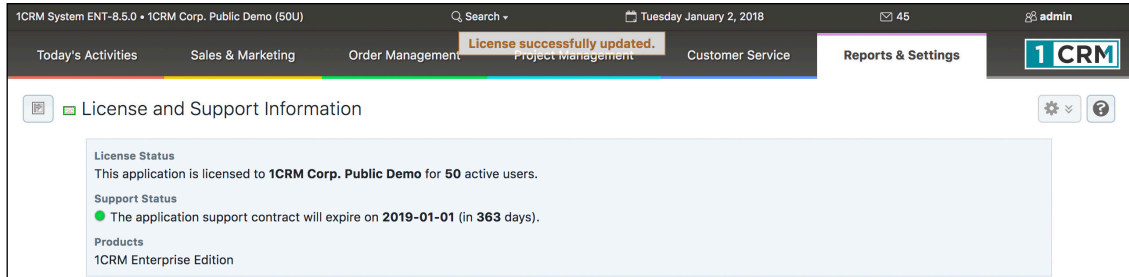
Figure 80: License Key Applied Successfully

20. Click on *Return to List*, and you should see your license information displayed something like this:
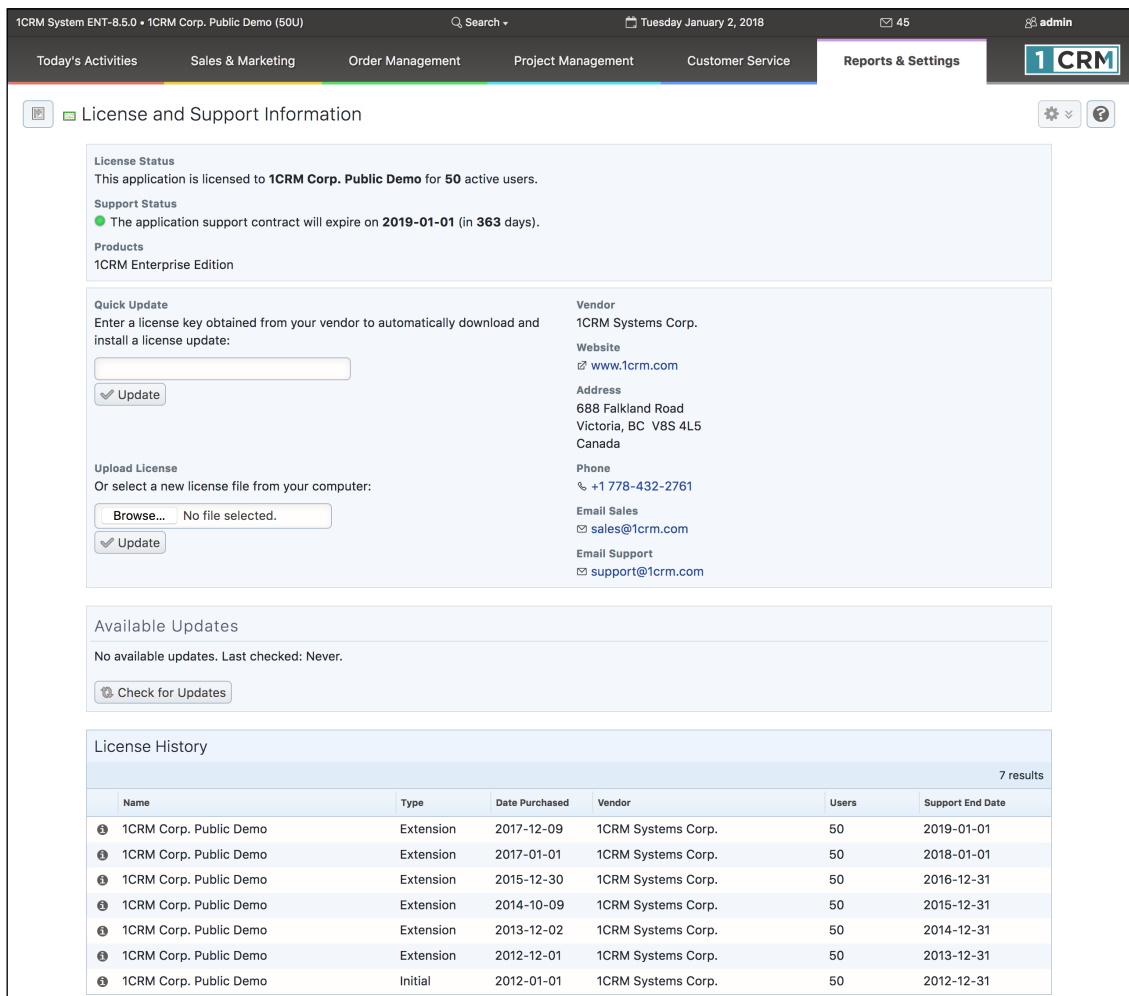
Figure 81: License & Support Screen With License Details

5.9 Configure Installation Settings

⊙ Email Server and Scheduler Configuration

1. Ensure that your 1CRM installation is configured in the Admin area to use the SMTP Mail Transfer Agent (MTA), unless you choose to configure sendmail on your server. Configuring sendmail on a Mac server is an advanced topic, not covered here.

2. To have the scheduler tasks run, create the crontab file using the *Terminal* command:

    sudo vi /etc/crontab   (you will be asked for the root password)

    Then put the *vi* editor into Insert mode by pressing *i*, and then enter:

    `*/5 * * * * _www cd /Library/WebServer/Documents/1crm; /usr/local/php5/bin/php scheduler.php`

    Then press the *Escape* key, enter **:wq** and press the *Enter* key, to save the new crontab.

Congratulations – you have completed the installation of the 1CRM System. We hope you enjoy using it, and that it makes a significant contribution to the effective management of your organization.

5.10 macOS Server Software Stack

Stack Components	Versions	Comments
Operating System		
	macOS High Sierra 10.13.6	
Web Server		
	Apache 2.4.33	*Supports any version that runs PHP*
Database		
	MySQL 5.7.22	*MyISAM Tables required*
PHP		
	7.1.19	*Zend Server, APC are supported*
Browser		
	Microsoft Edge 38 or better	
	Firefox 18 or better	
	Chrome 30 or better	
	Safari 6.1 or better	

Figure 82: 1CRM macOS Software Components & Compatibility

Note: MySQL 5.7 or later is required.

⊙ Reference Platform for macOS

macOS Software Components

- PHP version 7.1.19
- MySQL 5.7.22
- Apache 2.4.33
- macOS High Sierra 10.13.6

6.0 Installing 1CRM on Azure Cloud

6.1 Azure Cloud Reference Platform

Before we start, a word of caution. As ever, User and Implementation guides are written, but not always read! We encourage you to make sure that this chapter on installing your new software on the Microsoft Azure Cloud is something that you do read – if only because *if you do not follow the instructions here, we cannot effectively support your installation*.

Particularly critical are the php.ini configuration instructions in section 6.4, and the chart of compatible software revisions at the end of this chapter. This chapter, like the other installation chapters, is written to document how to install 1CRM on a specific reference platform.

If you ever have a need to call for support, our technicians will make sure that your server environment complies with the one documented here (or one of the other reference platforms), before any incident can proceed further.

If you have chosen to install 1CRM on a different configuration of the Azure Cloud, that's fine, but if you call for support and your environment or its configuration (rather than the 1CRM software itself) is found to be the cause of your issue, the support incident will unfortunately be billable.

Our support staff can't be expert at all variations of every environment, and neither can we document how to install 1CRM on every conceivable environment that might support it. So we chose a few that we felt would be popular ones.

6.2 Getting Started

To install 1CRM on the Azure Cloud, we recommend, and have documented here, the use of the CentOS 7.3 Linux Virtual Machine. Your first step is to go to https://www.windowsazure.com and sign up for an account.
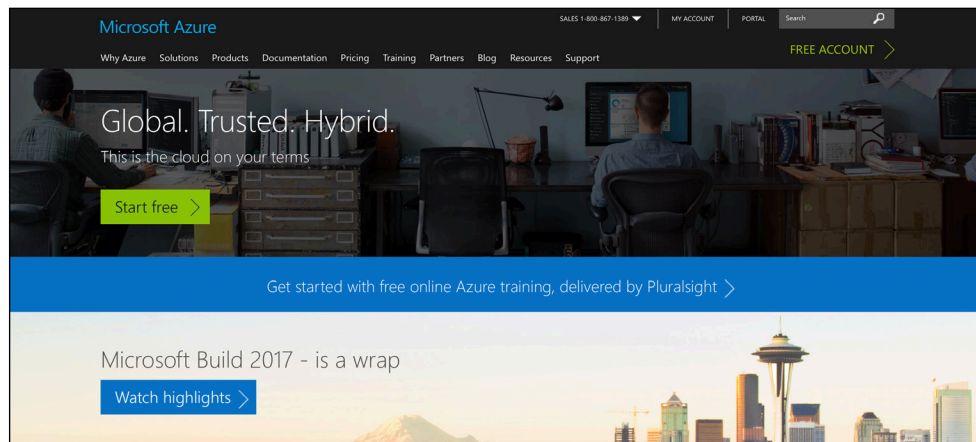
Figure 83: Getting Started with Windows Azure

6.3 Create the CentOS 7.3 Virtual Machine

1. Login to your Windows Azure account, and go to the Portal, where you manage your Azure services. Now click on Virtual Machines on the left side menu, to see a screen like this:
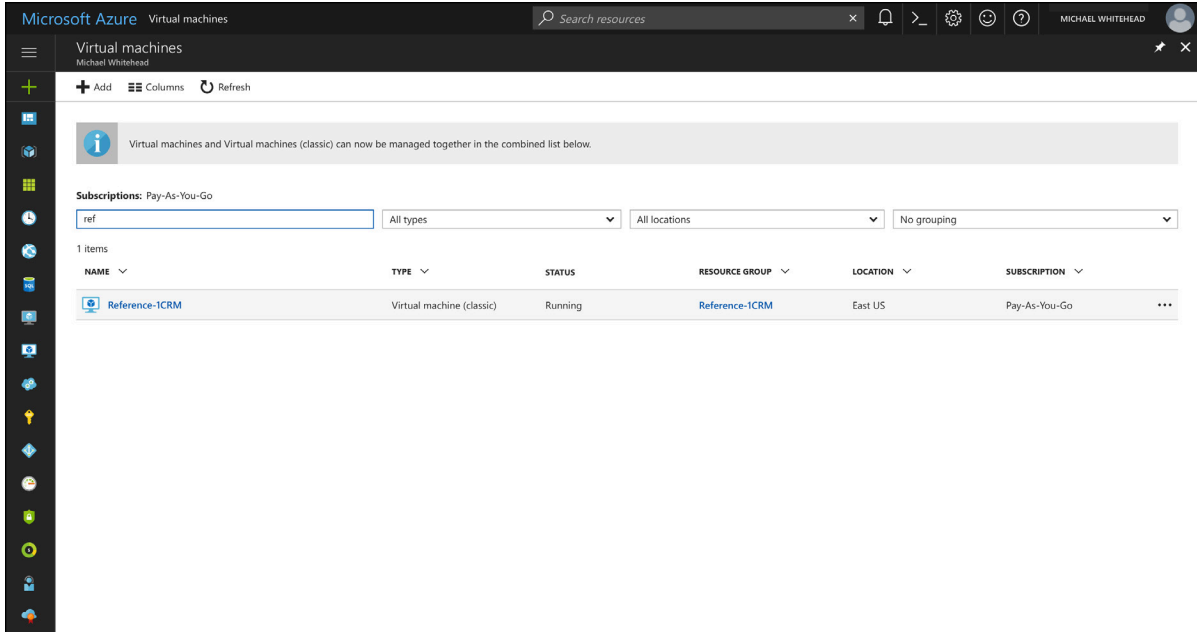
Figure 84: Azure Portal Main Screen

2. Any Virtual Machines you have already created will be listed. Now click on the *+ Add* link at the top left of the screen.

3. Click on *More* to see all the Compute VM options.
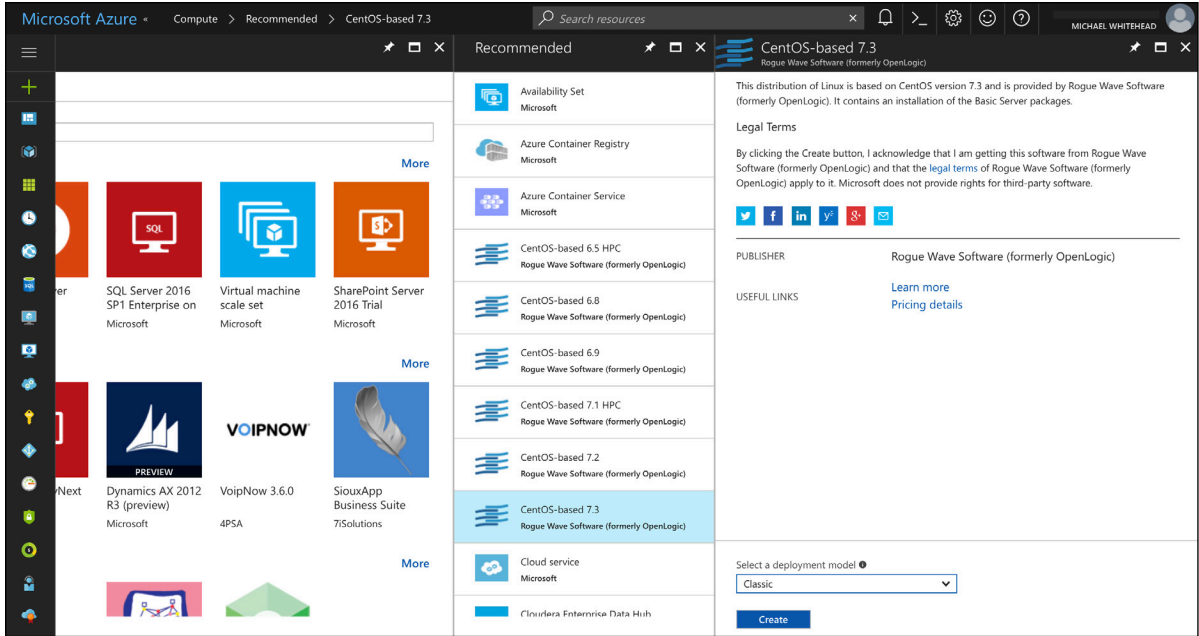
Figure 85: Azure Platform Images

4. From the Platform Images available, select CentOS-based 7.3, as shown above, with Classic deployment model. Then click on the *Create* button to see the screen below:
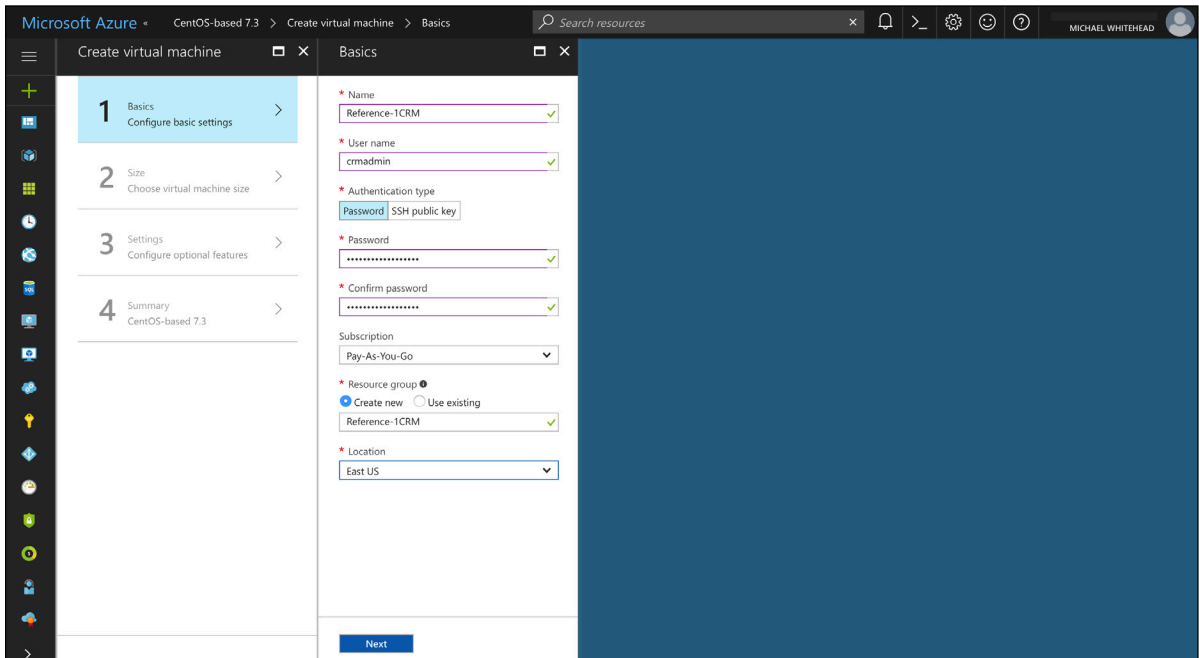
Figure 86: Azure Virtual Machine Configuration - Basics

5. Complete the fields on that screen in a similar manner to that shown above. Choose the Azure region you prefer on the *Location* dropdown. Click on the *Select* button to see the Figure below.
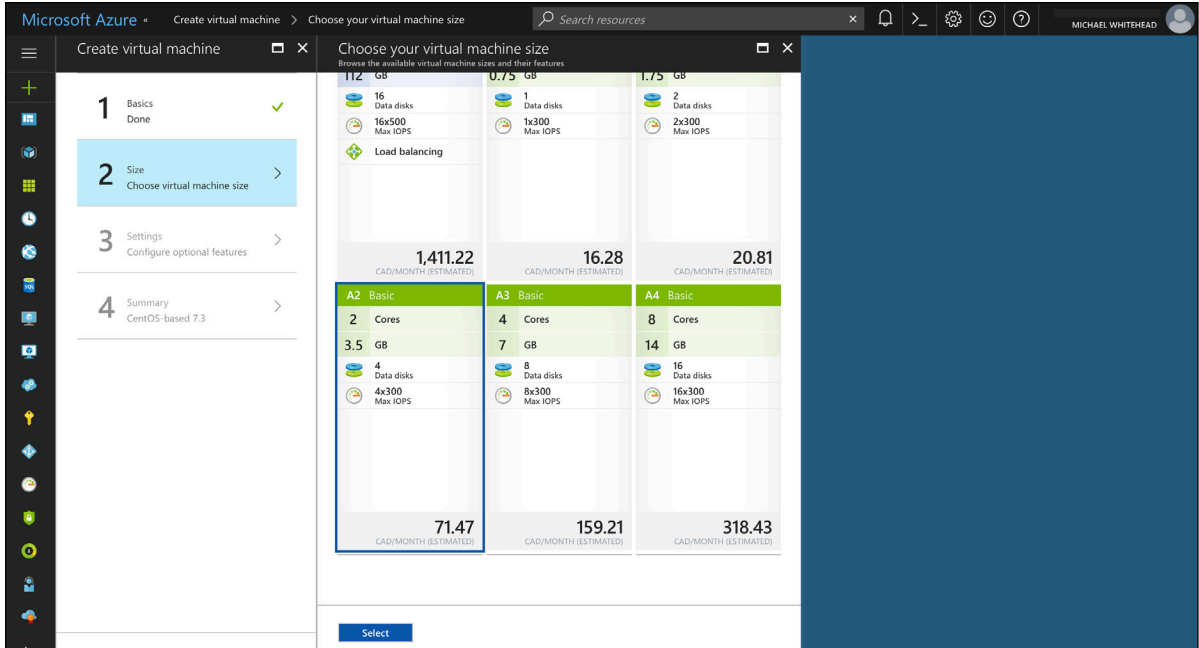
Figure 87: Azure Virtual Machine Configuration - Size

6.	Choose an A2 *Basic* (not *Standard*) 2-core Virtual Machine. This is a sensible initial size - you can change for a larger or smaller VM at any time later on. Then click on the *Select* button again.
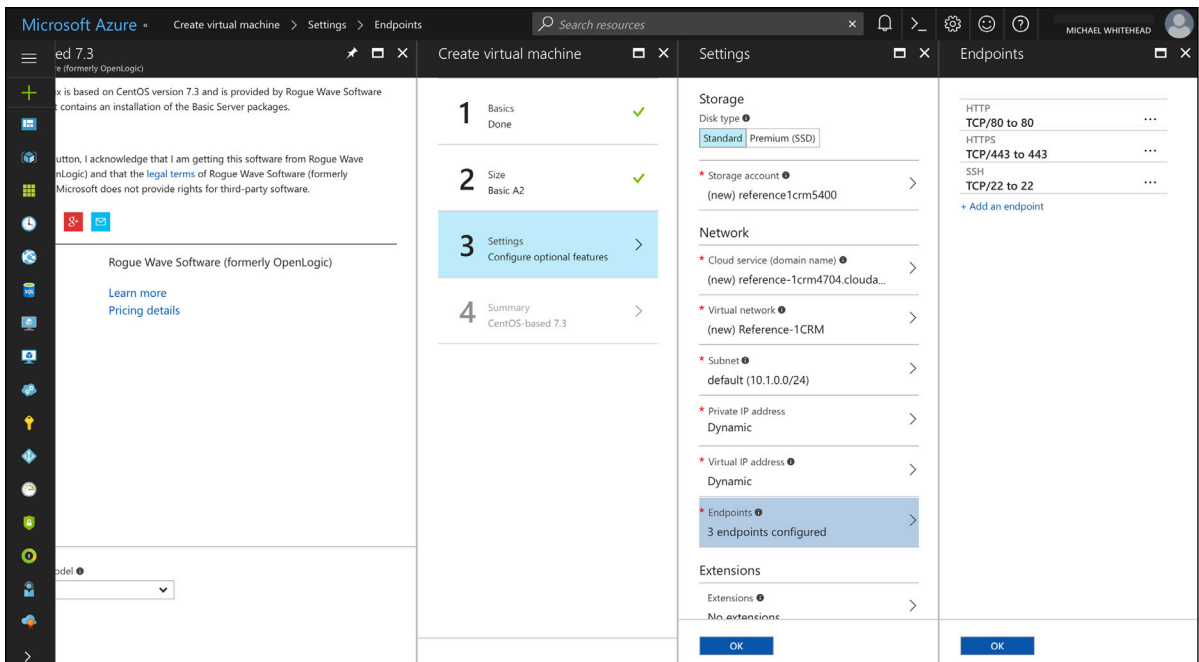
Figure 88: Azure Virtual Machine Configuration - Settings

7.	You'll likely want to create a new cloud service with no availability set unless you are setting up an elaborate fault-tolerant implementation. Choose your DNS name (the URL you will use to access your VM) for the cloud service. An automatic storage account is fine unless you have an existing one you wish to use. Also, be sure to add endpoints for HTTP and HTTPS as shown above. Click on *OK*, to see the *Summary* screen, then click *OK* again.

8. Your new VM will now be provisioned. Watch as it is created, and then starts up!
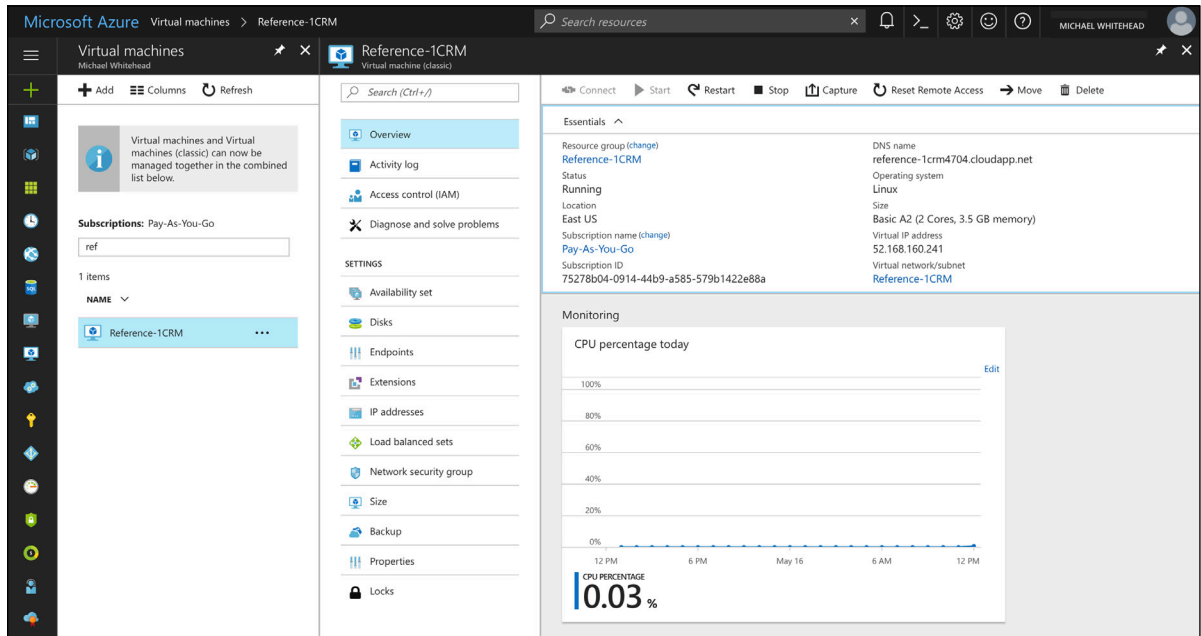
Figure 89: Azure Virtual Machine Configuration - Overview

9. Within the Azure Portal, click on your new VM in the list of VMs, and then click on the Overview. You will see some monitoring info for the VM, as well as a summary of VM configuration data. Check there for your VM's DNS name - you'll need it in the next step.

10. Using a terminal program such as *Terminal* which is included on all Mac computers, enter the command: `ssh -l crmadmin reference-1crm4704.cloudapp.net`

    Note: Instead of *crmadmin* above, you will use your own user name, from the screen in Figure 86, and instead of using *reference-1crm4704.cloudapp.net*, you will use the DNS name shown on your Azure VM Overview.

11. You will see a reply such as:

    ```
    The authenticity of host 'reference-1crm4704.cloudapp.net
    (52.168.160.241)' can't be established.
    ECDSA key fingerprint is 98:c0:2f:e8:b7:78:d9:97:20:7c:57:69:e0:35:e1:41.
    Are you sure you want to continue connecting (yes/no)?
    ```

12. Enter `yes`

    ```
    Warning: Permanently added 'reference-1crm4704.cloudapp.net,
    52.168.160.241' (ECDSA) to the list of known hosts.
    crmadmin@1crm.cloudapp.net's password:
    ```

13. Enter your password (from Figure 86), and you will be connected to your new VM, using an ssh session.

14. Enter the following commands:

    • **sudo su**   (to gain admin privileges - you'll need to provide your password)

    • `rpm -Uvh https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm`

- **`rpm -Uvh https://mirror.webtatic.com/yum/el7/webtatic-release.rpm`** (enables yum to search elsewhere for latest php 7.1)

- **`yum install -y mod_php71w php71w-cli php71w-common php71w-gd php71w-mbstring php71w-mcrypt php71w-mysqlnd php71w-xml php71w-imap php71w-pear php71w-soap php71w-pecl-apcu php71w-opcache`**

  Note: As of release 7.8.10 1CRM now requires PHP 5.5.x as a minimum, and supports up to PHP 7.1.

  Note: This command loads a number of PHP extension modules. You may be asked to confirm the action to be taken by this command once it resolves dependencies.

- **`yum install httpd mariadb mariadb-server unzip`** (installs Apache, and the Mariadb version of MySQL, plus the unzip utility)

- **`systemctl start mariadb.service`** (to run the mariadb mysql service)

- **`systemctl enable mariadb.service`** (to run the mariadb mysql service at every boot)

- **`mysqladmin -u root password `*`yourpassword`*** (use your own password here)

- **`systemctl start httpd.service`** (to run the apache service)

- **`systemctl enable httpd.service`** (to run the apache service at every boot)

15. Now exit the Virtual Machine ssh session, by entering the command: **`Exit`**

16. Make sure you have the 1CRM distribution *.zip* file in the root directory of your current user on your Mac or PC computer. We'll assume in the next few steps that it is called *1crm.zip*.

22. Unzip that *1crm.zip* file in your root directory, and then download these two PDF files below from our website. Then drag and drop then into the */docs* folder within the unzipped folder just created:

- User Guide
- Implementation Guide

Rename them as simply *UserGuide.pdf*, and *InstallGuide.pdf*. These are the PDFs of the documentation for 1CRM. The Implementation Guide PDF (*InstallGuide.pdf*) is accessed via a link available in the installation wizard (coming up soon). The User Guide PDF (*UserGuide.pdf*) is linked from the online help system available to all users. Now zip the fileset back up into *1crm.zip* again, so things are just as they were, but now your zip file contains the documentation PDF files as well.

23. Now enter the command:
    `scp 1crm.zip crmadmin@reference-1crm4704.cloudapp.net:`

    Note: Instead of *crmadmin* above, you will use your own user name, from the screen in Figure 86. and instead of using *reference-1crm4704.cloudapp.net*, you will use the DNS name shown on your Azure VM Overview.

24. You will be prompted for your Azure VM password, and then the 1CRM software distribution *.zip* file will be uploaded to your Azure Virtual Machine!

25. Re-start the ssh session with the Virtual Machine by entering the same command you did in step 10 above.

26. Enter the command: `sudo mv 1crm.zip /var/www/html/1crm.zip`

    This will move the *1crm.zip* file into the */var/www/html* folder where it needs to be in order to run.

27. Now enter: `cd /var/www/html/`

    And then: `sudo unzip 1crm.zip`

    This unzips the 1crm.zip file in the correct folder on the Virtual Machine.

28. Now enter: `sudo chown -R apache:apache .`

    Next: `sudo chown apache:apache /var/lib/php/session`

    Then: `sudo chown apache:apache /var/lib/php/wsdlcache`

    And finally: `sudo chmod -R ug+rwX .`

    This sets the correct permissions on the files in /var/www/html.

29. Next, enter the commands:

    `sudo yum install policycoreutils-python`   (installs the semanage utility)

    `sudo semanage fcontext -a -t httpd_sys_rw_content_t '/var/www/html(/.*)?'`

    `sudo restorecon -Rv /var/www/html`

    Note: The last two commands configure SELinux to allow Apache to execute PHP scripts in the `/var/www/html` directory, to write there, and ensure this persists after a reboot

30. You should be able to point your browser to the URL shown as your DNS Name in the Azure VM Dashboard, with */1crm/* added to the end. In our example here, that was `reference-1crm4704.cloudapp.net/1crm/`. If you see the 1CRM installation screen, things are going fine. Before we go any further with that, however, we need to finish configuring your server.

6.4 Configure php.ini and apcu.ini

In this section you need to edit the *php.ini* file, found in */etc*. Several values in the file will need to be changed, and then you save the file and exit the editor.

In an ssh session with your Virtual Machine, enter the command:

   `sudo vi /etc/php.ini`   (edits the php.ini file)

Session Save Path

The default value for session.save_path is:

   `;session.save_path = "/tmp"` (commented out)

Normally this default value will work fine, and there is no need to edit this line.

Set output_buffering, zlib.output_compression & output_handler

1. Search for *output_buffering*, and set it to *On* (rather than a number - it is likely 4096 by default). This setting and the next two are used to optimize the performance of 1CRM.

2. Search for *output_handler*, and make sure it is commented out (*;output_handler =)*

3. Search for *zlib.output_compression*, and make very sure it is set to *Off*.

Set Timeout Limits

1. Search for *max_execution_time*, and set it to *300*. This will allow any PHP instruction up to 300 seconds to complete. Without this, large activities, such as a large import of data, will terminate with an error, as they will exceed the maximum execution time.

2. Also set *max_input_time* in the next section of the file to *300*. This allows a 5 minute window for large files to be uploaded.

Set memory_limit

1. Search for *memory_limit*, and set it to 200M. This will allow 1CRM to consume up to 200M of memory. Without this setting, complex actions may run out of memory.

Set display_errors

1. Search for *display_errors*, and make sure it is set to *Off*. This will suppress the display of warning messages which will otherwise disrupt the display.

Set post_max_size and upload_max_filesize

1. Search for *post_max_size*, and set it to *25M* to allow large documents to be uploaded.

2. Now search for *upload_max_filesize*, and set it to *22M*. (The effect of these two changes will be to allow a 20M Document file to be uploaded to the system. A third setting (*$upload_maxsize* in *config.php*), is automatically set to exactly 20M by the installation script.)

Set mysql.default_socket

1. Search for *mysql.default_socket*. Make sure it is set to an empty value so that it uses the MySQL defaults.

Set session.gc_maxlifetime (Session Timeout)

1. Search for *session.gc_maxlifetime*. Note that by default it is set to *1440* seconds, (24 minutes). This controls the length of time a 1CRM session can be idle before the session is terminated. Set it to *1800* for 30 minutes, *3600* for an hour, and so on.

Note: Make sure that when setting all the above values in *php.ini*, that the entire line is not preceded by a semi-colon unless intended – as this indicates that the line is merely a comment, and not to be processed.

Save the Updated php.ini File

1. Perform a *File - Save* using the command ***:wq*** in the *vi* application. Then also closes the *vi* application.

Edit apcu.ini File

1. Use *Applications – Favorites – Terminal* to enter

- **sudo vi /etc/php.d/apcu.ini** (edits the apcu.ini file)

2. Search for *apc.serializer*. Edit that line of the `apcu.ini` file to read: **apc.serializer='php'**

Save the Updated apcu.ini File

1. Perform a *File - Save* using the command *:wq* in the *vi* application. Then close the application.

Exchange 2007 Settings

Note: The PHP IMAP module does not work correctly with Exchange 2007. To make 1CRM retrieve mail from Exchange 2007, the IMAP module should be disabled in your PHP configuration file (the line *extension=imap.so* should be commented out). This makes 1CRM use the IMAP library written in pure PHP, which works fine with Exchange 2007.

6.5 Install 1CRM

1. Now continue on from the final step in section 6.3 above, and browse to the URL shown as your DNS Name in the Azure VM Dashboard, with */1crm/* added to the end. You should see the 1CRM Installer Welcome screen, as shown in the figure below. You're getting close to the finish line!
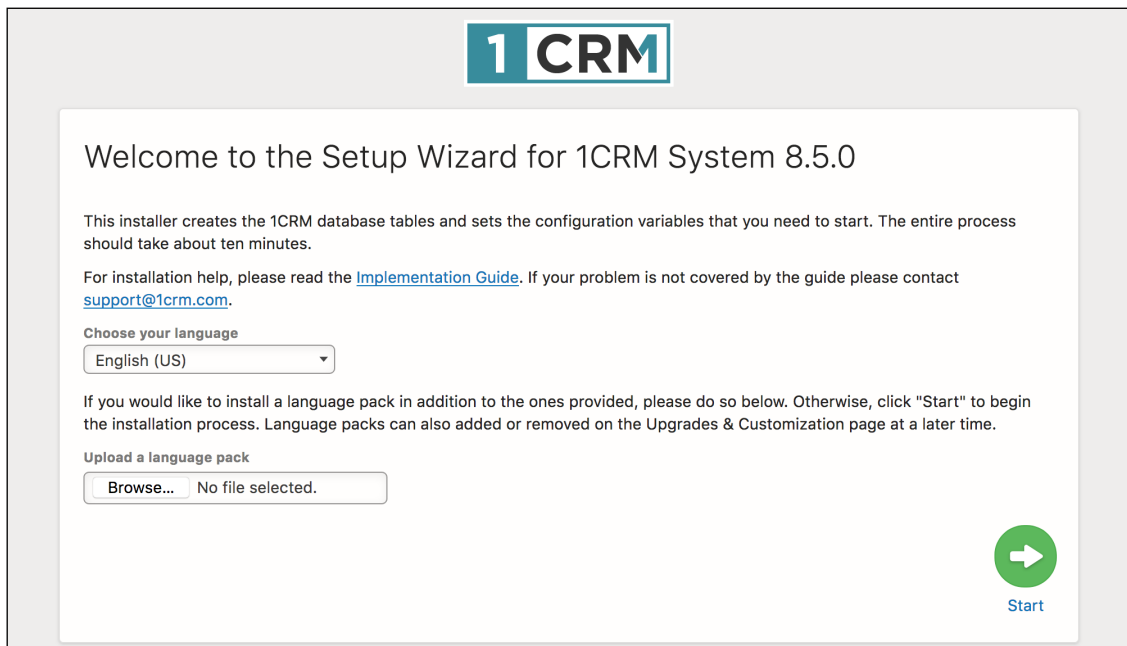
Figure 90: Installer Welcome Screen

2. Just click on the *Start* button. The 1CRM license acceptance screen is next up:
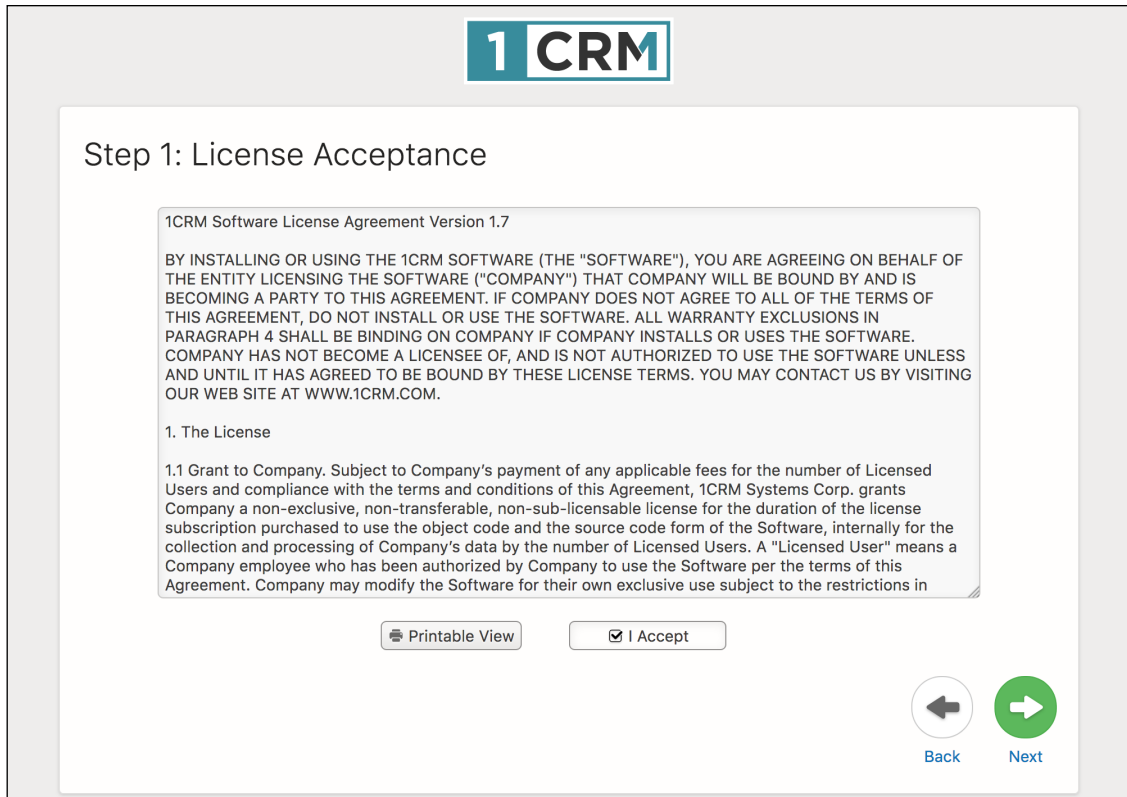
Figure 91: Install Step 1 – License Acceptance

3. Install Step 1: License Acceptance - Click on the *I Accept* checkbox, and then on the *Next* button.

4. Install Step 2: System Check - Now you see the 1CRM system check screen. The 1CRM installer checks several aspects of the installation environment, and reports their status to you on this screen. You will see a series of green (and perhaps a few red) status messages down the right hand side of the screen. They need to be all green for the installation to proceed.

Figure 92: Install Step 2 - System Check

If they are all green, click on the *Next* button to proceed to the next step of the 1CRM installation process.

If they are not all green you should act on any diagnostic details provided beside the highlighted issue, and go back to your server setup to see where things went wrong.

5. Install Step 3: Database Configuration (see the figure below) - Set *Host Name* to *localhost*, *Database Name* to *onecrm, Database User Name* to *onecrm*, and *Database Password* to whatever you like (*crm80dbpsw* is one suggestion).
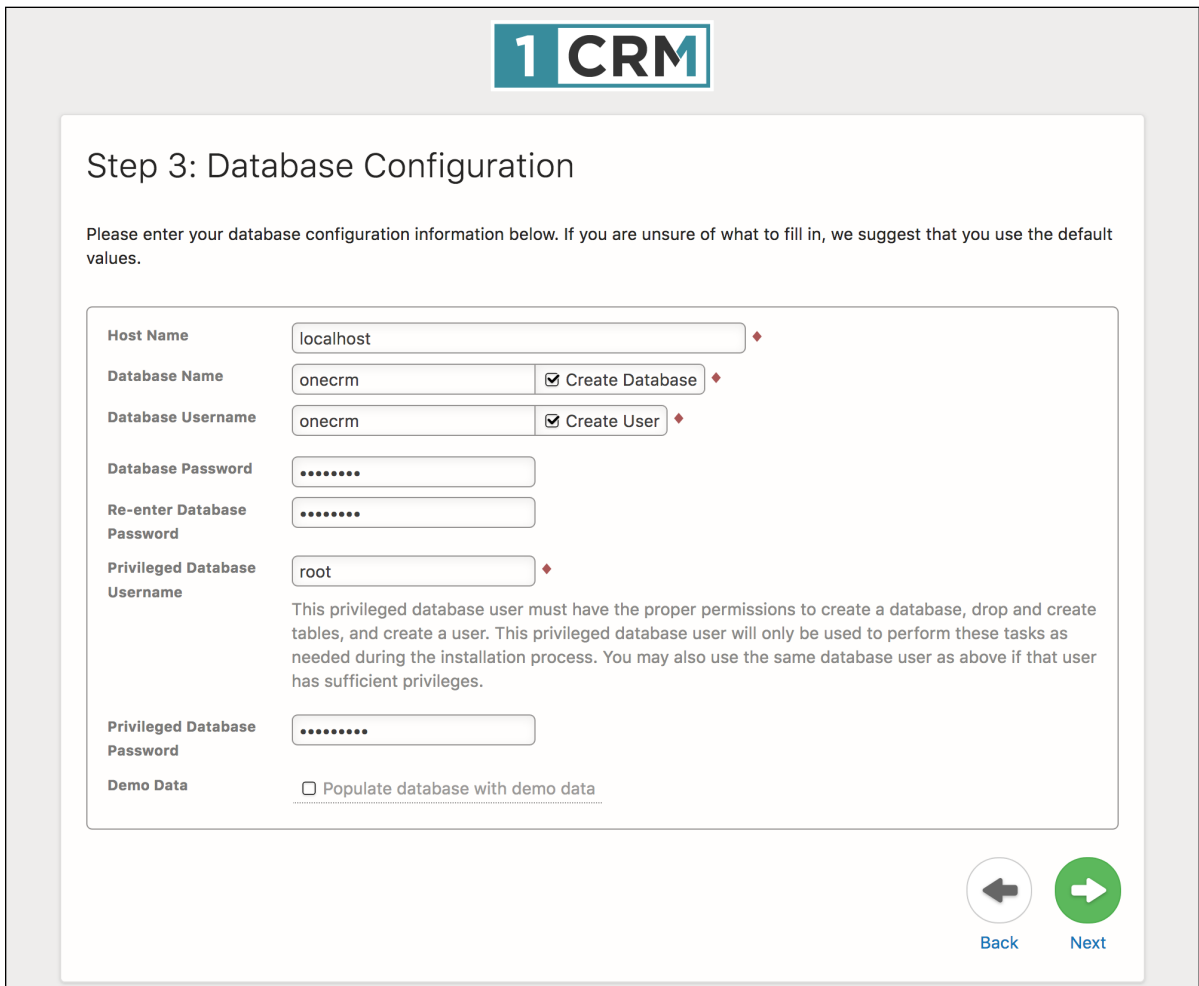
    Click on *Create Database* and *Create User* if this is a new installation.

    Click on *Drop & Recreate Existing Tables* only if this is a re-installation.

    Click on *Populate database with Demo Data* if you would like some test data created for you.

    Set the *Privileged Database User Name* to *root*, and the *Privileged Database User Password* to the root password for MySQL (as defined earlier when installing MariaDB/MySQL).

    Then click on the *Next* button.

Figure 93: Install Step 3 – Database Configuration

6. Install Step 4: Site Configuration – As shown in the figure below, enter the new password you wish for the 1CRM Admin user, and confirm it. You can set the URL as you like - but **make sure it is an absolute URL not a relative one, and that is is a URL that is usable externally, not a LAN IP address or similar**. This is a critical point - if you do not do this correctly, you will have many severe issues down the line with your installation.

   Note: Make certain the URL of the 1CRM Instance field is set to an absolute URL that is addressable externally! Also make sure that the URL can be resolved locally on the server running 1CRM. This is of critical importance.

   Then click on the *Next* button to proceed to Install Step 5.

Figure 94: Install Step 4 – Site Configuration

Note: The checkbox *Save Installer Configuration* is used at Step 4 of the installation process to tell the installer that you want to make a 1CRM installation template from this installation session. Later on, at Step 7 (if installing without demo data) or Step 9 (with demo data) you will see a link to download the *installer_config.zip* file.

7. Install Step 5: Locale Settings – As shown in the figure below, you can upload language packs at this time. You can also set your installation's default localization values for date, time, currency and character sets, etc.. Once you have done that, then click on the *Next* button to proceed to Install Step 6.

Note: Selecting your default currency on this screen is a critical item. You cannot change it after the system is installed and running. This is your only chance to set a default currency other than US$.

Figure 95: Install Step 5 - Locale Settings

8.   Install Step 6: Confirm Settings - This screen (see figure below) simply shows you all the settings you have provided for the 1CRM installation. If they look correct, click on the *Next* button to proceed with the actual 1CRM installation.

Figure 96: Install Step 6 - Confirm Settings

9. Install Step 7: Perform Setup - You should see a screen like the first figure below. Note it will take a minute or two to complete – so be patient! The progress bar goes from left to right for each step of the process. When a step is complete, it gets a check mark, and the next step begins. By the time the setup is complete (as shown in the second figure below) your 1CRM installation is ready to go - unless you chose to have demo data installed. If demo data is being installed, Install Steps 8 and 9 will be performed, as shown below. If not, just skip down to paragraph 12 below, which begins with "Congratulations - you're done.".
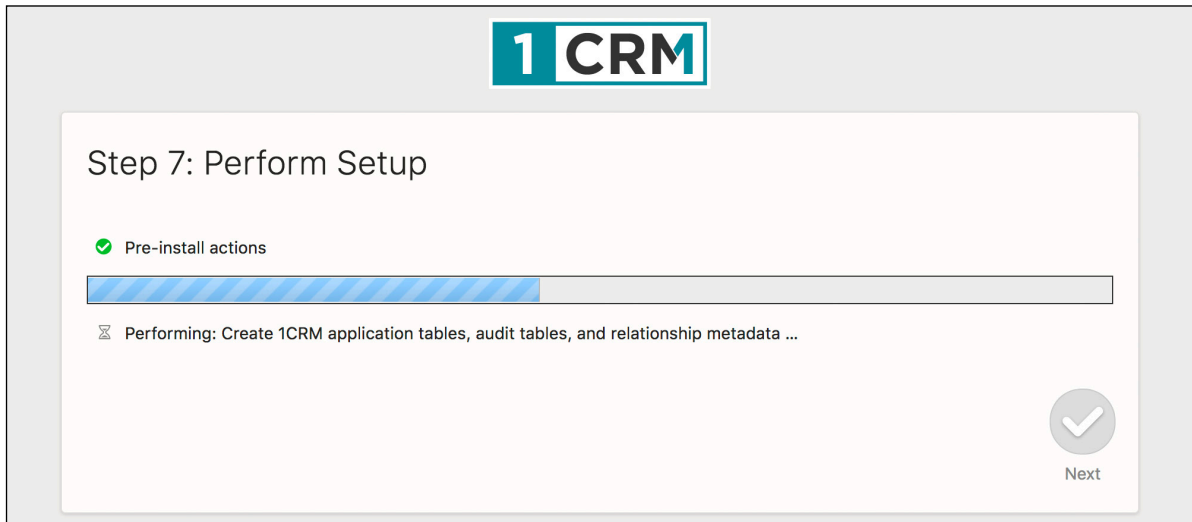

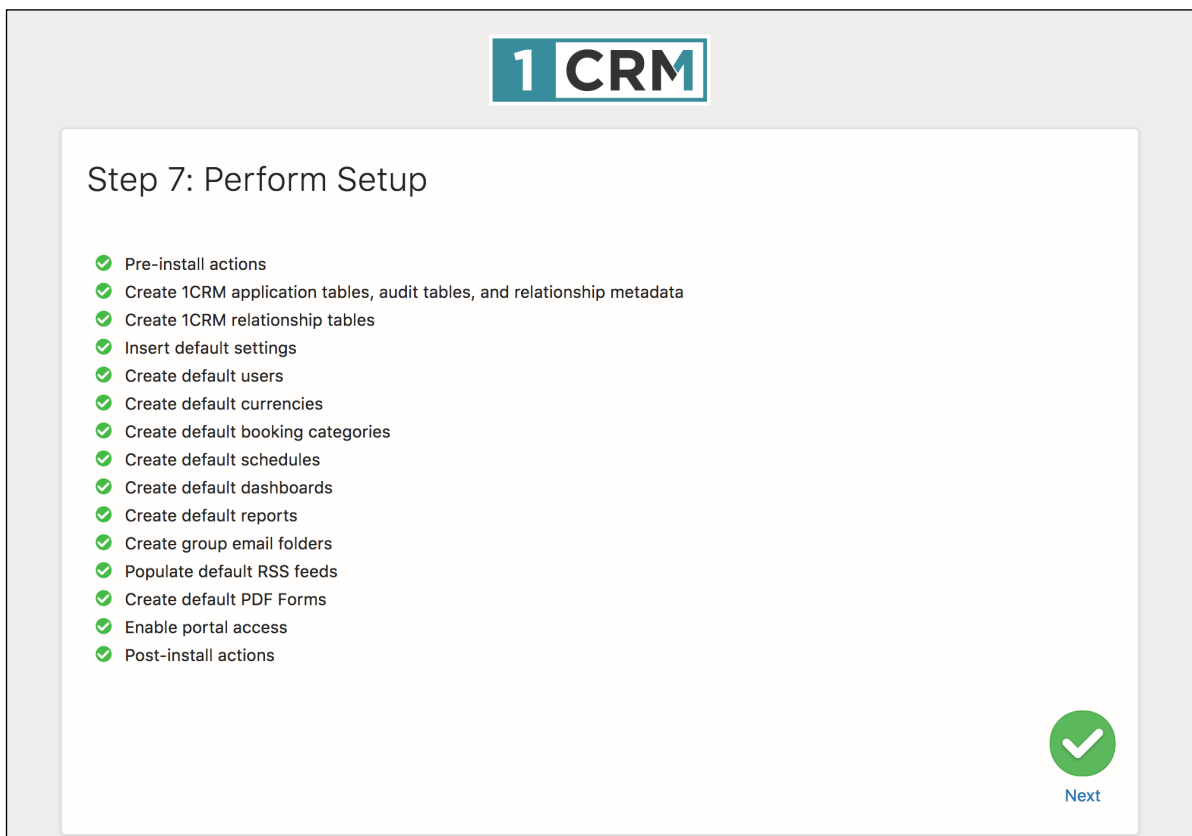**Figure 97: Install Step 7 – Perform Setup (In Progress)**

Figure 98: Install Step 7 – Perform Setup (Complete)

10. Install Step 8: Demo Data Configuration - On this screen you select what demo data you would like to have installed. At the top of the screen is a convenient checkbox to select or de-select all of the items. Notice that some items will automatically select other items, as there are dependencies between various items of data.
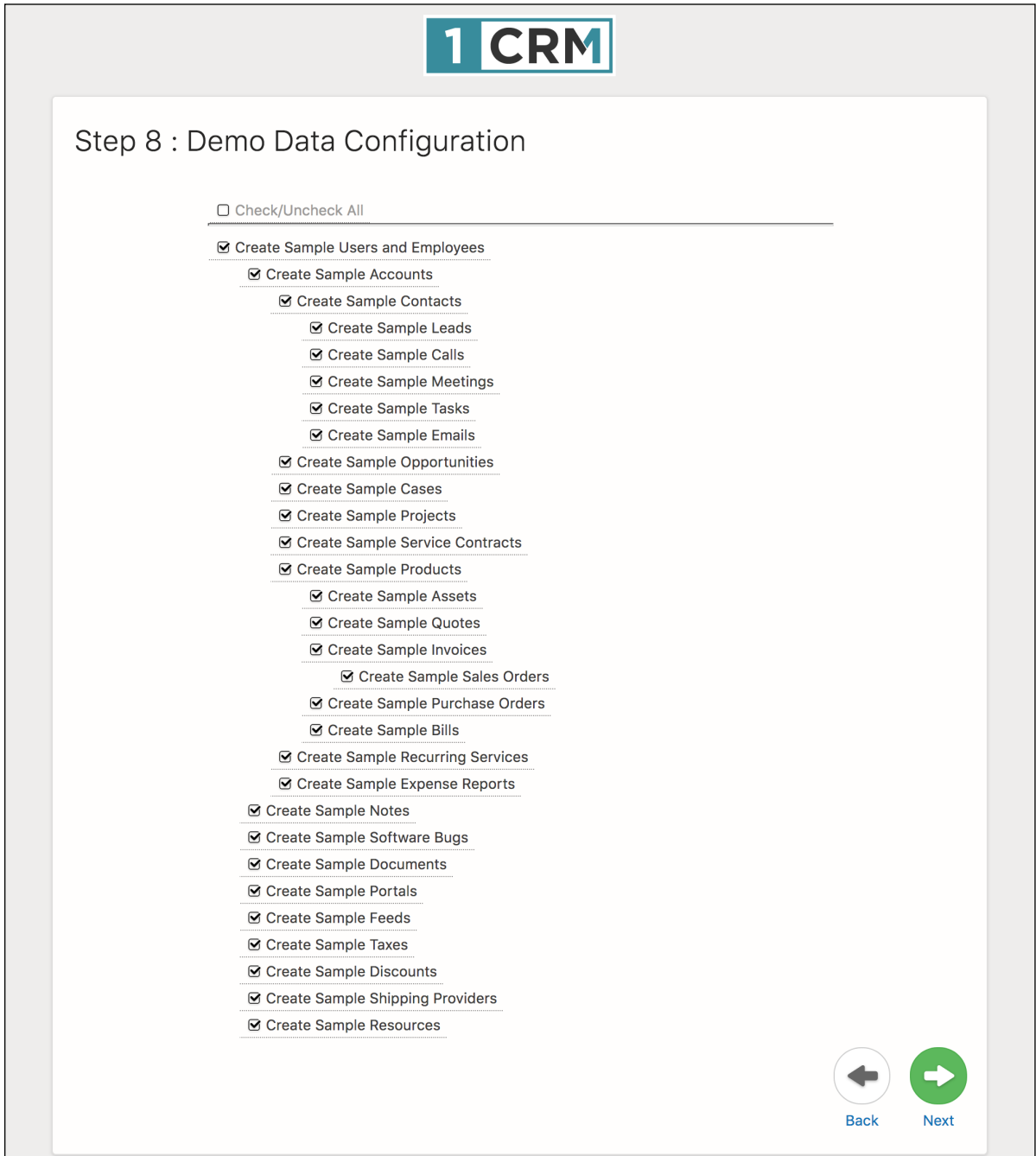

Figure 99: Install Step 8 – Demo Data Configuration

11. Install Step 9: Demo Data Installation - This screen is a bit like Install Step 7, in that a series of progress indicator bars are generated, each leaving behind it a step of the demo data installation with a check mark once it is completed. Eventually your screen should resemble the one below, once all the demo data selected has been added to your database.
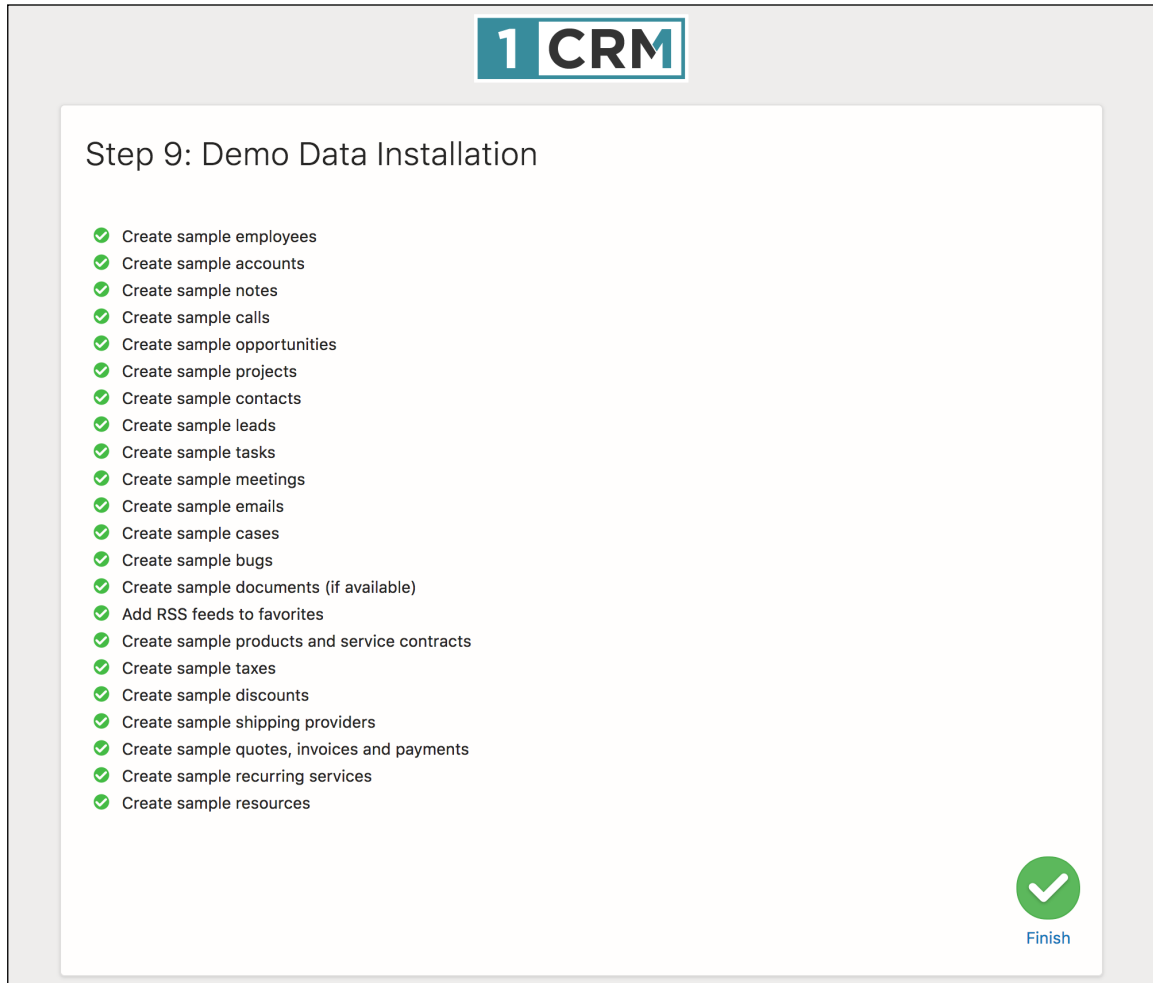

Figure 100: Install Step 9 – Demo Data Installation

Note: The checkbox *Save Installer Configuration* is used at Step 4 of the installation process to tell the installer that you want to make a 1CRM installation template from this installation session. Later on, at Step 7 (if installing without demo data) or Step 9 (with demo data) you will see a link to download the *installer_config.zip* file (see Figure above). Once you have downloaded the file, it may be used as part of the one-step installer process - typically by system admins making trial sites or sandboxes for testing.

To perform a one-step install, browse to http://yoursite.com/install.php?auto. A screen similar to the *Step 3: Database Configuration* screen above is displayed. It contains a set of options that are unique to each 1CRM instance (db configuration, mainly). The *installer_config.zip* file can be uploaded from this screen. If it is uploaded, any options chosen when creating the config file (localization, demo data, language packs etc) will apply to this new installation. (The Admin user password is always set to *admin*.) After clicking *Next*, the installation begins without any further input.

The installer can be launched via command line as well. Enter **php install.php --help** to see the list of command line options. We recommend you *su* to the web server user before running the installer. The *installer_config.zip* file can also be used with the command line installer.

12. Congratulations – you're done. Just click on the *Finish* button to login to 1CRM for the first time.
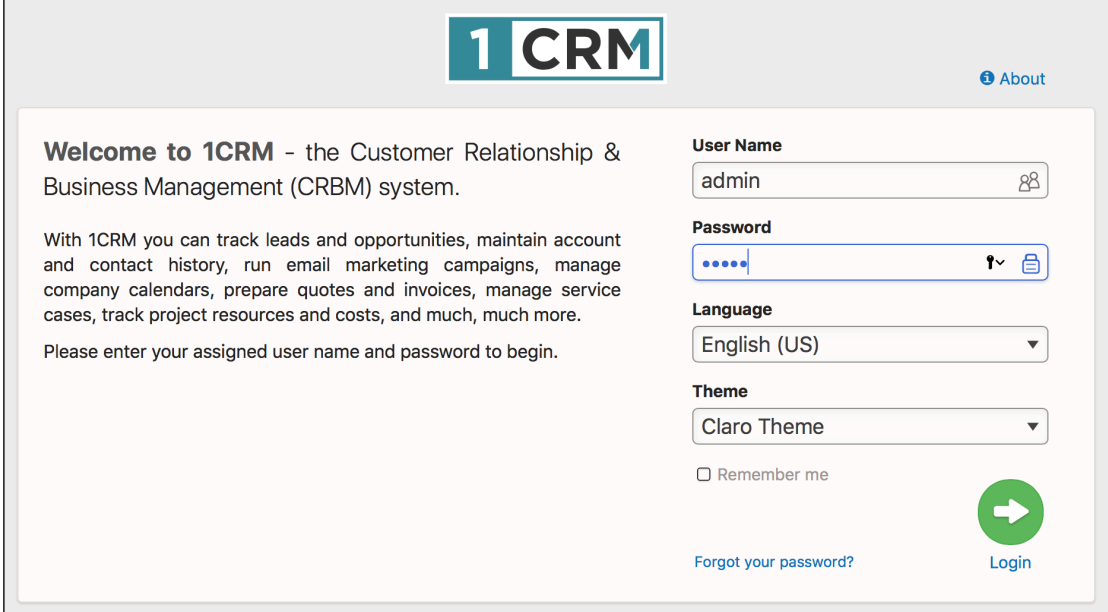

Figure 101: Install Complete, Ready to Login

13. Log in, using the user name *admin*, and the admin password you provided in step 6 (Install Step 4) above.

14. The first time you login, the system will take you automatically to *License & Support* on the Admin menu screen.
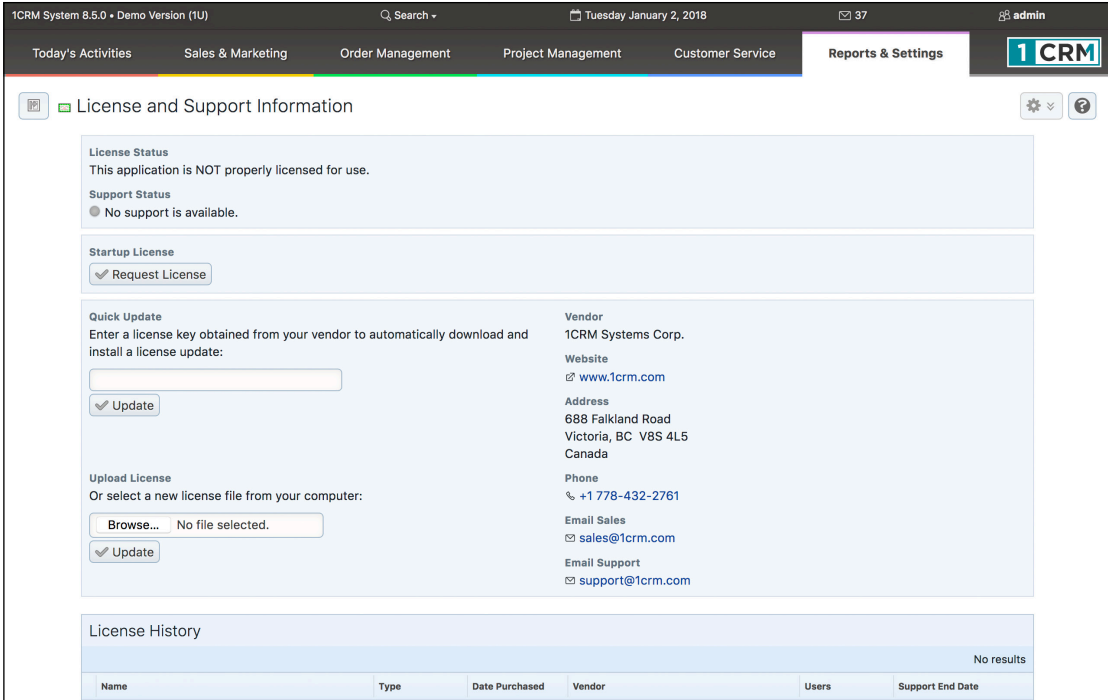

Figure 102: Applying the License Key

15. Enter your license key in the *Quick Update* box, and click on the *Update* button. You will see a screen like the one below, confirming that the license key has been applied successfully. If you are installing the *1CRM Startup Edition*, instead of entering a license key just click on the *Request License* button, enter your license and registration information into the popup form that appears, and then click on the *Send Request* button.

(***Note:*** Your server must be connected to the Internet as you perform this step.)
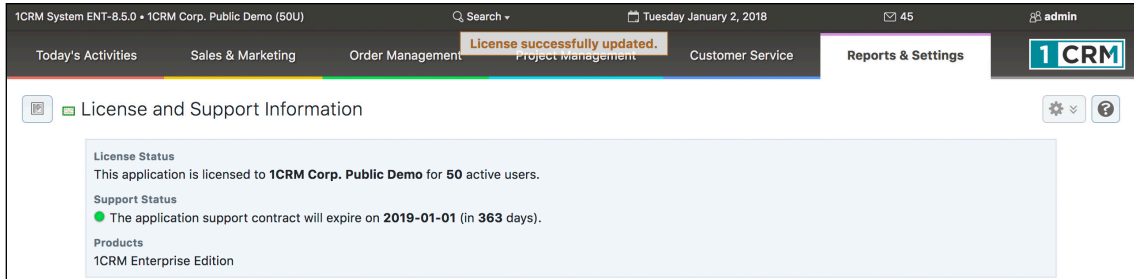

Figure 103: License Key Applied Successfully

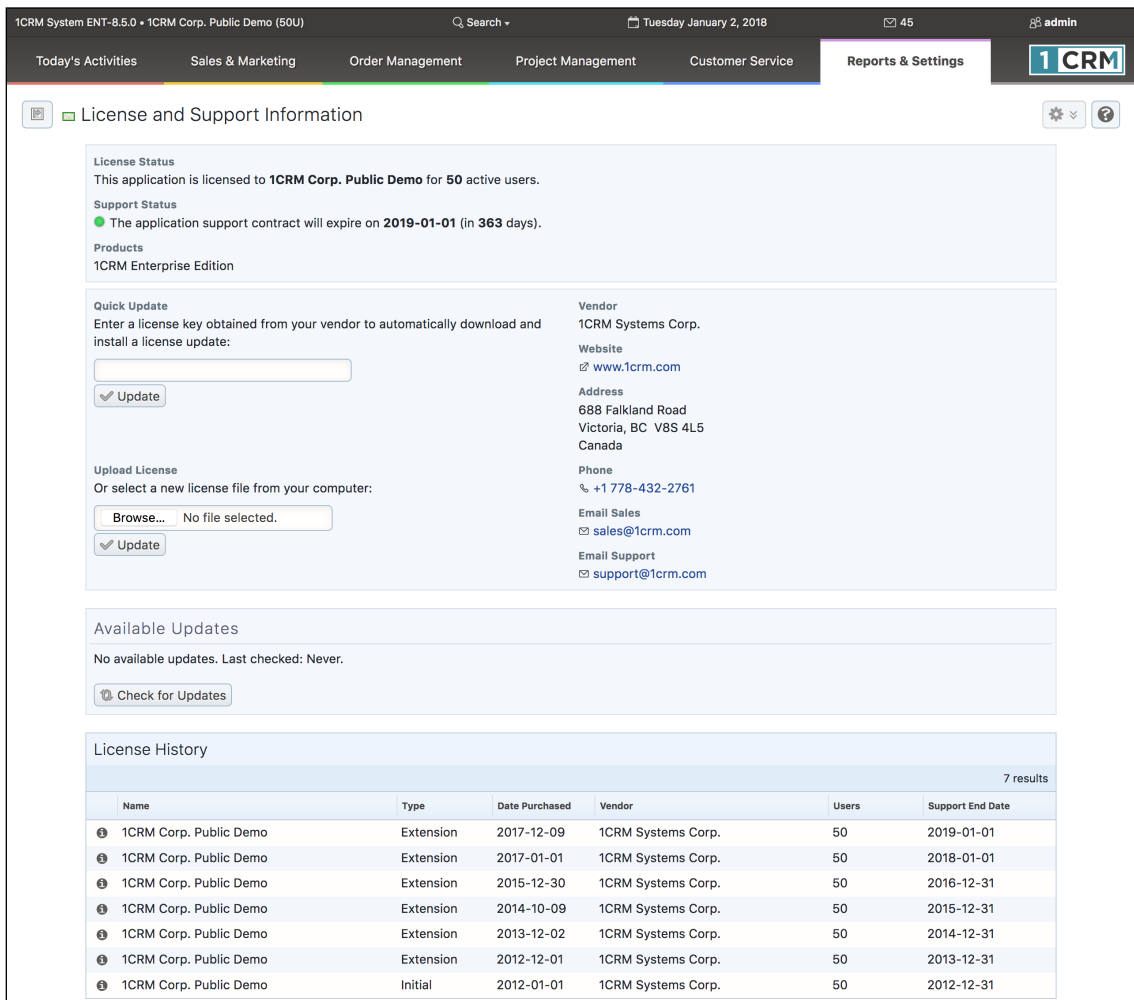16. Click on *Return to List*, and you should see your license information displayed like this:

Figure 104: License & Support Screen With License Details

6.6 Configure Installation Settings

➡ Setup the Scheduler

1. Add the scheduler to your list of scheduled tasks in *crontab*, as follows:

2. `sudo vi /etc/crontab`

   and add this at the end, as the last line of it:

   `*/5 * * * * apache cd /var/www/html/1crm; /usr/bin/php scheduler.php`

   This is required to enable automated incoming email, as well as to enable all other scheduled tasks within 1CRM. The path **/var/www/html/1crm** ends in **/1crm** as that was the folder in which 1CRM was initially unzipped.

Congratulations – you have completed the installation of the 1CRM System. We hope you enjoy using it, and that it makes a significant contribution to the effective management of your organization.

6.7 Azure Cloud - CentOS 7 Software Stack

Stack Components	Versions	Comments
Operating System		
Linux	*CentOS 7.3*	*64-bit version*
Web Server		
	Apache 2.4.6-45	*Supports any version that runs PHP*
Database		
	MariaDB: MySQL 5.5.52	*MyISAM Tables required*
PHP		
	7.1.4	
		Zend Server is supported
Browser		
	Microsoft Edge 38 or better	
	Firefox 12 or better	
	Chrome 30 or better	
	Safari 6.1 or better	

Figure 105: 1CRM on Microsoft Azure Software Components & Compatibility

Note: MySQL 5.1.x or later is required.

🡢 Reference Platform for Microsoft Azure VMs

CentOS 7 Linux Software Components

- PHP version 7.3
- MariaDB: MySQL 5.5.52
- Apache 2.4.6
- CentOS 7.3, 64-bit

Note: As of release 8.5 1CRM now requires PHP 7.x as a minimum, and supports up to PHP 7.1.

7.0 System Administration

Administrators of the 1CRM system perform their functions via the System Administration screen, which is reached by clicking on the Admin link *(see highlighted item 1, on Figure 106 below)*. Note that the Admin link is only displayed for users with Administrator capability.
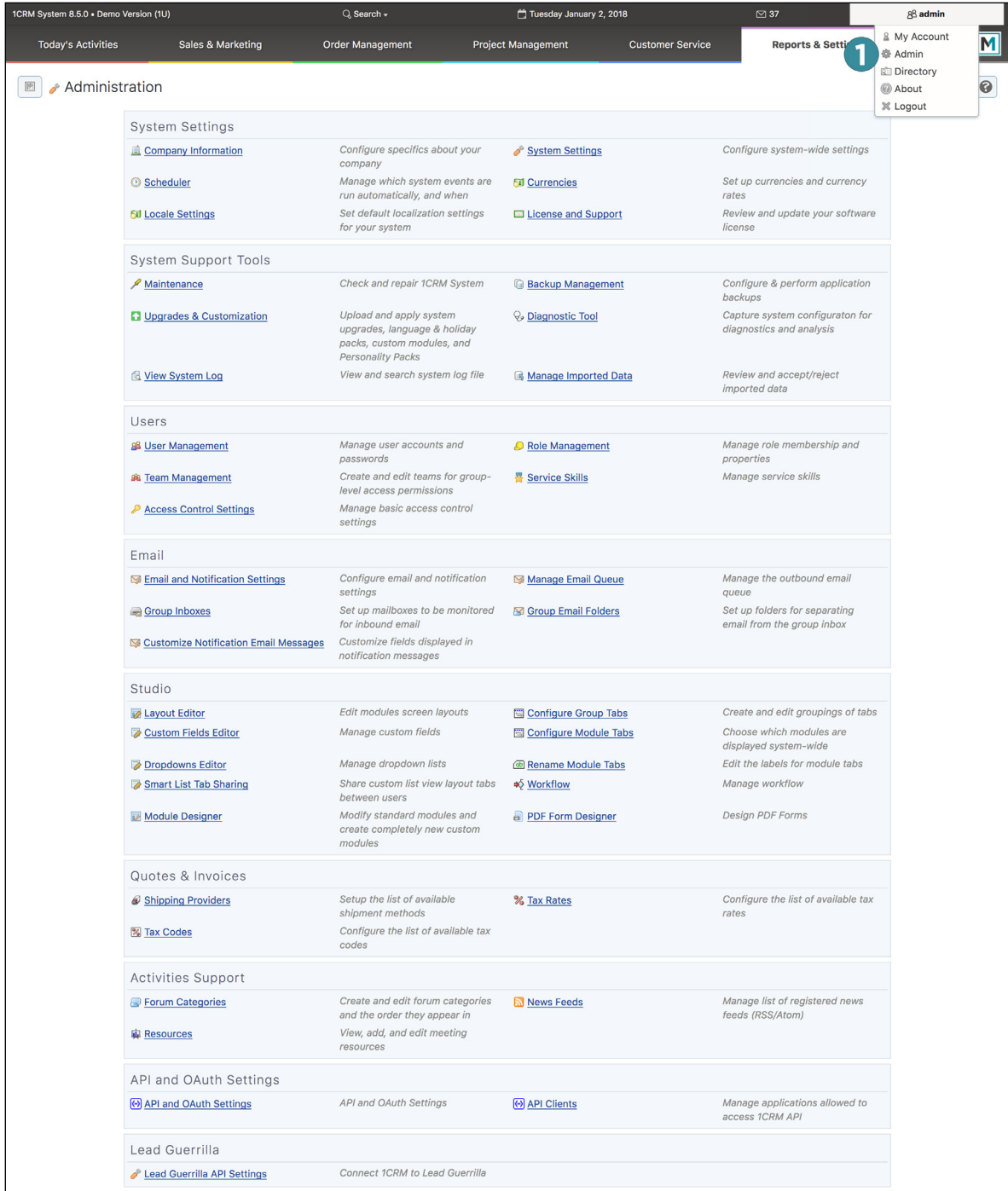

Figure 106: System Administration Module

Within the Admin home screen, there are nine main groups of administrative functions:

1. The *System Settings* administration function group offers six options:
   - *Company Information*
   - *System Settings*
   - *Scheduler*
   - *Currencies*
   - *Locale Settings*
   - *License & Support*

2. The *System Support Tools* administration function group offers six options:
   - *Maintenance*
   - *Backup Management*
   - *Upgrades & Customization*
   - *Diagnostic Tool*
   - *View System Log*
   - *Manage Imported Data*

3. The *Users* administration function group offers five options:
   - *User Management*
   - *Role Management*
   - *Team Management*
   - *Service Skills*
   - *Access Control Settings*

4. The *Email* management administration function group offers five options:
   - *Email & Notification Settings* – used to configure the system's settings for email editing and sending, for email campaigns, and for email notifications.
   - *Manage Email Queue* – which lets the administrator monitor and control the mass mailings generated by email campaigns within the Campaigns module.
   - *Group Inboxes* – which lets the administrator define email boxes to be polled for group email.
   - *Group Email Folders* - which lets the administrator define new folders within the shared Group Inbox within the Email module. The default folders created at installation time are Inbox, Campaign Responses, and Support.
   - *Customize Notification Email Messages* – which lets the administrator define the content of email notifications.

5. The *Studio* administration function group offers ten options:
   - *Layout Editor* – used to customize edit and detail view screens
   - *Custom Fields Editor* – defines new fields, which then may be used in layouts
   - *Dropdowns Editor* – used to edit values for standard or custom dropdown fields
   - *Smart List Tab Sharing* – for sharing Smart List tabs among users
   - *Workflow* – used to define workflows that automate business rules

- *Configure Group Tabs* – let's you re-arrange how modules are presented within tab groups
- *Configure Module Tabs* – used to suppress the display of selected modules
- *Rename Module Tabs* – let's you rename specific modules
- *Module Designer* – let's you create all-new custom modules, and edit metadata definitions for existing modules (an Enterprise Edition Only feature)
- *PDF Form Designer* – let's you create modified or all-new custom PDF Forms, to use when printing Invoices, Quotes, Service Work Orders, etc.. (an Enterprise Edition Only feature)

6. The *Quotes & Invoices* administration function group offers three options:
   - *Shipping Providers*
   - *Tax Rates*
   - *Tax Codes*

7. The *Activities Support* function group offers three options:
   - *Forum Categories*: Lets the administrator define the Categories for the Forums modules. These are the major topic areas into which Forum threads are organized.
   - *News Feeds*: Manages a list of News Feeds URLs, starting with a default list for which the administrator may add or remove entries. These News Feeds are then used by the *News Feed* dashlet on any dashboard page.
   - *Resources*: The Resources function lets the administrator define resources such as meeting rooms and overhead projectors that may be reserved for meetings.

8. The *API and OAuth Settings* function group offers two options:
   - *API and OAuth Settings*: Defines the Private and Public keys for OAuth interoperability, as well as controlling API authentication and security level settings.
   - *API Clients*: Manage the applications allowed to access the 1CRM API.

9. The *Lead Guerrilla* function group offers one option:
   - *Lead Guerrilla API Settings*: Enable/Disable Lead Guerrilla integration for 1CRM, and define the settings for its URL and API access.

In addition, this System Administration section will deal with the topics of managing the mass email queue, how to set up the system to enable it to perform mass emails and retrieve email using POP3 and IMAP, and how to manage free/busy calendar information.

7.1 System Settings

➡ 7.1.1 System Settings: Company Information

Company Information has nine sections. The first is used to set several items of *General Information:*

- Your Business Model - Business to Business, or Business to Consumer. While 1CRM is primarily a Business to Business targeted design, selecting Business to Consumer here will cause the display of Accounts data to include the information about the account's primary contact. As well – the logic of the Lead conversion process is changed, and Accounts have names that are automatically generated from the name of the primary contact. In general, Contacts become almost unused, and Accounts (with Account names generated from Contact names) become the main data that users work with.

- If the Business to Consumer model is selected, the Account Name Format field is displayed. It should be set to a text string of the form of *l, s f*, for example – which would produce generated Account names of the form *Doe, Mr. John*.

- The month in which your fiscal year starts each year (used in several modules).

- The number of hours in a work day (used to add days and hours together when costing projects).

- The timesheet period to be used in the Timesheets module (Weekly, Bi-Weekly, Semi-Monthly, or Monthly).

- The paper size to be used when generating PDFs (Letter, Legal, A4, etc...).

- The Forecast period to be used in the Forecasts module – either monthly or quarterly may be selected.

- The font to be used when generating PDFs (Note: Font selection is required to support Chinese, Japanese, and Korean fonts on PDFs – see the list of fonts available).

- The number of Forecast Periods (current period and into the future) to be retained by the system.

- PDF Footer text and link URL - Used to set the one-line message at the bottom of all generated PDFs, as well as the hyperlink on that text. (***Note:*** These cannot be changed in the Startup Edition)

- The number of History Periods (before the current period) to be retained by the system.

- The first day of the week - this controls how calendars are displayed - typically with Monday as the first day on the left side, or Sunday, depending on local convention.

- Work day beginning and end time - this is used to set the default beginning and ends times for any new users that are added. They can then set their own preferred beginning and end times if they like, on their My Account page. These times are used to control the daily calendar display.

The second section allows you to define a number of settings used to control the *Customer Service* capabilities within 1CRM:

- *Case Queue User* – This is the User to which all new Cases will be assigned by default. If no user is selected, then the system of automatic assignment of Cases when requested by technicians is disabled. See more details in the section on Cases.

- *Assign New Leads To* is used to control which user all new leads are automatically assigned to when created by the system - such as by the lead capture process.

- *Next Case Number* - Sets the next Case number to be used.

- *Next Bug Number* - Sets the next Bug number to be used.

- *Standard Work Order Terms* - Allows you to define text to be used as your Standard Terms and Conditions for Service Work Orders. When a Work Order PDF is created from a Service Case the text defined here will be automatically added at the bottom of the document.

- *Auto-Add Hours to Case Invoice* - Enables automatic adding of approved but un-billed booked hours to associated case when generating an invoice for a Case.

- *Auto-Add Hours to Project Invoice* - Enables automatic adding of approved but un-billed booked hours to associated project tasks when generating an invoice for a Project.

- *Default Case Booking Category* - Sets the normal *Booking Category* to be used for hours booked to service case work.

- *Default Project Task Booking Category* - Sets the normal *Booking Category* to be used for hours booked to Project Tasks.

- *Cases Auto-Close: Warn When No Activity (days)* - When this value is set to something other than zero, the client is sent an email warning of impending case expiry that many days after the case status is set to *Pending*. (The scheduler task *Close Expired Cases* must also be active.)

  Case Status is normally set to *Pending* when a user sends an email related to a case, via a *New Case Status* field on Email Edit View. A different case status may be set by changing the value of that field from the default *Pending*. *Case Resolution* information may also be entered there.

- *Cases Auto-Close: Close When No Activity (days)* - When this value is set to something other than zero (and larger than the *Case Auto-Close* warning value above, if non-zero), cases will be automatically closed and set to a status of *Closed - Expired* that many days after being set to *Pending*. (The scheduler task *Close Expired Cases* must also be active.) The *Survey and Ratings* email will also be sent if that option is enabled.

  Users will typically set Cases to *Pending* when awaiting client feedback, and this feature will close cases in the absence of that feedback.

- *Cases Auto-Close: Enable Case Surveys and Ratings* - Checking this option will enable the Case Rating system. A *Rating* field (star rating) on each case is added, visible only when the client assigns a rating to the case. When a case is closed, the client is sent an email via which they can simply rate the service quality on their case by number of stars, or complete a customer satisfaction survey.

- *Cases Auto-Close: Request Comments on Case Survey* - When this option is checked and the *Enable Case Surveys and Ratings* option is checked and a case is closed, the client is sent an email in which they are requested to comment via a customer satisfaction survey.

The third section allows you to define a number of settings used to control the *Order Management* capabilities within 1CRM:

- Quote/Invoice Layout – selects which Quote/Invoice layout to use for your business (*Company address in page header*, *Company address under logo*, *Company address for envelope*)

- Add Comment Lines - This option may be enabled for Products, Assemblies, or both. When it is enabled, then when adding a new line item to a quote, sales order or invoice, the description field from the product (or assembly) will be added automatically to the line item list as a comment line immediately following the product or assembly.

- Print and Email Statements Layouts - selects which layout to use when generating multiple Statement PDFs for emailing or printing from the Mass Update panel of the Accounts list view.

- Envelope Window Position - selects left or right window position for layouts designed for window envelopes.

- Add Booked Hours Comments - chooses whether or not to include comments added to booked hours entries on Invoice PDFs generated from Projects or Cases.

- Tax Information – the VAT number or other tax registration number of your business.

- Shipping Is Taxed – sets the default taxable status for shipping charges

- Default Tax Code for Shipping

- Approve Quotes – Enable if Quotes need approval before they may be printed or emailed.
- Quote Approval Threshold ($) - If Approve Quotes is enabled, then if the value of a Quote is greater than this dollar value (if set) it must be approved by someone with the permissions set to be able to do so before it may be printed or emailed as a PDF.
- Quote Margin Threshold (%) - If Approve Quotes is enabled, then if the Gross Margin % of a Quote is less than this percentage value (if set) it must be approved by someone with the permissions set to be able to do so before it may be printed or emailed as a PDF.
- Approve Booked Hours on Cases - Un-check to disable the need for approvals on hours booked to Cases.
- Approve Booked Hours on Projects - Un-check to disable the need for approvals on hours booked to Projects.
- Show List Prices by Default - This option controls the default value of the Show List Prices setting when creating a new Quote.
- Show Pre-tax Totals - Use this check box to add pre-tax totals on Quotes/Invoices, or not.
- The Quote number prefix string, and next Quote number to be used;
- The Invoice number prefix string, and next Invoice number to be used;
- The Credit Note number prefix string, and next Credit Note number to be used;
- The Purchase Order number prefix string, and next Purchase Order number to be used;
- The Bill number prefix string, and next Bill number to be used;
- The Sales Order number prefix string, and next Sales Order number to be used;
- The Payment ID number prefix string and next Payment ID number;
- The Shipping number prefix string, and next Shipping number to be used;
- The Receiving number prefix string, and next Receiving number to be used;
- The Expense Report number prefix string, and next Expense Report number to be used;
- Payment Gateway – If you wish to process credit card payments from within 1CRM, you may choose Authorize.net (if your business is based in the USA, Canada, UK, Australia or Europe) or Stripe (if your business is based in USA, Canada, UK, Australia, Denmark, Finland, Norway, Sweden or Ireland, with many other countries coming).

Payment Gateways:

If one of these is selected, you must of course first sign up for an account with one of these suppliers. You will also need to define the currency your account uses, plus either your Stripe application key (Secret key), or your API Login ID and Transaction Key for Authorize.net.

For Authorize.net, your API Login ID and Transaction Key are ***NOT*** those used to login to the Authorize.net web interface. To obtain your correct API Login ID and Transaction Key, login to your Authorize.net account and choose *Account - API Login ID and Transaction Key*. You will see your API Login ID, which is what you must use as the login for 1CRM. Then generate your Transaction Key using the form at the bottom of the page. Use that generated key in 1CRM.

Note: For all of the prefix strings above, there are a number of codes that may be used in the string to include useful variables:

%y	2-digit year number
%Y	4-digit year number
%m	2-digit month number
%M	3-character month short-form text
%W	2-digit week number
%d	2-digit day number
%o	ISO-8601 adjusted year to match the week number

The fourth section is used to upload your company logo, for use on quotes, invoices, statements, and receipts. Note that the logo should be a PNG file, with dimensions of 400 x 88 pixels. If you upload a new logo, and the PDF shows a blank logo – then check for transparency in the logo!

The fourth section also allows you to upload a logo to be used in the top left corner of the screen, instead of the 1CRM logo.

The fifth section allows you to define custom user prompt text to be used on the *Application Login Page* for the application, and to choose if the custom text or standard text is shown. You might choose to add the contact phone number for the Help desk here, for example.

The sixth section allows you to define system-level GoToMeeting credentials. These will be used by default for all users that do not define their own GoToMeeting credentials on their My Account page.

The seventh section allows you to define system-level LiveChat credentials and configuration settings. For more information see details on this integration here.

The eighth section allows you to define text to be used as your *Standard Terms* and conditions for Quotes, Invoices, Sales Orders and Purchase Orders. When a PDF is created for one of these documents, the text defined here will be automatically added at the bottom of the document.

The ninth section is used to enter the company name and *Mailing Addresses*, which are used when generating PDFs in the Quotes, Invoices, Accounts, Payments and Reports modules. The system allows you to define multiple addresses, one of which must be marked as the main address. This will be the address used in most situations, but for Quotes and Invoices, you can choose to use one of the other addresses, when creating the PDF.

As well, each of these addresses may be marked as a warehouse location or not, and one may be the main warehouse. This warehouse information is used in the Shipping and Receiving modules, and in the inventory data kept in the Product Catalog.

➡ 7.1.2 System Settings: System Settings

System Settings has eighteen sections.

The first section configures several aspects of the 1CRM user interface – the number of items to be displayed in list views and sub-panel lists, the maximum number of dashlets on a dashboard, if server response times are to be shown at the bottom of each screen, and if Mobile Access displays should use one or two columns. *Default sidebar items per page* is used by the Claro theme to set the default number of items shown in the sidebar list view featured on detail views in the Claro theme.

Section two is used to enable or disable support for LDAP authentication. (**Note:** LDAP is an abbreviation for *Light Data Access Protocol*) If your organization has implemented LDAP authentication, you can also enable LDAP authentication in 1CRM. When your users attempt to log into 1CRM, the application authenticates them against your LDAP directory. If authentication is successful, the user is allowed to access 1CRM.

To enable LDAP authentication:

1. In the LDAP Authentication Support sub-panel, select the Enable LDAP box and enter:

Server	Enter the LDAP server name.
Base DN	Enter the base DN name.
Bind Attribute	Enter the attribute name used to bind the user's name.
Login attribute	Enter the attribute name used to search for the user in LDAP.
Authenticated User	Enter the user name.
Authenticated Password	Enter the user's password.
Auto Create Users	Select this option check the 1CRM database for the name and add it if it does not exist in the database.

The next section configures your server for the use of a proxy server, should 1CRM be intended to use one. When selected, this option allows the administrator to enter the proxy server's host name and port number, with optional user name and password for authentication.

The fourth, fifth, sixth and seventh sections are used to enable or disable the ability of 1CRM to integrate data (such as Cases, Bugs, Knowledge Base, Projects, Quotes, Invoices, Marketing Events, etc..) with a Self-Service Portal. If the initial checkbox is enabled, you must also enter the URL of your Self-Service Portal. When the Portal is enabled, you can use the *Portal Permissions* checkboxes provided to control which menu items are visible and accessible to users that are not yet logged in (Unregistered), and to *Basic* (Leads) and *Full* (Contacts) users of the Portal. There is also a checkbox available to choose to have a notification email sent each time a Lead is converted to a Contact and an Account by the eStore within the Self-Service Portal. This happens when a *Basic* Portal user makes a purchase and is converted to a *Full* Portal user.

Section eight configures the ability of users and/or administrators to export data from the system. The export delimiter character is also set, as is the default character set used for any exported data.

Section nine sets a number of parameters for Invoice behaviour in the system. One of these, when enabled causes 1CRM to add all the line items on each invoice to the Products sub-panel of the Account involved when the invoice is fully paid, making it easy to see which clients have purchased which products. As well, another option here enables or disables the ability of a line item on an invoice to be related to a Marketing Event. This is useful for businesses that run a lot of Marketing Events (such as seminars), and need to see what business volume they generate. When this option is enabled, new fields will appear on the Invoice Edit and Detail views. The next option in this section if selected causes a serial number field to be displayed for each line item on an Invoice, allowing multiple serial numbers to be tracked for each Invoice line item. Finally, you can set *Default Terms* here - which will be set on all new Quotes or Invoices, unless over-ridden by default terms for the Account involved.
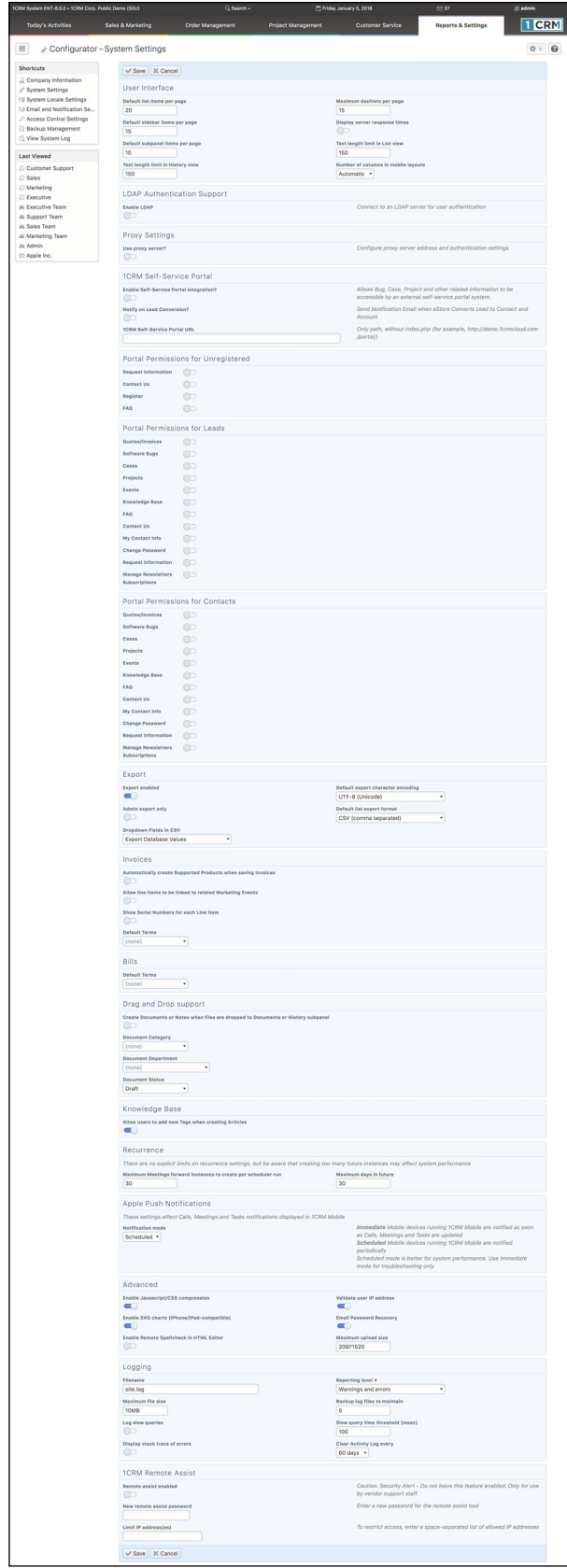
Figure 107: System Settings

Section ten has just one parameter, which sets the *Default Terms* for received Bills - which will be set on all new Bills unless over-ridden by default terms set on the supplier.

Section eleven has several parameters which control certain aspects of *Drag and Drop* support within 1CRM for all users.

- The first parameter *Enables* or *Disables* the ability to *Drag and Drop* files onto the History and Documents subpanels throughout the system, to create new Notes and Documents.

- The remaining settings may be used to define defaults for Document *Category*, *Department* and *Status*, when adding new Documents via Drag and Drop.

Section twelve has just one parameter, which controls the ability of regular system users to add new Tags when creating new Articles in the Knowledge Base module. When it is not enabled, users must relate new Articles only to existing Tags.

Section thirteen is used to configure the settings for Google Maps integration in 1CRM. Several important administrative functions may be performed here:

- First and most importantly, this is where you set the Google Maps API key for your 1CRM instance. You need one of these in order for any of the Google Maps functions within 1CRM to function properly. Your system comes with this key set to a default key provided by 1CRM. This key, however, is shared by all 1CRM installations everywhere, and has its usage capped to a maximum each month, after which it stops working. So if you plan to use Google Maps much you should go through the process of obtaining your own key.

  Google's current policy is to provide a monthly credit of US$200 after which use of your key will be billed to you. Pricing is tiered, based on volume of use, with three tiers: 0–100,000; 100,001–500,000; 500,001+ (see details here). Click on the Obtain a key link to learn about the process of getting your own API key. You will need to obtain a Google developer account, then create a project in the Google developer console. Next you will need to enable billing for the project, and then finally add the maps API to your project.

- On the Accounts, Leads and Contacts list views, 1CRM users may select multiple items and choose to view them on a single common map, using the *Display on Map* option available from the Action button. For each address displayed on a map, 1CRM can display a popup window with the Account, Contact or Lead's name and address. You can choose up to 3 additional fields to show in those popup windows using the multi-select dropdown controls provided here.

Section fourteen controls the behaviour of recurring meetings in 1CRM - both the maximum number of recurrences will be created per scheduler run, as well as the maximum number of days in the future that recurring meetings will be established.

Section fifteen controls the Apple Push Notifications service (APNs) integration within 1CRM.

Notification Mode has two options:

- *Immediate* - Mobile devices running 1CRM Mobile are notified as soon as Calls, Meetings and Tasks are updated
- *Scheduled* - Mobile devices running 1CRM Mobile are notified periodically via the scheduler

Scheduled mode is required for proper system performance. Use Immediate mode for troubleshooting only.

Section sixteen configures a number of advanced parameters that control how the server will manage itself:

- if Javascript/CSS compression is to be used (this setting makes a large improvement in the speed of 1CRM when enabled)

- if IP address validation is in effect (for security the server can force you to re-login if you are seen to be coming from a new IP address)

- if SVG (Scalable Vector Graphics) charts are enabled, or older Flash technology is used instead when drawing charts within 1CRM. SVG works well on iPhone and iPad devices, which Flash does not. Google Chrome, Mozilla Firefox, and Apple Safari all support SVG perfectly well.

- the maximum file upload size

- if the Spell Checker is enabled in the HTML Editor used for email and several other large text area fields

The seventeenth section configures logging from the application, when trying to track down some unusual behaviour of the system. Leave the values here at their defaults unless instructed to change them by 1CRM support staff.

The final section controls 1CRM remote assist, a system used by 1CRM support staff to perform advanced system support functions. Do not leave this feature enabled. It is only for use by 1CRM support staff.

7.1.3 System Settings: Scheduler

The Scheduler consolidates all of the tasks within 1CRM that need to be run by the system on a timed basis - not by the action of a user. At present, that includes twenty-three types of activities:

Figure 108: The Scheduler

- Sending email re: upcoming calls and meetings
- Creating recurring items
- Closing Expired Service Cases
- Closing off vacations whose dates are now in the past
- Cleaning up older emails
- Scanning for expired service sub-contracts, to send reminder emails
- Scanning for overdue project tasks, to send reminder emails
- Schedule drip-feed campaign emails
- Retrieving inbound user and group email
- Sending campaign emails
- Sending event reminder emails

- Syncing Google Calendar Events
- Processing workflows
- Processing bounced campaign emails
- Pruning the database
- Remove older report runs
- Running a system backup (both database and installation directory, including /cache)
- Updating the forecast periods
- Running scheduled reports
- Sending invoices to clients from the Recurring Services module
- Syncing Google Contacts
- Syncing Google Drive
- Update MaxMind database used to lookup IP address geolocation for tracking sent emails
- Updating currency exchange rates (uses web service provided by European Central Bank)

The Scheduler needs to be linked to the operating system mechanism for scheduling tasks (*see Section 7.10*) in order for it to function. If your inbound emails or scheduled reports are not working, this is likely the cause. Look for the green LED and the status message that says "External triggering of the Scheduler appears to be working correctly".

Each of the Scheduler activities can be set to run automatically with a frequency as low as a few minutes, or a high as once a day, week, month or longer. Scheduled activities can also be set to trigger based on user activity such as a user login, or even on each page load (not usually recommended).

7.1.4 System Settings: Currencies

The Currencies screen is used to define currencies other than the US dollar. For each new currency defined, the name, ISO code (such as CDN for the Canadian dollar), exchange rate to the base currency (which defaults to the US$, and is set at time of installation only), symbol (e.g. $ - a check box can configure the symbol to be displayed after the amount) and significant digits (number of digits after the decimal separator) must be entered.

Note: Each User can select their default currency in the User Management screen.

Note: Your default currency can only be defined during the installation process, and may not be altered once the system has been installed and is running.

7.1.5 System Settings: Locale Settings

The Locale Settings screen contains many options to control the customization of 1CRM for the country or region you work in. There are three panels, for *User Interface*, *Telephony* and *Database Collation*.

User Interface: Use this panel to set system-wide default formats for date, time, language, name format, and currency.

Default Date Format: From the drop-down list, select a date format for all records such as Accounts. Users can override the default format by setting a different date format in their My Account page.

Default Time Format: From the drop-down list, select a time format to display in all records such as Cases. Users can override the default format by setting a different time format in their My Account page.
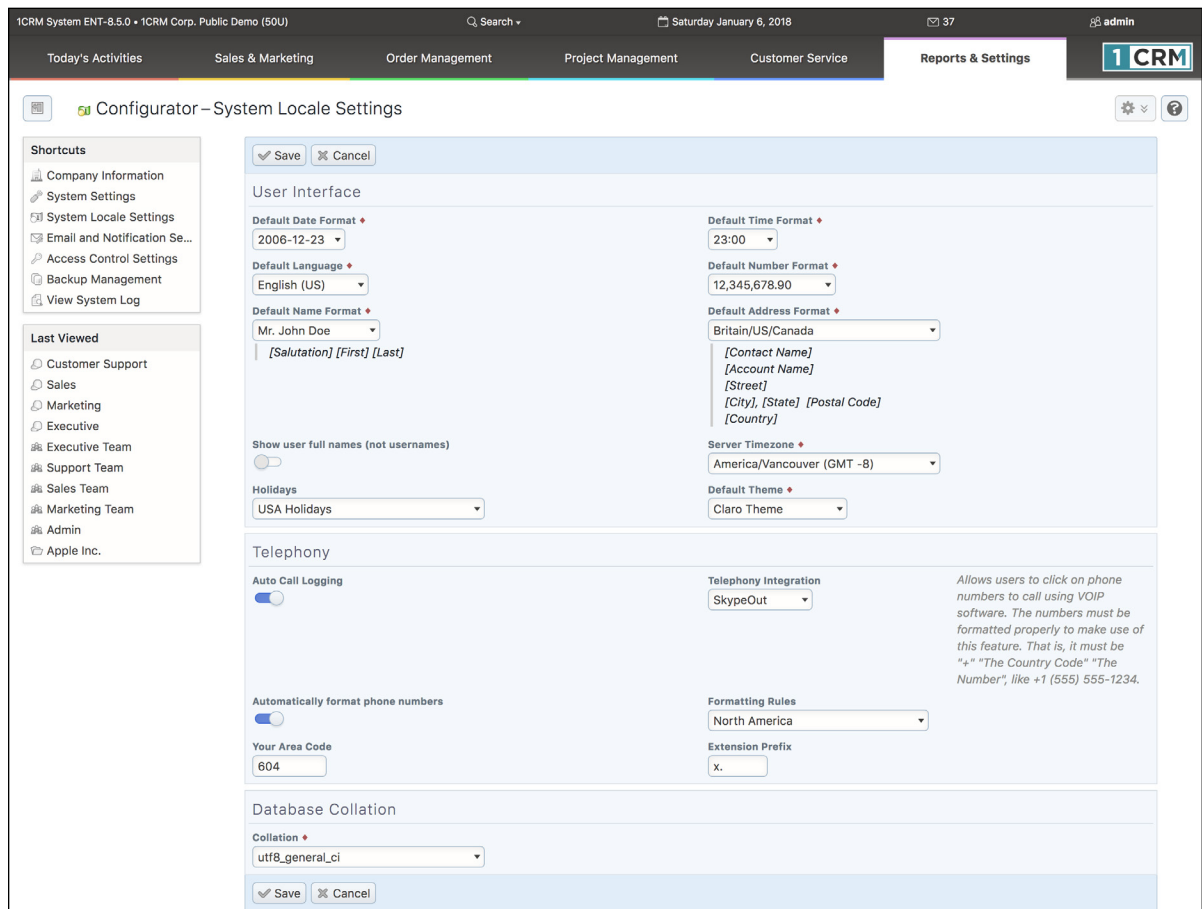
Default Language: From the drop-down list, select the default language for the 1CRM User

Interface. Users can select a different language from the login page, provided they have installed the appropriate language pack.

Default Number Format: Choose a drop-down value to specify the number format that you want. This controls the thousands separator and the decimal separator.

Default Name Format: Enter the default salutation and name format to display in list views and detail views. You can specify any combination of salutation first name, and last name. For example: Mr. John Smith, Mr. Smith, or John Smith. Users can override the default format by setting a different time format in their My Account page.

Default Address Format: Select the address format to be used on PDFs that are generated. This affects the order of the fields in an address, as usage varies from country to country - a sample layout is previewed on screen for the selected option.

Figure 109: System Locale Settings

Show User Full Names: You can select here if 1CRM will show in the user interface each user's full name, or their system user name.

Server Timezone: Set the server timezone here, which is a critical value for things like email timestamps. It assists 1CRM in establishing the time lead or lag between itself and each user.

Holidays: Choose the standard set of holidays to be used by default for each user on their calendar. In their personal settings, users may override this value. Holidays are included for many countries, and more may be added by loading custom Holiday Packs via *Upgrades & Customization*.

Default Theme: Sets the normal theme to be used by most users, unless they choose a different one.

The second panel is used to set a number of **Telephony** parameters.

- You can turn *Auto Call Logging* on or off.

- You may enable or disable *Telephony Integration.* Standard options are *Disabled*, *SkypeOut* and *RingCentral*, but other options are available from 3rd party providers.

- As well you may enable the automatic formatting of phone numbers within 1CRM - ensuring that each time a phone number is entered and saved, it will be saved in a standard format compatible with 'click-to-dial' capabilities of SkypeOut, RingCentral and other IP Telephony products.

- If you choose to enable automatic phone number formatting, you must also set the *Formatting Rules* to *North America* or *Other*. If you select other, you must set the number of digits in a local phone number (7 for North America, but it varies around the world), and your country code prefix (for example 44 for the United Kingdom).

- Either way, you need to set your area code, and the extension prefix (which defaults to *x.*). The extension prefix is used to separate an extension number from the main phone number.
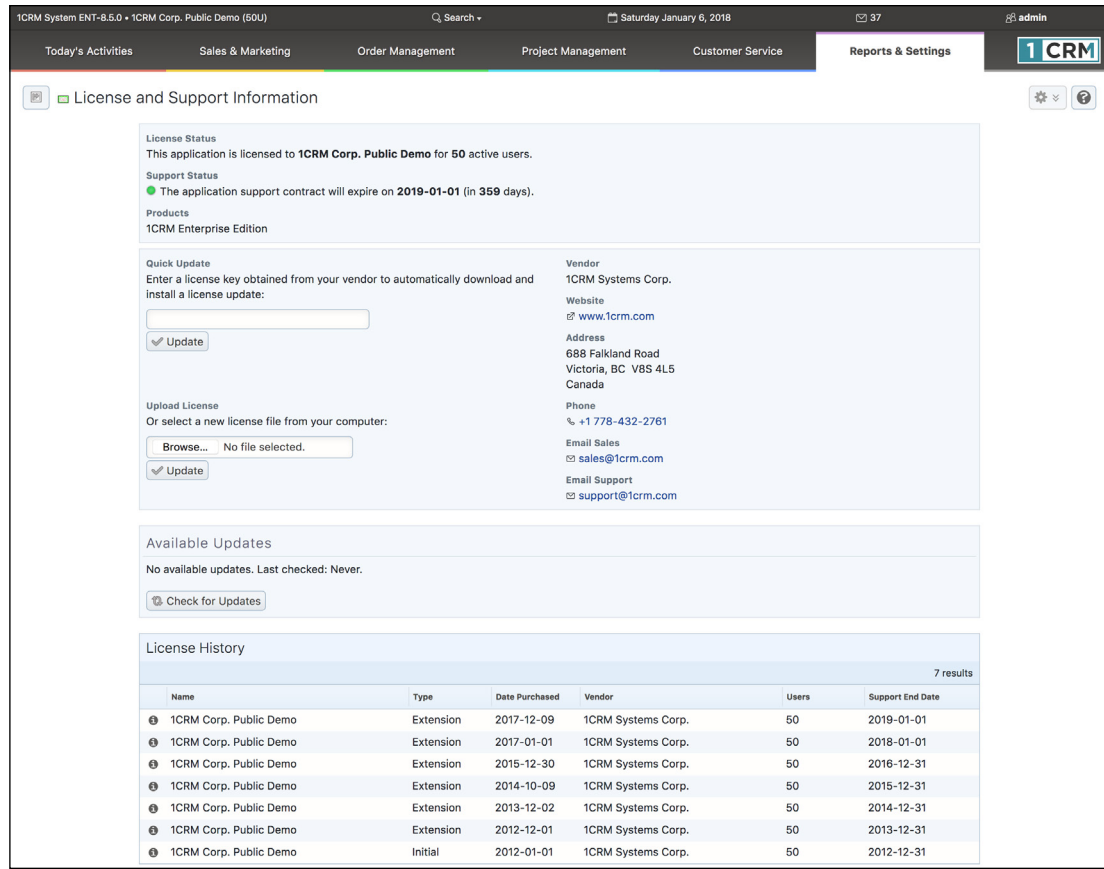
Finally, the Database Collation panel controls the collation order, according to various utf8 options. This Defaults to utf8_general_ci.

➡ 7.1.6 System Settings: License & Support

Each installation of 1CRM needs to be licensed. When the system is purchased, a license key is provided, and it needs to be entered in the Quick Update box of the License & Support screen. When the user clicks on *Update*, your server will then look up the name of the licensee and the number of users licensed (on the 1CRM Systems Corp. license management server), and will then set that information accordingly within your system. The name of the licensed organization, and the number of licensed users, will be shown on the same line as today's date.

If you ever need to re-install your software completely, you will need to ask your supplier to have your license key reset, so that the license key may be used again.

Note: Your license terms permit you to operate your production server, as well as a testing/staging server where any customizations and/or upgrades should first be tested.

Figure 110: License & Support Information

As shown in the Figure above, your 1CRM license key also carries information about what products you have licensed, and when your *Support & Update Subscription* expires. We see above that this system is licensed for the 1CRM Enterprise Edition, and that support will expire at the end of the year 2015.

This screen also shows you if there are any software updates available for your system, allows you to check for them (although the system checks automatically every few days), and provides you with information on how to download the updates.

If updates are available, a notification icon will be displayed beside your license information on every screen.

◗ Perpetual Licenses

If your *Support & Update Subscription* has expired, a warning icon will be displayed beside your license information on every screen.

If your *Support & Update Subscription* has expired, the system will no longer check for updates, and in fact, the *Upgrades & Customization* screen is no longer able to apply them.

◗ Monthly and Annual Subscription Licenses

If your Subscription has expired, once any user logs in the system will stay on the License & Support screen until a new license key is entered in the Quick Update box. The system will not be usable.

7.2 System Support Tools

➡ 7.2.1 System Support Tools: Maintenance

The Maintenance page includes three sections:

- Database Maintenance
- Data Caches
- Other Maintenance Tasks

Database Maintenance

- *Database Schema:* This compares the current database structure with the database model definitions in your software, and optionally updates the database structure to match the model definitions.

Data Caches

- *Clean Uploads*: Identifies files for deletion in *../files/upload*
- *Reset Cache*: Removes all system cache files
- *Clear Chart Data Cache*: Removes cached data files used by charts.
- *Rebuild Scheduler*: Rebuilds the out-of-the-box Scheduler jobs.
- *Rebuild PDF Forms*: Rebuilds the system's standard PDF Forms.
- *Rebuild Dashlets*: Rebuilds the Dashlets cache file.
- *Rebuild Javascript Language*: Rebuilds Javascript versions of language files.

Other Maintenance

- *Check Language Files:* Used to point out any incomplete or inconsistent entries in one language file when compared to another – usually US English, which is the base language for 1CRM. Used by those checking newly installed language files, or by those involved in the translation process.
- *Repair Sync Dates*: Use only when directed to correct sync dates on sync'd records.
- *Repair Employees*: Create missing Employee information records for migrated users.
- *Repair Email Folders*: Create or repair standard Email Folders for migrated users.
- *Clear User Tab Preferences:* Reset user tab preferences to display newly added tabs.
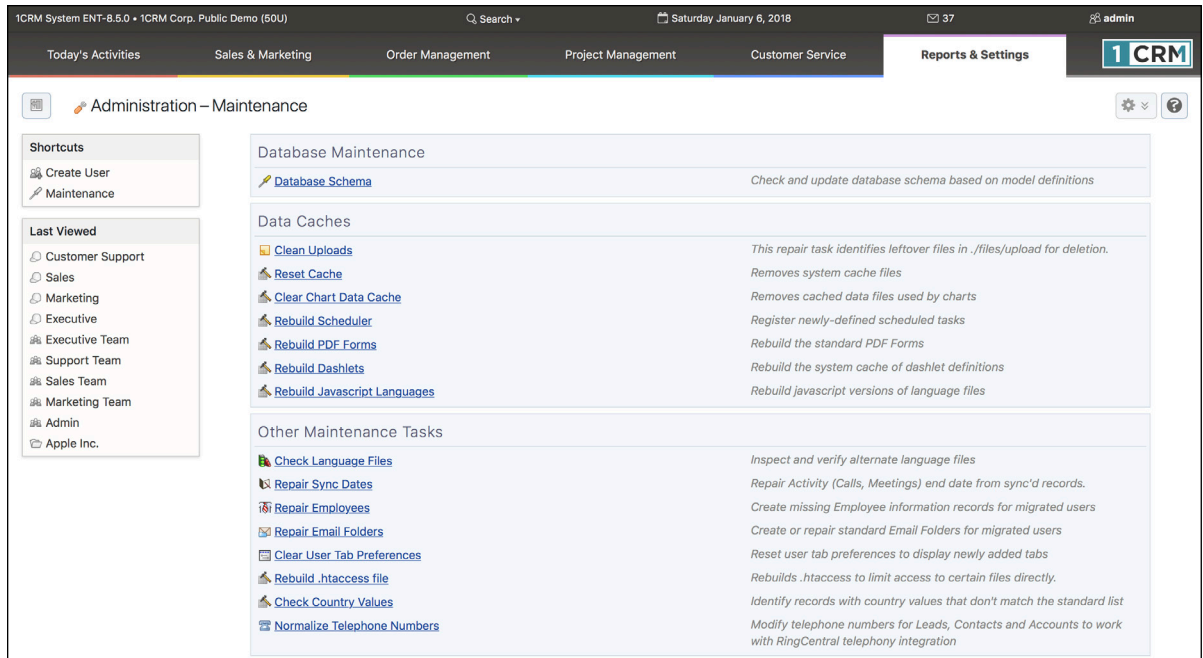- *Rebuild .htaccess File*: Rebuilds .htaccess to limit access to certain files directly.

Figure 111: System Support: Maintenance

7.2.2 System Support Tools: Backup Management

The Backups tool is used to create a backup of your 1CRM application files and/or database, in the form of a .zip file. These backups may be saved locally on your existing server, or remotely. Remote storage options include *FTP*, *SSH*, and *Dropbox*.

Making a Local Backup

To make a local backup, follow these steps (see Figure 112):

- First set *Remote Backup Type* to *Disabled*.

- Then set the *Local Backup Directory*, by specifying an existing directory which is writable by the Apache system user, or using the default which is *files/backups/* within the 1CRM installation directory. To select a new directory, just enter a new directory path.

- Set the *Path to 'mysqldump' executable*. (For Linux and macOS, the most common values would be `/usr/bin/mysqldump` or `/usr/local/bin/mysqldump`. For Windows, the path is highly variable depending on your MySQL version.) Then click on *Check mysqldump Path*. If the path is correct, you will now see a checkmark for *Database backup is available*. And you will also now see a new checkbox for *Database backups enabled*, which you should check to have your backups include the contents of your 1CRM database (which you usually want).

- Set the dropdown value for *Application Backup Options*. Options in ascending size order are:

  - No application files (none at all)

  - Application config, custom/ and modules/

  - All but cache and file attachments

  - Entire application directory

- Now click on *Save* to save these new settings. And then return to this screen from the Admin main screen, and click on *Perform Backup* to run the backup. The 5 most recent local backups (default number of local backups to keep) are listed at the bottom of the screen.

⮕ Making a Local & Remote Backup

To make a remote backup in addition to the local backup, follow these steps (see Figure 112):

- Set the *Path to 'mysqldump' executable*. Then click on *Check mysqldump Path*. If the path is correct, you will now see a checkmark for *Database backup is available*. And you will also now see a new checkbox for *Database backups enabled*, which you should check if you want your backups to include the contents of your 1CRM database (which you usually will).

- Set the dropdown value for *Application Backup Options*. Options are:

  - No application files

  - Application config, custom/ and modules/

  - All but cache and file attachments

  - Entire application directory

- Now set *Remote Backup Type* to *FTP, SSH* or *Dropbox*.

- Set *Number of Backups to Keep on Remote Server* (default is 5).

As we see above, remote backups can use 3 different transports: FTP, SSH, and Dropbox.

- *FTP* - you will be prompted to enter the remote *Host* name, *User Name*, *Password*, and the *Directory* where the backups will be stored on the remote host. The backup process will not create that directory - it must already exist. Normally you should check *Passive Mode*.

- *SSH* - you will be prompted to enter the remote *Host* name, *User Name* and *Directory*. Note that you do not specify a password. This type of backup requires some preparation on both your 1CRM server and the remote backup server - see the section below.

- *Dropbox* - you must first authorize the 1CRM app to access the specific Dropbox you intend to use for backups. Once you select *Dropbox* as the *Remote Backup Type*, you will see an *Authorize* button appear, to the right of a field called *Authorization Token*. Clicking this button opens a popup window which prompts *1CRM backup would like access to its own folder, Apps › 1CRM backup, inside your Dropbox*. You may need to login to your Dropbox account before this message can be displayed. After clicking *Allow*, an authorization token is displayed. Just copy the token and paste the it into the text box of the same name on the *Backup Management* screen, and *Save* the settings.
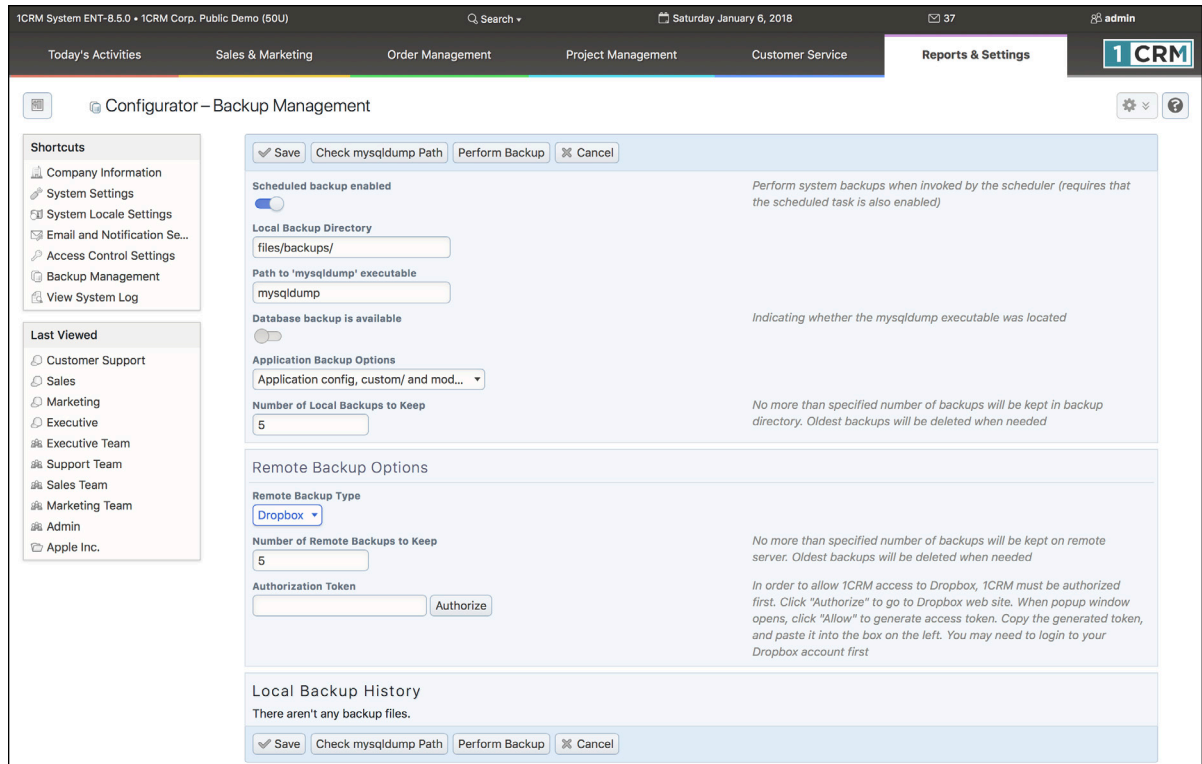
Figure 112: Backup Management

➡ Preparing for Remote Backups using SSH

In this section we assume that both the 1CRM server and the remote host run either Linux or some flavor of Unix (macOS works just fine). If you are using Windows servers, follow the equivalent ssh procedures for those servers.

What we are going to setup here is a password-less SSH login.

1. On your remote host, you will require a user account to be used to create backups. We recommend you create a separate user account for this purpose. You will need that user's password, and of course, SSH login ability must be enabled for that user. Here we assume that user name is remote_user, and the remote host name is remote.com.

2. These steps assume that you are logged in to the 1CRM server via SSH, or using a terminal application if you have physical access to that server.

3. You will require the user name which is used to run the Apache web server on your 1CRM server. Typical names are www, _www, or nobody. Here we assume that user name is www.

4. You begin by generating a key pair which will be used to authorize the backup process on the remote machine. The text below shows the commands to enter in bold. The text in italics will vary:

```
$ sudo mkdir ~www/.ssh/
$ sudo ssh-keygen -t rsa -f ~www/.ssh/id_rsa
Generating public/private rsa key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /Users/www/.ssh/id_rsa.
Your public key has been saved in /Users/www/.ssh/id_rsa.pub.
```

```
The key fingerprint is:
74:50:7e:df:99:d4:d1:58:17:30:f4:65:fd:b1:23:4f root@test_host

The key's randomart image is:
+--[ RSA 2048]----+
|         ... .+.=O|
|          o    +oB|
|         . o .  o=|
|          . . . o.E+|
|          S     =oo|
|                 . |
|                   |
|                   |
|                   |
+-----------------+
$ sudo chown -R test ~www/.ssh
$
```

Note: You enter an empty passphrase for the key - that is very important.

5. Create an `.ssh` directory in the remote user's home directory, if it does not exist yet:

    ```
    $ ssh -l remote_user remote.com 'mkdir -p ~/.ssh'
    Password: <enter remote_backup password>
    $
    ```

6. Copy the public key to the remote host:

    ```
    $ sudo cat ~www/.ssh/id_rsa.pub | ssh -l remote_user remote.com 'cat >
    ~/.ssh/authorized_keys'
    Password: <enter remote_backup password>
    $
    ```

7. Now we have to add the remote host to the list of known SSH hosts:

    ```
    $ sudo -u www -s
    $ ssh -l remote_user remote.com
    The authenticity of host 'remote.com (192.168.1.100)' can't be
    established.
    RSA key fingerprint is 4e:fd:4e:74:9f:b1:87:c4:d0:da:45:3a:02:09:a2:61.
    Are you sure you want to continue connecting (yes/no)? yes
    Warning: Permanently added '192.168.1.100' (RSA) to the list of known
    hosts.
    $ exit
    $ exit
    ```

Note: You are not asked for a password when running the ssh command. Setup is now complete.

➲ Backup File Contents

Each backup zip file (name format is *backup_currentdatetime.zip)* will by default contain:

*   an .SQL database dump file with a filename in the format *1crmdb_currentdatetime.sql*

*   the entire installation directory, including the *files/* directory (which can be very large, as it contains all email attachments, and 1CRM documents)

*   these contents will vary, depending on the settings of the *Database backups enabled* checkbox, and the *Application Backup Options* dropdown

Scheduled Backups

To perform scheduled backups, either local or remote, follow these steps:

- Check *Scheduled backup enabled*, and click on *Save* to save this new setting.

- Ensure the scheduler is running. (See the section entitled *Scheduler Setup*)

- In *Admin - System Settings - Scheduler*, check that external triggering of the scheduler is working correctly. Then locate the *Run Backup* scheduler task in the list of tasks, and make sure it is *Enabled*, with a *Run Interval* of perhaps a Day or a Week.

Note: While the system will automatically limit the number of backup files retained to the maximum you have specified, running daily backups can become very expensive in terms of remote data transfer costs, and server loading. Use scheduled backups with great care, and with these costs in mind.

Restoring a Backup

Before restoring a backup, you will need to have the following items available to you:

1. The backup archive (file name is in the form *backup_currentdatetime.zip* file)

2. Know the full path to your mysql executable file. On Linux and macOS, the most common locations are `/usr/bin/mysql` and `/usr/local/bin/mysql`. (*Note:* This is not required if the backup archive does not contain a database dump.) Plus the *mysql user name*, *mysql password*, and *mysql database name* that you intend to use for your 1CRM install.

3. Access to the server where 1CRM is installed. (If you do not have 1CRM installed, but want to restore a backup of one server onto a different server, just prepare an install directory by unzipping the 1CRM Full install file and then setting the folder and file permissions as per the normal install process.)

You begin the restore process by simply running the *restore.php* file in your 1CRM installation directory. For example, if you normally run 1CRM by sending your browser to *http://demo.1crm.ca*, then in this case enter the URL *http://demo.1crm.ca/restore.php*.

Right at the start of the restore process, you will be asked to create a special file *restore_key.txt* to prove that you have full access to the server. The screen will show you a key value which you paste into a new text file and then save as *restore_key.txt* in the root of your 1CRM installation folder. Then click on the link *try again*, to confirm you have access. You can also use the *Start over* link at any time to re-start the entire restore process.

Next you will be prompted to select and upload the backup archive. If the backup file contains your database information (in addition to any installation directory files) then you will also be asked for key MySQL information: *Full path to mysql executable*, *mysql user name*, *mysql password*, *mysql database name*. Now click on *Submit*, and if the MySQL values all work properly, your backup will now be restored, and the backup process will proceed to completion. You're all done!

7.2.3 System Support Tools: Upgrades & Customization

Upgrades & Customization (formerly the *Module Loader* and *Upgrade Wizard* features) provides a quick way to upload and install several kinds of updated software within 1CRM. Using this feature, you can install:

- *System Upgrades* to later versions of the software

- *Custom Modules* (or other customizations to alter the operation of existing parts of the system. The 1CRM Help System (User Guide) is distributed in the form of a custom module.)

- *Language Packs* (containing language files for 1CRM operation in another language)

- *Holiday Packs* (which define the statutory holidays for a region, and which a user may choose to show on their calendar)

- *Theme Packs* (to add another Theme to 1CRM, such as Delight, or Spectrum)

- *Personality Packs* (which can save/load studio customizations, and can also include Custom Modules, Language Packs, Holiday Packs and Theme Packs within them)

In each case, these files are provided as *.zip* files.

Note: Before using the Upgrades & Customization feature, the config.php file for your installation must be writable.
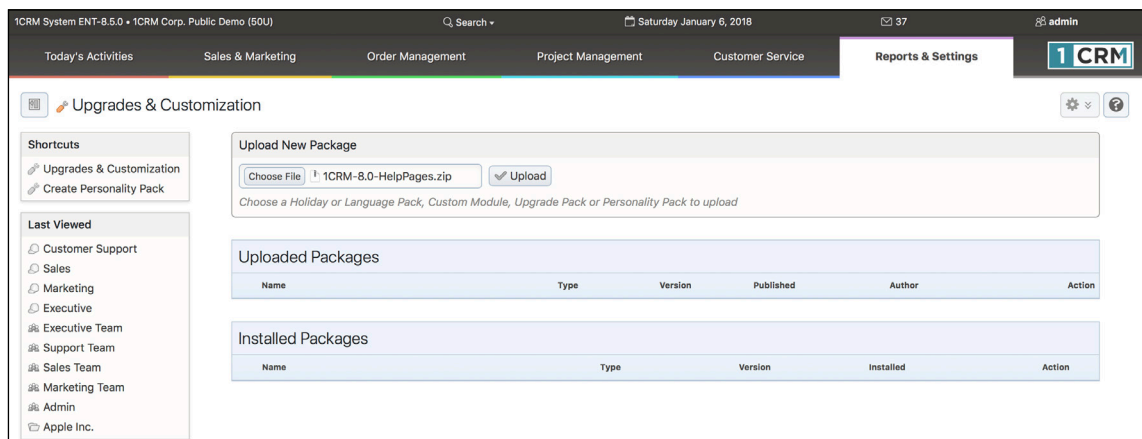
Figure 113: Select the Help Pages Module Then Click On Upload
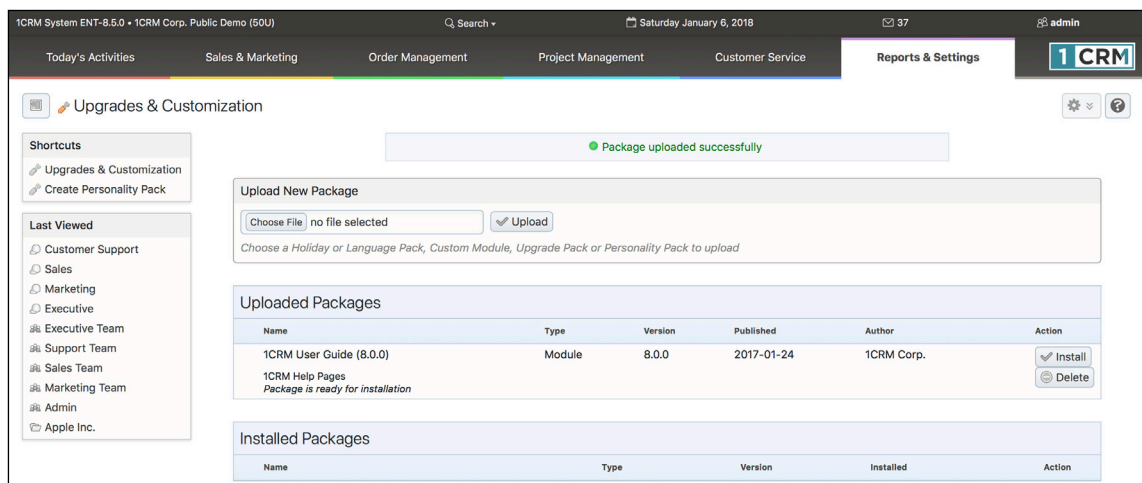
Figure 114: Module Successfully Uploaded

Upgrades & Customization is used by browsing to choose the .zip file for the upgrade, and clicking on the *Upload* button. Uploading the file only queues the upgrade files for installation – it does not yet perform the installation. Figures 113-120 illustrate the entire process for uploading the *User Guide* module for 1CRM Release 8.0.

First we see the selected module in the *Choose File* field. Now click on the *Upload* button, and we see the next screen, which indicates that the module has been successfully uploaded.

Now click on the *Install* button, and the system will prepare to install the module.
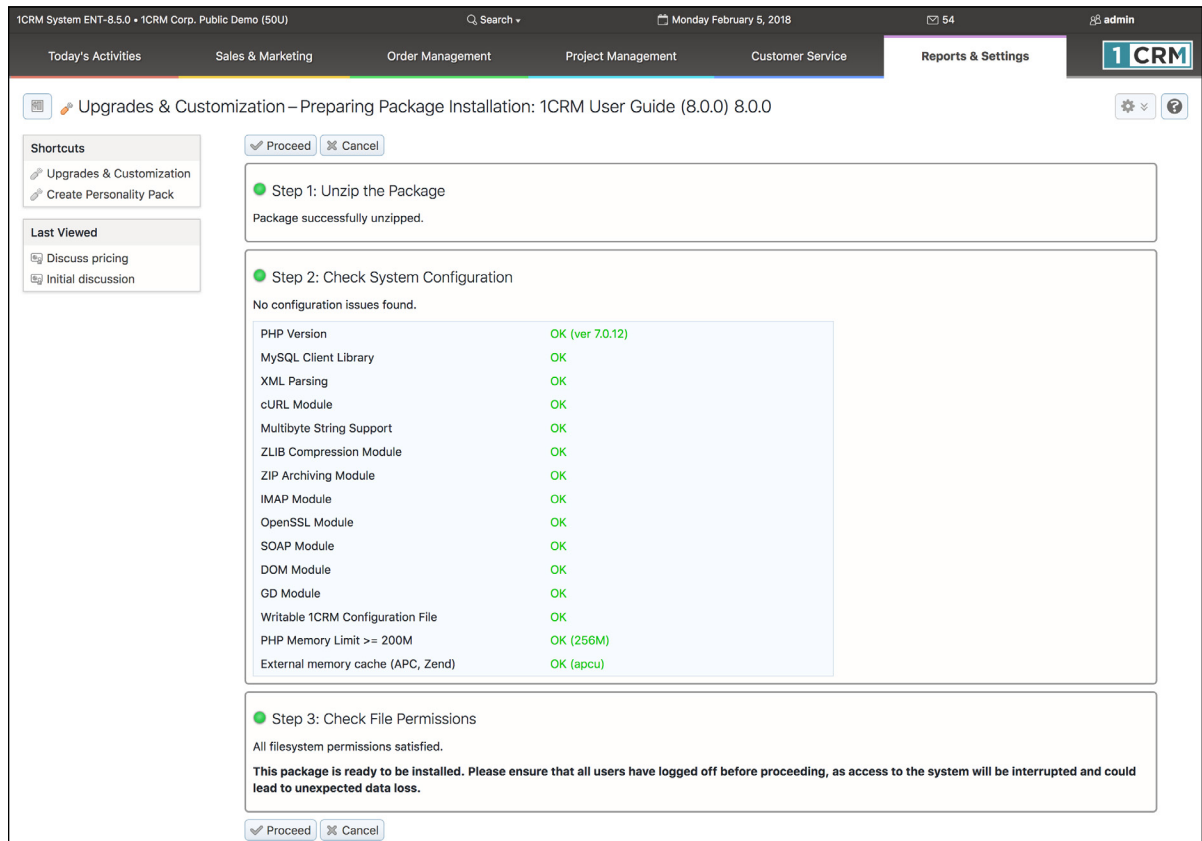
Figure 115: Preparing Package Installation - Steps 1 to 3

The package installer first unzips the zip file you uploaded. Assuming that goes as planned, it then checks the system configuration, and displays its compatibility with requirements. In the Figure above we see an all-green status, which indicates that you are safe to proceed with the upgrade.

Next we see (above) Step 3 of *Preparing Package Installation*, which is when the system checks the file permissions are set correctly for the package to be installed. Assuming that checks out fine, you see the *Proceed* button which you can click to begin the actual package installation. Once you do so, you will see this dialog box.
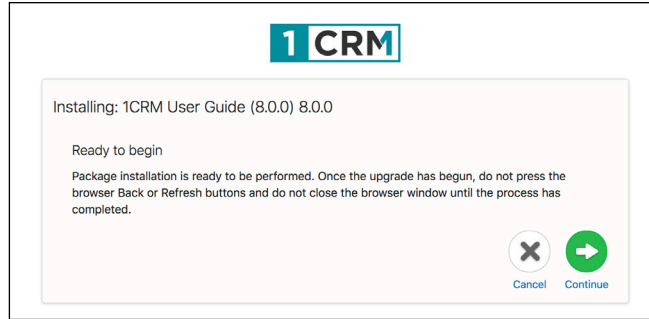
Figure 117: Beginning Package Installation

Now click on *Continue*. The *Continue* button will now display *Please Wait,* and the system proceeds to perform the actual copying of the package files, record an audit record of the package installation, and perform several housekeeping tasks to ensure the system is healthy after the installation. Then the next dialog box is displayed, as shown in the Figure below.
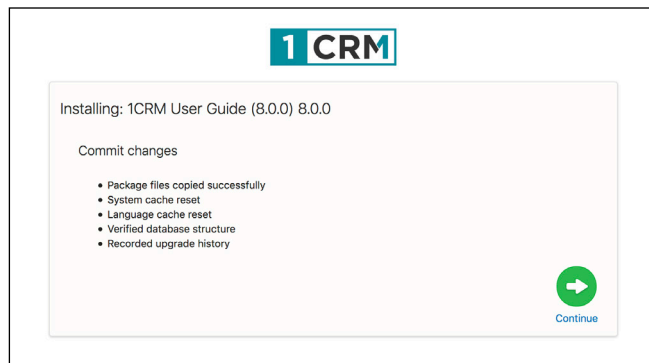
Figure 118: Package Installation - Commit Changes Completed

Lastly, you then click on the *Continue* button to complete the installation. The system will then automatically perform the final cleanup after the package installation.
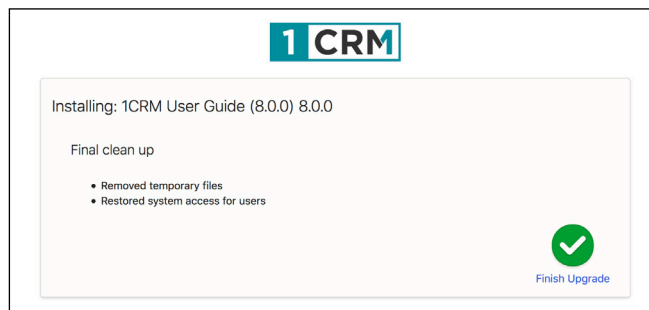
Figure 119: Package Installation - Cleanup Completed

Now you just click on the *Finish Upgrade* button. The Upgrades & Customization screen will display a history of all the modules that have been queued or installed.

This screen (see Figure below) can also be used to un-install modules such as Language and Theme modules. Simply choose the module to remove and click the *Uninstall* button. You cannot uninstall upgrades to new versions and system patches, so ***make sure you take backups prior to applying them***. The process of package removal closely resembles that of installing a new package, with much the same flow of dialog.
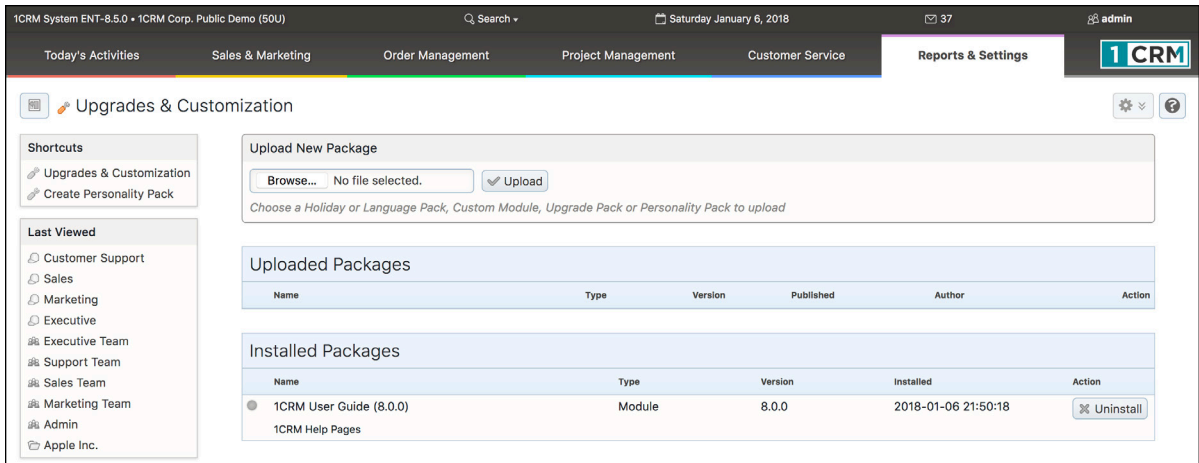
Figure 120: Upgrades & Customization

After major upgrades every user will receive a *System Notification* providing information about the changes contained in that upgrade, to ensure they are aware of it.
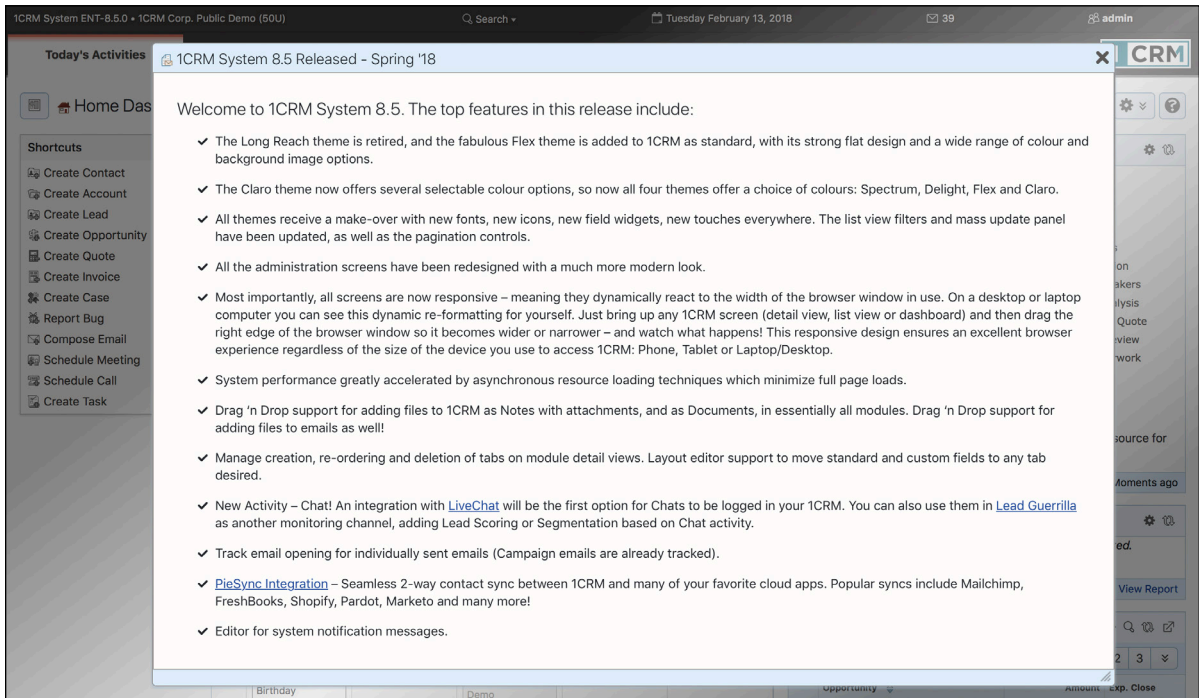
Figure 120a: Upgrades May Trigger System Notifications

7.2.4 System Support Tools: Diagnostic Tool

Use this option to capture your system configuration data, to assist technicians in the analysis and diagnosis of system behaviour. Select the desired options for the types of diagnostic data to be included, then click on *Execute Diagnostic*.
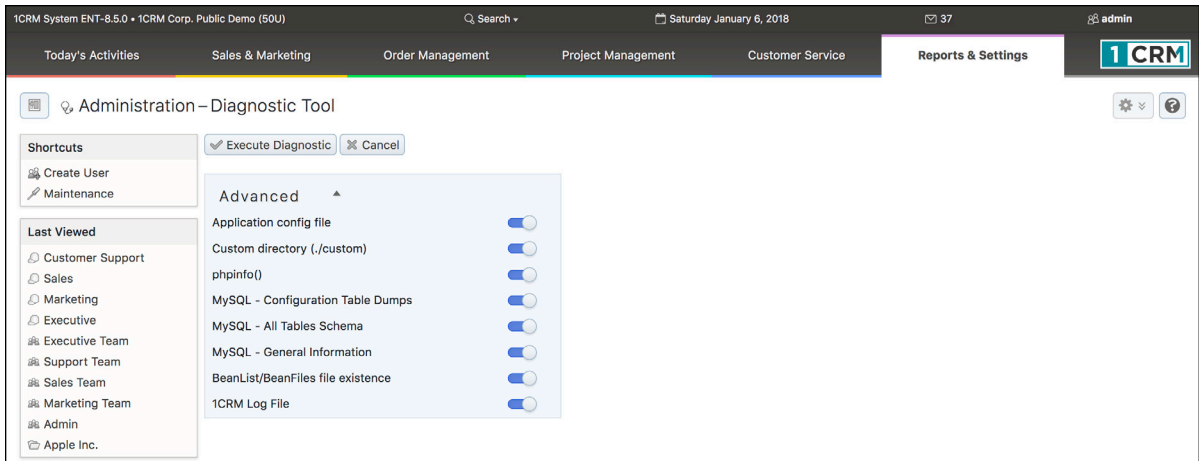
Figure 121: Diagnostic Tool

As the Diagnostic runs, you will see something like this:

```
Executing Diagnostic Operations...
Getting application config file...
Done
Getting custom dir...
Done
Getting phpinfo()
Done
Checking that bean files exist...
Done
Getting infoathand.log
Done
Getting...... mysql info... mysql dumps... mysql schema
Done
Download the Diagnostic file
Delete the Diagnostic file
```

After the Diagnostic process is completed, you can use the links provided to download the diagnostic information, or to delete it.

7.2.5 System Support Tools: View System Log

This option is provided as a convenient tool for viewing the system log files.
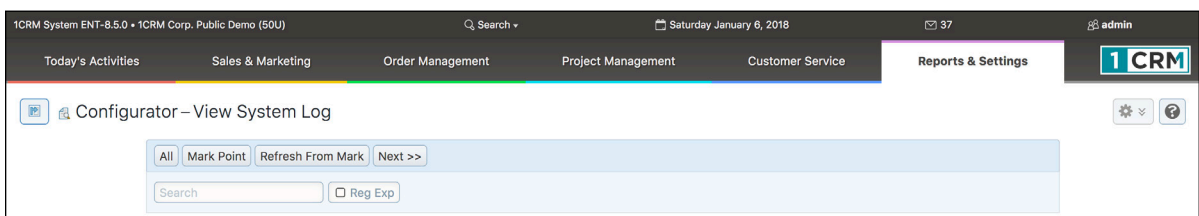
Figure 122: View System Log

To simply view the entire system log, click on *All*. You will need to scroll down to the bottom of the (potentially very long) resulting screen to see the latest events in the log.

You can also use the *Mark Point* button to mark the current time in the log, so you can then see only what happens after that, by clicking on *Next >>*.

As well, you can search the log for specific text, if you are looking for something in particular.

7.2.6 System Support Tools: Manage Imported Data

Data may be imported to thirteen different modules throughout 1CRM:

- Users
- Accounts
- Opportunities
- Contacts
- Leads
- Cases
- Product Categories
- Products
- Calls
- Meetings
- Tasks
- Notes
- Targets

This is a very necessary capability, and a very important one. But equally important is to understand that importing data into your 1CRM system can pollute your system with poor quality, or badly imported data. In cases like these, it is critical to be able to go back over your imported data and examine it, and potentially edit or delete it. That's exactly what this admin module is for.

The above order in which the thirteen *importable* modules are presented is significant. If you are importing data from another CRM type of system, you should begin with *Users*, and carry on through to *Notes*, in that order. If you have no data to import for a given module, it is generally OK to skip it, but important modules like *Users*, *Accounts* and *Contacts* will likely cause problems if you skip them. This is because the imported data includes information such as Account and Contact names and IDs which are used to help link all associated data together into a real CRM database, not just a number of unrelated lists of information.

The recommended import order for the modules listed is critical, as it ensures that no item being imported will refer to an item in a module that has yet to be imported. It is also important that if you are migrating full system data across into 1CRM from another CRM-type system, that you export it all from the other system at the same time (a *snapshot*, if you like, across all the modules) and then import it all at the same time. This helps to ensure that all the data taken together represents a single consistent database.

Once you have imported some data into 1CRM, you will see that data represented in this *Manage Imported Data* screen. At the top left of the screen is a control you use to filter (from the modules listed above) for the module for which you wish to see data. At the control's default *- None -* position, you will see all imported data, for all modules.
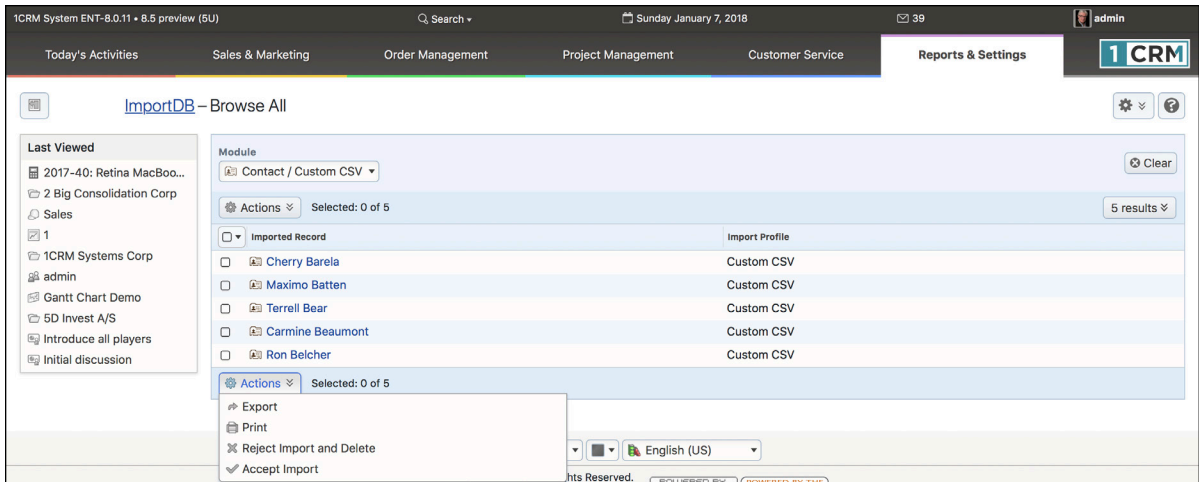
Figure 123: Managing Imported Data

As shown above, you can review imported data for a selected module, such as Contacts. You can click on the *Name* of any record to view the record details. And you can use the ⚙ Actions button to *Accept* or *Reject* selected entries. We strongly recommend that you fully review the data from each import session, and *Accept* or *Reject* all of that data, before you perform another import. Used this way, this screen will always show you only the data from your most recent import session, as any previous imports will have been removed from this screen when they were accepted or rejected.

Notice that the ⚙ Actions button offers *Accept Import* and *Reject Import and Delete* as options, in addition to simple *Print* and *Export* options.

- *Accept Import* - simply removes the selected history entries from the import history screen. In effect, you are telling 1CRM to forget they were ever imported. Presumably because they have all been checked, and found to be valid records. Think of this option as saying *'These records are good. Accept them as a permanent part of our database.'*

- Reject Import and *Delete* - this option removes the selected records from your 1CRM database, as well as removing the history entries that they were imported. Think of this option as saying '*These records are bad. Reject them and remove them from my database, and remove any record of them having been imported.'*

Note: Although this feature can go a long way to helping you un-do potentially damaging imported data, we still recommend that you take a system backup before any import session, so that you can revert to that backup if the import session is unsuccessful, and lowers the data quality of your 1CRM database as a whole.

7.3 Users
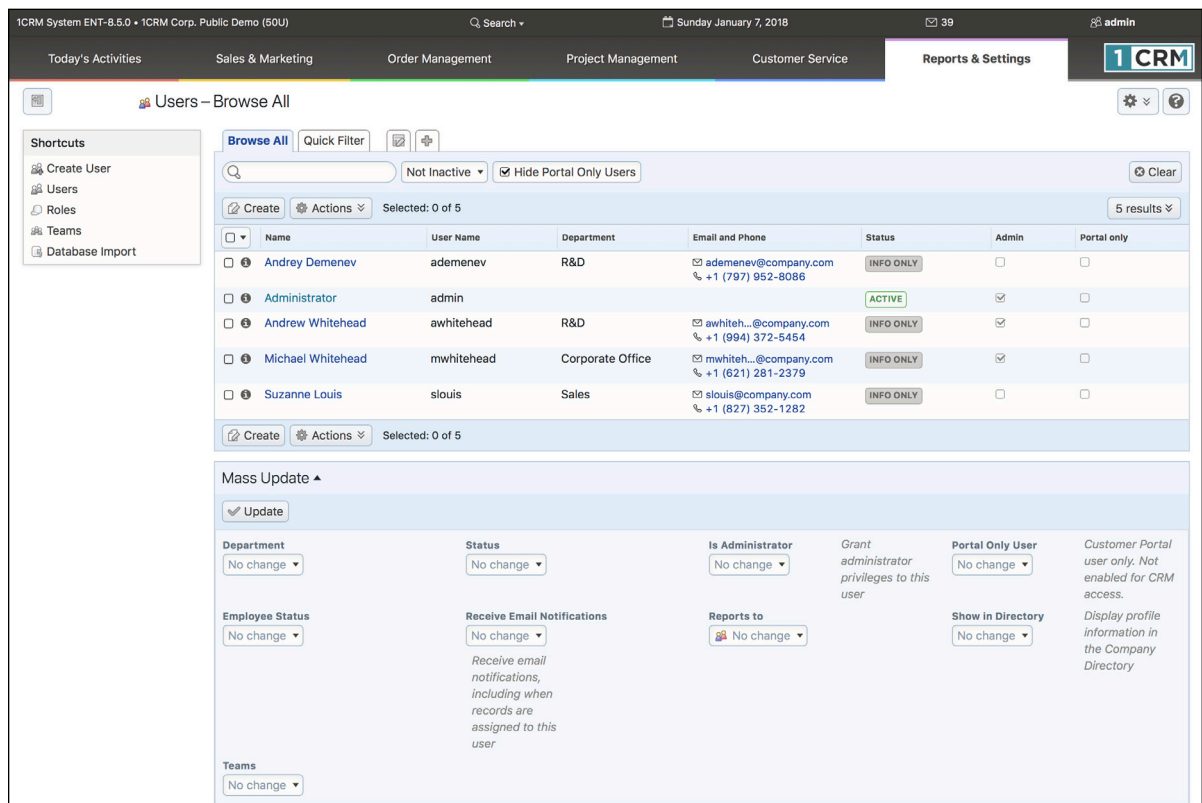
➡ 7.3.1 Users: User Management

User Management is used to create, edit, and activate/deactivate users of the 1CRM system. The User Management screen is shown as Figure 124 below.

On this screen, an Administrator can search for a user, or simply click on a user name to select their profile to edit. Once a user profile has been selected, the Administrator may change the password, edit the profile, or duplicate the profile, using the methods described in the *My Account* section.

Note: Users must have a valid email address in order to receive email notifications.

Note: Users may not be deleted once created. They may only be marked Inactive, and perhaps eventually 'recycled' by renaming the user for re-use by a new employee. Inactive users do not count against the number of users you have licensed.

Figure 124: The User Management Screen

➡ 7.3.2 Users: Data Access Control Overview

Most organizations have concerns about who will see the information in their CRM. As 1CRM contains not just conventional CRM data, but also order management information and project and resource financial data, the need for data access control can be even more critical in 1CRM.

1CRM meets this need by allowing administrators to set up multiple Teams of Users that reflect their organization's structure. They can then link or assign those Teams to individual records manually or automatically, depending on their preference. Each data record in the system (such as a Contact, a

Case, an Invoice or a Meeting) can be linked to multiple Teams if desired, addressing the need that most organizations have for somewhat haphazard and flexible dividing lines for data access control.

To initially configure data access control within 1CRM you will need to do four things:

1. Define a set of Teams that reflects the structure of your organization, with a Team for each part of the organization that has its own unique characteristics as regards the need for data access control. (Smaller organizations might not need any Teams defined.)

2. Assign all the data records in 1CRM to one or more Teams. (You can do this using the *Teams: Mass Assign* field at the bottom of each list view screen, at the end of the *Mass Update* panel). (Not required for smaller organizations with no Teams.)

3. Configure *Team Inheritance Rules* within the *Access Control Settings* screen to define the manner in which you would like the access control system to behave. Each Team also has the option of being marked as *Non-Inheritable*.

4. Assign each Team to a Role that you create to define the access level of Users that belong to each Team. (Not required for smaller organizations with no Teams.)

Some of the key principals of the 1CRM security model are as follows:

- The three components of the security model are Users, Teams and Roles.

- Users may be assigned to zero or more Teams.

- Users and Teams may both be assigned Roles.
  (This enables the admin to give a certain level of access to a Team, but at the same time give a specific User that might belong to that Team more or less access.)

- Teams consist of a set of Users, and determine which records or modules those Users have access to.

- Roles determine what level of access a User or Team has to those records or modules (i.e. can you see it, edit it, delete it, import/export it, etc..).

- The system allows the admin to deny access to any specific data record for a User, or for a Team.

- The system allows the admin to delegate the assignment of Roles and Teams to a non-admin User.

- Data access rights apply not only within the 1CRM user interface, but also over the web services APIs used by 1CRM.

Teams are the gateway that determines what data each User can access, while Roles determine how they may work with that data. Once you learn this basic principle, understanding data access control within 1CRM should become much easier.

Note: For those with a desire for an in depth study of the theory behind 1CRM's Access Control system, you are referred to the paper "*A three tier architecture for role-based access control*" by Ravi S. Sandhu and Hal Feinstein, in 17th NIST-NCSC National Computer Security Conference*.*

⭢ 7.3.3 Users: Role Management

Roles within 1CRM are used to limit the level of access a User or Team has to data records or modules (i.e. can you see it?, edit it?, delete it?, import/export it?, etc..). Note that Teams are used to control which modules and records a User can work with, and Roles control the manner in which they can work with them.

When you select the *Role Management* option from within the administration area, you will see the Roles List View screen. It lists the Roles defined within the system, and also offers shortcuts to create a new Role, or view/edit the system's *Default Role*.

If you would prefer not to have any restrictions on who can see what data within your 1CRM installation, simply leave the default Role set to its initial values, which have most settings for every module set to *All*.

When your system is new, before you define any additional roles, all users have access permissions as determined by the default Role. These restrictions will continue to be in effect for any users not assigned to any other Roles that may be defined. The system administrator defines the Default Role's Access and available Actions (Delete, Edit, Export, Import, List, Report and View) for each module, in order to define the default restrictions for all users in the system.

Note: In addition to the *Default Role*, each system includes another Role - *Data Privacy Manager (DPM)*. Any user assigned to this Role will have DPM rights - for more details see the 1CRM & GDPR document.

Note: Users with system administration capability have special system access, and can see all data in the system, other than HR data.
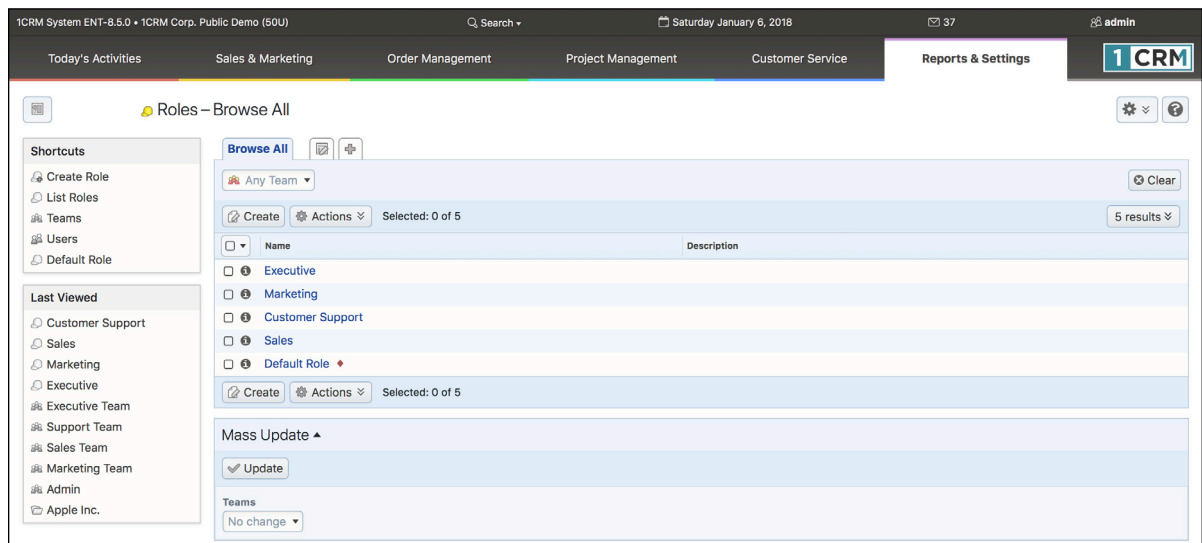
Figure 125: Roles List View

First – let's practice creating a simple Role, which only controls system access for those Users assigned to the Role. For example – sales staff will want access to the opportunities and dashboard modules – marketing staff will want access to the campaigns module – but perhaps not all staff will need access to all of these modules. As you can see in Figure 126 below, each Role defines the tabs visible to the Users assigned to the Role, using the *Enabled* / *Disabled* setting in the Access column.

To create a simple Role of this type, click the Create Role shortcut, and type a name for the Role. In the first column are the names of all the principal modules in 1CRM. Select the modules to include for the Role by clicking on the cell values in the Access column, and then save the Role.

To assign Users to this Role, on the detail view for each User, select the *Access Control* tab and then scroll down to the bottom of the screen and click on the *Add Existing* button to select the Role.

Note: When a Role excludes access to a module, access is also removed to the sub-panels in other modules which relate to the excluded module.

Next, let's look at the more 'fine-grained' access restrictions which the system offers. Re-edit the sample Role that you just created to have a look.

As we have seen, for each module *Access* may be set to *Enabled*, *Limited* or *Disabled*. Additionally, for each module the Actions that may be performed on data in the module (Approve, Delete, Edit, Export, Import, List, Report and View) each have an option set to *None*, Admin, *Owner*, *Role, Team* or *All*.

The meaning of these options is as follows:

- *All* – In this module you can perform this action on all data – no matter who it is assigned to.
- *Team* - In this module you can perform this action on any data records assigned to any Team of which you are a member.
- *Role* – In this module, you can only perform this action on any data records assigned to members of this Role.
- *Owner* – In this module, you can only perform this action on data records assigned to you.
- *Admin* – In this module, only Admin users can perform this action on data records.
- *None* – You cannot perform this action in this module, not even on data assigned to you.

In the figure below, we see an Executive Role defined, which allows its members full access to all data in the system. Notice that the Executive Team is linked to the Role.

When a new role is defined, most permissions for each module are set to Enabled (for Access) and to All (for the actions of Access, Delete, Edit, Export, Import, List, Report and View). Each module is turned on or off using the Access (Enabled/Disabled) setting. All the other settings control a user's ability to perform a specific action on data within the module. These actions are as follows:

Access

The Access option can potentially control all the other settings below. When set to *Limited* access, the administrator may only define individual values for *List* and *View* actions, while all others (*Report*, *Import*, *Export*, *Edit*, *Delete*) are forced to *Admin*. When set to *Enabled*, the administrator has the ability to fine tune all actions. When set to *Disabled*, the module disappears from the menu system and sub-panels.

View

The View option controls which data the user will be able to see on a Detail View within this module. It controls which data items the user will be able to click on from the List View to see in a Detail View. As well, it also disables the user's ability to navigate from sub-panels in other modules to the detailed view for data records for which the user does not have View privileges. Any other attempt to navigate to these records will result in an error message.

List
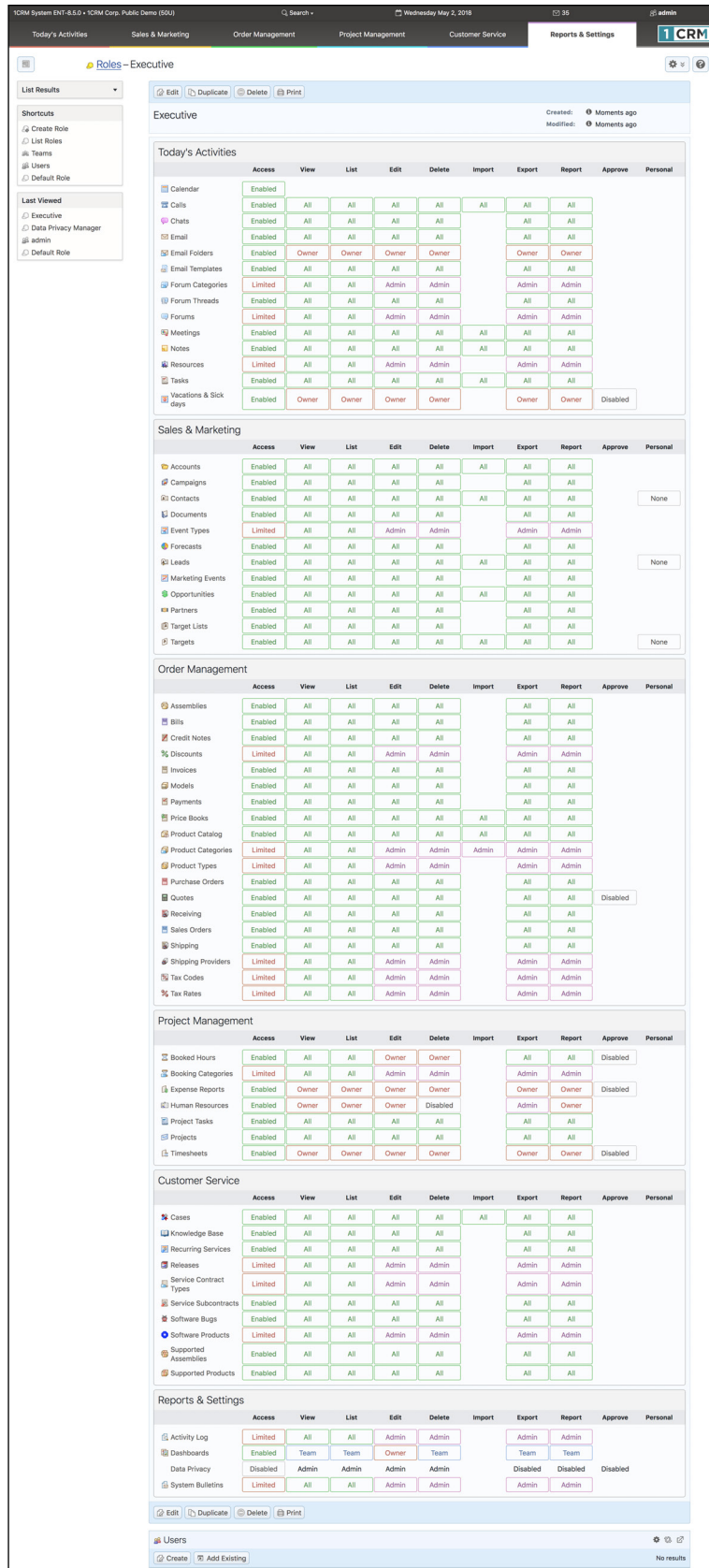
This option controls which data the user will be able to see in the List View of this module.

Edit

Controls the user's ability to *Edit* data items in this module. If set to *None*, then the Edit button will be disabled on all detail views for this module. As well, the Mass Update Panel at the bottom of List Views will not update records for which the user does not have Edit permission.

Delete

Controls the user's ability to *Delete* data items in this module. If set to *None*, then the Delete button will be disabled on all detail views for this module.

Figure 126: Role Detail View

Import

This option may only be set to *All* or *None*. If set to *None*, the Import shortcut (if there normally is one) is not visible for this module.

Export

If set to *None*, then the Export option of the Action button located at the top and bottom left of the List View will be omitted for this module.

Report

This option controls which data records the user will be able to access when preparing reports from data in this module.

Approve

Controls the user's ability to *Approve* data items in this module. If set to *Disabled*, then the Approval function will be disabled on all detail views for this module. Currently available for Quotes, Booked Hours, Timesheets, Expense Reports and Vacation/Sick Days.

Personal

This option enables a user to erase the data in fields of this module which are marked as Personal Data. Erasing Personal Data fields also erases the *Change Log* entries for those fields. As well, this option enables access to Personal Data views, detail views which only display fields marked as Personal Data, regardless of their visibility in any layout.

For each module, some of the actions also require other actions to be set before they may be Enabled:

- *View* is the most basic action
- *List*, *Edit*, *Delete* - require *View* to be set before they may be Enabled
- *Export*, *Report* - require *List* to be set before they may be Enabled
- *Approve* - requires *Edit* to be set before it may be Enabled

⬤ 7.3.4 Users: Team Management

The Team Management screen allows the admin user to perform three functions via shortcuts available on this screen:

- *Create Team* – define a new Team for the purposes of controlling access to 1CRM data.
- *Teams* – see the list of Teams currently defined, and potentially select one to view or edit.
- *Team Settings* – manage the settings for the Teams function within 1CRM.

⬤ Create Team

Use the Create Team shortcut to define a new Team, for the purposes of managing data sharing and security within 1CRM. As shown in the figure below, just give the Team a name, a description, and decide if it should be inheritable or not. Check the box provided if the Team's access rights are not to be inheritable.

A Team with inheritable access rights may be inherited by a new record when it is created, according to the Team Inheritance Rules defined in Team Settings. A Team that is marked as Non-inheritable will not be inherited by a new record in this manner.
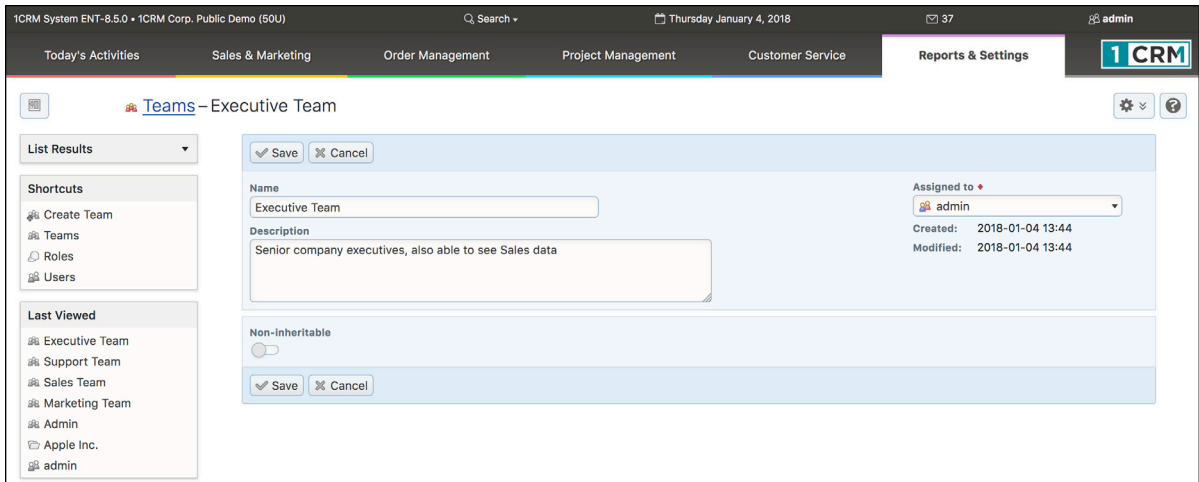
Figure 127: Creating a Team

Teams List View

Use the Teams shortcut to see a list view of the Teams defined in your 1CRM installation.

Note: You can use the Mass Update panel of the Teams list view screen to delete Teams or assign them to different Users.
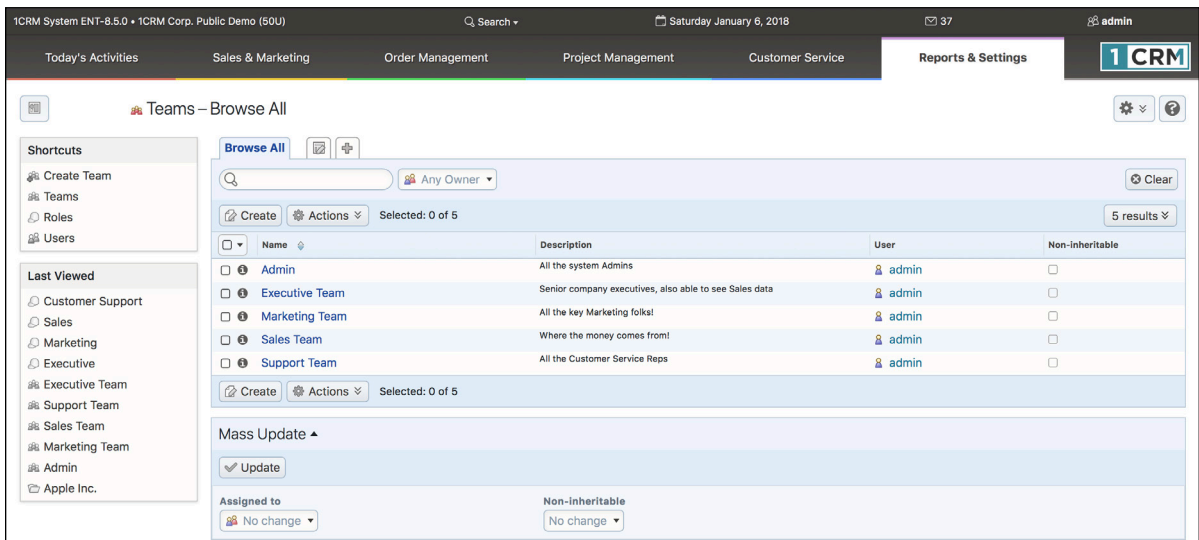

Figure 128: Teams List View

7.3.5 Users: Service Skills

The Service Skills screen allows the admin user to enter a series of names for skills that service personnel may require for resolving Cases. Examples might be PC Break/Fix, Windows Server Configuration, etc... Once these skills have been entered, they may be used in two places. Each user may be given a rating level for each service skill. And each Case may have one or more skills attached to it, and the level of skill required. For more details see the Cases module and My Account.

7.3.6 Users: Access Control Settings

The Access Control Configuration screen is used to configure a number of settings which control the behaviour of the Team security and access control features within 1CRM.
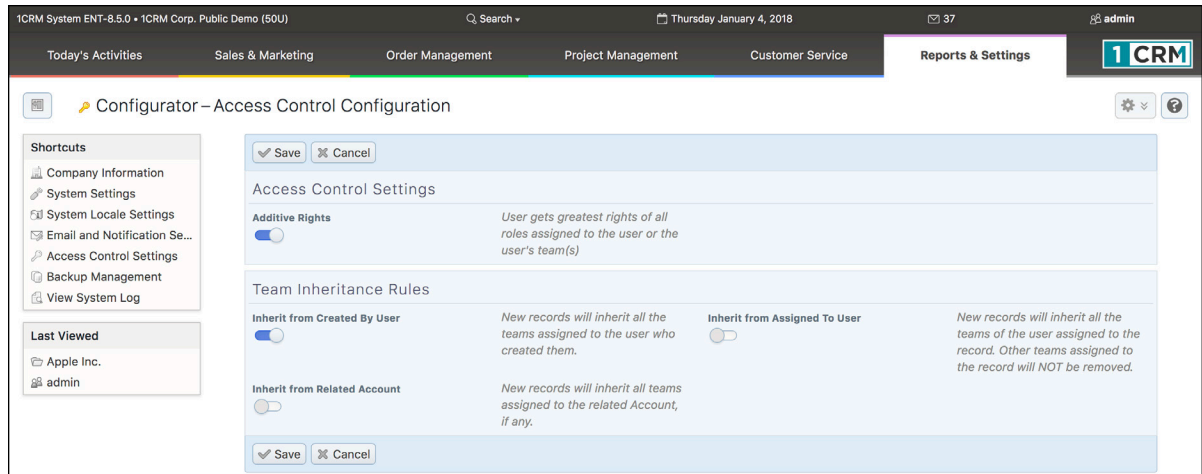

Figure 129: Access Control Settings

The figure above shows the default Access Control Settings when 1CRM is first installed.

The effects of the settings on this screen are as follows:

Additive Rights (Default: On)

If this box is checked, Users will get the the broadest (maximal) access rights of any of the Roles to which they or any of their Teams are assigned. Otherwise they will get the narrowest (minimal) access rights of any of the Roles to which they or any of their Teams are assigned.

The effects of the settings for *Team Inheritance Rules* are as follows:

Inherit from 'Created By' User (Default: On)

If this box is checked, then when creating any new data record, the record will inherit all the Teams assigned to the User who creates it.

Inherit from 'Assigned To' User (Default: Off)

If this box is checked, then when a new record is created, the record will inherit all the Teams of the User assigned to the record. Any other Teams assigned to the record will ***not*** be removed.

Inherit from 'Related To' Account (Default: Off)

If this box is checked, then when a new record is created, the record will inherit all the Teams of the Account to which the record is related, if any.

7.3.7 Users: Data Access Control Examples

No Security - I Want Everyone To See Everything

This is the default state of the system when it is initially installed. Each user has no explicit Role assignments, so the default Role apples to them. No Teams are defined, and no Teams or Users are explicitly linked to a Role. No Users are linked to any Teams.

Basic Security - Each User On One Team With One Role

1. Define a Team for each functional division of the business that might need different access control rules than another division - Sales, Marketing, Executive, Support, Admin might be a good start for the Teams for a smaller organization.

2. In the Users sub-panel of each Team, add the Users considered to be part of that functional division of the business.

3. Define a Role for each functional division of the business as well - and it might be best if you gave them the same names as the Teams you are going to associate them with. For each Role set the permissions matrix to control User capabilities in each module.

4. In the Teams sub-panel of each Role, add the Team that is to be associated to that Role.

5. For all data records in the system (likely using the *Teams: Mass Assign* panel below the Mass Update panel on each module's List View) assign the data records to one or more Teams.

Additive Rights

For this example, let's assume that a User Chris is assigned to two Teams, *Sales* and *Support*.

1. *Sales* is assigned to a Role that has *Delete – Team* rights to Accounts in its permission matrix.

2. *Support* is assigned to a Role that has *Delete – None* rights to Accounts in its permission matrix.

With the *Additive Rights* option in Team Settings turned off Chris will not have the rights to delete any Accounts. With this option turned on Chris will have the rights to delete Accounts assigned to his Team.

Assigning Both Users and Teams to a Role

Typically, larger organizations require more complex security configurations. To handle these situations both Teams and Users must be able to be assigned to Roles. Let's look at the following example:

1. There are two teams, Team A and Team B.

2. Both Teams are assigned to a Role called *Read Only* which gives them read only data access rights.

3. A manager oversees both teams and should see all of their records. However, the manager should have edit rights to those records.

To accomplish this the manager is assigned to Team A and Team B. This only gets him read only rights (since the *Read Only* Role is assigned to both Teams A and B). So a Role called *Edit* is created and assigned directly to the manager. Of course, this example is simple and could also be achieved by creating a Team Manager and assigned the *Edit* Role to the Team Manager directly. Basically, the ability to assign Roles to users directly allows the admin to cater for special cases.

7.4 Email

⮑ 7.4.1 Email: Email & Notification Settings

This screen is used to configure system email notification options. The screen contains five separate sections. The first section is used to define the *Email Notification Options* associated with the emails that 1CRM can send to Users when they are assigned new responsibilities.

Email Notification Options can also enable and disable the email notification system, and establish the default notification setting for new Users. These settings also determine if notifications are sent when Cases are created or changed, and if those notifications are sent only to Users related to the Case, or to related Contacts as well.

Section two defines how general email sent by the system (*not by a user*) will be sent. This includes the user name and email address from which the email will be sent, as well as the Mail Transfer Agent (MTA) to be used.

Note: The SMTP (Simple Mail Transfer Protocol) MTA should be selected if your system is running Windows. If your system is running Linux, either the SMTP or sendmail MTA may be selected, depending upon how your server is configured. On 1CRM Cloud, you must use SMTP, not sendmail.

- If the SMTP MTA is selected, you must also specify the SMTP server name, and port number (default is 25) used to communicate with SMTP.

- If *Use SMTP Authentication* is selected via the checkbox provided, the *SMTP Username* and *SMTP Password* to be used must also be provided.

- If *Secure SMTP* is set to either *SSL* or *TLS*, you will also need to set the *Certificate Validation* dropdown. Email servers should have certificates to confirm their identity. This dropdown sets the conditions under which 1CRM will allow an email to be sent via the specified SMTP server. Available options are: *None* (Send email even if no certificate on the server), *Self-Signed OK* (At least a self-signed certificate is required in order to send email), and *Require 3rd Party* (3rd Party Signed Certificate required to send email).

The second section also enables you to configure the maximum number of emails sent per batch, when sending out large numbers of campaign emails via the email queue.

Lastly the second section has a toggle control to Enable/Disable *Sent Email Tracking* in 1CRM. In order to use email tracking you must turn on this toggle switch, and also enable a scheduler task (*Update MaxMind GeoIP Database*) which downloads and updates the MaxMind IP tracking database.
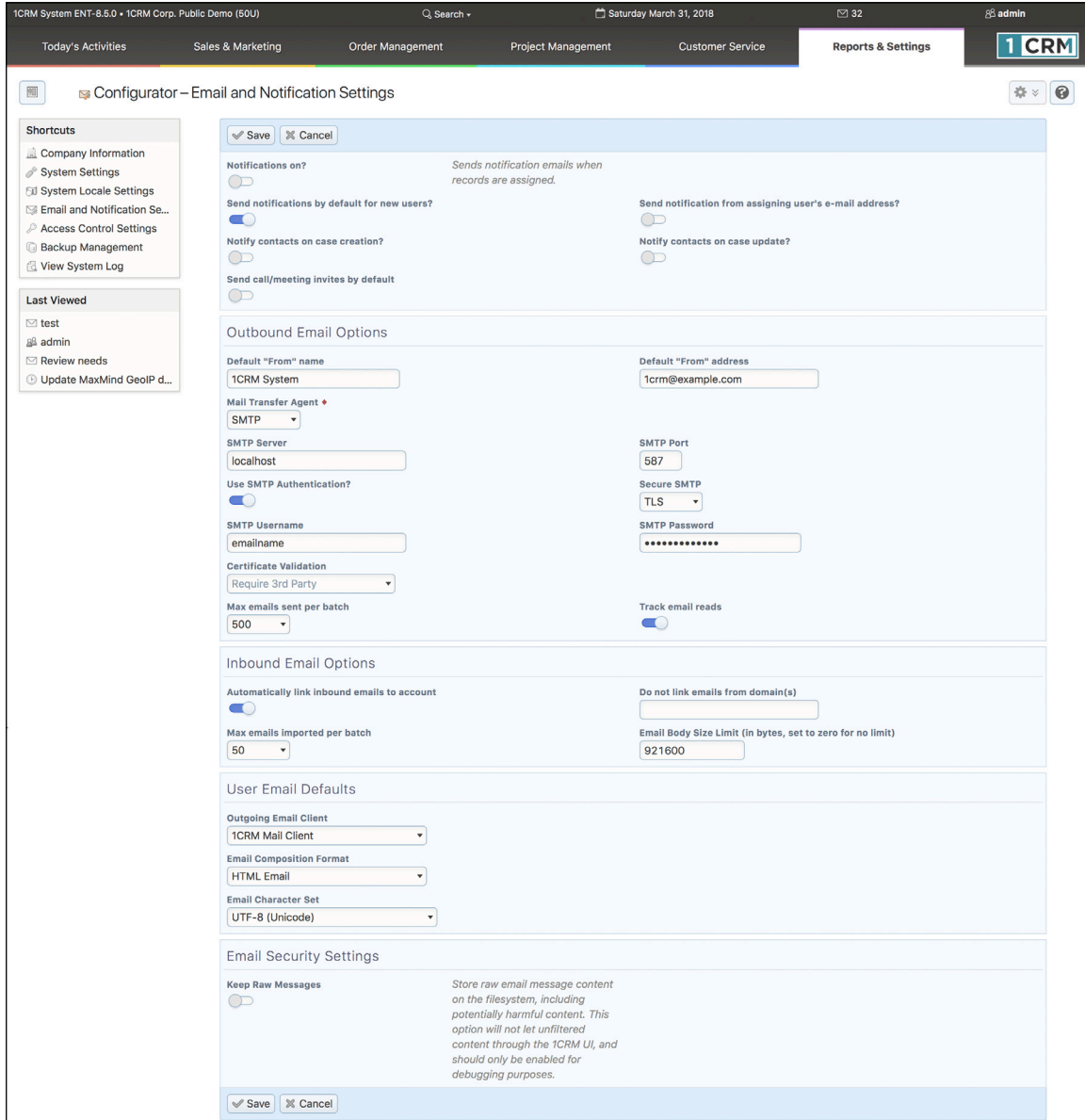
When *Sent Email Tracking* is enabled, two fields are added to the Email detail view - *First Opened* and *Open Count*. Also, a subpanel will be added to the Email detail view, to display the history of email opens.

Note: There is an issue with Gmail - it uses a proxy to download and display images, so when email is opened in Gmail, one cannot detect the user location from the IP address. Accordingly, if a request comes from the Google image proxy server, no attempt is made to lookup the user location.

The third section of this screen is used to control the system's actions as inbound email is received. Each inbound email is automatically linked to a contact in the system, if the sender's email is a match to either of the email addresses on any of the contact records in the system. If this checkbox is selected (which it is by default), the system then goes on to lookup the account for that contact, and relate the incoming email to that account as well (assuming there is one). Other controls mark domains not to link up on receipt of emails, and the import batch size for incoming emails (too large a batch can produce perceptible slowdowns for users).

The fourth section of the screen is used to configure the default email format (HTML or text), email client, and character set for all users.

The fifth section enables the retention of Raw Email message text. This uses a lot of storage space, and system processing, and should only be enabled for debugging email operations.

Figure 130: Administration – Email Settings Screen

7.4.2 Email: Manage Email Queue

The system administrator can manage mass email campaigns that have been created in the Campaigns module. Other users may create email campaigns aimed at large numbers of targets utilizing an email template. Depending on the send date the creator assigns to the email campaign, the emails then wait in the email queue to be sent at the particular date and time specified.

As an administrator, you can monitor these emails as they are sent. You can also delete emails that are waiting to be sent. You can view information on each email such as Campaign, Recipient Name, Recipient Email, From Name, From Address, User Name sending the email, Send On date, Send Attempts, and In Progress status. The Mass Emailing Queue Manager only displays emails created through email campaigns, not emails created using the Email module.

To delete an email that is waiting to be sent, click the check box next to the email and click the *Delete* button. Click *Check All* to select all the emails in the list.

➲ 7.4.3 Email: Group Inboxes

Group email is email that all users may potentially access. Like each user's email, it may be organized into multiple folders - by default it includes the folders *Inbox*, *Customer Support*, and *Campaign Responses*. The Group Email Folders administrative function (see below) may be used to add more custom Group Email folders. Emails may be taken from any Group folder to any personal email folder, or returned from any personal folder to any Group folder, using controls in the Mass Update panel in the Emails module.

Any number of Group Inboxes may be defined. One or more email addresses may be monitored, and incoming mail retrieved (see figure below). Each new Group Inbox that is defined must specify the Group Email Folder into which the received email is to be added. Each Group Inbox must also specify the Possible Actions that may be performed automatically on receipt of an email in this box. Possible Actions include *None*, *Bounce Handling* (you **must** use this option for a Group Inbox you will use with an Email Campaign), *Create Case* and *Create Bug*. If you use the Create Bug or Create Case options, a new Bug or Case will be created automatically each time an email is received into this Group Inbox, and the body of the email will be pasted into the detail record of the Case or Bug.
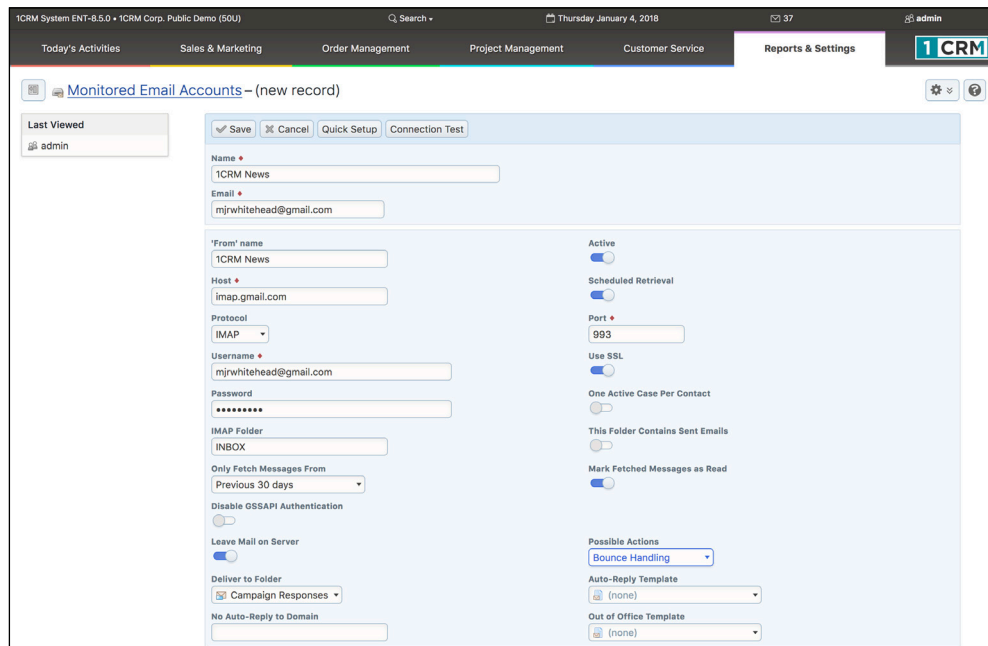

Figure 131: Administration – Creating a Group Inbox

When using a Group Inbox for Bounce Handling, each email received will be scanned for evidence that it is a bounced email. If the conditions for this are satisfied, the Contact or Lead or Target involved will be marked as having bounced, and the bounce total for the Campaign will be incremented. Then the bounced email will be deleted. If the email cannot be recognized as a bounced email, it will simply be placed in the *Campaign Responses* folder by default, or another if it is named in the definition of the Group Inbox.
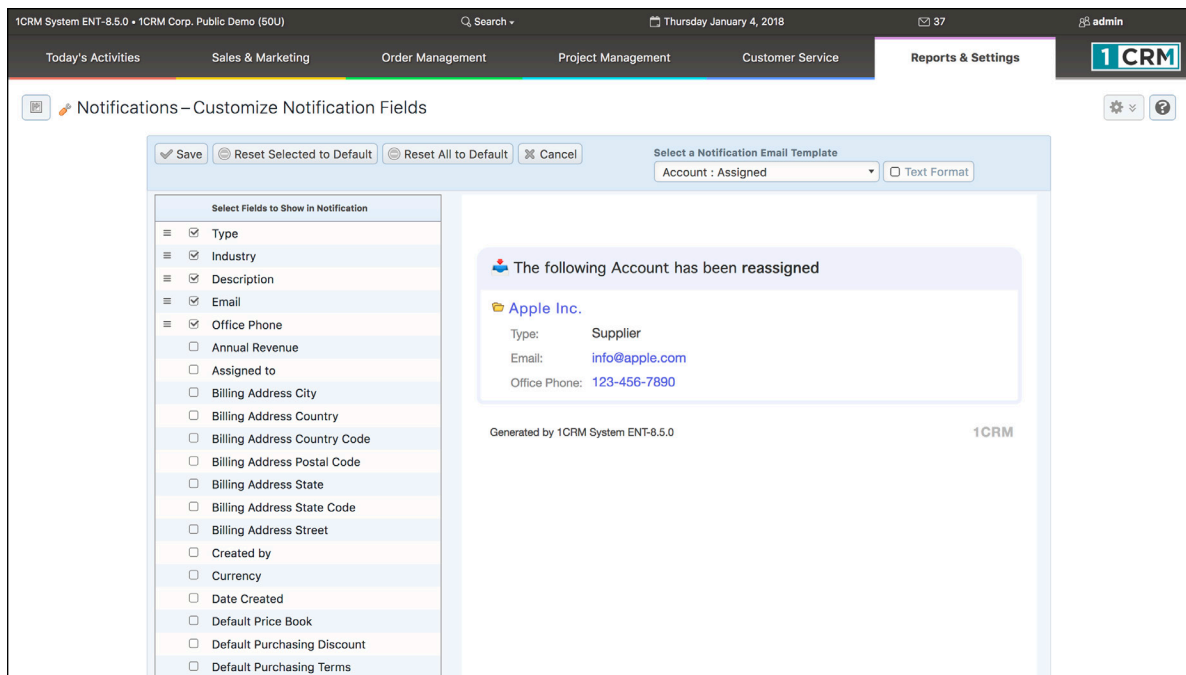
All email received by any Group Inbox (except one doing *Bounce Handling*) will be placed in the Group email folder specified - and sometimes (via *Possible Actions*) they will also automatically create a Case or Bug. When *Possible actions* for a mailbox is set to *Create Case*, an additional option becomes available: *Automatically create contacts.* When that option is set, and a case is being created from an email from an unknown contact, a new contact record will be created, and linked to both the email and the case. Contact *Email address* is set to sender's address; if the *From:* header in the email contains the sender's name, then first and last names of the contact are set accordingly; otherwise the first name is left empty, and last name is set to the sender's email address.

7.4.4 Email: Group Email Folders

The Group Email Folders function is used to create additional custom Group Email Folders, in addition to the standard folders created at installation time. The standard folders are: *Group Inbox*, *Customer Support*, and *Campaign Responses*.

7.4.5 Customize Notification Email Messages

This screen offers the ability to customize the content of notification email messages, by selecting additional fields of the related object to add into the email.

Figure 133: Administration – Customizing Email Notification Fields

7.5 Studio

In 1CRM, the Studio is a term applied to a series of tools provided for the Administrator to customize the CRM for your specific needs. As you can see below, these tools cover a wide range of capabilities. In overview, they perform the following functions:

- *Layout Editor* – used to customize normal Edit/Detail layouts plus Quick Create layouts
- *Custom Fields Editor* – defines new fields, which then may be used in layouts
- *Dropdowns Editor* – used to edit values for standard or custom dropdown fields
- *Smart List Tab Sharing* – for sharing Smart List tabs among users
- *Workflow* – used to define workflows that automate business rules
- *Configure Group Tabs* – let's you re-arrange how modules are presented within tab groups
- *Configure Module Tabs* – used to suppress the display of selected modules
- *Rename Module Tabs* – let's you rename specific modules
- *Module Designer (Enterprise Edition Only)* – Used to define new custom modules, their fields and their relationship to existing modules. As well, it enables the admin to edit (for both custom and standard modules) which fields appear on the Mass Update panel, which fields are tracked in the ChangeLog, and which fields are required.
- *PDF Form Designer (Enterprise Edition Only)* – Used to define modified or all-new custom PDF Forms, to use when printing Invoices, Quotes, Service Work Orders, etc.. (an Enterprise Edition Only feature).

Studio

Layout Editor	Edit modules screen layouts	Configure Group Tabs	Create and edit groupings of tabs
Custom Fields Editor	Manage custom fields	Configure Module Tabs	Choose which modules are displayed system-wide
Dropdowns Editor	Manage dropdown lists	Rename Module Tabs	Edit the labels for module tabs
Smart List Tab Sharing	Share custom list view layout tabs between users	Workflow	Manage workflow
Module Designer	Modify standard modules and create completely new custom modules	PDF Form Designer	Design PDF Forms

Figure 134: Administration – Studio Functions

Note: Studio customizations may be moved from one 1CRM server to another by using the *Create Personality Pack* shortcut provided in the *Upgrades & Customization* option of Administration.

➡ 7.5.1 Layout Editor

The *Layout Editor* feature lets you rearrange the fields and panels on most of the screens available within 1CRM, to customize them to fit your needs. It let's you edit a module's screen layouts including Detail/Edit layouts as well as Quick Create layouts.

Begin by selecting the name of the module you want to customize. Choose the module name from the list of modules displayed, as shown above. Then you will see a set of layouts to choose from. The images in Figure 136 below show the options presented in Accounts and Contacts.
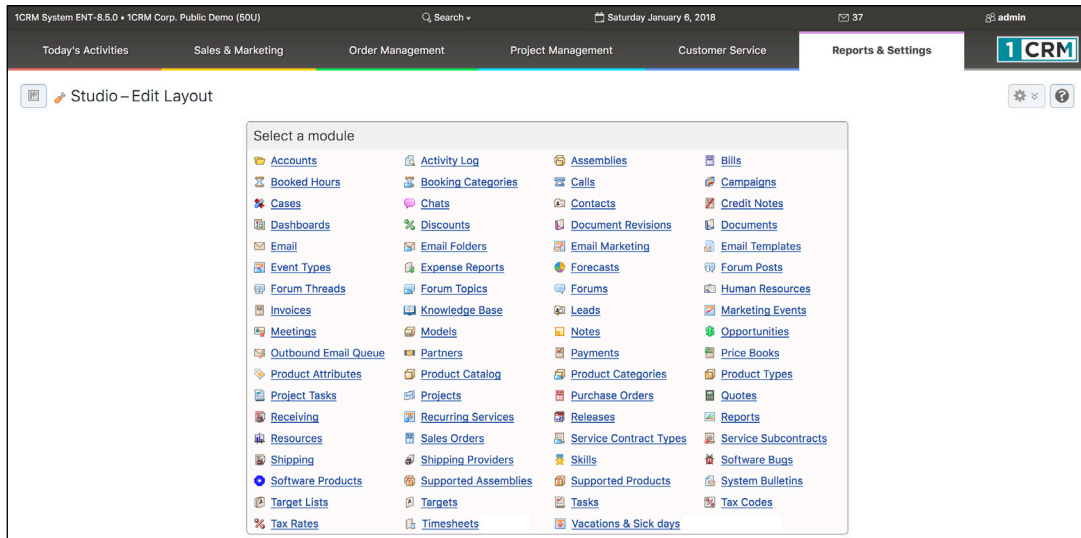
Figure 135: Administration – Studio: Edit a Module – Select Module

Notice that for Contacts, for example, there are options for the *Standard* Edit / Detail View layout and for the *Quick Create* layout. Similarly, the Accounts module offers the same layouts. As you can see, most aspects of the 1CRM presentation screens may be customized using the Layout Editor.
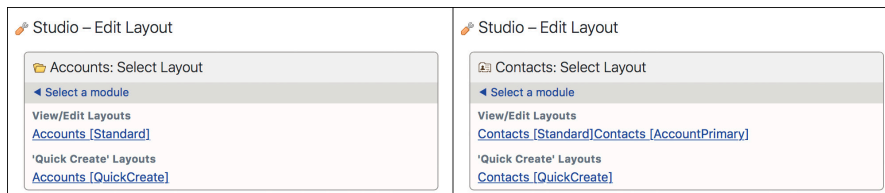
Figure 136: Administration – Studio: Layout Editor Examples

Figure 137 below illustrates editing the Accounts *Standard* layout. Notice that each layout consists of one or more sections. Each section has one or more rows, and each row has two data fields within it, side by side. The main screen display area is your staging area, as it is just a copy of your screen layout, which you can choose to commit (using the *Save Layout* button) or not after doing some editing. The editing functions available to you are:

- Add a field from the floating *Available Fields* list on the left into the staging area. Custom fields are listed first, followed by the Standard fields. Just drag the field into an open position in the layout. If you drag it onto an occupied position, the field previously in that spot will be relegated to the *Available Fields* list.

- Move a field from one position in the layout to another, by dragging it. If you move it to a position that is already occupied, that field will be swapped with the one you are moving.

- Remove a field from the current layout by hovering over it, and then clicking on the ✖ that appears at the right of the field name.

- Change the name label for any field already in the staging area by clicking on that field. The *Edit Element* popup will be displayed, allowing you to enter a new name label for the field.

- Change which field to use at any position already occupied in the staging area by clicking on the field at that position. The *Edit Element* popup will be displayed. Use the *Field* dropdown to select a different field to be positioned at this position in the layout.

- Add, remove or re-arrange fields in the top panel (which has no ✚ **add row** control) by clicking on any field in that panel. The *Edit Element* popup will be displayed, including a special *Add Field* dropdown to select a field to add, as well as controls to re-order fields.

- Add a blank new row to the layout using the **✚** miniature icon to the right of the row. The new row will be added *above* the current row. You may also add a row using the **✚ add row** control at the top of each section. It will add a blank row at the bottom of the section.

- Remove a row by clicking on the ⊖ miniature icon to the right of that row. Any fields positioned on that row will be added to the *Available Fields* list.

- Add a blank new section by clicking on the **✚ add section** link at the top right of the staging area. The new section will be added at the bottom of the layout.

- Remove a section by clicking on the ⊖ **remove section** link at the top of each section.

- Move a section by clicking on the up / down arrows at the top left of each section. This will move that section up or down a spot in the section order.

- Rename a section by clicking on the section name (which is a small empty box when no section name has yet been defined) to edit it.

Click on the *Save Layout* button to save the results of a good editing session, or click on the *Cancel* button to abandon your edits if you don't like how things turned out.

Note: If you ever really make a mess of a layout, and mistakenly save it and want to start over, you can reset it to defaults. Use the *Restore Default Layout* option on the ⚙⌄ button available only to Administrators, at the top right of the relevant Edit or View screen within the application itself.

Note: You can also access the layout editor for any of the system's Edit/View layouts by simply clicking on the ⚙⌄ button available to Administrators at the top right of Edit or Detail View screens, and choosing the *Edit Layout* option.

Note: Using the same ⚙⌄ button available to Administrators on edit and view layouts, you can choose the *Create Mobile Layout* option to define the Edit/View layout as seen when using Mobile Access. This lets you add custom fields to mobile layouts as well.

Figure 137: Administration – Studio: Layout Editor – Account *Standard* Layout
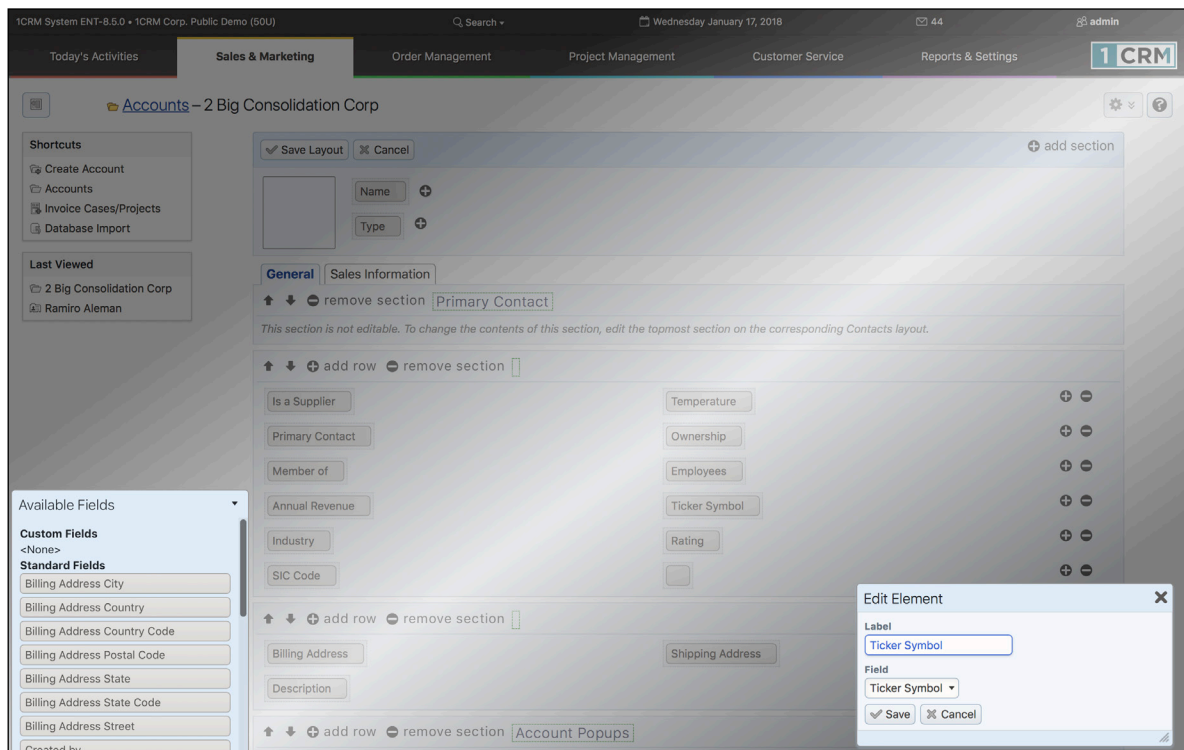
➲ Editing Sub-panel Layouts

To edit a sub-panel layout, an Admin user may click on the ⚙ icon (visible only to Admin users) at the top right of the sub-panel within the actual screens of the user application. The resulting popup allows the user to change the column definitions for that sub-panel.

➲ 7.5.2 Custom Fields Editor

With the *Custom Fields Editor*, in *Studio - Admin*, you can add custom fields to any module in 1CRM. First, select the module in which you want to add or edit custom fields, from a screen that closely resembles the one in Figure 135. Then you can either create a new field, or browse existing custom fields in that module.

To create a new field, click on the *Create* button on the Custom Fields list for the module selected. That will lead to a screen like the one on the left in the Figure below, where you first select the *Data Type* of the field from a dropdown list. Options are:

- Text
- Text Area
- Integer
- Decimal
- Percentage
- Checkbox
- Email
- Phone Number
- Item Number
- Dropdown
- Status

- Multiselect List
- Date
- Date & Time
- Web Link
- HTML
- Calculated
- Related Record
- Value From Related Record
- Currency
- Name

Next set the *Field Name*, *Field Label* (the label displayed on screen), *Audit Enabled?* (should this field be tracked in the *Change Log*?), Personal Data? (does this field need to be treated as sensitive Personal Data subject to General Data Protection Regulations?), *Mass Update?* (should it appear on the *Mass Update* panel for this module?), *Required Field?*, and *Default Value*. (A valid field name must start with a letter, followed by zero or more letters, digits and underscores.) *Merge Duplicates* determines if this field can be used to detect and control the merging of duplicate records. *Available in 1CRM Mobile* will cause this field to be displayed in the 1CRM Mobile App if it is selected.

Note: Be extremely cautious if you define a custom field, and set it to *Required*, but do not define a *Default Value*. This can lead to issues such as the inability to save new items in the module involved, as the record is deemed invalid with no value in the required field. Unless there is some critical reason not to, always define a default value for required fields.

Some field types have different fields you will need to fill in. For example *Text* and *Integer* fields have a Max Size value, and a *Dropdown* or *Multiselect List* field needs to refer to a pre-existing Dropdown list from which it takes its values.

After saving a new field, you can view and edit information about the field in the Custom Fields list for the module. In the Layout Editor, you can place the custom field on the module's Edit/View layout by dragging it to the new location from the Available Fields list, just like any other field. Custom fields are shown at the top of the list in their own section. *(See the section on the Layout Editor.)*
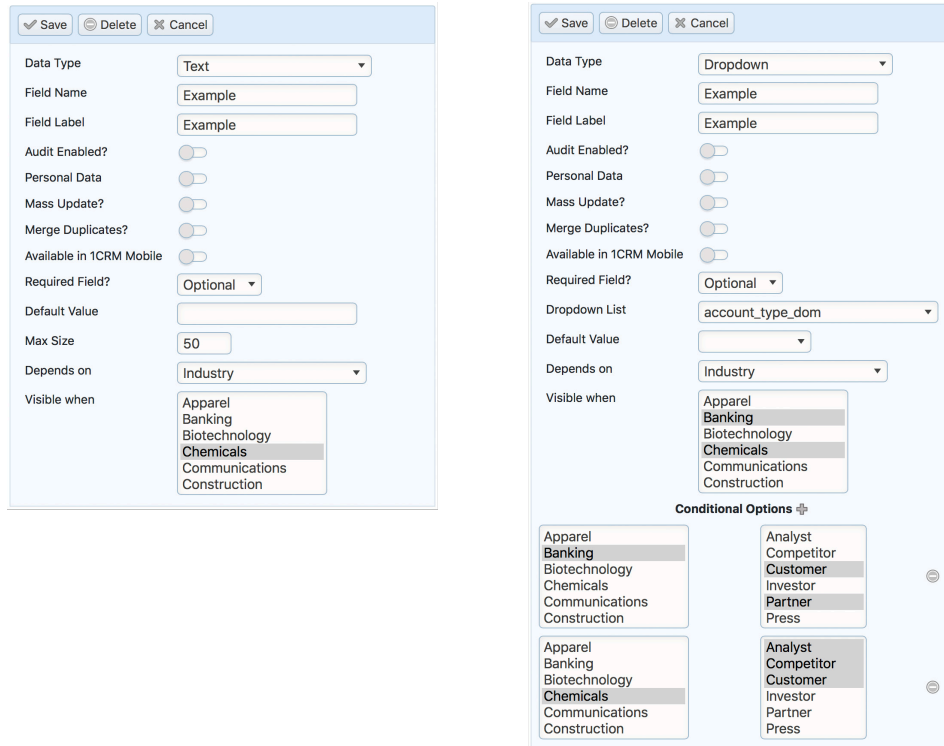
Figure 138: *Creating* a Custom Field

Dependent Fields

On the left of the Figure above we see that a Custom field (and using the Module Designer, even standard fields) can have a *Depends On* setting. You can use this to make a field be visible only when it is needed. The *Depends On* field has to be a Dropdown type field, and you can select one or more values for that field that will cause your custom field to be visible.

As the controlling field value is changed, you will notice that the edit and detail view screen layouts of the module concerned are adjusted dynamically to either show or hide the field that depends on it. By defining multiple dependent fields you can make whole sections of a screen be shown or hidden - and any blank extra rows in the screen form will be suppressed to keep things looking good.

A special feature of Dependent Fields come into play when it is itself a Dropdown field - as shown on the right side of the Figure above. By changing the *Data Type* to *Dropdown*, we see that Conditional Options are now displayed. This provides you with the capability to choose which dropdown values are offered on your custom field, depending on the value of the controlling field. You can choose a variable set of values to be shown for each value of the controlling field.

➡ 7.5.3 Dropdowns Editor

The *Dropdowns Editor* is a very valuable tool for the Administrator. It permits the values in all of the dropdown boxes in the system to be edited. Existing options may be changed or deleted, and new options may be added. For example, when defining a new Account, in the Account Type field, the user must normally choose from a set of dropdown options, including *Analyst*, *Competitor*, *Customer*, *Integrator*, *Investor*, *Partner*, *Press*, *Prospect*, *Reseller*, and *Other*. By using the Dropdowns Editor, this set of options may be altered, with more or less options, and different option values.

To use the Dropdowns Editor, choose the language you want, and typically leave the Module dropdown set to *Application*. Select a name of a dropdown list from the Dropdown Name control. For example, account_type_dom is the first option on this list. If you select that option you will see a list of the Account Type options as shown below.
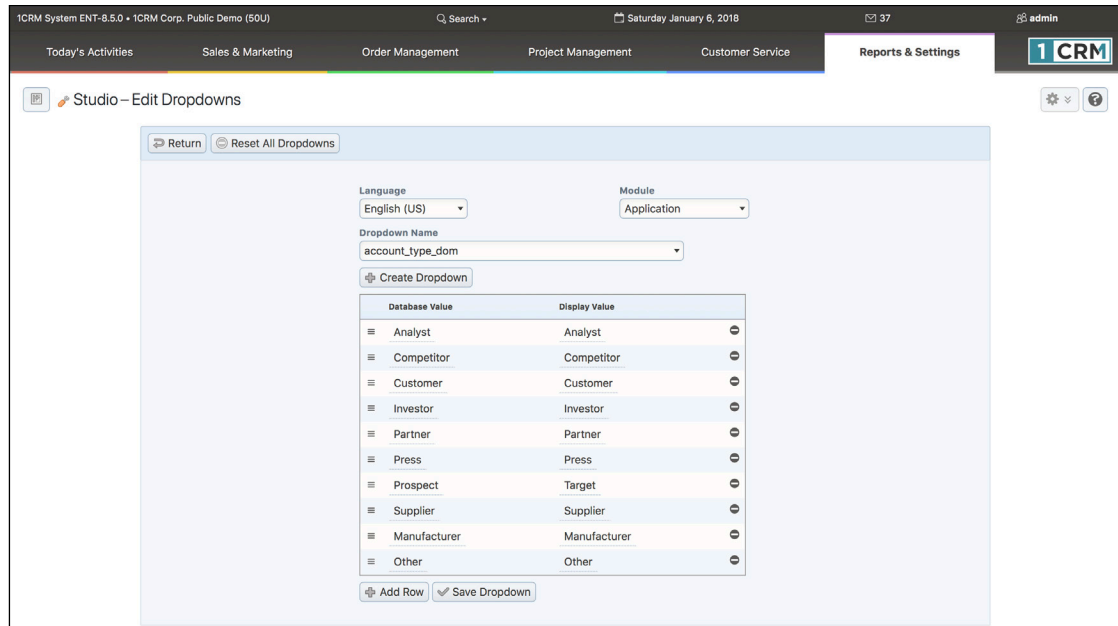
Figure 139: Using the Dropdowns Editor

The editing functions available to you are:

- On each row of the list, you will see a ⊖ icon on the right hand side, to remove that option.

- The ▤ control on the left of each row allows you to drag an option to a higher or lower position on the list.

- Simply click on the *Display Value* for an option to edit it. Typically you do not need to change the *Database Value*.

- Use the **✚ add row** button to add a blank row below whichever row is currently highlighted.

- Use the **✚ Create Dropdown** button to define an all-new dropdown list.

- Simply click on the *Save Dropdown* button when your changes are finished, to save them.

- Once a dropdown list has been modified from its default values, it will be shown in the list of dropdowns with an asterisk against it. This is a very handy way to tell which dropdown lists have been modified. If you re-edit a modified dropdown list, you will notice a new *Reset Dropdown* button you can use to reset just that one dropdown list to its default values.

- Use the ⊖ **Reset All Dropdowns** button (with care!) to reset all dropdown lists to their default values.

Note: There are a number of drop-down lists within 1CRM that must not be edited, or else some aspects of system function will be compromised. These lists may only be altered in conjunction with custom software development work on the system. These sensitive drop-down lists are:

- Opportunities module – *Sales Stage*, *Probability %*, and *Forecast Category*

- Quotes module – *Quote Stage*

- Projects module – *Status*

- Cases & Software Bugs modules – *Status*

- Meetings, Calls & Tasks modules– *Status*

Note: There are also a few special characters that you should not use in a drop-down entry. These sensitive characters are " < > and &. You can use the characters in the *Display Value*, but not in the *Database Value* field.

🡆 7.5.4 Smart List Tab Sharing

One of the best features of 1CRM is the ability to define your own Smart List tabs in module list views. This screen enables the Administrator to create new Smart Lists, and to manage the sharing of new or existing Smart List tabs between users.

For example, you might define a Smart List tab for the Accounts module called AR List, and set it to show only Accounts with a Non-Zero Balance, sorted *Descending* on *Balance Receivable*. This might well be useful to all users of the system, and so may be assigned to All users. It will now become visible as a new Smart List tab in the Accounts list view for all users.
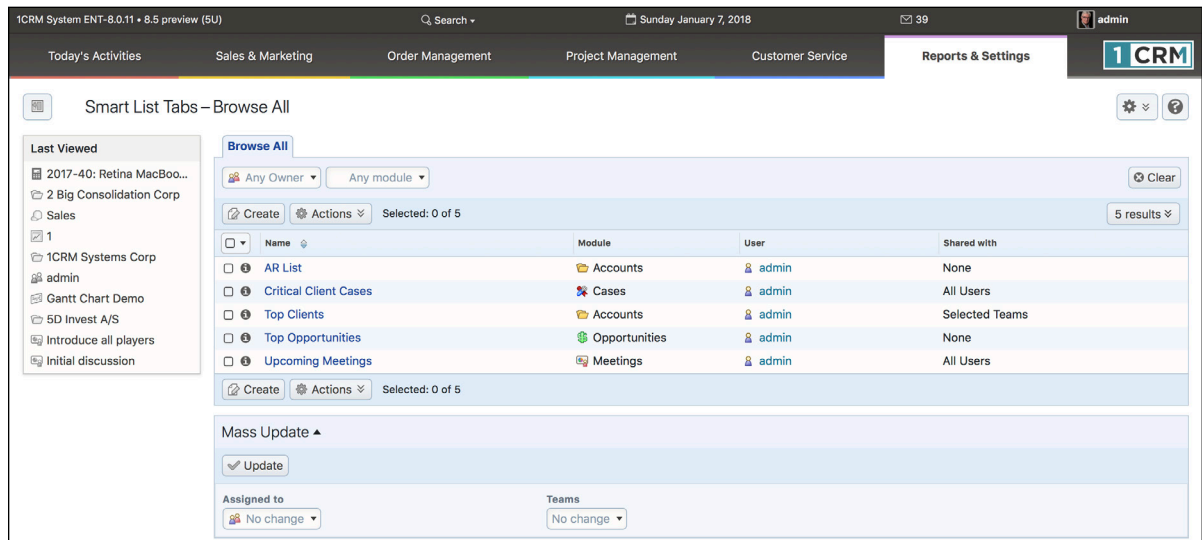
Figure 140: Smart List Tab Sharing

🡆 7.5.5 Studio: Workflow

Workflows allow you to automate various aspects of how your business works. If you have some normal process that you follow every time a new lead comes in, every time a support contract gets close to expiring, every time you make a sale - Workflows are the quick and easy way to make sure these things happen all by themselves.

Note: Workflows are only performed if the system Scheduler is operating, and the *Process Workflows* scheduler task is enabled.

Workflows are defined in the Workflow module – which may only be accessed from the Admin screen. Once you are in the Workflow module, click on the *Create Workflow* shortcut to create a new Workflow. Within the Workflow edit view, there are four main sections:

1. *Workflow Name, Trigger Module and Status:*

   • Enter a name for the Workflow.

   • Set the Workflow to *Active* or *Inactive*.

   • Select the module you want to use to trigger the Workflow. (Sections 3 and 4, *Conditions* and *Actions* are shown once this module is selected.)

2. *Trigger Action*: In this section, you begin to define the Workflow.

   • *Trigger Action*: *Saved* or *Deleted* - Choose if the Workflow is triggered when a record in the selected module is *Saved*, or when it is *Deleted*.

- *Applies to*: Choose if the Workflow is to be applied to to *New Records Only*, *Existing Records Only*, or *New Records and Existing Records* in the selected module.

- *Execute as*: Choose who is seen as the 'current user' while this workflow is executed - *User who triggers workflow*, *Administrator*, *Record owner*.

3. *Conditions*: In this section, you define the conditions in which the Workflow should be performed when a record in the module you select is *Saved*, or *Deleted*. You can add any number of filters, or filter groups, which are based on the values of any of the fields in the record structure for the module you selected.

   Individual Filters: (see also section below - *Workflow Filter Details*)
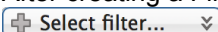
   1. Under *Add Conditions* use the [➕ Select filter... ⌄] button to add new individual conditions (filters).

   2. Next select any *Field* in the trigger module from the scrollable popup list.

   3. Then for each Filter set the *When* dropdown to one of:

      - Value changed to

      - Check current value

      - Check previous value

      - Value is changed

      - Value is unchanged

   4. Finally set the *Filter* value as desired, to match the *When* comparison you selected.

   Note: If multiple individual conditions are defined, the conditions are all AND'd together, meaning that they must all be satisfied for the workflow to trigger.

   Note: Use the ▤ control to the left of each individual condition to drag it up or down in your list.

   Note: Use the ⊖ control to the right of each condition to remove that condition.

   Filter Groups:

   1. Use the [➕ Add filter group] button to add a new filter group - a grouped set of conditions. When you add a new Filter Group, you will see a new line added beginning ***Group:*** with a dropdown control with the options as follows:

      - *All Of*: All the conditions indented under the Group must be true

      - *Any Of*: Some of the conditions indented under the Group must be true

      - *None Of*: None of the conditions indented under the Group may be true

      - *Not All Of*: Not all of the conditions indented under the Group may be true (so if only some, or none of them are true, that's fine)

   2. After creating a Filter Group, you can then add filter conditions to that group with the [➕ Select filter... ⌄] button.

   Note: Use the ▤ control to drag a filter left and right, to indent it under a filter group, or un-indent it from one.
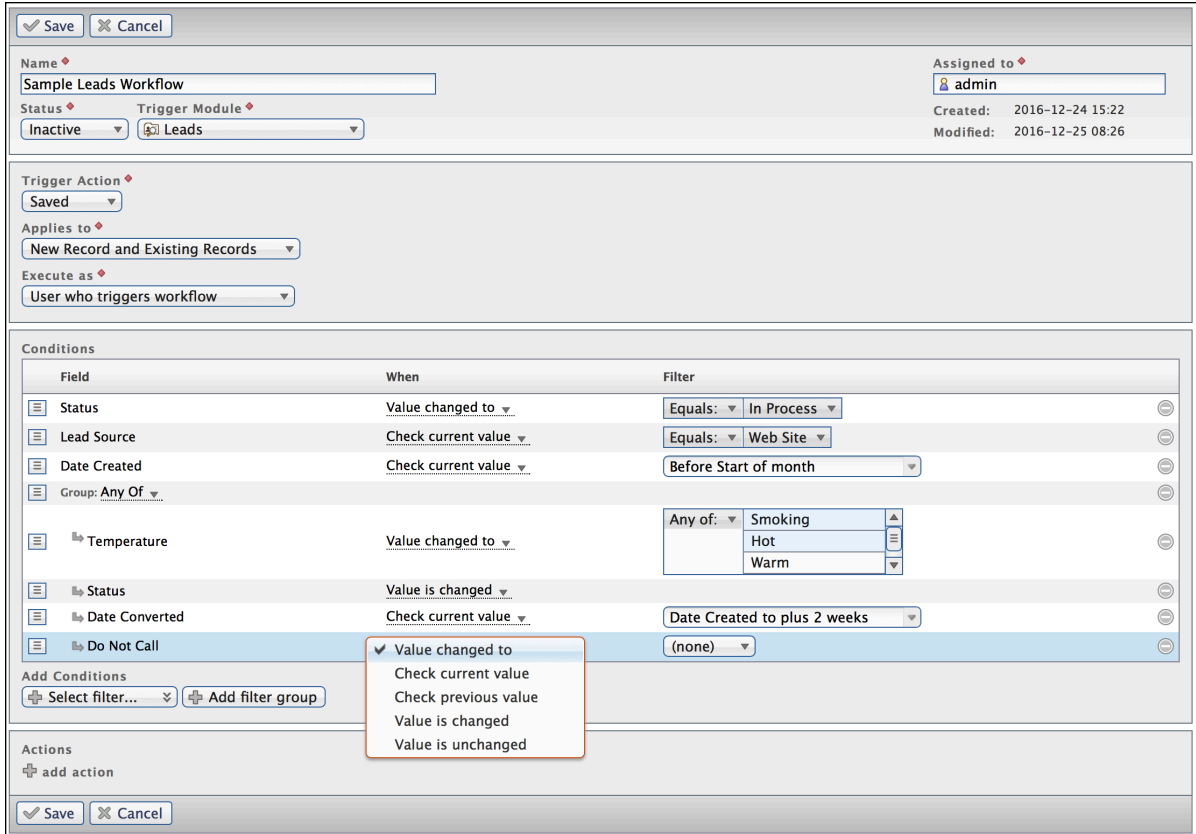
Figure 141: Administration - Studio: Workflow Conditions

4. *Actions*:

- You can perform a single action, or create a list of multiple actions.

- You can add actions using the **✚ add action** link (below any existing actions).

- Clicking on **✚ add action** produces a popup dialog box to define that action. Once saved, the action details are added to an assembled list of actions in this panel.

- As defined in the popup dialog box, each of these actions may be performed after the trigger event, and some of them optionally may be performed after a delay.

- You can edit any existing action using the ✐ control to the top right of the action.

- You can remove any existing action with the ⊖ control to the top right of the action.

There are ten different types of action that may be performed if the conditions are met for the Workflow. Your choices for types of action are as shown in this Figure:
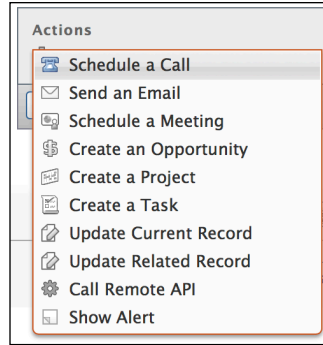
Figure 142: Administration - Studio: Workflow Available Actions

An example of creating a Workflow is shown in the figure below. In this example, assigned Leads that have a promising Temperature which have been ignored for two days cause a reminder email to be sent to the user to whom the lead is assigned. Note the ability to email the user responsible for the workflow being triggered. The use of an email template allows variable fields to be inserted in the email body content.
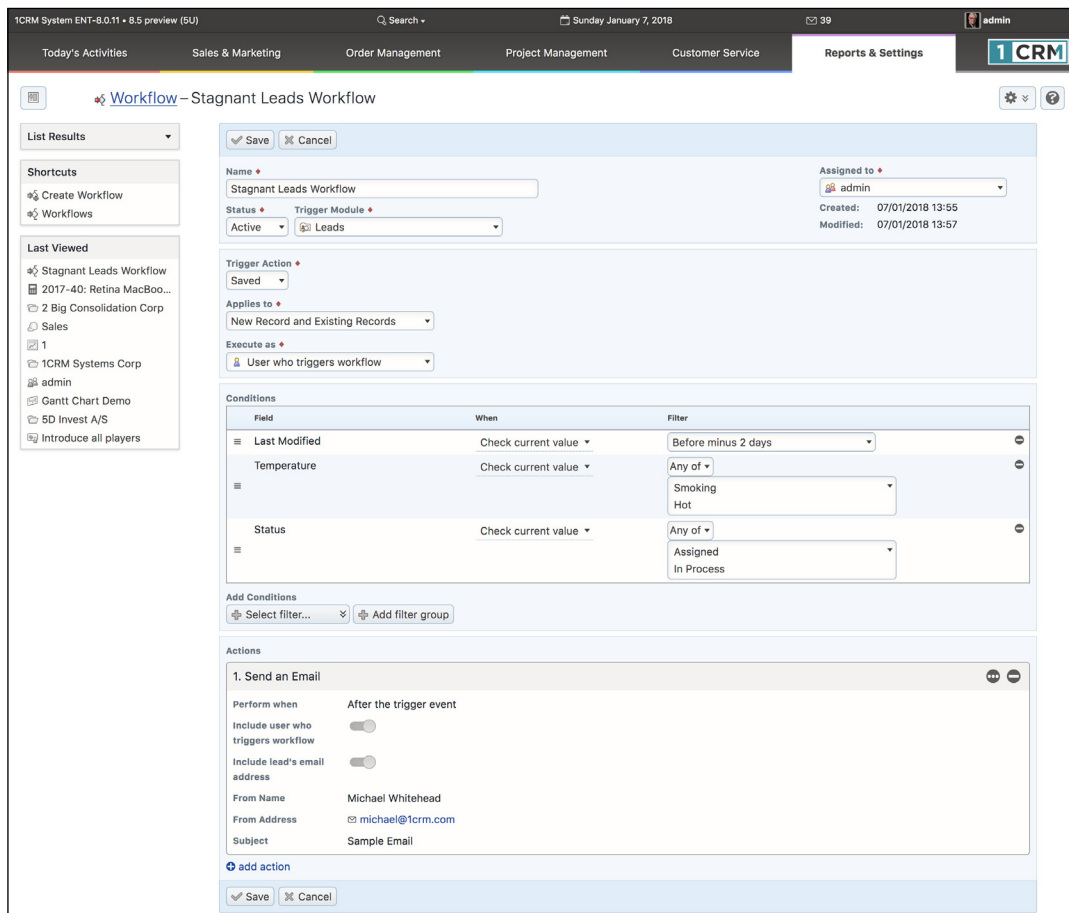
Figure 143: Administration - Studio: Workflow Edit View

Workflow Filter Details

Each individual workflow condition is set by choosing a *Field*, a *When* dropdown option, and sometimes also some *Filter* details. To experiment with this, create a new Filter, then choose a *Field*. Next choose a *When* value from the options:

- Value changed to
- Check current value
- Check previous value
- Value is changed
- Value is unchanged

When setting the *Filter* value, the rules will vary depending on the Field Type of the *Field* you have selected, as well as on the *When* value you selected. For When values of *Value is changed*, and *Value is unchanged*, you will need no Filter value at all. For the other When values (*Value changed to*, *Check current value*, *Check previous value*):

- For Field Types *Text*, *Multiline Text*, *Email Address*, *Fax Number*, *Phone Number*, *Name*, *Skype ID*, and *URL* your Filter consists of a dropdown selection from these options: *Contains:*, *Equals:*, *Starts with:*, *Ends with:*, *Doesn't contain*: and *Not equal:,* followed by a text field to test against.

- For Field Types *Status Indicator* or *Drop-down Selection* your Filter consists of a dropdown selection from these options: *Any Value*, *Equals:*, *Not equal:*, *Any of:*, *None of:*, *Empty*, and *Not empty*, followed by a selection from the options contained in your dropdown list.

- For *True or False* Fields your Filter options are simply *(none), Yes* or *No*.

Workflow Date Filters

For Field Types *Date* or *Date & Time* the workflow Filter values have some interesting and powerful options. Initially you see these options:

Date Created
Any date
Select date...
Select date field...
Before date...
After date...
Empty
Not empty
Offset date...
Within range...
Current...
Select month...
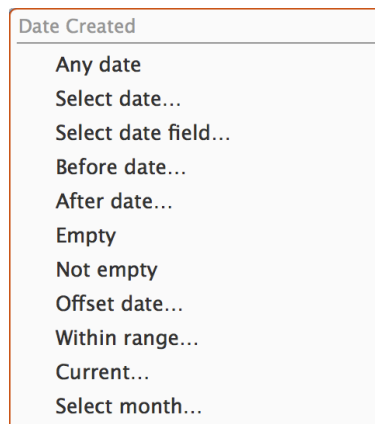
Figure 144: Administration - Studio: Workflow Date Filters (1)

- If you select *Any Date*, *Empty* or *Not empty* then the filter is complete.

- If you choose *Select month...* then simply choose one of the 12 months, and the filter is complete.

- If you choose *Current...* then simply choose one of the options (*day*, *week*, *month*, *quarter*, *year*, *fiscal quarter*, *fiscal year*) and the filter is complete.

- If you choose *Before date...* or *After date...* then you have a single date comparison filter. You will be prompted to choose one of these options:
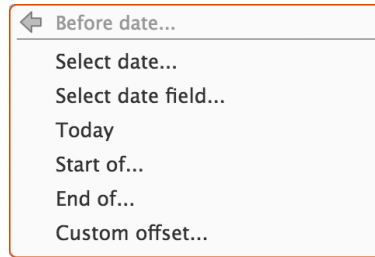
Figure 145: Administration - Studio: Workflow Date Filters (2)

- *Select date...* displays a calendar picker to choose a specific date.

- *Select date field...* lets you choose the value of any date field in the current module.

- *Today* is simply today's date at the time the workflow is executed.

- *Start of...* lets you choose a date at the start of the current *day*, *week*, *month*, *quarter*, *year*, *fiscal quarter*, or *fiscal year.*

- *End of...* lets you choose a date at the end of the current *day*, *week*, *month*, *quarter*, *year*, *fiscal quarter*, or *fiscal year.*

- *Custom offset...* lets you choose a date which is a specified number of *days*, *weeks*, *months*, *quarters*, *years*, *fiscal quarters*, or *fiscal years* either before or after the current date (there is a dropdown for plus or minus)*.*

- If you choose *Select date...* or *Select date field...* from the list in Figure 144 then you have a dual date comparison filter. If you choose *Select date...* this displays a calendar picker to choose a specific date for your first date. If you choose *Select date field...* this lets you choose the value of any date field in the current module as your first date. In either case you then need to specify your second date, by using the next seven options presented:
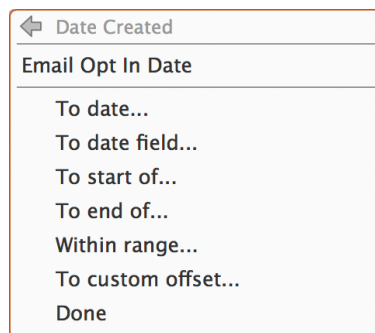
Figure 146: Administration - Studio: Workflow Date Filters (3)

In the figure above, we see the first date to be used in the comparison (in this case *Email Opt in Date*) followed by the choice of seven comparison options. Simply select one of these options, and the filter is complete.

- Selecting *To date...* sets the second date to a specific date.

- Selecting *To date field...* sets the second date to the value of the selected date field.

- Selecting *To start of...* sets the second date to the start of the current *day*, *week*, *month*, *quarter*, *year*, *fiscal quarter*, or *fiscal year.*

- Selecting *To end of...* sets the second date to the end of the current *day*, *week*, *month*, *quarter*, *year*, *fiscal quarter*, or *fiscal year.*

- Selecting *Within range...* lets you choose a date range specified as a number of *days*, *weeks*, *months*, *quarters*, *years*, *fiscal quarters*, or *fiscal years* before or after the date selected as the first date. The setting shown below indicates a 4-week period from 2 weeks before today to 2 weeks after.   The dropdown control also allows you to select *Next* or *Previous*, to choose just the 2 weeks before or after the selected date.
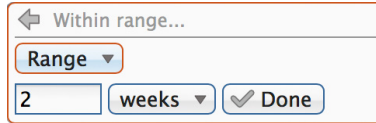
Figure 147: Administration - Studio: Range Date Filter (1)

- If you choose *To custom offset... ...* you can set the second date as a number of *days*, *weeks*, *months*, *quarters*, *years*, *fiscal quarters*, or *fiscal years* either before or after the current date (there is a dropdown for plus or minus).

- Selecting *Done* simply means that the two dates are set to the same date - i.e. the date range is simply that one date.

- If you choose *Offset date...* from the list in Figure 144 then you have a dual date comparison filter. For the first date you have a choice of three options:
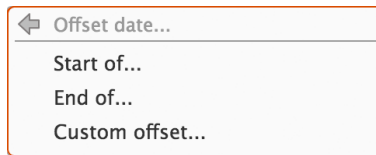
Figure 148: Administration - Studio: Offset Date Filter

- *Start of...* lets you choose a date at the start of the current *day*, *week*, *month*, *quarter*, *year*, *fiscal quarter*, or *fiscal year.*

- *End of...* lets you choose a date at the end of the current *day*, *week*, *month*, *quarter*, *year*, *fiscal quarter*, or *fiscal year.*

- *Custom offset...* lets you choose a date which is a specified number of *days*, *weeks*, *months*, *quarters*, *years*, *fiscal quarters*, or *fiscal years* either before or after the current date (there is a dropdown for plus or minus).

When selecting the second date you have the same options as shown in Figure 146 above.

- If you choose *Within range...* from the list in Figure 142*...* you may choose a date range specified as a number of *days*, *weeks*, *months*, *quarters*, *years*, *fiscal quarters*, or *fiscal years* before or after the current date. The dropdown control allows you to select *Range*, *Next* or *Previous*, to choose just a period before or after the selected date or a range each side of that date.

Figure 149: Administration - Studio: Range Date Filter (2)

Perform After A Delay - Unique Option

The ability of a workflow to perform an action *After a delay* has a *Unique* checkbox option. To understand this option better, let's consider an example. If *Contacts* is selected as the Trigger module, and a condition of *After a delay: 5 Days* is defined on the *Last Activity Date* field When *Value is Changed* - what happens if the value of *Last Activity Date* changes once each day for a few days?

The first time it happens a pending action is created for 5 days later. But then if the next day the value changes again, another pending action would be scheduled. To prevent multiple pending actions from being queued up and all of them getting executed over time, the *Unique* flag will ensure that as a pending action is scheduled it replaces any previous pending actions on that specific workflow. So in this example the action would only be performed after there has been a solid gap of 5 days since the last activity with this Contact, as long as the *Unique* option has been selected.

⟳ 7.5.6 Studio: Configure Group Tabs

This function is used to define the names of tab groups, and the set of modules within each group. It has an easy to use drag and drop interface.

⟳ 7.5.7 Studio: Configure Module Tabs

Both system administrators and users can easily configure which modules are available within the 1CRM application. In the *Configure Ta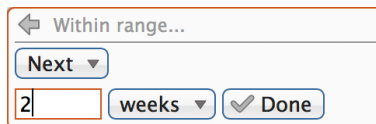bs* administration option, administrators can define which modules will be available, and which will not, for all users.

Users can then further modify their own personal module tab settings in the *Display Options* tab of the *My Account* screen. Any tabs that an administrator removes cannot be added back by a user.

⟳ 7.5.8 Studio: Rename Module Tabs

Using this function, as Administrator can rename the module tabs that display for all users. In the list of modules, you can click on the names in the right-hand column of the list to edit the name. The name in the left-hand column will remind you what the value used to be.

⟳ 7.5.9 Studio: Module Designer (Enterprise Edition Only)

The *Module Designer* Administrative function is used to define new custom modules, their fields and their relationship to existing modules. As well, it enables the Administrator to edit (for both custom and standard modules) which fields appear on the Mass Update panel, which fields are tracked in the ChangeLog, and which fields are required. In many ways a more accurate name for this function might be the *System Metadata Editor* (but we decided to go for 5 syllables not 9).

When the Administrator first enters the Module Designer, an initial screen is displayed as seen in Figure 150. Your options are:

- To create a new custom module, just click on the *Create Module* shortcut.
- To make changes to an existing module, click on the link for that module.
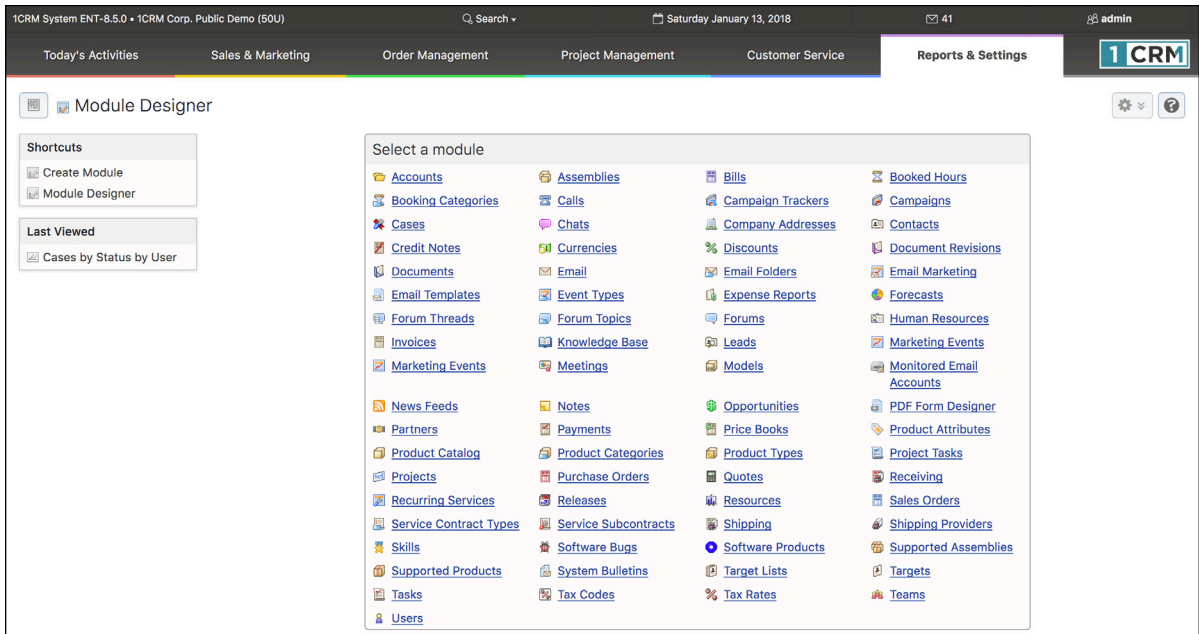
Figure 150: Module Designer (Enterprise Edition Only)

Next, if you choose to make changes to an existing module, you will see this screen:
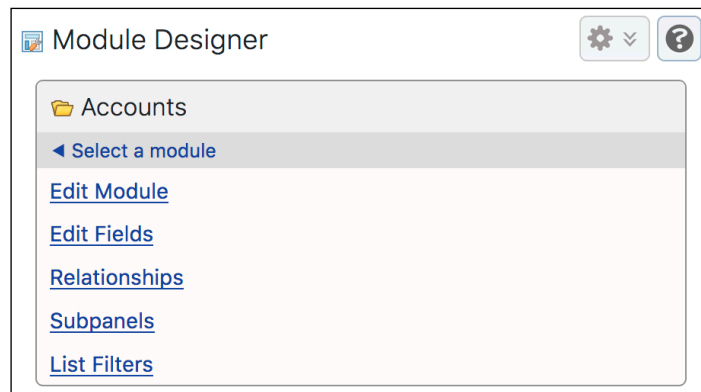
Figure 150a: Module Designer (Enterprise Edition Only)

- To edit an existing module definition for a standard module (or a custom module you have already defined), just click on the *Edit Module* link for that module

- To edit the existing fields for a standard module (or a custom module you have already defined), simply click on the *Edit Fields* link for that module. You can also add new custom fields with this option. Note that custom fields and standard fields are indistinguishable in this list, as they are treated in exactly the same way.

- To edit the relationships for any module, just click on the *Relationships* link for that module.

- To edit the subpanels for any module, just click on the *Subpanels* link for that module.

- To edit the default List View filters for any module, just click on the *List Filters* link for that module.

⬭ Create Module / Edit Module

When either using the *Create Module* shortcut to create a new module definition or clicking on the *Edit Module* link for an existing module you see the same sort of screen displayed, as shown below:
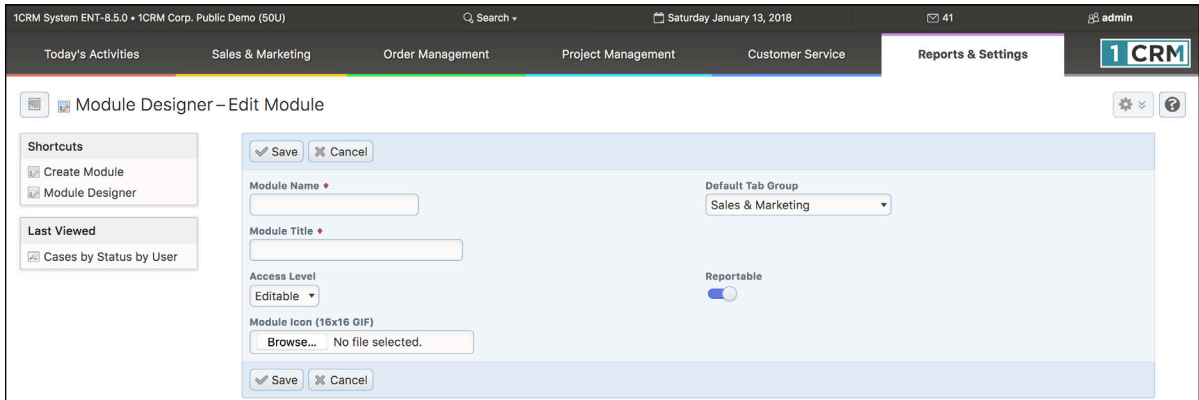
Figure 151: Creating a Custom Module

For an existing module, the *Module Name* is already defined, and not editable. Each module also has a *Default Tab Group*, a *Module Icon* file, and a *Module Title*. An *Access Level* is also defined for each module, which may be set to either *Editable* or *Fixed*. Most normal user-accessible modules have the value *Editable*. Example of modules with a *Fixed* Access Level are *Currencies*, *Monitored Email Accounts*, *Outbound Email Queue*, and *Users* - all used by administrators.

Once you have created a new module, you then need to go to the main screen of the module designer and define the *Fields*, *Relationships* and *Subpanels* for your new module. It's a good idea to study this type of data for an existing module before implementing your own. Then you can use the *Layout Editor* to define the Edit and List view layouts for your new module.

Note: It is entirely possible to damage your 1CRM installation through the use of the *Module Designer*, as it is so powerful. Be sure to always use it in a planned session, and back up your entire system first. Then test any new modules and existing modules once you have finished. Roll back to the backup if you have any concerns. And always test on a 'sandbox' installation first. ***New modules you add can never be removed - make sure you understand that and proceed with caution!***

➡ Edit Fields

The Field Editor (see Figure below) lists all the fields in the selected module: the field name, the label to be displayed on that field, and the field type.

Figure 152: Editing a Module's Field Definitions

Your options include:

- Add a new field by clicking on the *Create* button.

- Edit the values for an existing field by clicking on that item in the list (see Figure 153).

- Click on *Save* when you have completed your changes.
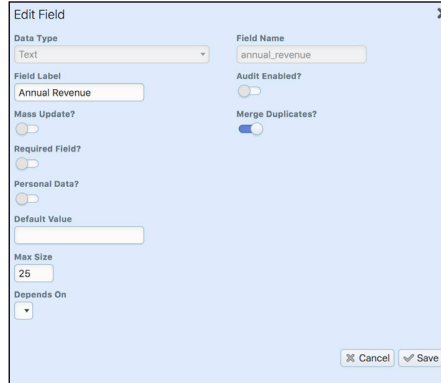
Figure 153: Editing a Field

When editing a field definition, first select the *Data Type* of the field from a dropdown list. 1CRM supports 21 different kinds of optional fields, which are:

- Text
- Text Area
- Integer
- Decimal
- Percentage
- Checkbox
- Email
- Phone Number
- Item Number
- Dropdown
- Status

- Multiselect List
- Date
- Date & Time
- Web Link
- HTML
- Calculated
- Related Record
- Value From Related Record
- Currency
- Name

Next set the *Field Name*, *Field Label* (the label displayed on screen), *Audit Enabled?* (should this field be tracked in the *Change Log*?), Personal Data? (does this field need to be treated as sensitive Personal Data subject to General Data Protection Regulations?), *Mass Update?* (should it appear on the *Mass Update* panel for this module?), *Required Field?*, and *Default Value*. (A valid field name must start with a letter, followed by zero or more letters, digits and underscores.) *Merge Duplicates* determines if this field can be used to detect and control the merging of duplicate records.

Note: Be extremely cautious if you define a custom field, and set it to *Required*, but do not define a *Default Value*. This can lead to issues such as the inability to save new items in the module involved, as the record is deemed invalid with no value in the required field. Unless there is some critical reason not to, always define a default value for required fields.

Some field types have different fields you will need to fill in. For example *Text* and *Integer* fields have a Max Size value, and a *Dropdown* or *Multiselect List* field needs to refer to a pre-existing Dropdown list from which it takes its values.

After saving a new field, you can view and edit information about the field in the Custom Fields list for the module. In the Layout Editor, you can place the custom field on the module's Edit or View layout by dragging it to the new location from the Available Fields list, just like any other field.

➡ Special Custom Field Types

Calculated Fields

Calculated fields are an especially powerful type of custom field. An example of their use is shown in the Figure below.

The bottom of the popup panel includes a scrollable list of the available *Functions*, and an example of their use is shown as a tooltip. A list of *Fields* available for you to use in your calculations is also displayed. Just build your *Formula* by clicking on *Functions* and *Fields,* and by typing in any numeric or text constants, additional parentheses, and any spaces you want for readability.

The *Format* field is used to specify the data type in which you wish the result to be stored - for example you might want a numeric result to be expressed as a percentage, or a text result to be evaluated and stored as a decimal number.
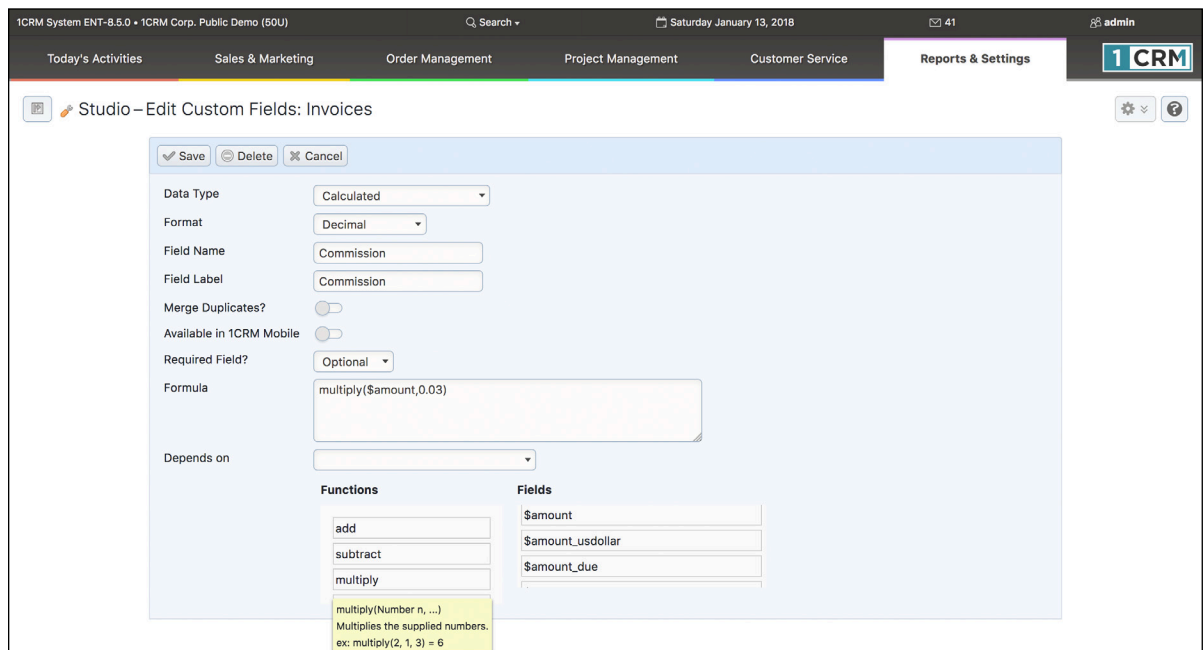
Figure 154: Calculated Fields

You can use a function call as an argument to another function. For example, in the formula:

- add(12, 2)

Here 12 and 2 and are arguments or parameters. You can insert another function call in place of either of them, e.g. :

- add (multiply(3, 4), divide(10, 5))

The value of your custom field is the result of evaluating the formula you enter. Each formula must have a top-level function, but as in general programming or mathematics it can use other functions as its arguments. That creates a nested structure, and this nesting can be of arbitrary depth.

Numeric and Text Constants

Numeric constants may be included in your formulas, as may string constants in double quotes. Numeric constants may be integer or floating point values, and floating point values smaller than one may be written without a leading zero:

- 12
- 12.345
- 0.1234 (or .1234)

Numeric constants may also have an optional sign:

- -12
- -0.5657
- +15
- +.56

Available functions include: *add*, *subtract*, *multiply*, *divide*, *pow*, *max*, *min*, *floor*, *ceil*, *equal*, *abs*, *log*, *exp*, *negate*, *round*, *ifElse*, *ifNull*, *strlen*, *concat*, *stringToUpper*, *stringToLower,* and *substring*.

Numeric functions:

- *add(Number n, ...)* : Returns the sum of the given numbers, for example: add(2, 1, 3) = 6
- *subtract(Number a, Number b, ...)* : Returns a minus b, for example: subtract(10, 5, 2) = 3
- *multiply(Number n, ...)* : Multiplies the supplied numbers, for example: multiply(2, 1, 3) = 6
- *divide(Number a, Number b)* : Return a divided by b, for example: divide(8, 2) = 4
- *pow(Number base, Number exp)* : Returns base raised to the power of exp, for example: pow(2, 3) = 8
- *max(Number n, ...)* : Find the highest value among the given arguments, for example: max(2, 4, 7) = 7
- *min(Number n, ...)* : Find lowest value among the given arguments, for example: min(2, 4, 7) = 2
- *floor(Number n)* : Returns the next lowest integer value by rounding down the value if necessary, for example: floor(4.3) = 4
- *ceil(Number n)* : Returns the next highest integer value by rounding up the value if necessary, for example: ceil(4.3) = 5
- *equal(item1, item2)* : Returns true if item1 is equal to item2, for example: equal("hi", "hi") = true, equal(1, 2) = false
- *abs(Number n)* : Returns the absolute value of the number, for example: abs(-2.5) = 2.5
- *log(Number arg [, Number base])* : Returns the supplied base Log of arg, for example: log(100, 10) = 2
- *exp(Number arg)* : Returns the value of *e* (the base of natural logarithms) raised to the power of arg, for example: exp(0) = 1
- *negate(Number n)* : Returns the negated value of n, for example: negate(5) = -5
- *round(Number n [, Number decimals])* : Rounds a number to a given number of decimal places, for example: round(12256.24, 1) = 12,256.2

Logical functions

- *ifElse(Boolean c, val1, val2)* : Returns val1 if c is true or val2 if c is false, for example: ifElse(true, "A", "B") = "A"
- *ifNull(arg, default)* : Returns default if arg is a null (undefined) value, for example: ifNull(NULL, 0) = 0
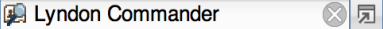
String functions
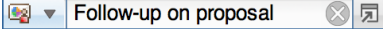
- *strlen(String s)* : Returns the length of the given string, e.g. strlen("Hello!") = 6
- *concat(String s, ...)* : Concatenate strings, e.g. concat("Hello", " ", "world!") = "Hello world!"
- *stringToUpper(String s)* : Make a string uppercase, e.g. stringToUpper("Hello") = "HELLO"
- *stringToLower(String s)* : Make a string lowercase, e.g. stringToLower("Hello") = "hello"
- *substring(String s, Number offset [, Number len])* : Return a portion of a string from position *offset* spanning *len* characters, or to the end of the string, e.g. substring("Hello", 2, 1) = "e"

Web Link and Email Fields

Web Link and *Email* fields both appear on detail view screens as links. *Email* fields link to an email compose window with the *To:* address pre-set to the email address provided. *Web Link* fields link to the URL provided.

Related Record Fields

Related Record fields link to a related record in another module. When defining the field, you need to choose the *Related Type*. This is the module in which you will point to a record, which might be Contacts, Accounts, Leads, or just about any other module in the system. On an Edit view, a Related field looks like this: Lyndon Commander ⊗ ⊡ Here we have set *Related Type* to Leads.

If you like you can leave *Related Type* set at the default value *** Dynamic ***. This creates a Dynamic Related field, which looks like this in an Edit view: ▼ Follow-up on proposal ⊗ ⊡ Here you see a prefix of the module type, which is a dropdown the user can choose from. In this example it has been set to Meetings, and is followed by a selected meeting.

Value From Related Record Fields

Value From Related Record fields will display any field from a record related to the current record. First choose from the *Related Record* dropdown - it shows a list of all module types linked to the current module. Then just choose the *Field* you want to display from that module.

Name Fields

Name fields are fairly simple. They are in general just the same as a normal text field. But when displayed on a list view, Name fields will be shown with a hyperlink to the detail view of the item.
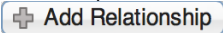
Status Fields
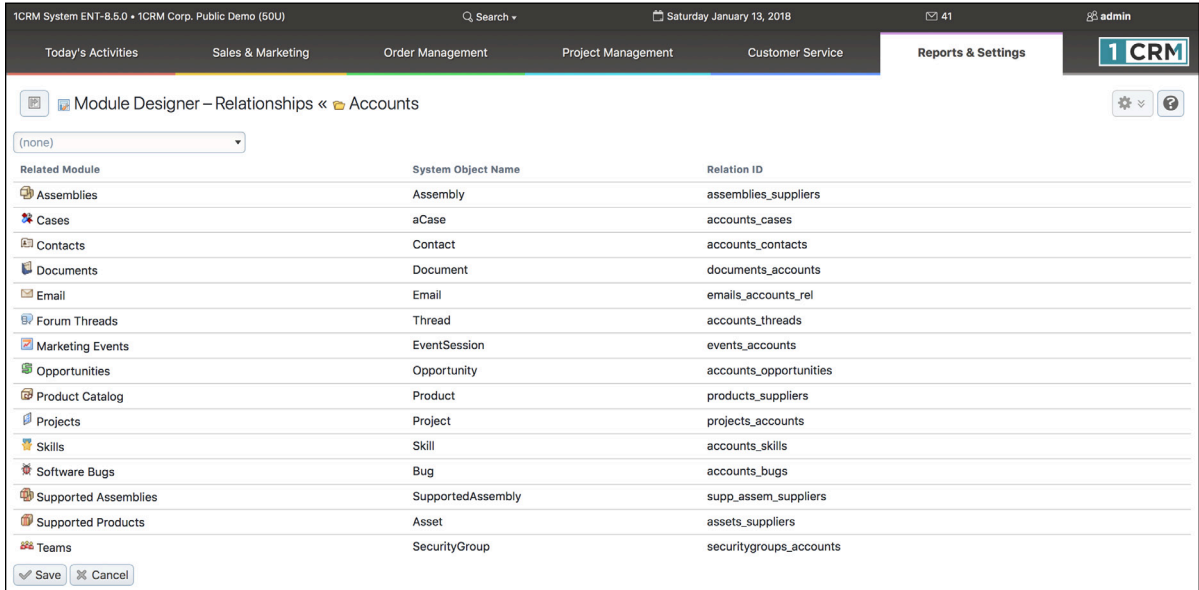
Status fields are similar to dropdown fields, in that they require you to specify a dropdown list which contains the set of option values for the field. An example list to choose might be `bug_status_dom`, or you can make your own list. These fields are displayed as status badges on detail and list views.

Item Number Fields

Item Number fields are basically the same as a normal text field, but they are displayed in a font more like a Courier - such as `10055-017`.

➡ Edit Relationships

You can edit the relationships between the various modules of 1CRM using the *Relationships* link for each module on the main Module Designer screen (see Figure below). To add a new relationship, simply select a module from the dropdown, and then click on ➕ Add Relationship .

Figure 155: Editing Relationships

As seen above, the screen offers three columns: Related modules, the internal names for the tables used by those related modules, and the names of the relationship tables used between the modules.

Note: While editing Relationships, you can remove new ones you have added in error. But once you save that screen, *any added Relationship is permanent*. So again, as with all aspects of the Module Designer, make sure you know what you are doing by planning carefully first. And back up your entire system every time before you have a session with the Module Designer.

➲ Edit Subpanels

You can edit the subpanels to be displayed on the detail view screen for a module by using the *Subpanels* link for that module on the main Module Designer screen (see Figure below).
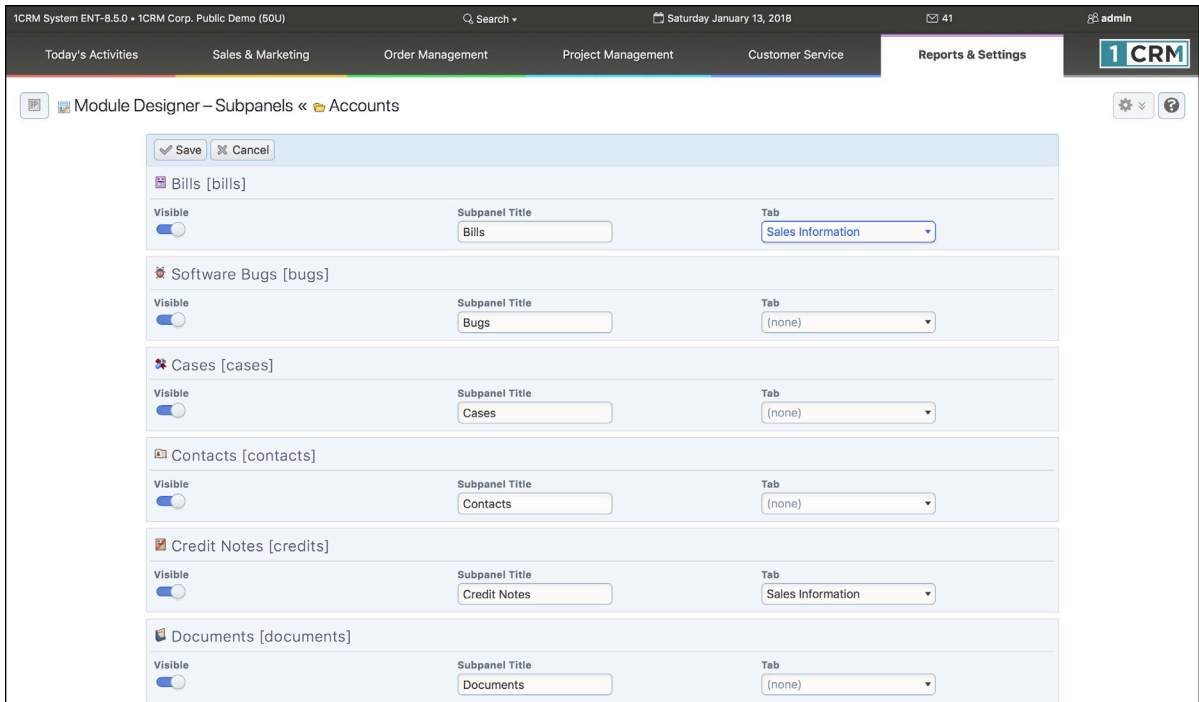
Figure 156: Editing Subpanels

Using this screen, for each relationship defined for the selected module to another module you can choose if a subpanel will be displayed for that related module on the detail view of the selected module. You can also set a specific name for that subpanel - it does not have to remain set to the default value of the module name.
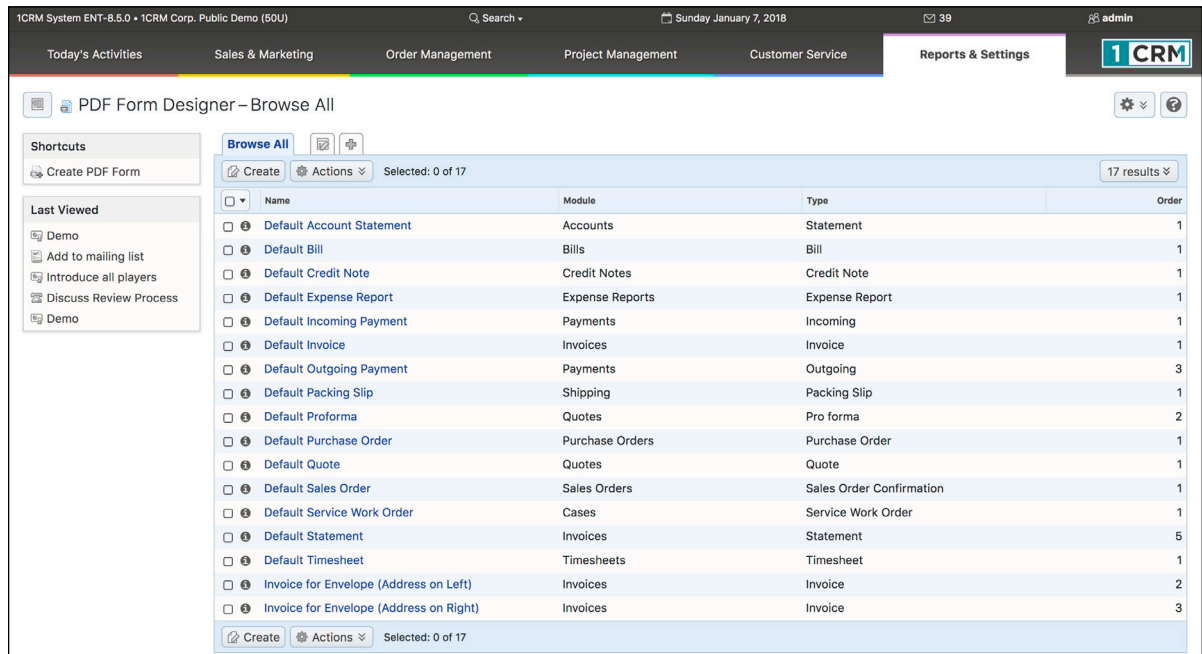
Subpanels & Relationships

- Subpanels may be created from two types of relationships: *One-to-many* and *many-to-many*.

- *One-to-many* relationships are created by a *Related value* field. The module owning the field is on the *many* side, and related module is on the *one* side. The subpanel for this sort of relationship is always in the module that is on the *one* side

- *Many-to-many* relationships are defined either in core 1CRM software, or created using the *Relationships* tool in the Module Designer. Such relationships may have subpanels in both related modules.

- *One-to-many* relationships only have *Create* buttons in the corresponding subpanel, while *many-to-many* have both *Create* and *Select Existing* buttons.

➲ 7.5.10 Studio: PDF Form Designer (Enterprise Edition Only)

The PDF Form Designer allows you to create new designs for the PDF forms produced by 1CRM. While the Professional Edition is supplied with standard forms for Invoices, Quotes, Service Work Orders, Expense Reports, Timesheets, etc.. the Enterprise Edition lets you use these standard forms, or create your own new forms. You can create new forms either from scratch, or by copying standard forms and then modifying them.

New forms are visible to the user when using the [🖨 Print ⌄] button on the detail view of the modules listed in the figure below:

Figure 157: Administration – PDF Form Designer - List View

While you can certainly create new PDF forms using the *Create PDF Form* shortcut, it is usually easier to create one by duplicating an existing PDF Form, saving the copy under a new name, and then proceeding to edit that copy.

To make a new form that way, just click on an existing form from the relevant module as shown on the list view as seen above. In the Figure below we have clicked on the form *Default Quote*, and we see the Form Designer detail view with that form in it. To start making our own customized Quote Form, we just click on the *Duplicate* button.

You cannot edit the standard PDF Forms, but by clicking on the *Duplicate* button, you will see the Edit view of the PDF Form Designer, with the existing *Default Quote* form definition in it, ready to be edited and saved off as a modified copy of that standard form.

Note: All PDF forms include a field called Order. This controls the order in which the forms are listed in the dropdown list when using the [🖨 Print ⌄] button in the detail view of the relevant module. Set Order to 1 for the form you wish to be the default, and set the Order value to a value greater than 1 for all other forms for that module. Typically when you define a custom PDF for a module, you will set its Order value to 1 so that it will become the default form for all users.

Figure 158: PDF Form Designer - Detail View

In the Edit view, you can perform the following functions:

- Set a new name for the form.

- Select an existing record from the related module, and *Preview* it both on-screen in the edit form and as a generated PDF.

- Un-check the *Simplify Styles for Editing* control (enabled by default) - When disabled, this control ensures that all colour combinations you make for foreground and background colours will be displayed on-screen in the edit mode. When enabled, a simplified set of colours is used, to ensure visibility in case you have set colours that make editing difficult.

- Click in an open area of the form. The resulting popup will allow you to add a data field, a horizontal Line, an Image, or a Text field. (Figure 159, beside the address in the editing grid.)

- Click on an existing element of the form. This will allow you to replace or delete an image. It will allow you to set the colour or width of a line, or delete it. On a Text or Data field you can delete the field, or edit any of the values shown in Figure 160 (border width and colour, foreground and background colours, font type and size, bold and italic styles). The *Increase Height on Overflow* option allows the field to increase in height if its content more than fills the field, pushing down all fields below it.

- Click in the Header or Footer sections of the form, which offer additional special data fields for *Formatted Address*, *Total Pages* and *Page Number*, *Terms*, *Date* and others, plus Text, Image and Line objects.

- *Save* the form.
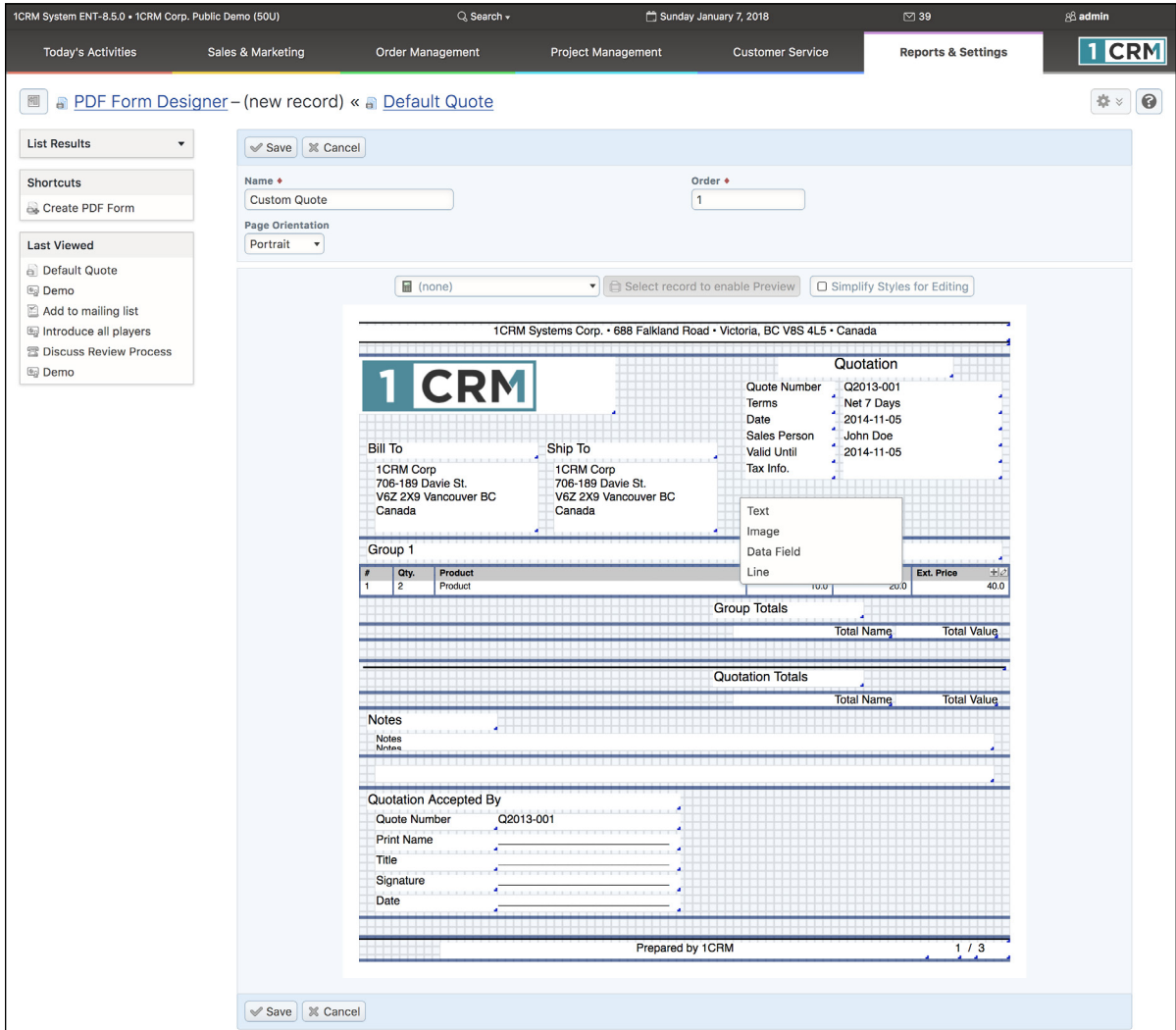
Figure 159: PDF Form Designer - Edit View

To re-size any item on the form, use the *handle* on the bottom right corner and drag to adjust the size. The height and width values are shown dynamically as you re-size.

To move any item on the form, click on the item and then drag to move it. The x and y co-ordinates of the item are shown dynamically as you move it.
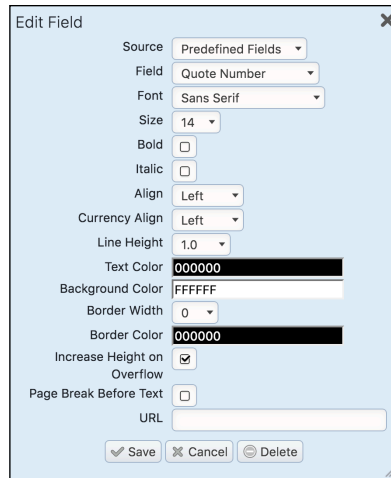
Figure 160: PDF Form Designer - Editing a Text Field

Note: When you add a data field to your form, you can choose any field from the related module - including any custom fields you may have added.

⬤ Adding Related Fields in Headers and Footers

The form above can look a little different when adding a field in the header or footer sections of the PDF (or in some other sections of the PDF, for some modules). Figure 161 below shows what the edit box above looks like when clicking in the Header area using the PDF Form Designer.
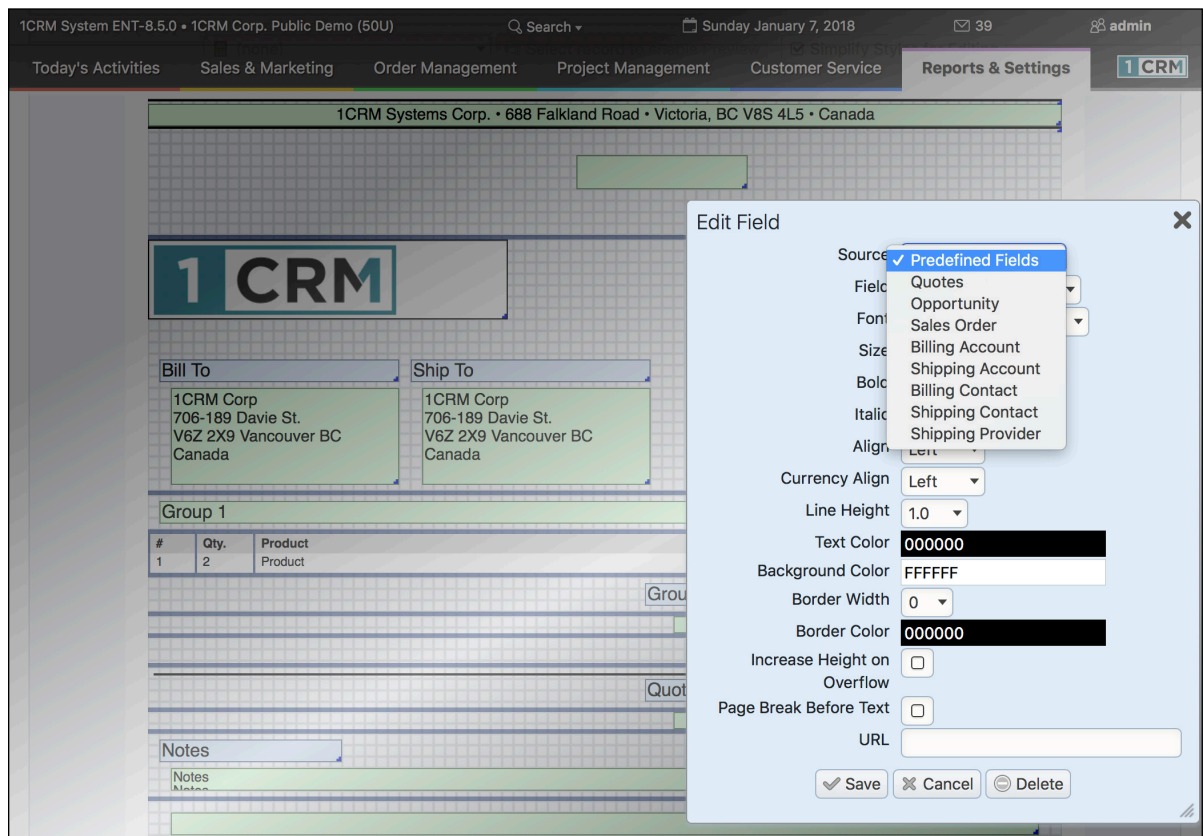
Figure 161: PDF Form Designer - Adding Fields in Header or Footer Sections

In the Figure above the field being edited has an additional *Source* field at the top of this form. If *Predefined Fields* is selected from the dropdown list shown, then the fields that may be selected are the normal ones. The next option on the list will always be the current module name, in this case Quotes, allowing any field to be selected from the current record. The remaining options on the dropdown list will be all available related records - in this case *Sales Orders*, the Billing *Account*, the Shipping *Account*, the Billing *Contact*, the Shipping *Contact*, and *Shipping Provider*. This can be remarkably useful for adding in key data from a broader scope of data in your CRM.

⬤ Horizontal Section Dividers

As shown in Figure 159, strong black horizontal lines divide different logical sections of the PDF form as seen in the Edit view. If desired you may click on a section divider (including those for headers and footers) and drag it up or down to force more or less white space in the design.

⬤ Editing Table Sections in the PDF

As you can see in Figure 159, in the section labelled Group 1, small editing controls are visible in edit mode at the right of a multi-column section (called a *Table*). Clicking on the pencil icon displays this sort of screen:
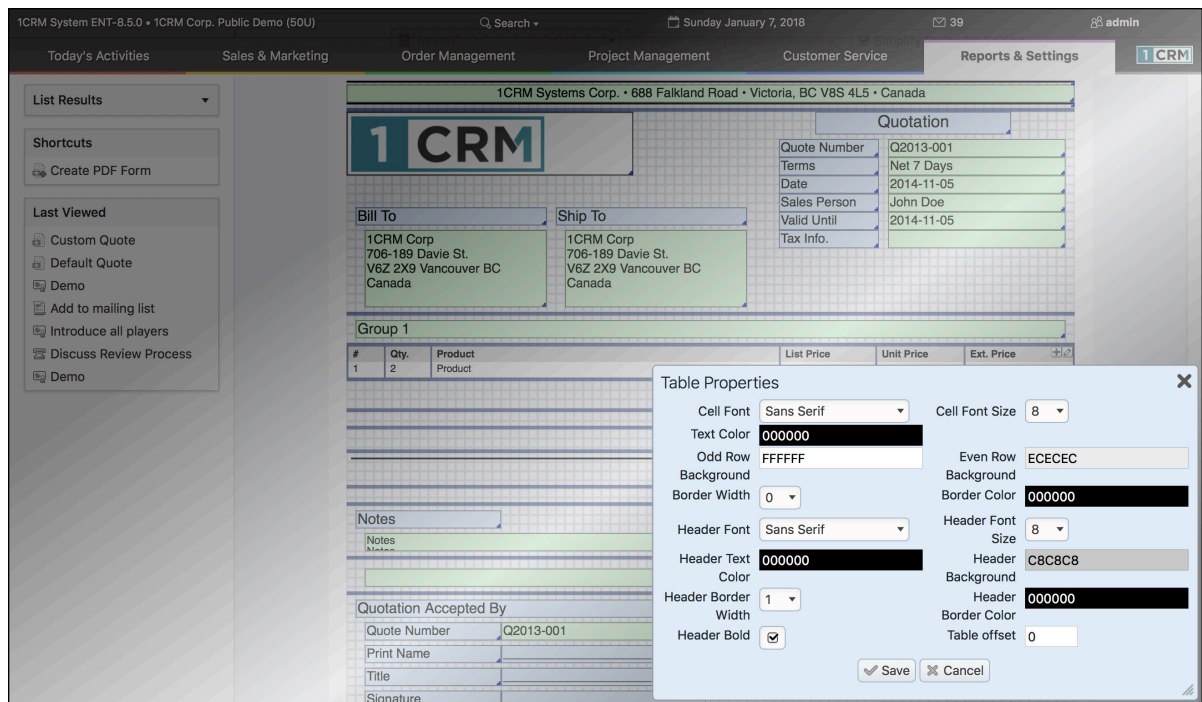
Figure 162: PDF Form Designer - Editing a Table

This dialog box lets you adjust several properties of the table layout and presentation. Additional controls include:

- Clicking on the **+** icon lets you add blank columns on the right-hand end of the table.

- You can also drag the vertical dividers between cells of the table left and right, to adjust the width of each cell.

- Clicking within a cell lets you delete that column of the table, set or change the field displayed in that column, or change the column title.

⮞ Editing Header & Footer Sections in the PDF

The standard forms include a formatted address field in the header with rule lines above and below it, and in the footer a promo for 1CRM with a web link, plus page counter fields, all placed under a rule line. You can alter these layouts for the header and footer, or remove all the standard content and replace them completely.

⮞ 7.5.11 Studio: Configure Personal Data (Not in Enterprise Edition)

The *Configure Personal Data* function is used to define which modules contain Personal Data, and to mark the fields regarded as containing Personal Data.

This function only exists in the Startup, Startup+ and Professional Editions of 1CRM, as the Enterprise Edition contains the Module Designer which can edit the properties of all fields in any 1CRM module (see Figure 153 within the Edit Fields section of the Module Designer).

7.6 Quotes & Invoices

The Quotes administration functions define the set of available shipping providers and the set of available tax rates and codes.

The *Shipping Provider* option is used to define the shipping providers to be used in the Quotes and Invoices modules. For each new shipping provider defined, the name of the shipping provider and the status (Active or Inactive) must be entered.

The *Tax Rates* option is used to define tax rates to be used in the Quotes and Invoices modules. For each new tax rate defined, the tax name, rate (enter 7, for example, if the rate of tax is 7%), and status (Active or Inactive) must be entered.

The *Tax Codes* option is used to define tax codes to be used in the Product Catalog, to classify them by tax class. For each new tax code defined, the name of the tax code, order (when presenting the drop-down list), and status (Active or Inactive) must be entered. Then you must relate one or more Tax Rates to the Tax Code (watch out – many users forget to do this!). What you are creating is a tax code that says – any products coded like this will have the following tax rates applied to them – for example, federal taxes, state/provincial taxes, and even municipal taxes where they apply.

7.7 Activities Support

⮞ 7.7.1 Forum Categories

Forum Categories are defined using this menu option, shown in the Figure below. Forum Categories must first be defined by an Administrator using this option, then new threads may be created within these categories. Threads may be linked to Accounts, Opportunities, Cases and Software Bugs.
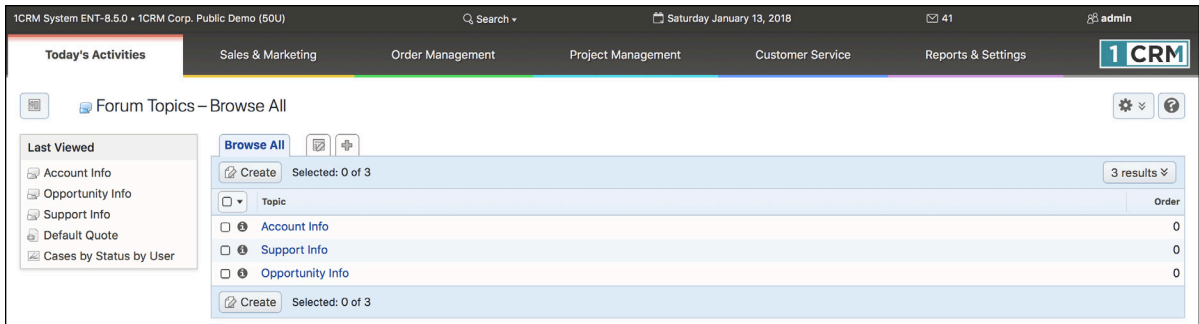
Figure 163: Administration – Forum Categories

7.7.2 News Feeds

The administrator can use this function to manage a list of *News Feeds* that are easy for users to search and select for use on News Feed dashlets that they can place on their dashboard pages. A standard set of News Feeds are included with 1CRM, and the administrator can add News Feeds via the *Create* button provided. Typically an organization's set of available News Feeds might include general news, business news, and industry-specific news for their industry.

7.7.3 Resources

Meeting Resources are items which you may wish to reserve at the same time you are scheduling a meeting. They include the following types of resources: Meeting Room, Television, DVD, VCR, Projector, Projection Screen, Desktop PC, Notebook PC, Conference Phone, and Telephone Bridge.

Resources which are meeting rooms also have a number of attributes which may be checked off for them: TV, DVD, VCR, Projector, Screen, PC, and Conf. Phone.

When scheduling a meeting, resources may be invited to the meeting, and their schedule checked for conflicts. In the Calendar module, the calendar Day Grid and Week Grid layouts let users check for free meeting rooms and other resources.

7.8 API and OAuth Settings

7.8.1 API and OAuth Settings

The first three checkboxes on this screen control the 1CRM REST API, which is only available in the Professional and Enterprise Editions of the system. The first checkbox can be used to disable the API, in case it becomes a security issue for you for some reason. The second checkbox allows the API to be accessed via a non-SSL session - the default normally is that an https:// type address is required.
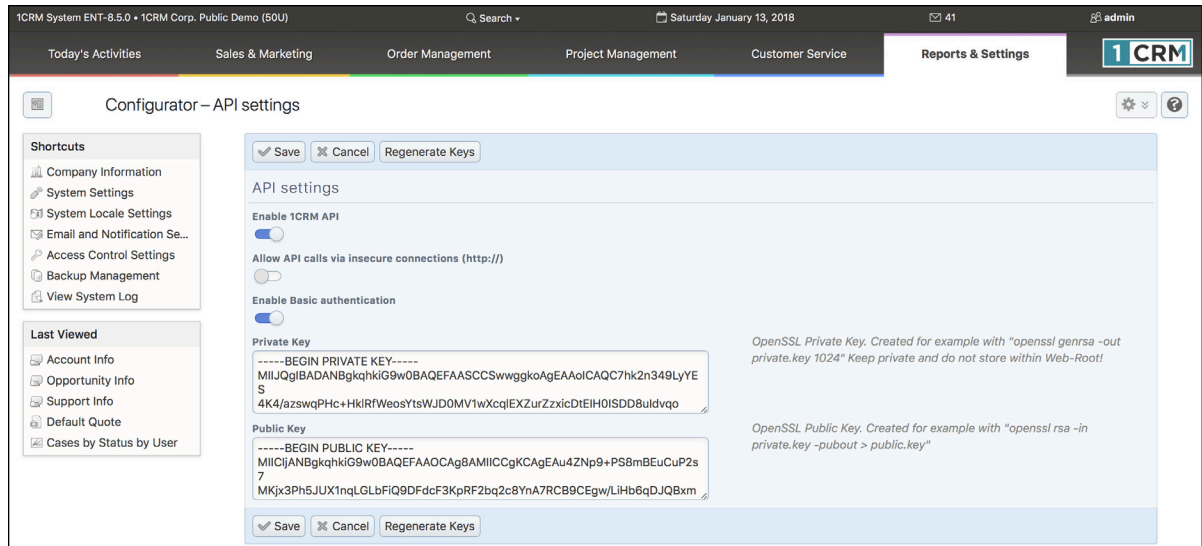
Figure 164: API and OAuth Settings

Note: The 1CRM Mobile App uses this REST API and so it will need to be enabled for that App to function. Use the `https://` prefix on your access URL in that App - unless you prefer `http://` for some reason, in which case check the option *Allow API calls via insecure connections (http://)*.

The checkbox *Enable Basic Authentication* typically only needs to be enabled if you are using an older version of the 1CRM Mobile App, prior to version 1.2, or if for some reason you prefer to allow users of 1CRM Mobile (or other applications) to login directly with username & password instead of via OAuth authentication.

Note: In most cases, you should have *Basic Authentication* disabled. This will require upgrading the 1CRM Mobile App to version 1.2 or newer (and logging into 1CRM in that App using OAuth), but that is highly desirable for the added security and features. If you develop software internal to your organization which uses the 1CRM REST API, it may be acceptable to have *Basic Authentication* enabled. But otherwise, if you are using any 3rd party applications which access the 1CRM REST API, disabling *Basic Authentication* is very highly recommended.

Note: Enabling *Basic Authentication* does not mean that OAuth authentication is Disabled. When *Basic Authentication* is enabled users of the 1CRM Mobile App may login using either OAuth or conventional Username & Password.

How Does It Work?

With *Basic Authentication*, you enter your username and password into an external application (such as the 1CRM Mobile App) and each time the app needs to read or write 1CRM data it sends your username and password to 1CRM so it can check your access rights.

With OAuth, you never enter your username and password directly into the external application. Instead, from the external application you are redirected to login to 1CRM itself via a web browser - much the same as you would do when using 1CRM normally in a browser. 1CRM then issues an access token that is used instead of a password. That token is short-lived, and will eventually expire - but 1CRM can renew that token automatically when it expires, without requiring the user to login again.

OAuth Private and Public Keys

The Private Key and Public Key fields are the RSA keys for OAuth operation for your 1CRM system. 1CRM has the ability to act as an OAuth server for other applications which have been registered with 1CRM.

Private and Public keys are generated automatically when 1CRM is installed. The private key should be kept secret and never disclosed. At any time you can create a new key pair using the *Regenerate Keys* button.

The 1CRM Mobile App has the ability to use 1CRM's OAuth capability to allow you to login to the Mobile App using OAuth authentication, rather than a simple username and password in the App itself. This is one illustration of the power of the OAuth authentication to be found within 1CRM.

If you have a software product that uses the 1CRM REST API and you would like it to be added to the 1CRM App registry so that others may discover your App, please contact info@1crm.com.

7.8.2 API Clients

This screen allows the system administrator to manage the applications allowed to access your 1CRM instance via the REST API found within 1CRM at `/api.php`.

Applications that access 1CRM data via the REST API are referred to as API Clients. In order to gain access to 1CRM, an application must be registered either globally or locally (within one specific 1CRM instance).

These two categories are known as Public clients (global) and Private clients (local). Public clients are known to all 1CRM instances, and are managed by 1CRM Systems Corp. Private clients are managed by individual customers, only for their own instance. The purpose of Private clients is to develop API clients internal to a customer's organization.

- *Public* clients can access any 1CRM instance, and should be registered with 1CRM Systems Corp.

- *Private* clients can only access one 1CRM instance, and they are registered as an *API Client* in that instance only, by the system administrator.

- For *Public* clients, each 1CRM system administrator must explicitly enable those he wants to use with his system.

The topic of API clients is inextricably linked to OAuth authentication. When *Basic Authentication* is enabled, 1CRM does not know which client it is talking to and will grant access to any client sending a correct username and password. This is a key reason why clients are discouraged from enabling *Basic Authentication*.

Customers manage API clients using this *API Clients* screen within 1CRM Administration. The following fields are available for each *API Client*:

- **Name:** API client name. Read-only for Public clients, editable for Private clients.
- **Publisher**: Name of organization responsible for API client development and support. Read-only for Public clients, editable for Private clients.
- **Is Public**: Indicates whether the client is Public or Private. Read-only.
- **Enabled**: Used to enable or disable the API client.
- **Enabled Grant Types**: Specifies how the API client will gain access to 1CRM. When adding Private clients, the system administrator should consult with their developer about the appropriate value for this field. Read-only for Public client, editable for Private clients.
- **User**: When *Client Credentials* grant is enabled, the API client will access 1CRM on behalf of user specified in this field.

- **Redirect URL**: Client-specific URL to which the user will be redirected after log in. When adding Private clients, the system administrator should consult with their developer about the appropriate value for this field.

For customers using Public API clients, your only control is to set them *Enabled* or *Disabled*. Any available Public API Clients will be listed on this screen, and the list will be automatically updated as new Clients become available.

In some scenarios, an API client may need to provide an *API Secret* to the API. An API secret should not be disclosed to anyone except the API client developer. For Private API clients, administrators set the secret using the *Change API Secret* button on the API Client detail view. For Public clients, API secrets are managed by 1CRM Systems Corp.
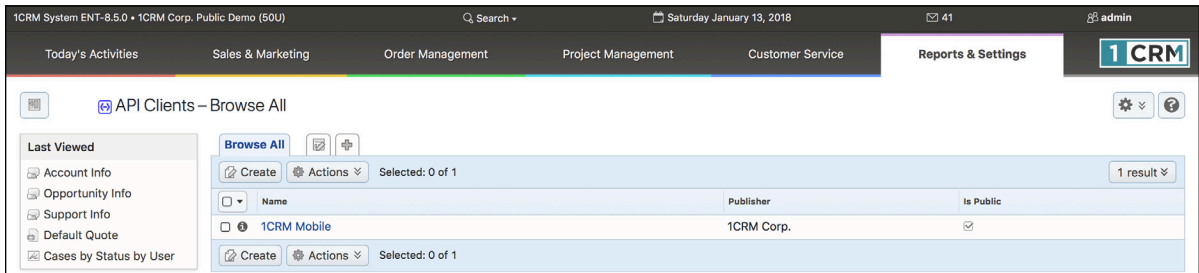
Figure 165: API Clients Screen

Note: 1CRM Mobile is added as a Public API client automatically, at installation time.

7.9 Lead Guerrilla Integration

This integration enables Lead Guerrilla Contacts to automatically update 1CRM Leads or Contacts, and vice versa. The process of linking a 1CRM instance with a Lead Guerrilla instance is as follows:

(We use the example here of a Lead Guerrilla instance at http://example.leadguerrilla.cloud, and a 1CRM instance at https://example.1crmcloud.com.)

➲ One-Way or Two-Way Sync?

A useful aspect of the 1CRM to Lead Guerrilla Sync is that there are two parts to it - one part in 1CRM, and one in Lead Guerrilla (the Plugin). Should you wish your sync between them to be two-way, just follow all the instructions below. If on the other hand, you'd prefer it to be only one-way you can do that too.

- One-way sync: Lead Guerrilla --> 1CRM - Just enable and configure the Lead Guerrilla Plugin, and do not configure the 1CRM end.

- One-way Sync: 1CRM --> Lead Guerrilla - Just configure the 1CRM settings for Lead Guerrilla Sync, and do not enable and configure the Lead Guerrilla Plugin.

➲ Configure the Lead Guerrilla Plugin

1. In 1CRM, enable the REST API (see Section 7.8.1). You may also choose whether or not to *Allow API calls via insecure connections (http://).*

2. In 1CRM, go to *API Clients* in Admin (see Section 7.8.2), and create a new API Client. Give it a name, and set *Enabled Grant Types* to *Client Credentials*. Make sure it is Enabled, and select a user. Requests from Lead Guerrilla will be executed on behalf of the selected user. Save the record, then change the *API Secret*. Take a note of the *API Secret* and the *Client ID*.

3. In Lead Guerrilla, click on the ⚙ icon then select *Plugins* from the Settings menu. Click on the 1CRM plugin, to edit its configuration. Set *App ID* and *App Secret* to those from the previous step, and the 1CRM URL to https://example.1crmcloud.com. On the Features tab, choose to Sync to *Leads* or to *Contacts* - and be sure to coordinate this setting with your choice in the next section! Then choose to sync all Lead Guerrilla Contacts, or only those in one or more specific Segments.
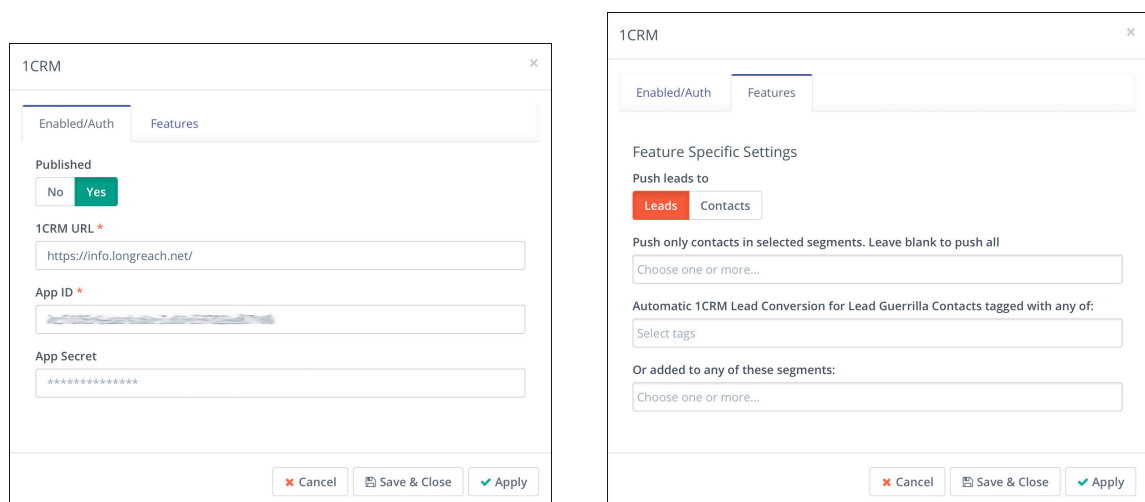
Figure 166: Lead Guerrilla - 1CRM Plugin Settings

➡ **Configure the 1CRM Settings for Lead Guerrilla Sync**

1. Within *Configuration*, select *API Settings*, and enable the API, then *Save* the configuration.
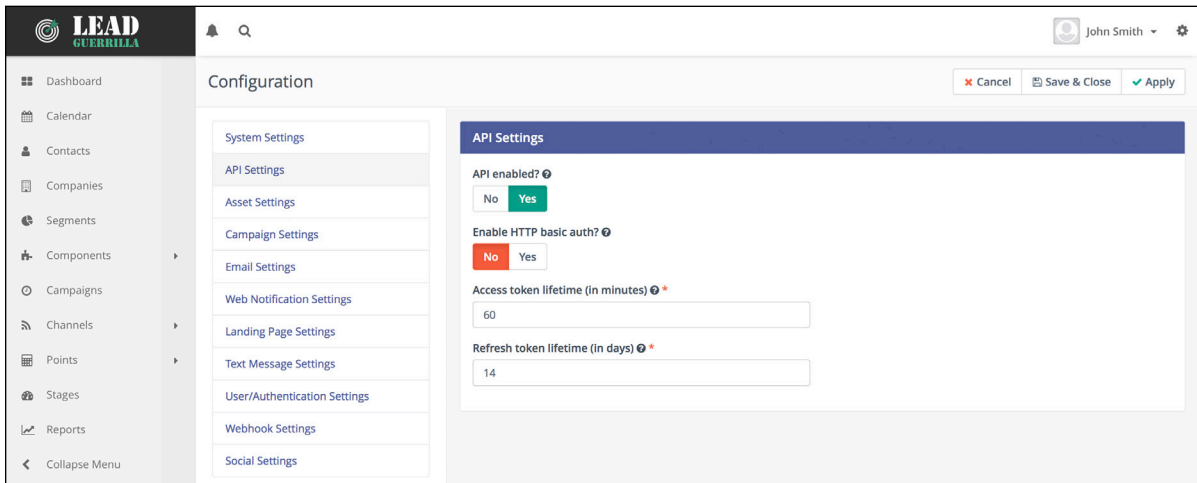
Figure 167: Lead Guerrilla - API Settings

2. Now a new option is available in the Lead Guerrilla ⚙ Settings menu - *API Credentials*. Select it, then click *New*. Make sure *Authorization Protocol* is set to *OAuth 2*.

   Enter a name, for example 1CRM. For *Redirect URI*, enter
   https://example.1crmcloud.com/index.php?module=LeadGuerrilla

   Click *Apply*, then *Save & Close*. Note the *Client ID (Public Key)* and *Client Secret (Secret Key)*.
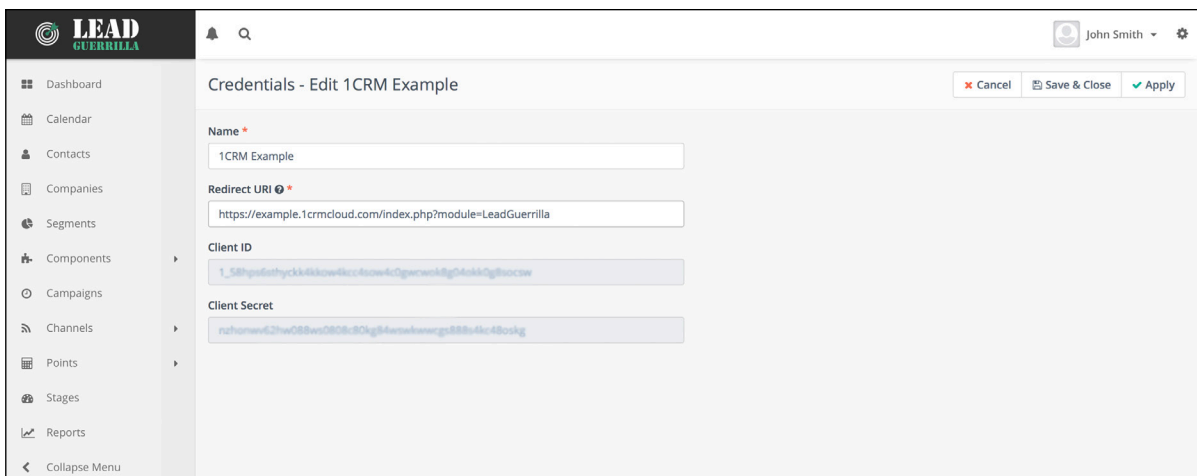
Figure 168: Lead Guerrilla - API Credentials

3. In 1CRM, go to *Lead Guerrilla API Settings* in Admin. Check *Enable* and choose *Leads, Contacts* or *Contacts and Unconverted Leads* to send to Lead Guerrilla - and and be sure to coordinate this setting with your choice in the previous section! (If you choose *Contacts and Unconverted Leads* here, then choose *Leads* when configuring the Lead Guerrilla plugin.) Next enter the *Lead Guerrilla URL*, *API Client ID* and *API Client Secret* from the previous step, then *Save*.

4. In 1CRM, return to *Lead Guerrilla Settings* and click *Authorize*. A window opens where you login and then grant 1CRM permissions to access Lead Guerrilla. The window then closes and the 1CRM settings are saved automatically. You're all done!
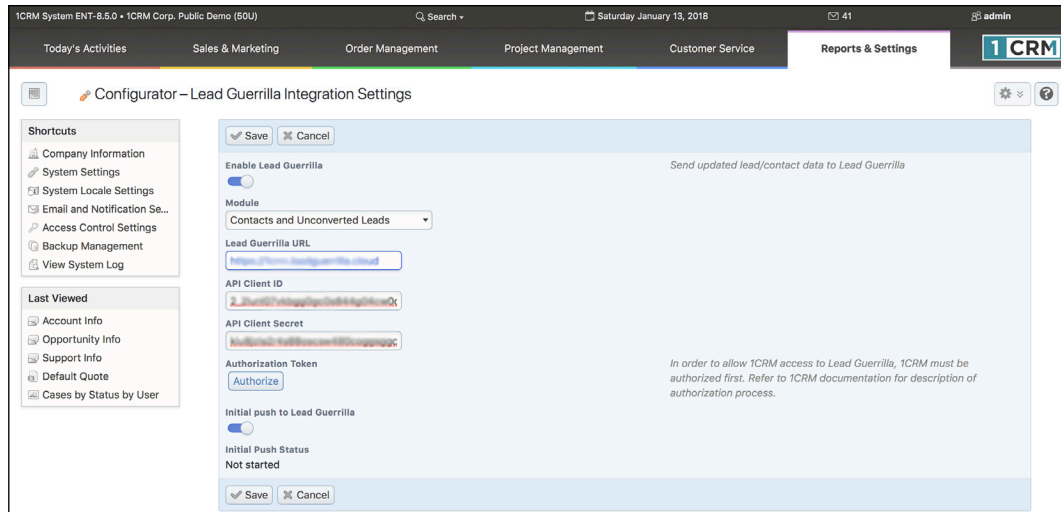
Figure 169: 1CRM - Lead Guerrilla API Settings Screen

➡ 1CRM / Lead Guerrilla Field Mapping

When the two systems are linked by the integration process described above, the following fields are mapped by default:

Lead Guerrilla	1CRM
title	title
firstname	first_name
lastname	last_name
company	account_name
phone	phone_work
mobile	phone_mobile
fax	phone_fax
address1, address2	primary_address_street
city	primary_address_city
state	primary_address_state
zipcode	primary_address_postalcode
country	primary_address_country
website	website

In addition the Lead Guerrilla / 1CRM Integration features the extremely useful ability to map 1CRM *Checkbox* fields within the Leads module to *Tags* on Contacts within Lead Guerrilla. Simply create custom *Checkbox* fields in the Leads module within 1CRM and matching Tags will be created within Lead Guerrilla, and the two corresponding elements will sync values with each other.

Note: These 1CRM fields must have names starting with tag_, followed by the tag name, with spaces replaced with underscores. Field names are limited to using only letters and digits, and character case matters. For example if you create a field named tag_Sample_Tag within the 1CRM Leads module, a tag named Sample Tag will be added to Contacts in Lead Guerrilla, and vice versa.

Other fields within Lead Guerrilla Contacts can be mapped to custom fields in 1CRM. Simply create a custom field in 1CRM with Lead Guerrilla's field name, prefixed with lg_. For example, to sync the points field we see on each Contact in Lead Guerrilla, create a corresponding custom *Integer* field in the 1CRM Leads module called lg_points.

7.10 Scheduler Setup

1CRM's Scheduler runs all timed tasks within 1CRM. Currently, that includes three classes of activities:

- Retrieving Inbound Email
- Sending Outbound Mass Email, and
- Running Scheduled Reports

Note: For these activities to be performed properly, you will need to setup the scheduler as detailed in this section.

The scheduler requires that the operating system scheduling mechanism be used to run the scheduler on a regular basis. For Microsoft Windows, you can use the Task Scheduler. For UNIX, you can use cron. Examples for both are described here.

For Unix/Linux systems, as a root user, edit the crontab file in /etc, and add an extra line at the end which reads:

*/5 * * * * <username> cd </srv/www/vhosts/1crm>; </usr/bin/php> scheduler.php

where

<username> is the username that the web server runs as (usually defaults to 'apache' or 'wwwrun'),

and where

</srv/www/vhosts/1crm> is the path to your 1CRM directory,

and where

</usr/bin/php> is the path to your php executable file.

This will setup a cron job to run the scheduler every 5 minutes. The scheduler will, in turn, check to see if any of its tasks are due to be run, and will run them as required.

For Windows servers, as a user with Administrator privileges, go to Start > Settings > Control Panel > Scheduled Tasks. Double-click on *Add Scheduled Task*. When the Scheduled Task Wizard asks you for the program you want Windows to run, browse for the *php.exe* executable under your PHP installation directory. Continue with the rest of the Wizard, making sure you click on the *Daily* option when asked when to perform this task.

Before you click on the *Finish* button for the Scheduled Task Wizard, check the box that says, *Open advanced properties for this task when I click Finish*. A new dialog box displays after you click *Finish*. Enter a space and the filename *scheduler.php* into the *Run:* box, after *php.exe*. Now change the text in the *Start in:* box to the path to your 1CRM installation directory. Now click on the *Schedule* tab and then on the *Advanced* button. Check the box for *Repeat task* and specify every 5 minutes with a duration of 24 hours.

For macOS, create the crontab file using the instructions in the *Configure Installation Settings* section of the macOS Installation chapter.

In any case, Windows, macOS or Linux, the scheduler will take care of all timed activities. If any reports need to be run, it will run them. If any emails have arrived, it will process them and put them in the inbox for the correct users, with contacts and accounts automatically associated to them. If any Mass Emails need to be sent out, the scheduler will ensure that they are sent.

⮕ **Mass Email Details**

The scheduler processes emails that are scheduled to be sent from within Campaigns. The templated emails are sent to their recipients by the scheduler, which must be run at regular intervals to send out the emails at the appropriate time. The user specifies the email template in the Campaigns module, as well as the sender name, sender email address (recommended to be no-reply@<your company.com> or something similar), and the time and date to send the email.

When an email is processed, a link is appended to the end of the email for recipients to opt out of receiving emails. This will link back to a page on the same machine as your 1CRM instance.

To use Email Campaigns, you must first correctly configure the email settings covered in the administration section *Configure System Settings*. The scheduler uses the same email server connection settings. Notifications do not necessarily have to be turned on, but the settings must be properly configured for recipients to receive emails.

7.10 Spell Checker Reconfiguration

The HTML editor in 1CRM uses a web-based spell checker from SpellChecker.net. If you wish, you may configure the system to use an alternative spell checker - aspell/spellerpages. Follow these steps to do so:

1. Aspell must be installed and working on your server. Download it here:
   http://aspell.net/ or http://aspell.net/win32/ (for Windows).

2. Download plugin http://cksource.com/forums/download/file.php?id=512 and unzip it to the directory /include/CKeditor/plugins/ .

3. Set the following configuration in **/include/CKeditor_IAH/myconfig.js**
   ```
   config.extraPlugins = 'aspell';
   ```

4. And add SpellCheck to your toolbar somewhere
   (/include/CKeditor_IAH/myconfig.js)
   ```
   config.toolbar_Full =
   [
       ['Source','-','NewPage','Preview','-','Templates', 'SpellCheck'],
   ];
   ```

5. If you have a Windows server, edit the file:

   ```
   /include/CKeditor/plugins/aspell/spellerpages/server-scripts/
   spellchecker.php
   ```

   Uncomment
   ```
   $aspell_prog = '"C:\Program Files\Aspell\bin\aspell.exe"';
   ```

   and comment out
   ```
   $aspell_prog = 'aspell';
   ```

7.11 Calendar Information: Sharing Free/ Busy Information

You can specify settings in Outlook so that the free/busy information from the Outlook calendar for a user is shared with the user's Calendar in 1CRM. The settings must be configured on each user's computer.

In Microsoft Outlook, select Tools > Options. Then click the Calendar Options button and then click Free/Busy. Select the Publish at my location checkbox and enter the path for the 1CRM email account information following the syntax:

http://servername/infoathand/vcal_server.php/type=vfb&source=outlook&email= myemail@servername.com

where 'myemail@servername' is the email address specified for Email Options in the user's My Account page in 1CRM. On the My Accounts page in the Calendar Options, the URL for publishing free/busy information is displayed in Your Publish URL.

For Search location, enter the path for the Outlook account information, such as:

http://servername/infoathand/vcal_server.php/ type=vfb&source=outlook&email=%NAME%@%SERVER%

where %NAME% and %SERVER% are Outlook replacement variables to construct the email address.

8.0 Information Import & Export

One of the most important aspects of any CRM software is getting the data from your last CRM system moved across into the new one, and getting the data out of your new CRM system for use in other applications. Note that this should typically only be done by a system Administrator.

Data may be imported to thirteen different modules throughout 1CRM:

- Users
- Accounts
- Opportunities
- Contacts
- Leads
- Cases
- Product Categories
- Products
- Calls
- Meetings
- Tasks
- Notes
- Targets

It is very important to understand that importing data into your 1CRM system can pollute your system with poor quality, or badly imported data. In cases like these, it is critical to be able to go back over your imported data and examine it, and potentially edit or delete it. That's exactly what the *Manage Imported Data* module is for (see relevant section earlier in this Guide).

The above order in which the thirteen *importable* modules are presented is significant. If you are importing data from another CRM type of system, you should begin with *Users*, and carry on through to *Notes*, in that order. If you have no data to import for a given module, it is generally OK to skip it, but important modules like *Users*, *Accounts* and *Contacts* will likely cause problems if you skip them. This is because the imported data includes information such as Account and Contact names and IDs which are used to help link all associated data together into a real CRM database, not just a number of unrelated lists of information.

The recommended import order for the modules listed is critical, as it ensures that no item being imported will refer to an item in a module that has yet to be imported.

It is also important that if you are migrating full system data across into 1CRM from another CRM-type system, that you export it all from the other system at the same time (a *snapshot*, if you like, across all the modules) and then import it all at the same time. This helps to ensure that all the data taken together represents a single consistent database.

1CRM supports the importation of various kinds of data from several different popular contact managers and full CRM systems, such as Salesforce.com, SugarCRM, ACT!, Outlook and most others.

8.1 Full CRM Migration: Database Import

When you use the *Database Import* shortcut from any of the fourteen modules that support importing data, you will enter the full database import facility offered by 1CRM, positioned at the current module within the sequence of fourteen.

Database Import is used to import a series of related CSV files into 1CRM, for the purpose of migrating an entire CRM database into 1CRM from another product. This tool automatically creates the relationships between items of data such as Accounts and Contacts, or Meetings and Contacts, that are so key for using a CRM. When you select this option you will see something like the screen below:
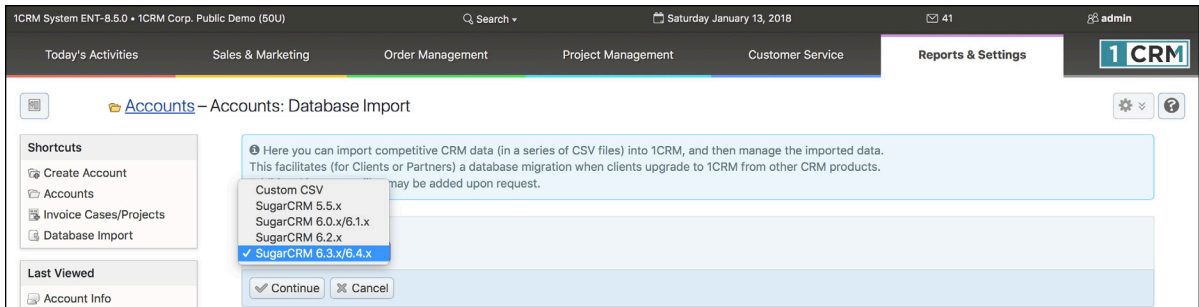
Figure 170: Database Import - Initial Screen

For now, files may only be imported from several generations of SugarCRM databases or via custom mappings of generic CSV files, but more options will be available in future releases to import from other competitive CRM products. If you have already exported a series of CSV files from a SugarCRM 6.0 CRM, for example, and want to migrate that data into 1CRM, you would click on the SugarCRM 6.0.x link.

Note: To export the CSV files from SugarCRM systems, you simply go to each module in turn and use the *Export* link to export all records from each module.
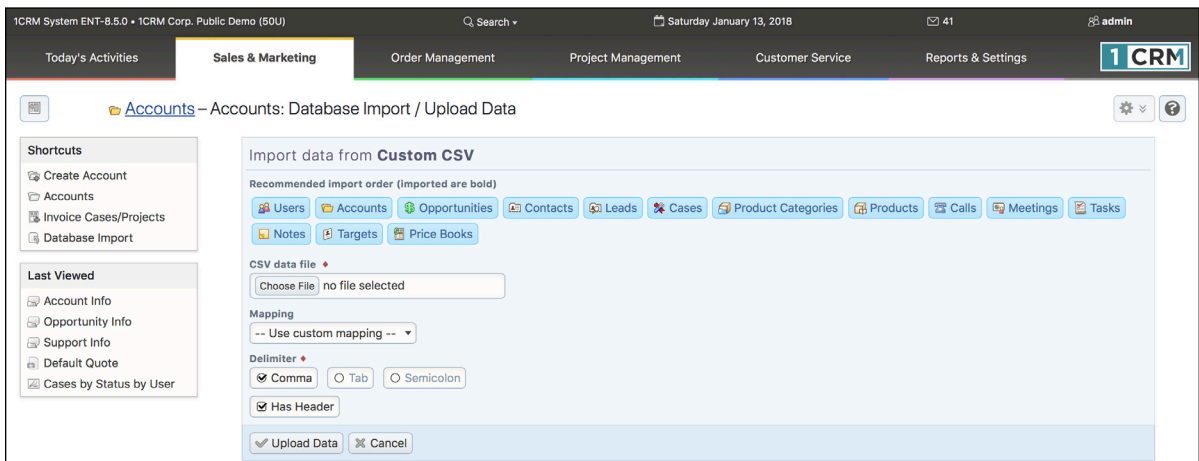
Figure 171: Database Import - Select CSV File to Import

The Figure above shows you the recommended import order when performing a database migration from another CRM, and you want all information in the various modules to be linked up once it is imported: *Users*, *Accounts*, *Opportunities*, *Contacts*, *Leads*, *Cases*, *Product Categories*, *Products*, *Calls*, *Meetings*, *Tasks*, *Notes*, *Targets* and *Price Books*. Simply select from the dropdown list the

type of CSV data to import, then choose the file and click on the *Import* button. You'll see a screen such as the one below, asking if imported data should be added to a Target List (for Contacts and Leads) and if or how duplicate checking should be applied. You'll also see a screen like Figure 175, where you map CSV columns to fields in your 1CRM data. Once you have imported one CSV file, the system defaults afterwards to the next one in the recommended sequence.
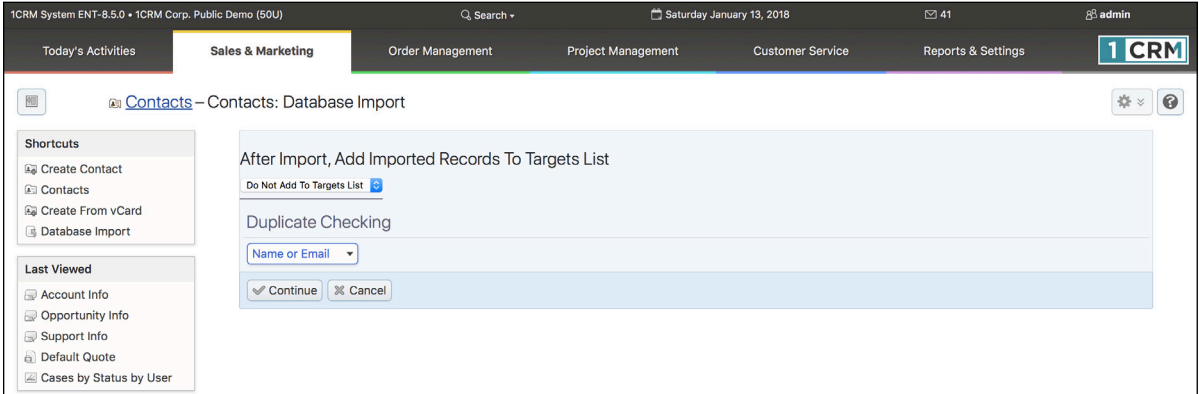
Figure 172: Database Import - Duplicate Checking

The system then shows you the results of importing that CSV file, as below. As you import the various CSV files, the system highlights the CSV files already processed. The system also lists the modules for which data has been imported on the *Manage Imported Data* screen as in Figure 174. Simply carry on importing the various CSV files in the recommended order until you have imported them all.
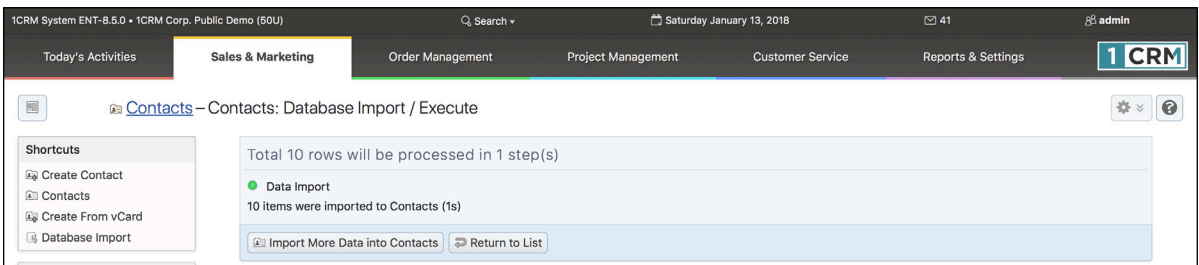
Figure 173: Database Import - File Imported Successfully
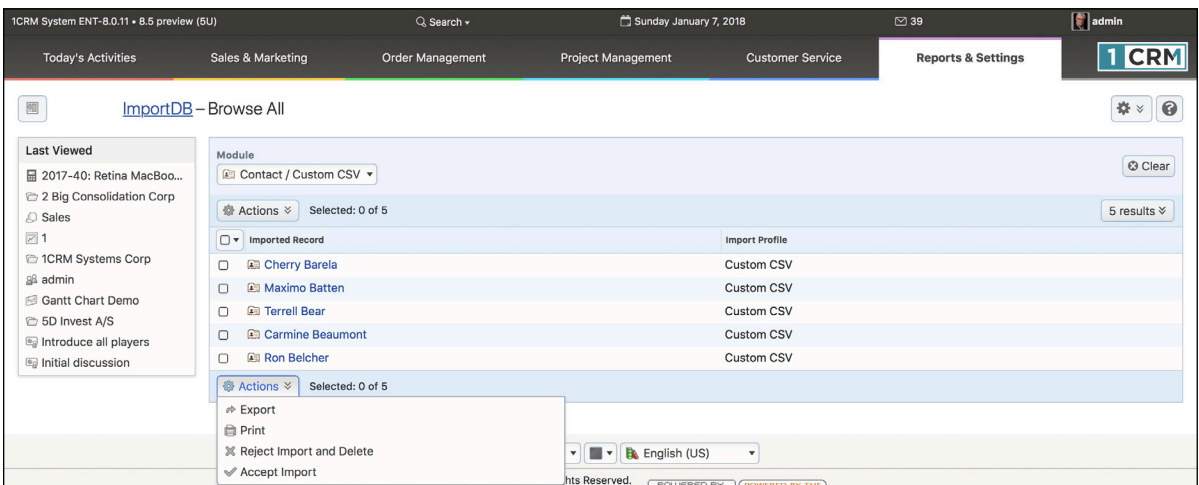
Figure 174: Database Import - Manage Imported Data

Note: You can view, edit or delete any imported data with the *Manage Imported Data* function in Administration (see that section in this guide for more information). Selecting the *Users* module, for example, would show you a list view type screen for the imported Users, and let you review them, view their details, edit them, or remove any that were imported in error using the *Actions* button.

Note: Import operations can take a long time - expect pauses of up to 20 minutes during the process.

8.2 Importing Just Accounts & Contacts

Importing Contacts into 1CRM is fairly straightforward. First you use your old CRM application or contact manager to export the data into a Comma Separated Values (.CSV) file format. Then you use the Database Import function within the Contacts module (accessible via the Navigation Shortcuts Box) to import the data. If a Contact record is imported which refers to an unknown Account, then a new record is automatically created for an Account of that name.

One thing to watch, however, is that when Account records are created automatically in this fashion, they are essentially empty – they have associated contacts, but no address or telephone information is recorded. Because of this, you should typically import your Account data first, creating the records complete with address and telephone information (plus perhaps Account Type and lots of other information, depending on your old CRM system). This avoids creating rather empty Account records, and having to manually add the rest of their information later.

See the sections below for exact steps on exporting and importing Contacts and Accounts.

8.2.1 Export Contacts from Your Current Contact Manager...

We will use Outlook 2003 as an example of exporting contact manager data. Other systems tend to work in similar ways.

1. Under the File menu, select Import and Export. The Import and Export Wizard dialog box is then displayed.

2. Select the action *Export to a file*, and click the Next button.

3. Choose to create a file of the type *Comma Separated Values (Windows)*, and click on the Next button.

4. Select an Outlook folder from which to export – typically your contacts folder - and click the Next button.

5. Enter the filename and directory location for the exported file to be created, and click the Next button.

6. Confirm your intention to export this file by clicking on the Finish button.

7. The desired .CSV file is then created by Outlook 2003. You can view the file easily, using Microsoft Excel or a simple text editor, to confirm that the data you intended has been exported.

8.2.2 Import Accounts...
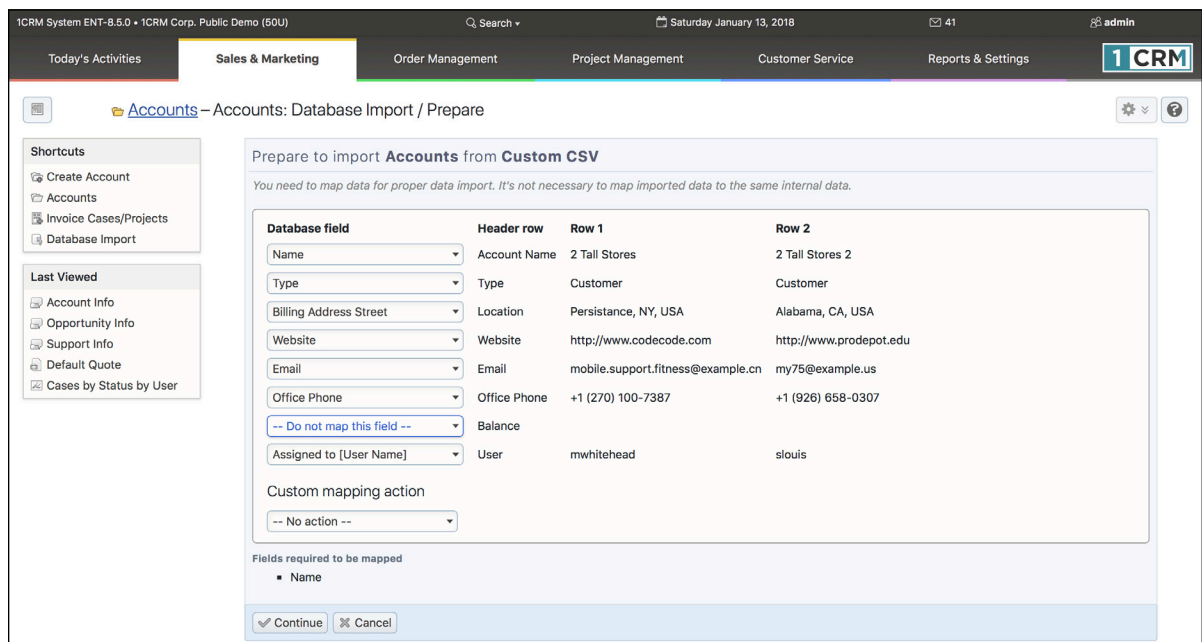
If your Account data is coming in from another CRM system, then typically that system understands the distinction between a Contact and an Account – that one Account can have multiple Contacts – and has separate data for each. If, however, your data is being imported from a simpler contact manager – such as Microsoft Outlook, then the only data available is Contact data, and you will have to be a bit creative to avoid a lot of manual data entry as described above.

If you are importing Account data from a full CRM, proceed now to step 5. If you only have exported contact data, and need to massage it to act as Account data to be imported, perform steps 1-4 below:

1. Copy your exported Contacts.csv file, and call the copy Accounts.csv.

2. Edit the Accounts.csv file using Excel. First, sort the file on the column which contains the Company name.

3. Now the more complex part: As you scroll through your data, sorted by Company name, you will see successive records which have the same company name, because there is more than one Contact from that Account (in 1CRM terminology!). To avoid multiple copies of the same Account within 1CRM, you need to delete these duplicates. And to make sure that the best information is attached to the Account record, you should retain only the contact whose address and telephone information best represents the Account as a whole.

    Also look out for Company names which are similar but not identical due to inconsistencies in the way the Company name was entered – you should delete all duplicate records except the one with the Company name spelt exactly as you wish to see it in 1CRM.

4. Now that you have a nice clean set of Account data, save the Excel file as a .CSV file type, and let's proceed to import this Account data.

5. Click on the Database Import function within the Navigation Shortcuts Box of the Accounts module.

6. Specify the Data Source: For 'massaged' Outlook files where the field names no longer match exactly what is exported from Outlook, use the Custom CSV data source.

7. Upload the Export File: Use the Browse button to locate the Accounts CSV data file, and then click on the Next button to continue.

8. *Database Import / Prepare*: This screen (see Figure 175 below) shows four columns of data. Column 2 (Header Row) is the key – this contains the names of the fields being exported from your old CRM or contact manager. Columns 3 and 4 show example data from the first two records you are about to import. Column 1 (Database Field) is where you come in – you need to use all of the drop-down box controls in this column to select the fields within 1CRM into which each incoming Account field is imported.

Figure 175: Database Import / Prepare

Spend some time with this, exploring the names of the incoming fields, and the names of the corresponding 1CRM fields, until you are sure you have defined the optimum mapping between them.

9.   When you are satisfied you have the field mapping right, click on the *Continue* button, at the bottom left of the screen. Before you do this you may choose to select a Custom Mapping action, and provide a name for this mapping so that it may be used again in future.

10. The *Database Import / Execute* screen is displayed. It will summarize how many records were successfully imported, how many were skipped over, and the reasons they were skipped over.

11. You can now click on *Continue*. You may want to carry on with importing data for more modules, or to go to the *Manage Imported Data* screen to review your new data.

8.2.3 Import Contacts…

Now that you have a set of Account records with fully descriptive data, let's import your Contact data:

1.   Click on the Database Import function within the Navigation Shortcuts Box of the Contacts module.

2.   Specify the Data Source: Select *Custom CSV* – then click on the *Continue* button.

3.   Upload the Export File: Use the *Browse* button to locate the data file exported by your contacts manager, and then click on the *Import* button to continue.

4.   Confirm Fields and Import: This screen (see Figure 175 above) shows four columns of data. Column 2 (Header Row) is the key – this contains the names of the fields being exported from your old CRM or contact manager. Columns 3 and 4 show example data from the first two records you are about to import. Column 1 (Database Field) is where you come in – you need to use all of the drop-down box controls in this column to select the fields within 1CRM into which each incoming Contact field is imported.

Spend some time with this, exploring the names of the incoming fields, and the names of the corresponding 1CRM fields, until you are sure you have defined the optimum mapping between them.

5.   When you are satisfied you have the field mapping right, click on the Import Now button, at the bottom right of the screen. Before you do this you may choose to select a Custom Mapping action, and provide a name for this mapping so that it may be used again in future.

6.   The *Database Import / Execute* screen is displayed. It will summarize how many records were successfully imported, how many were skipped over, and the reasons they were skipped over.

7.   You can now click on *Continue*. You may want to carry on with importing data for more modules, or to go to the *Manage Imported Data* screen to review your new data.

8.3 Importing Leads & Opportunities

Leads and Opportunities are typically only tracked by a full CRM system, not a simple contact manager. If your old system is Microsoft Outlook or a similar contact manager, then you will have no data to import. If you are migrating from a full CRM system such as Salesforce.com, then the Lead and Opportunity data may be exported from that system and imported into 1CRM in a very similar fashion to importing Contact data, as described above.

8.4 Importing Product Catalog Data

When importing product catalog data, you will notice that there are two import modes: *Normal Import* and *Update Catalog* (see Figure below). The first mode performs an import the same way it does for other modules - it adds a new product item for each row in the source CSV file.

When the *Update catalog* mode is chosen, another option becomes available, and you will have to make a selection for the *Identify Product By* method. Choices are *Manuf. Part Number*, *Vendor Part Number* and *Product Name*. Your choice of method defines how the product import process will decide on a match for existing catalog items to update from the data in the CSV file.

When a match in the selected field is found in an existing catalog item, then that item is updated with information from the CSV file. Otherwise, a new record is created, as per the normal import mode.

Note: If you choose a field for which catalog items do not have unique values, your results will likely not be what you intended.
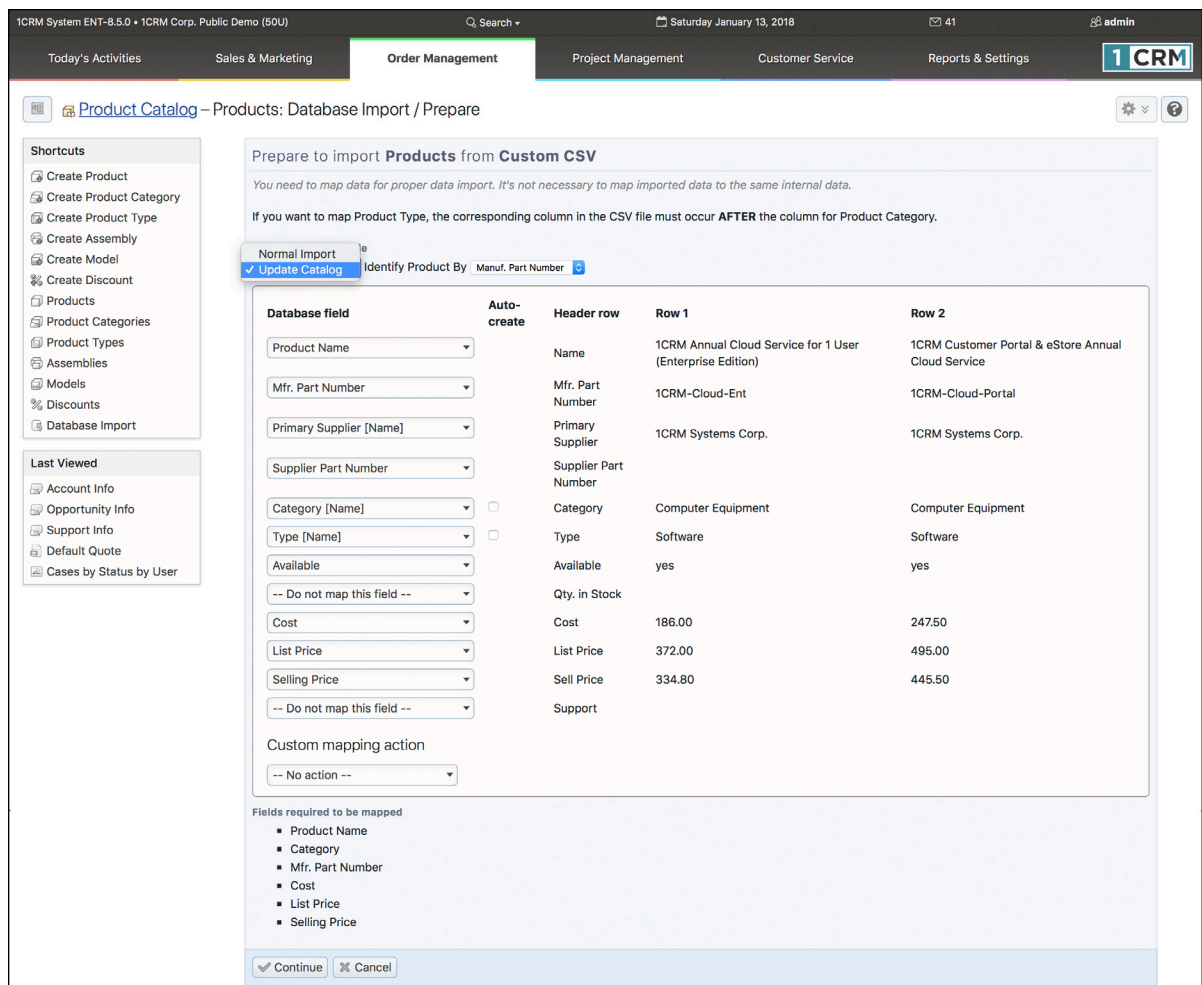

Figure 176: Importing Product Catalog Data

8.5 Exporting Information

1CRM has quite flexible data exporting capabilities. Essentially all of the 1CRM modules have an export function, accessed by clicking on the ⚙ Actions ∨ button at the top left of each list view screen, and choosing the *Export* option from that dropdown.

In each case, a Comma Separated Values (.CSV) file is produced, which contains all the currently selected records from the module in use (not just those records currently displayed on the screen). CSV files can be opened by Microsoft Excel for viewing, or by Notepad, Wordpad, and other text editors – and can easily be parsed as input files by most software.

A sample portion of a CSV file, exported from the Accounts module and viewed in Excel, is shown in Figure 177 below. When exporting to a CSV, the columns currently displayed in the list view are what is written to the CSV file - so you may want to define a custom list view tab that includes the columns you want to export.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	id	date_entered	date_modified	mod	as	name	par	account_type	industry	an	pho	billing_address_street	billing_address_city	billing_address_state
2	874fd	01/12/2004 20:00	01/12/2004 20:00		1	Otc Bb		Customer	Government			9 IBM Path	St. Petersburg	CA
3	89ee(	01/12/2004 20:00	01/12/2004 20:00		1	2M Invest A/S		Customer	Not For Profit			777 West Filmore	Santa Monica	NY
4	8ba6f	01/12/2004 20:00	01/12/2004 20:00		1	A 77 Capital Inc		Customer	Education			345 Sugar Blvd.	Santa Monica	CA
5	8d5ef	01/12/2004 20:00	01/12/2004 20:00		1	Absa Group Limited		Customer	Education			999 Baker Way	Los Angeles	CA
6	8f274	01/12/2004 20:00	01/12/2004 20:00		1	Ab Watley Group Inc		Customer	Telecommunications			111 Silicon Valley Road	San Francisco	NY
7	90e1!	01/12/2004 20:00	01/12/2004 20:00		1	Ag Media Group Inc		Customer	Engineering			123 Anywhere Street	Cupertino	CA
8	92c5(	01/12/2004 20:00	01/12/2004 20:00		1	Aits Inc		Customer	Manufacturing			9 IBM Path	Cupertino	CA
9	9478(	01/12/2004 20:00	01/12/2004 20:00		1	Ail Intech		Customer	Banking			123 Anywhere Street	Salt Lake City	NY
10	9626(	01/12/2004 20:00	01/12/2004 20:00		1	Ami Resources Inc		Customer	Energy			345 Sugar Blvd.	Persistance	CA
11	97ed:	01/12/2004 20:00	01/12/2004 20:00		1	Ams Marketing		Customer	Shipping			48920 San Carlos	Alabama	CA
12	999e4	01/12/2004 20:00	01/12/2004 20:00		1	A Novo Broadband Inc		Customer	Chemicals			48920 San Carlos	Alabama	NY
13	9b4a(	01/12/2004 20:00	01/12/2004 20:00		1	Aoi Coal Co		Customer	Machinery			9 IBM Path	Cupertino	CA
14	9cf86	01/12/2004 20:00	01/12/2004 20:00		1	Art International Inc		Customer	Shipping			321 University Ave.	Cupertino	CA
15	9ea5!	01/12/2004 20:00	01/12/2004 20:00		1	A&D Co Ltd		Customer	Media			123 Anywhere Street	Sunnyvale	NY
16	a055(	01/12/2004 20:00	01/12/2004 20:00		1	A&E Capital Funding Inc		Customer	Not For Profit			48920 San Carlos	San Mateo	CA
17	a204(	01/12/2004 20:00	01/12/2004 20:00		1	A-Com Ab		Customer	Telecommunications			67321 West Siam St.	Ohio	CA
18	a3ce(	01/12/2004 20:00	01/12/2004 20:00		1	A-Fem Medical Corp		Customer	Hospitality			345 Sugar Blvd.	San Mateo	NY
19	a57f3	01/12/2004 20:00	01/12/2004 20:00		1	A-Max Holdings Ltd		Customer	Shipping			1715 Scott Dr	Santa Monica	CA
20	a73b(	01/12/2004 20:00	01/12/2004 20:00		1	A-S China Plumbing Products		Customer	Shipping			777 West Filmore	San Mateo	CA
21	a8f28	01/12/2004 20:00	01/12/2004 20:00		1	A. Schulman Inc		Customer	Utilities			111 Silicon Valley Road	San Jose	NY
22	aa9e(	01/12/2004 20:00	01/12/2004 20:00		1	A.A Importing Company Inc		Customer	Machinery			48920 San Carlos	Sunnyvale	CA
23	ac55(	01/12/2004 20:00	01/12/2004 20:00		1	A.C. Moore Arts & Crafts Inc		Customer	Utilities			123 Anywhere Street	San Mateo	CA
24	ae03	01/12/2004 20:00	01/12/2004 20:00		1	A.C.L.N. Ltd		Customer	Government			321 University Ave.	Santa Fe	NY
25	afcbc	01/12/2004 20:00	01/12/2004 20:00		1	A.D.A.M. Inc		Customer	Utilities			777 West Filmore	St. Petersburg	CA
26	b177(	01/12/2004 20:00	01/12/2004 20:00		1	A.G. Barr Plc		Customer	Chemicals			345 Sugar Blvd.	Denver	CA
27	b349!	01/12/2004 20:00	01/12/2004 20:00		1	A.G. Edwards Inc		Customer				123 Anywhere Street	Ohio	NY
28	b4f8c	01/12/2004 20:00	01/12/2004 20:00		1	A.G.D. Mining Ltd		Customer	Communications			123 Anywhere Street	San Francisco	CA
29	b6ed4	01/12/2004 20:00	01/12/2004 20:00		1	A.J. Ross Logistics Inc		Customer	Food & Beverage			999 Baker Way	Los Angeles	CA
30	b89a(	01/12/2004 20:00	01/12/2004 20:00		1	A.M. Castle & Co		Customer				1715 Scott Dr	San Francisco	NY
31	ba4b(	01/12/2004 20:00	01/12/2004 20:00		1	A.O. Smith Corp		Customer	Entertainment			67321 West Siam St.	St. Petersburg	CA
32	bc17:	01/12/2004 20:00	01/12/2004 20:00		1	A.O.G. Air Support Inc		Customer	Biotechnology			9 IBM Path	St. Petersburg	CA
33	bdcf5	01/12/2004 20:00	01/12/2004 20:00		1	A.T. Cross Co		Customer	Communications			123 Anywhere Street	San Mateo	NY
34	bf95e	01/12/2004 20:00	01/12/2004 20:00		1	A.T.&E. Corp		Customer	Utilities			9 IBM Path	Los Angeles	CA
35	c159!	01/12/2004 20:00	01/12/2004 20:00		1	Abitibi-Consolidated Inc		Customer	Shipping			777 West Filmore	Cupertino	CA
36	c32b'	01/12/2004 20:00	01/12/2004 20:00		1	Aes Gener S A		Customer	Apparel			345 Sugar Blvd.	San Jose	NY

Figure 177: CSV File in Excel

9.0 Frequently Asked Questions

Here are answers to some of the most common questions we get asked by administrators and users:

Q: **How do I make 1CRM link incoming emails to a Case?**

A: This is the beginning of the normal `include/config/local_config.php` file:

```php
<?php
// created: 2007-01-13 05:19:13
$sugar_config = array (
   'admin_export_only' => false,
   'cache_dir' => 'cache/',
   'calculate_response_time' => false,
   'create_default_user' => false,
   'currency' => '',
```

After adding this option it would be this:

```php
<?php
// created: 2007-01-13 05:19:13
$sugar_config = array (
   'case_email_subject' => 'Case ID#: nnnn',
   'admin_export_only' => false,
   'cache_dir' => 'cache/',
   'calculate_response_time' => false,
   'create_default_user' => false,
   'currency' => '',
```

"Case ID#: nnnn" is the default setting, and emails with subjects "Re: Case ID#: 12", "Case ID#: 12", "Whatever Case ID#: 12 whatever" will all match case #12

So if you send out a case-related email, and make sure it has this sort of info in the subject line, when the reply comes back, it will be parsed as above, and automatically associated with the case.

Q: **Why Is My Upgrade Not Working?**

A: Have you checked the latest installation guide, to make sure all the correct settings are set in php.ini? Settings such as maximum upload file size, maximum time, etc.. - these are very important.

Have you checked the latest Implementation Guide, to make sure compatible versions of MySQL and PHP are installed (see the table at the back of the installation chapter for your server operating system), and that you also have installed the php modules for cURL, LDAP, IMAP and for MBStrings?

Have you enabled write permissions to the install directory for the user that is the web server (apache, www, or similar)?

These are by far the most common causes of this sort of issue.

Q: **Why do I get the message: Terminated due to a significant change in your IP address?**

A: This is a security check. IAH captures your IP address and stores it in the session record. On each page request, the system checks your IP against the one stored in the session. If they are different, your session will be terminated and you get this error message.

To change this behaviour, use the Admin - System settings page. There is a checkbox - *Validate User IP Address*. Un-check it to disable this security check. If you do, however, you will no longer be able to detect a session hijack.

Q: How do I backup and restore my 1CRM system?

A: See section 7.2.2 on Backups, part of the System Support Tools.

Q: What are some of the special entries in the `include/config/local_config.php` file?

A: A fairly typical `local_config.php` file might resemble the following:

```
<?php return; /* no output */ ?>
config
 unique_key: xxxxxxxxxxxxxxxxxxxxxxxxxxxx
 installer_locked: true
 config.is_demo_site: false
site
 features
              persist_calendar_grid: false
 top_logo
        primary: files/images/logos/1/image.jpg
 install_date: 2013-11-30 19:42:33
 base_url: http://75preview.1crm.ca
 host_name: 75preview.1crm.ca
 timezone: America/Los_Angeles
 upgrade_in_progress: null
 js_custom_version: 3
database
 primary
        type: mysql
        host_name: localhost
        name: testvalue
        user_name: testvalue
        password: xxxxxxxx
locale
 base_currency
        significant_digits: "2"
layout
 disable_relative_dates_times: false
```

While many of these entries simply reflect settings from the *Admin - System Settings* or *Locale* screens, some controls may only be set by editing the *local_config.php* file:

`installer_locked: false`   : set to false if you want to re-run installer

`config.is_demo_site: true`   : set to true to bulletproof public demo sites

`disable_relative_dates_times: true`   : set to true to disable relative date/times

`persist_calendar_grid: true`   : set to true to retain calendar grid settings

Note: Make sure that values are only entered under the appropriate section headers. For example, disable_relative_dates_times: false may only be entered under the layout section. Maintain proper indentation when editing the file - add a tab for each indentation level.

1 CRM

1CRM IMPLEMENTATION GUIDE

A Comprehensive Guide to Implementing and Administering 1CRM