

CASE Manager 6: Technical Overview

TECHNICAL GUIDE

Case Manager 6: Technical Overview

This document gives an overview of the installation of Case Manager 6. It describes all the running components required and also touches on configuration of Case Manager.

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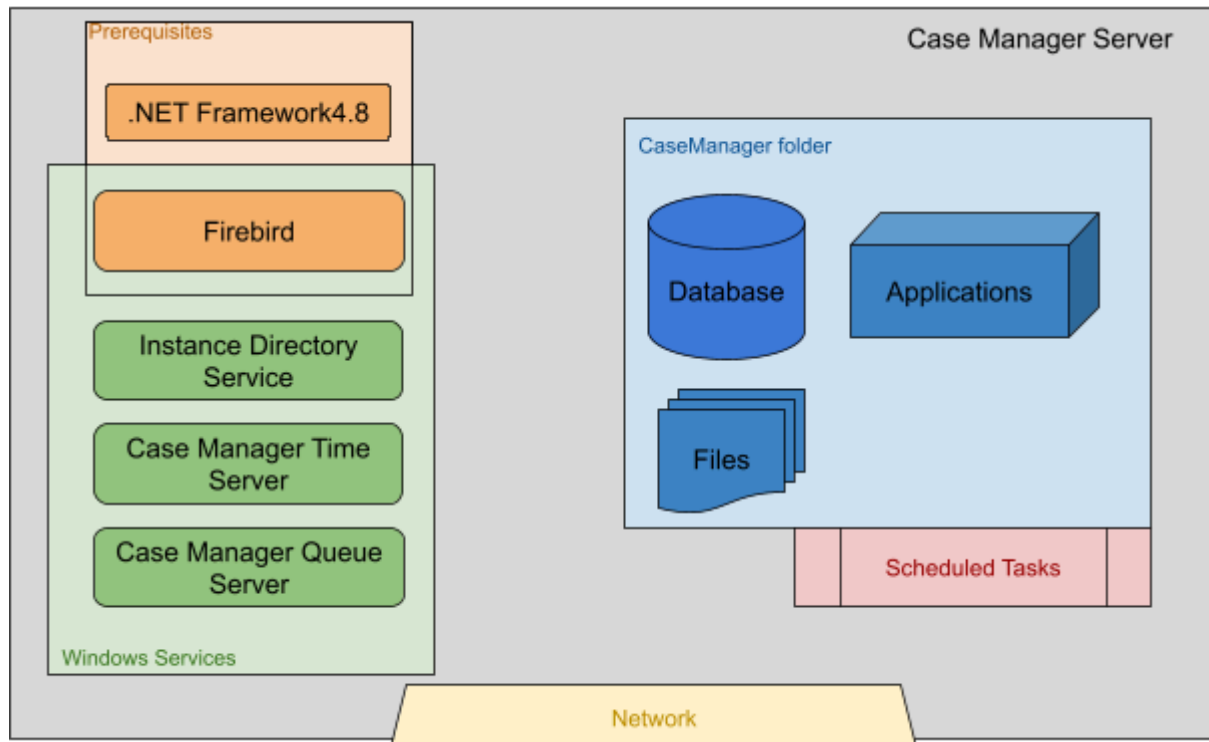
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Case Manager Server



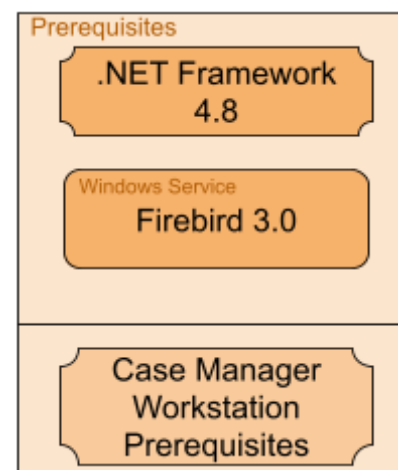
Case Manager 6 runs Windows Forms-based applications on workstations that connect to a central server on the local network. The server requires a few components running for the applications to perform correctly. In this section we will look at the Case Manager file structure, the required installations, the running Windows Services, scheduled tasks you may want to set up, and the basic network setup.

Prerequisites

Case Manager makes use of third-party software components that need to be installed on the server before running the server components and applications. These components are included in the CaseManager folder.

All applications run on Microsoft's **.NET Framework** version 4.8. Most up-to-date versions of Windows already include this component, but should it be installed it can be found in the CaseManager folder at the location specified below.

It is recommended to also install the [Case Manager Workstation Prerequisites](#) on the server since most of the time Case Manager applications will also be opened on the server. Installing the workstation prerequisites will also confirm that the correct version of the Microsoft .NET Framework is installed. If you do not wish to install the workstation prerequisites, you can find the install file for the .NET Framework 4.8 here:



...\CaseManager\[CaseManagerApps](#)\CaseManagerVerifyPrerequisites\DotNetFX48

Case Manager makes use of **Firebird 3.0** as database provider. The installation files for this component can be found in the Case Manager folder at:

...\CaseManager\[CaseManagerServerApps](#)\CaseManagerServer\firebirdsqlserver\Firebird_3.0

This installation creates a Windows Service called *FirebirdServer* that will start up with Windows. This component is used to enable and govern access to the database, and may require a change in your [network firewall](#).

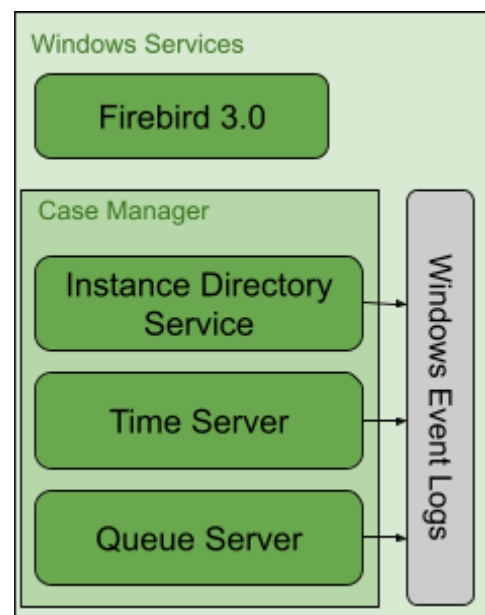
Windows Services

A Windows Service is an application that runs in the background and often starts up with Windows. Windows Services can be accessed from Windows's Task Manager or the Services settings, from where the service can be stopped or started.

As mentioned in the previous section, Case Manager requires the **Firebird** database engine (version 3.0) to be installed on the server as a Windows Service, to enable access to the Case Manager database. Case Manager itself also has three Windows Services running on the server:

- **Instance Directory Service** (service name "Case Manager Instance Director") hosts the connection details for Case Manager databases. A client/workstation application can detect the Instance Directory on the local network and request up-to-date server connection details.
- **Case Manager Time Server** (service name: "CmTimeServer") tracks the agents' actions and time spent on cases in the main Case Manager application. An agent requires a connection to the time server in order to log in.
- **Case Manager Queue Server** (service name: "CmQueueServer") hosts the queue functionality of Case Manager.

The installation programs for these Case Manager services can be found in the [CaseManagerServerApps](#) folder. After installation, you can monitor that these services are all running from the Task Manager in Windows.

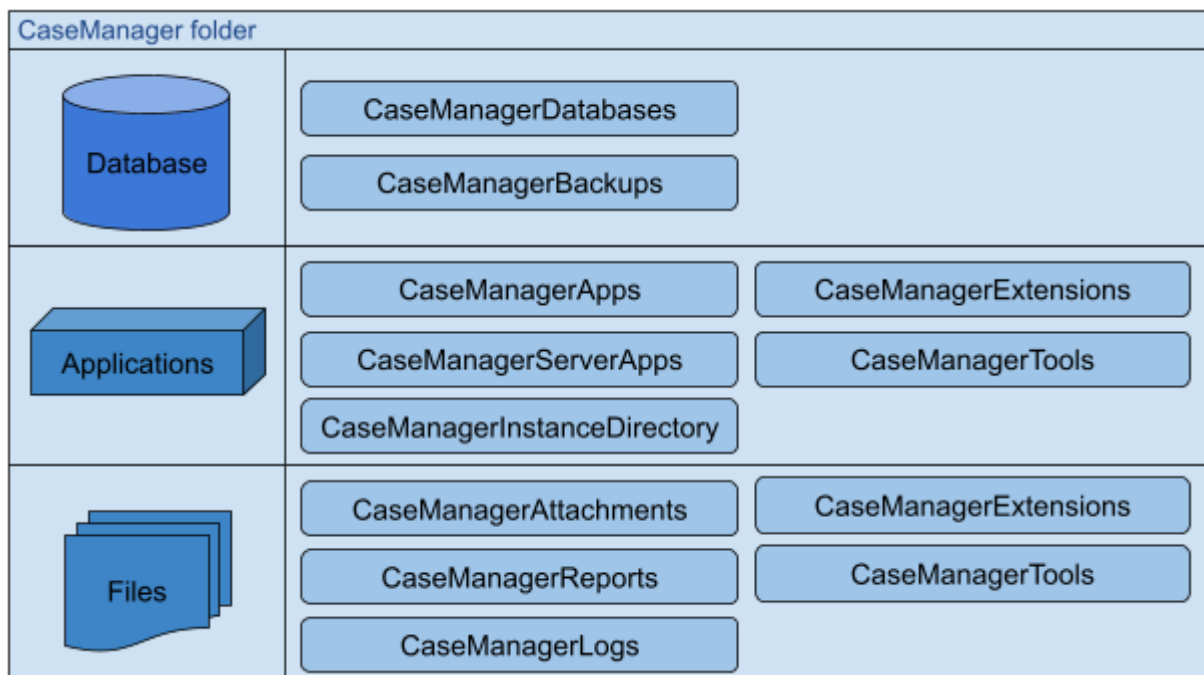


Event Logs & Troubleshooting

The Case Manager services write to the Windows Event Log information (such as errors, warnings, and general notifications) that may help to troubleshoot problematic services. These events can be viewed by making use of the Event Viewer in Windows. Here, the Case Manager logs (named *CaseManager*), can be found in the Applications and Services Logs section.

As a side note and tip for troubleshooting: should the Time or Queue service fail to start up and the logs do not provide sufficient information to solve the problem, you can also try to run the service as a console application from where you may view the error message causing the problem. This can be done by running the `run.bat` file (as Administrator) located in the `CaseManagerTimeServer` or `CaseManagerQueueServer` folders in the [CaseManagerServerApps](#).

CaseManager Folder



Generally the CaseManager folder is copied into the root of the chosen drive on the server: for example, `C:\CaseManager` and contains all the files necessary to run and host Case Manager 6 on the local network. In this section we will drill down the subfolders of the CaseManager folder to give context to their purpose and use.

Subfolders of CaseManager

CaseManagerDatabases

The CaseManagerDatabases folder contains the Firebird database file (containing the Case Manager data), called `CaseManager.fdb` (on older versions this may still be `VoyagerNetz.fdb`). The Firebird Service hosts this file to make the data accessible. It is

very important to note that this file should never be moved, renamed, or altered in any way while the Firebird Service is running, since it can cause data corruption. When setting up an instance in the Instance Directory, the file and directory path specified should be of this `.fdb` file.

CaseManagerBackups

The CaseManagerBackup folder is the default location to where database backups are made. Although configurable, automated and manual processes default to this location to store database backups.

Backup files (`.fbk`) generally are quite large and, with regular backup processes, this folder tends to, over time, take up significant harddrive space. It's good practice to delete old irrelevant backup files regularly. See [Backups](#) for more on this topic.

CaseManagerApps

Applications used by agents/users can be found in the CaseManagerApps folder. We make use of a technology called, *ClickOnce*, to install and update applications. When running the installation on a workstation via a network path (that is, run the setup.exe via the folder shared on the network, or hosted as FTP), the application will always check, while opening, whether a new version is available at this network location. This allows you to, in the future when upgrading to a maintenance release, only copy the new files into this folder. The workstation applications will then update automatically.

The following applications can be found in the CaseManagerApps folder:

- **CaseManager** is the main application used by the agents/users.
- **CaseManagerBulkActionUtility** allows privileged users to apply changes in bulk to cases.
- **CaseManagerConfigurationTool** is used to set up and customize the Case Manager system.
- **CaseManagerContentManager** allows a privileged user to create limited document templates and SMS templates.
- **CaseManagerImportUtility** imports Excel files into Case Manager.
- **CaseManagerInstanceDirectoryUtility** configures the Instance Directory service, serving the connection details used by the workstations, and enables maintenance tasks on databases (such as database backups and upgrades).
- **CaseManagerVerifyPrerequisites** is the first application that should be installed on workstations ensuring all the required components are installed for Case Manager to run correctly.
- **CaseManagerWallDashboard** is designed to display a sequence of dashboards in a timed loop typically as a dashboard in an office.

CaseManagerServerApps

The Server Applications are generally not accessed by workstations, but run or install centralized applications on the server only. The following applications can be found in the CaseManagerServerApps:

- **CaseManagerCalculateInterestUtility** calculates and adds interest transactions to cases where financial interest is enabled.
- **CaseManagerDailyMaintenanceRunner** runs the daily processes such as updating the electronic diary, executing due automatable instructions, and other daily processes that extensions may require. This application is typically scheduled using Windows's [Scheduled Tasks](#) to run daily.
- **CaseManagerInstanceDirectoryService** installs the Instance Directory Service serving connection details to workstations.
- **CaseManagerProcessRunner** is used to make a backup of the database. For regular backups, this program is used as a [scheduled task](#) to make a database backup at the desired frequency.
- **CaseManagerQueueServer** installs the Case Manager Queue Server as a Windows Service.
- **CaseManagerServer** contains installation files of the Firebird Database Engine, as well as some supporting tools.
- **CaseManagerSmsMergeUtility** prepares the due SMS instructions to be sent via the SMS Agent, including creating the SMS Short Message Activities on the cases and merging the templates with the case data. This feature is currently only available to our South African clients.
- **CaseManagerTimeServer** installs the Case Manager Time Server as a Windows Service
- **CaseManagerVerifyDatabaseUsers** is used to set up the Firebird Database Engine after installation by creating the necessary database users used by the Case Manager applications. The administrator (SYSDBA) password (as chosen during the installation of the Firebird) is required.

CaseManagerInstanceDirectory

CaseManagerInstanceDirectory is the default installation location for the Instance Directory Service. The installation found in the [CaseManagerServerApps](#), installs the program to this directory and sets up the newly created windows service to run from this folder.

CaseManagerTools

Any additional tools, scripts, and setup files can be saved in the CaseManagerTools folder. On distribution, this folder contains some template batch scripts that can help you set up [Scheduled Tasks](#), and a few standard form customizations, among others.

CaseManagerExtensions

The CaseManagerExtensions folder contains the extension applications. When an extension is installed the application component (DLL) file is loaded into the database. Some extensions, however, have stand-alone extension-specific applications. These applications are added to the CaseManagerExtensions folder. Often these applications are accessed by workstations, requiring this folder to be [shared](#) on the network.

CaseManagerAttachments

When making use of the Attachment File Share extension, files attached to cases are stored on the server via a network location. The CaseManagerAttachment folder is the default location to use for the file attachments and should consequently be [shared](#) on the network with write access. This location can also be used for the Attachment FTP extension if your FTP provider can share this location with FTP access. Since these files are vital case-related data, it should be taken into consideration in your [backup](#) strategy.

CaseManagerReports

Case Manager 6 stores the document and report templates in the database, so that you do not require file access to the server when printing a report or a document. The CaseManagerReports folder, however, contains a collection of templates that have not been migrated (that is, imported into the database). This folder can be shared on the network if initial access is required to migrate the applicable templates, but when the migration is done on the server and subsequent creation of templates are done using Case Manager Template (.cmt) files, network access to this folder would technically not be required.

CaseManagerLogs

A few of the automated processes, including that of extensions and integration processes, write process logs to files. The CaseManagerLogs folder can be used to store these log files.

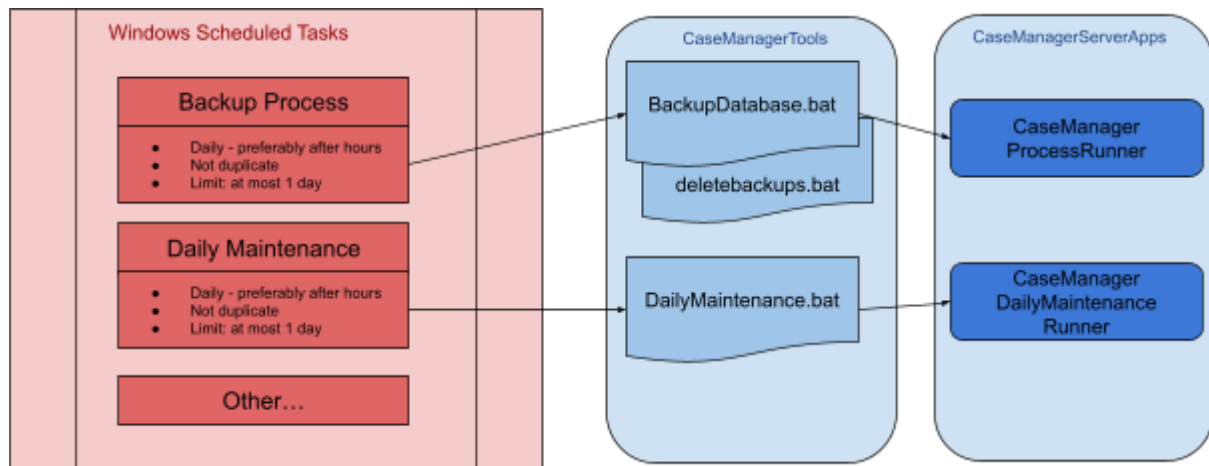
Backups

It is of the utmost importance to implement a comprehensive backup strategy of your server to ensure that in an event of hardware failure or data loss, you can recover with minimal loss to your operations. In terms of the Case Manager system, the following should be taken into account:

- A database backup should be taken regularly. Many sites implement a daily backup process. The database backup process generates Firebird Backup (.fbk) files in the [CaseManagerBackups](#) folder. The database includes all the application data in the system including the installed extensions and the migrated (imported) report and document templates.
 - With a daily backup strategy, backup files can quickly consume a very large amount of free disk space. Older and irrelevant backup files should regularly be deleted. We've included a script in the [CaseManagerTools](#) folder that can be scheduled along with your backup processes that will clean up old backup files. This script will keep one backup file per year older than one year, one backup file per month older than one month but younger than a year, and all the backup files made within the last month.
- Attachment files, typically in the [CaseManagerAttachments](#) folder should be backed up to a safe location regularly as well.
- Any custom processes, integrations, tools (including extension), and files that your operation requires should be included in your backup processes.

It is highly recommended to move all your files in your backup process to an off-site location to ensure recovery from disastrous events.

Scheduled Tasks



Windows Task Scheduler can be used to automate processes on the server. We recommend creating scheduled tasks for at least the database backup and the daily maintenance process. Additional processes may also be taken into consideration subject to relevance in your environment: such as the calculation of interest, merging of SMS templates (South African only), extension-specific processes, and custom processes and tasks.

To simplify passing the correct arguments to processes we suggest making use of Windows batch scripts initiating the relevant tasks with the correct arguments which can (then, more easily) be scheduled. We've included batch scripts in the [CaseManagerTools](#) folder for the database backups and the daily maintenance process:

- **DatabaseBackup.bat** should be edited to specify the name of the instance to be backed up wherever `<InstanceName>` is mentioned. Note that if the instance name contains a space or special character, you should place the entire parameter in quotation marks, for example `"-instance=Name With Space"`
- **DailyMaintenance.bat** should also be edited to specify the name of the instance on which the process should run wherever `<InstanceName>` is mentioned. The daily maintenance user and password should also be specified. This information can be obtained/set in the System Users action in [User Management](#). Here as well if one of the arguments specified contains a space or special character, the entire argument must be placed in quotation marks, for example `"-password=Some Password"`.

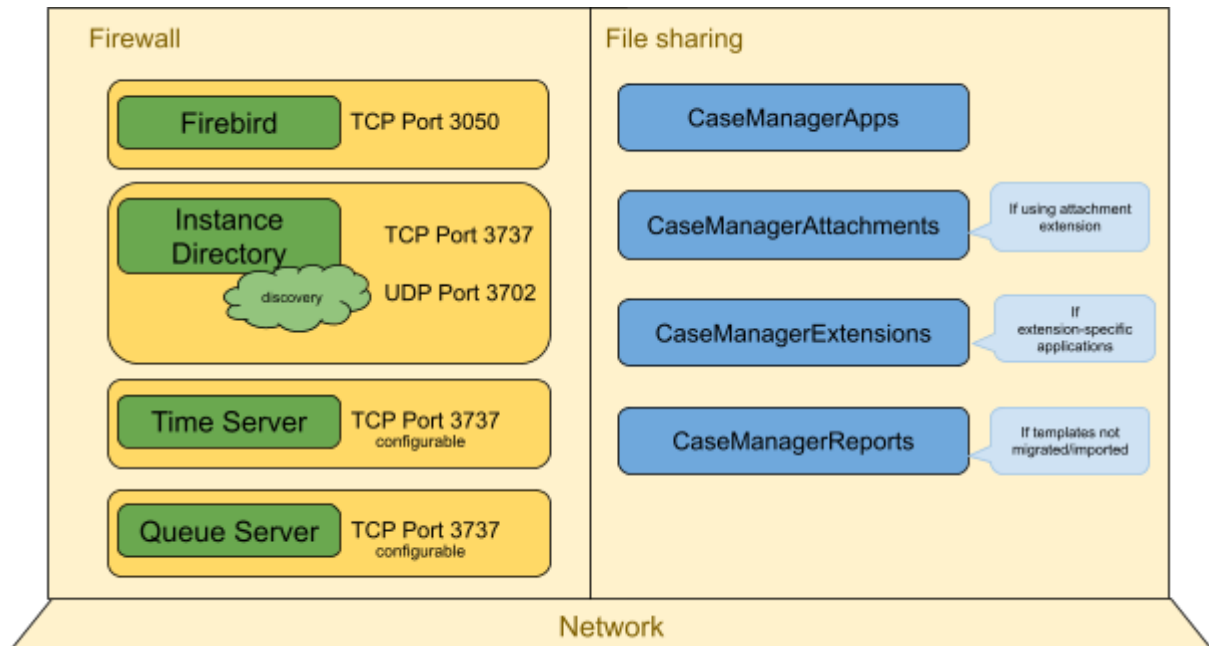
We suggest the following settings when creating a new task in the Windows Task Scheduler:

1. Enable "Run whether user is logged on or not". This will require login details for a privileged user on the server.
2. Enable "Run with highest privileges"
3. When setting up the triggers,
 - a. It is best to choose a time after hours when very little other work is performed on the database; also not during the same time that one of the other

scheduled processes is run. It is not necessarily a problem if there is overlap. The performance of both processes however will be better if there is no overlap.

- b. You may stop the task if running for more than a day, or 12 hours.
4. Specify running a batch script as the action of the task. This will simplify the setup when taking a couple of steps in the task, and when specifying the correct arguments to the process.
5. In the settings, enable
 - a. Allow task to be run on demand
 - b. Run task as soon as possible, after a scheduled start is missed
 - c. Do not start a new instance if the task is already running

Networking Overview



In the local client-server environment, you need to enable communication between the workstation and the server by opening ports in your firewall settings, and sharing files on the server with the workstations.

Firewall

The following port should be opened in the firewall for inbound communication:

- **TCP Ports**
 - **3050** - The Firebird Database Engine uses this port by default to allow database queries to be executed.
 - **3737** - The instance directory uses port 3737 to handle connection details requests from the workstations. By default, the Time- and Queue Servers also make use of port 3737 for requests from the workstations. Even though this is configurable in the [Time Server Settings](#) and [Queue Server Settings](#), we suggest using the default port.
- **UDP Ports**
 - **3702** - The standard port for WS-Discovery technology that the Instance Directory service uses to be detectable on the network.

Using WS-Discovery allows a workstation to discover the Instance Directory on a local network, wherever it is installed. For this reason it is very important that only one Instance Directory service runs on the entire local network. Furthermore, it is worth noting that this technology will not work on all local networks:

- Certain antivirus applications do not allow WS-Discovery even when their firewalls are disabled. In many of these cases, we moved to Microsoft's Windows Defender with which we've never had a problem.

- Virtual Private Networks (VPNs) often do not work well with discoverable services. For these sites, we've implemented a direct connection to the Instance Directory (without discovery) either by
 - Setting the network name of the server to "casemanager"
 - Run the `DirectInstanceDirectoryUri.reg` ([CaseManagerTools](#)) with the server address set, on all workstations. This will bypass the discovery process and always connect to the Instance Directory at the server as set up. With this approach, however, a (very rare) change in the Instance Directory location will not be automatically detected.

File Sharing

Case Manager requires access to files on the server from the workstation. For security purposes it may be best not to share the entire [CaseManager folder](#) but only the necessary files.

CaseManagerApps

The workstations do not run applications directly from the server location, instead install the applications locally using Microsoft's ClickOnce technology. During installation the network path used to access the installation is recorded and used, in subsequent times the application is opened locally, to check whether an update is available on the server.

The [CaseManagerApps](#) folder contains the applications that may be installed on workstations, and can be shared on the network as read only. From a workstation, you will access this network location and browse to the relevant application's setup.exe file to install. When in the future a new version is copied into the CaseManagerApps folder, the workstations will automatically be updated.

CaseManagerAttachments

When using the Attachments File Share extension, you can set up the attachment location to the [CaseManagerAttachments](#) folder (in the [Extension Settings](#)). Since users will add attachments, full access (read and write) is required when sharing this folder on the network. An alternative extension that makes file attachments available via FTP is also available, should you not wish to share the attachment file location on the network directly.

CaseManagerExtensions

Even though extension files are usually copied to the [CaseManagerExtensions](#) folder, the actual extension DLL is [stored within the database](#) and does not require sharing on the network. Certain extensions, however, include extension-specific tools and applications to be accessible to the workstations. In these cases, you may share the CaseManagerExtensions folder as read only on the network. Workstations will then be able to install the required extension application using a similar process as with the standard applications in [CaseManagerApps](#).

CaseManagerReports

When printing reports or documents in Case Manager, access to the Crystal Reports template is required. Case Manager introduced a mechanism where the template files are stored within the database and not accessed anymore via the file share to [CaseManagerReports](#) (report location specified in the [Case Manager Settings](#)) . This however requires the legacy file-based templates be migrated into the database (which can be done from the [Document Templates](#) or [Report Templates](#) in the Configuration Tools). The CaseManagerReports folder at this stage is only used to migrate into the database the templates used. If the migration process is done on the server and not the workstations, and all printing thereafter is done on migrated templates, file access to this folder is not required.

Case Manager Workstation

With the server correctly configured, installing and configuring the workstations is easy. Network access to the [CaseManagerApps](#) folder allows easy installation of the prerequisites and the Case Manager applications. Note that workstations are required to be on Windows 10 or later to install Case Manager 6 applications.

1. Installing prerequisites
 - a. Browse to the shared network location of CaseManagerVerifyPrerequisites in the [CaseManagerApps](#) folder.
 - b. Run the setup.exe file
 - c. The following components will be installed:
 - Microsoft .NET Framework 4.8
 - Crystal Reports for .NET Framework
 - Firebird ODBC
 - VoyagerNetz GDS32
 - Microsoft WebView 2 Runtime
 - Microsoft Data Access Components 2.8
2. Install Case Manager 6
 - a. Browse to the shared network location of CaseManager in the [CaseManagerApps](#) folder.
 - b. Run the setup.exe
3. Install any additional Case Manager applications that may be required on this workstation
 - a. These applications may be in the [CaseManagerApps](#) folder or, if applicable, in the [CaseManagerExtensions](#) folder.

When opening any of the Case Manager applications on the workstation, the Instance Directory is used to detect the connection details to the Case Manager database. Further connection details to the Time- and Queue Servers, the Attachments path (if used), and the Reports path (for legacy templates) are all obtained from the database. These settings can be configured in the [Configuration Tools](#).

If at some point in the future you upgrade the site to a new maintenance release of Case Manager 6, copying in the new application files into the CaseManagerApps folder will cause the workstations to upgrade automatically the next time the application is opened.

Configuration Tools Overview

This section provides an overview of the available settings in the Case Manager Configuration Tools. Each section gives a short description of the purpose and impact of its settings.

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General

Software Licensee Information

The Software Licensee Information section specifies the basic information of your organization such as the name, business registration information, and contact details. If the financial functionality is applicable to your organization, the default interest and payment split values are also set in this section.

Case Manager Settings

The basic operational settings of Case Manager are set in the Case Manager Settings section. Among others, it exhibits settings on:

- Data entry references
- Change logs
- Financial behavior of costs, payments, and interest
- Reporting
- User interaction

Daily Maintenance Settings

The base daily maintenance processes can be configured in this section, allowing you to add instructions to active cases without any instructions scheduled, advance instructions that are past their due dates, and automatically archive cases.

Extension Manager

Extensions can be added to Case Manager in the Extension Manager section. Loading the extension DLLs makes the extension available to users on the next login, and may include database installation/upgrade processes.

Extension Settings

Setting controls specific to the loaded extensions are accessed via the Extension Settings tool. This tool is opened as a separate application.

User Management

Users and Teams

The Users and Teams section is available in the main Case Manager application as well. It allows you to manage the users of Case Manager including their access rights, authentication, the organizational structure, and the contact information to use in communication from the users to customers/debtors.

Security Roles

The Security Roles section is also available in the main Case Manager application. Security Roles simplifies user security right management by centralizing the management to a role associated with a user.

Data

Custom List Items

Especially with finances, lists displayed in Case Manager can be customized. This section provides a list of the customizable lists, on which available entries may be edited.

Data Type Models

The Data Type Models section serves as the main point of data customization in Case Manager. Case Types can be defined and customized along with associated custom form designs, and field behavior.

Case Type Mapping

Case Types as set up in the [Data Type Models](#) section can be associated with plaintiffs to (by default) set the case type on new cases of that plaintiff.

Custom Field Security

Security rights used for field read/write access are customizable in Case Manager in the [Data Type Models](#). The Custom Field Security section provides an easy tool to manage the associated users/roles and fields of these custom security rights.

Templates

Document Templates

Document templates are used to print letters sent to debtors/customers. These templates are either defined in Crystal Reports and imported into Case Manager (in this section), or created in the [Content Manager](#). The complete list of available document templates can be configured in this section.

Short Message Templates

Short Message Templates are used to generate SMS/Text messages to be sent to debtors/customers. The complete list of available templates can be found in this section. To configure the contents of these templates, make use of the [Content Manager](#).

Phone Call Templates

Phone Calls Templates give context to a phone call to be made to a debtor/customer. A description on the template can give guidance to the agent. The different templates are also used to effect different workflow behavior on the selected outcomes.

Tasks

Tasks define actions to be performed by users that are not communication-based. A Task entry defines the action to be taken along with the possible outcomes (see [Activity Behaviour](#)).

Report Templates

Report templates are used to draw printable reports from Case Manager. All these templates are defined in Crystal Reports and imported into Case Manager in this section. The complete list of report templates and their availability in the application can be configured in this section.

Workflow

Statuses

Configure the available statuses for cases in this section.

Processes

Define workflow processes with sequential steps. These processes can be executed on cases based on events.

Activity Behaviour

Define the outcomes (qualification statuses) of activities in Case Manager. You may associate workflow steps with an outcome to, for example change the case status when a specific outcome is selected.

Event rules

Set up the workflow actions to take on cases when events occur, such as changing the workflow process on a status change.

Diary

Customize the display of the Electronic Diary by setting up the sections to display and associating activity templates to include in the section.

Server Settings

Time Server Settings

Configure the settings of the Time Server.

- Set the connection URL to use. This can, optionally, be automatically generated by the Time Server on startup, based on the relevant instance information.
- Set the tracking of inactivity of Case Manager users.

Queue Server Settings

Configure the settings of the Queue Server

- Set the connection URL to use. This can, optionally, be automatically generated by the Queue Server on startup, based on the relevant instance information.

Telephony Settings

For telephony integrations, these settings can dictate the process to use when the phone button is used on the phone number fields.

Objects

Cases are associated with a number of different objects. The section allows you to manage the available objects of each type:

- **Plaintiffs** - the available list of case plaintiffs/clients.
- **Employers** - the list of employer objects that can be associated with debtors/customers. The Employer Confirmation Extension allows users to also create, and edit these objects.
- **Costs** - the different types of costs that can be added to the accounts of debtors/customers.
- **Courts** - a list of courts that a case can be associated with (currently South Africa only).
- **Districts** - the judicial districts that cases can reside in (currently South Africa only).
- **Debt Types** - a classification of the type of debt.
- **Debtor Types** - a classification of the legal type of debtor/client.

Integration

Web Call Actions

Define the available action buttons that open websites in the local browser in Case Manager.