

Cryoserver V9 Administration Guide

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FCS

+44(0)800 280 0525

info@cryoserver.com

www.cryoserver.com

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1 Introduction

This document is intended for Cryoserver Administrators and shows how to administer Cryoserver Version 9.x.x. Please note that most of this content is still applicable to previous versions of Cryoserver, notably versions 7 and 8.

Cryoserver is an email archive system – which is simple to setup and administer. Cryoserver is functionally rich, resulting in a wide range of administrative options. This document helps to provide guidance on the full range of choices and when and why they may be needed.

This document covers the administrative functions of Cryoserver in two ways:

- **Essential Topics:** covers the *concepts* of Email Archiving; from getting data into the system to getting it back out again.
- **Administration Facilities:** walks through each panel and options of the Cryoserver Admin area.

1.1 Roadmap

The Cryoserver product is constantly evolving and improving. We take customer feedback as well as many other sources of influence to drive the product forward.

Cryoserver makes a refreshed release every 4 to 6 weeks that adds to or improves the product in some way. Therefore, the screenshots and comments in this document may not exactly reflect your version of Cryoserver.

Customers with a Support and Maintenance agreement in place may upgrade to the latest version of Cryoserver – both minor and major version releases – without incurring any additional costs¹. An upgrade would typically take 20 minutes, with a 5 minute down-time.

The administrative area can now indicate if there is a new version available (if the Server is able to link to the outside world via HTTP). The administrator can then discover what is in the new release, and decide if this would be useful to the business or would address a particular issue.

If you would like to see some specific change in Cryoserver, or to report a fault, then please email support@cryoserver.com.

¹ Unless the support team need to provide an on-site visit

Revision History

<i>Version</i>	<i>Date</i>	<i>Author</i>	<i>Notes</i>
1.0	June 11	MGB	Initial Version, based on Cryoserver ver 6.0.3
1.1	August 11	RB	Added cover and introduction sections
1.2	December 11	MGB	Update for Cryoserver Version 6.0.5
2.0	April 13	MGB	Converted and extended for Cryoserver Version 7.0.0.
2.1	September 13	RB	Reviewed and updated
3	February 15	MGB	Major revision for Cryoserver Version 8
3.1	April 15	MGB	Extended for Version 8.0.3
4.0	March 16	RB	Reviewed and updated
5.0	June 17	MGB	Updated for use with Version 9.0.0
5.1	December 17	MGB	Updated and extended for V9.0.1

2 Welcome to Cryoserver

Cryoserver is a system that can store vast quantities of email or IM transcripts (completed Instant Message conversations). It indexes the content of each item and attachment data so that these items can be searched and displayed quickly and efficiently. This guide focusses on the administrative side of Cryoserver.

The administrator(s) of a Cryoserver system has a number of tasks to perform in order to:

- Appropriately install and configure the system
- Setup the data feeds that will fill the system with data
- To provide access to this data to users
- To manage and monitor the system over time

The emails and IM data to archive into Cryoserver can be delivered in a variety of methods:

- New mail, **Journalled**² from a Mail Server (e.g. Exchange/Lotus Notes)
- Sent over **SMTP** or Collected from a mailbox using **POP3**, **IMAP** or **EWS**
- Existing mails, extracted from various sources – such as **PST** or read from user mailboxes

Cryoserver can be accessed in a variety of ways and for a number purposes.

Throughout this document, we refer to different types of *user*. Cryoserver supports a small set of user types, though each type can have quite a variety of capabilities that the administrator can allow or deny or restrict – either to all users or to just selected accounts.

Administrators cannot search or view the archive data. However, this account is used to create or configure the other users of the system; as well as nearly all other configurational aspects. This document describes the full set of actions that an Administrator should be able to perform. Some administrators (typically on a “cloud” or multi-tenant system) will only have restricted access and will not see all of the features described here.

Basic / Active Directory (LDAP) Users can, by default, search only their own emails.

Please note that Single Sign On [SSO] using **ADFS** / SAML is supported, resulting in a Basic User account type.

There are many ways to extend or restrict the scope of a Basic User, as described in later sections.

Privileged Users can search across the whole repository, unless restricted by a searchable domain.

Privilege and Delete Users are privileged users who can authorise an audited deletion of archived data. The search query that contains the set of data to remove must be prepared by a different

² Journaling is a very reliable way to get *all* currently flowing mail into an archive. However, there are times – typically with multiple Email Exchanges or when one is added – when a *portion* of mail is NOT journalled. This will result in incomplete data in Cryoserver, and is not easy to detect in an automated way.

privileged user. *Please Note* that this special user type is only provided on application, and is normally disabled.

Data Guardians are simply email addresses to which ‘transcripts’ are sent. A transcript is a summary of actions taken by *administrative* and *privileged users*. Some ‘basic’ users may also raise audit transcripts – as described in the Local Accounts (see section 5.4 below). And a data guardian that reviews the emails of a search transcript will also be audited.

A data guardian does *not* have a special login account. When the user logs in with their Active Directory (LDAP) or local *basic user* account – and their primary email address matches one of the Data Guardians, then that user will see extra menu options specifically for data guardians (e.g. *Transcript Search*, as described in the Cryoserver user guide).

2.1 Types of Cryoserver systems

Cryoserver may be installed as either a single company system; or as a multi-tenant system capable of hosting several companies’ data.

Cryoserver can also work as a single standalone server, or be spanned over multiple servers (a distributed configuration) or as a paired “Primary – Mirror” system.

This document describes the Administration of a **single company system** and the **master company** of a Multi-Tenant server.

2.1.1 Multi-Tenant Cryoserver

The words “Tenant”, “Company” and “Customer” in this administration guide are used to mean the same thing in the context of Cryoserver. A typical *on premise* Cryoserver system is designed to support a single tenant - the company that purchased the product. However, it is possible to provision a multi-tenant Cryoserver that will support completely separate email archives of more than one company.

A multi-tenant Cryoserver can be used to:

- Separately contain email data from different **business units** for the same parent company or group. A “Super Privileged” user type can search across multiple ‘companies’.
- Be used as a “Cloud Cryoserver Service” which will host data for a number of remote, unconnected customers.
A standard cryoserver system can support up to about 250 separate companies.
- A special Cryoserver edition will be available later in 2017 to support many thousands of companies.

Every Multi-Tenant system will have a “master” company – typically the first company in that system. An administrator of the *master company* will access the full set of administration menus and facilities that are documented in this guide.

For Multi-Tenant servers, there are additional administrative user types – required to add, administrate and control the tenants. These are not documented here:

Super User	Has full administrator rights to all companies.
[Tier 1] Region Manager	Administers the Resellers (Tier 2) in their region
[Tier 2] Reseller	Ability to add and administer companies in their region
Administrators (except for the Master company)	Any administrator of a “tenant” company will see <i>only</i> the menu options that they have been allowed to access.

2.1.2 Mirrored Cryoserver

All Cryoserver systems can be provided as a single server or a mirrored pair. With a single server, you will need to provide your own backup strategy. With a primary-mirror pair, the ‘mirror’ server will store the processed email/IM data at the same time as it is being processed.

The ‘mirror’ server is a full Cryoserver system. If the primary Cryoserver fails, the mirror cryoserver can be reconfigured to be a fully working standalone system.

No extra administration is required. Nearly all configuration and management tasks for a mirrored system are the same as for a standalone system.

2.2 Documentation for different user types

Basic

Basic LDAP

Privilege / Privilege & Delete

User Guide

Data Guardian

Administrator

Administrator Guide – this guide

Initial System Setup Guides

Super User

Multi-Tenant Administration guide

Region Manager (Tier 1 user)

Initial System Setup Guides

Reseller (Tier 2 user)

This document describes the **Administrative features and actions** of a standard single tenant Cryoserver system. However, a Company (a ‘tenant’) of a multi-tenant (a ‘cloud’) system will have access to a limited set of administrative areas. For this reason, this document still applies to the administrators of each company of a cloud cryoserver.

Also note:

On a standard single-tenant Cryoserver, the Super User / Region Manager / Reseller accounts cannot be accessed or used. An Administrator has no visibility to these accounts under any circumstances.

2.3 What's new in Version 9 Administration

The main visible change for Version 9 of Cryoserver is the addition of a new 'modern UI' for Search users. This uses the latest browser technologies (HTML5 / Bootstrap / AJAX / and so on) to provide an enriched experience. However, there are also a number of changes for administrators to take note of:

1. Every system must have a **new license** record. This is to support both a wider distribution of the Cryoserver products via a Windows Install; and to provide self-service upgrades and module downloads to authorised customers.
2. **CryoSMTP** – a new *mail server* service that Cryoserver can monitor and control. This is used for receiving mail (both Journal and Import) for archiving. It is not intended for sending mail from Cryoserver (e.g. email alerts and forward-to-inbox). This is an optional module. It works well for multi-tenant Cryoserver systems, particularly on Windows platforms.
3. **Storage management** facility, for associating services in Cryoserver to the most appropriately sized Disk. For example, to start to use a new Disk mount for archive data when the current disks become full. [NOTE: Cryoserver is not able to *mount* or *format* new disks – that still has to be performed at the O/S level].
4. A vastly expanded **API** -so a greater range of features can be accessed programmatically. Use this for creating your own search UI or to bind Cryoserver features directly into your intranet or portal services.
5. The ability to obtain updated releases of Cryoserver, as appropriate for your license. This functionality will be extended to cover updates to certain modules.

3 Getting Started

This part of the documentation will briefly run through the process needed to establish a Cryoserver system.

3.1 Installing

Cryoserver can be provided as in a wide variety of formats, depending on your needs and budget. The initial installation process will vary depending on you chosen format, after which the Cryoserver configuration should be similar for all installation types.

In general, we request new customers to complete a *Questionnaire*. The aim is to provide some key details that will be needed to assist during the initial install and setup – like IP addresses or the company and contact details and the names and email addresses of administrators and data guardians. It will also indicate the type of email server that you have and if any importation tasks are required.

Install type	Installation Process	Setup Process
Software	Cryoserver Support will install the software on your hardware and provide setup guidance.	After install, this guide can be used for a standard single-company setup. For a multi-tenant system or any re-branding, some additional support would be required.
VM Image or Hyper-V image	Request a Trial via our website or from one of our resellers. Complete a questionnaire. Instructions will be provided on how to download and install the VM Image, set IP addresses and get started.	After install, follow the VM image setup guide. Additional information for all aspects of Cryoserver will be found in this guide.
Windows Install	Windows installers are being developed for Version 9. Unlike a typical Linux (or VM) install, you will have full access to the O/S – so IP address and disk allocations will be set up without special support requirements.	After installing, follow the guidance set out here.
Upgrade / Update an existing Cryoserver	Cryoserver Support or authorised resellers will need to update your system to Version 9.	If you are updating from any previous version of Cryoserver to Version 9, then you will need to complete the License Setup Wizard. After this no further setup is required – but you may wish to make use of some of the new modules – such as CryoSMTP service.
A tenant on a Cloud Cryoserver system	There is no Install as such. The customer should complete a “cloud customer questionnaire”.	The Cloud provider will add the new Company to their Cryoserver following the Multi-Tenant setup guide.

		Administrative tasks for that Company are detailed in this guide, but many of the options may not be available to the customer unless the Cloud provider allows it.
--	--	---

After installing Cryoserver, you may need to follow any provided instructions for your chosen platform to set the Hostname and IP address, set up DNS entries and add any extra disk allocations. After this, you may start to access the Cryoserver system. At this point the first thing to complete is the Setup and License Wizard.

We strongly recommend that you create a suitable DNS name for the Cryoserver system, that will be used as the Web address for users to access it.

Now you can browse to the cryoserver system – just enter the *IP Address* or *Server Hostname* or *DNS Name* into a Browser. The first time of using Cryoserver Version 9 you will be presented with the **Setup Wizard**.

3.2 Setup / Licensing your Cryoserver

From Version 9, all Cryoserver systems will need to be formally licensed. This will help when providing support and guidance – and will enable self-help features such as obtaining Upgrade packages and apps / modules.

The single license is associated with a Cryoserver ‘instance’, which could be any of:

- A single standalone Cryoserver
- A Primary – Mirror pair
- A distributed set of servers controlled by a single ‘primary’ Cryoserver.
- Any of the above, when set in Multi-Tenant mode.

Every new Cryoserver system will default to run in “**TRIAL**” mode, if no other license has been provided. This will allow for 30 days usage for all modules. After that they would need to arrange an extension to the trial period, or to raise a purchase order to convert the license into a full license.

Every existing Cryoserver system that is to be upgraded to Version 9 will need a license to be set up **before** the upgrade process.

The resellers and distributors of cryoserver will have access to the Licence allocation system, and should be able to provide customers with the appropriate license keys.

3.2.1 Setup / Licensing a New Cryoserver

A newly installed Cryoserver system will provide a setup wizard to guide you through the initialisation of key settings.

https://...s.cryoserver.com/setup.do

Cryoserver - Step 1 - Welco...

Cryoserver™

Welcome

License Agreement

License- Trial Id

Identify

Confirm

Step 1 - Welcome To Cryoserver

Congratulations on your purchase of Cryoserver - the most comprehensive email archiving, compliance and forensic system. A license needs to be installed first before Cryoserver can be used. The following screens will take you to the installation process followed by configuration wizard. This wizard must be run to:

- Set the type, scope and usage of this server
- Register the owner and maintenance contact details
- Establish a service license, appropriate to these requirements

If you have already been issued with a license, please click on the below button and proceed to install the license.

YES I HAVE A LICENSE

If you do not have a license, you will be prompted for details and a default 30 days temporary license will be installed. Please contact your supplier to get the license validated.

I DO NOT HAVE A LICENSE

Cryoserver V9.0

POWERED BY Cryoserver™

You will be asked to provide your Details – for the License.

Cryoserver™

Welcome

License Agreement

License- Trial Id

Identify

Confirm

Step 3 License- Trial Id Section

Please Enter/ Check the details below and save any changes.

Company Name

Contact Name

Contact Email

Contact Phone

Company Address

Language

Country

Post Code

NEXT

Then you can set the preferred URL that you and others may access the system. If you have created a DNS name for the Cryoserver service, then include this here in place of the default – which would be the host name of the server. All future emails that include links to the Cryoserver web URL, such as ‘password reminder’, will then use this preferred name rather than the default hostname.

If you have the data file saved when you filled in a ‘questionnaire’, you may upload it here. It will then be used fill in some of the details on the following screens!

Welcome

License Agreement

License- Trial Id

Identify

Company Details

SMTP Setup

Confirm

Step 4 - Identifying your Cryoserver

Cryoserver will be installed and configured as a Standalone primary Cryoserver.

Preferred URL Hostname

Upload Cryoserver Questionnaire XML file (Optional):

The Identity section helps identify the server roles.

Runmode: If the proposed configuration is that of a mirrored environment then select the "mirrored" radio button else select the Standalone radio button for a non mirrored environment.
In runmode mirror the storage nodes will be replicated from the primary to the mirror in real-time.

Upload Questionnaire: The questionnaire provides a number of details provided before the appliance was delivered, that are useful during the setup of this server. By uploading the file these details will be displayed at the appropriate places in this setup wizard.

Please note it is recommended that the mirror server is configured and put onto the network prior to the configuration of the primary server.

You will then proceed to enter the Company Details. There are 4 key parts that you will need to complete – assuming that the Company address and contact details are the same as provided for the License:

Welcome

License Agreement

License- Trial Id

Identify

Company Details

SMTP Setup

Confirm

Step 5 - Company Details Section

Please edit and confirm your contact details. These are required so as to allow Cryoserver to provide technical assistance if required.

Company and Contact Details:

Tag A short (3 to 16) character name for this company - used in the URL to access the login page.

Company Name

Contact Name

Email

Phone

Address

Post Code

Language

Country

Administrator Details:

Username Password Email

System Configuration:

Email Domain(s)

Data Guardians

Reference

Enter email domains used in email addresses for this company. These are used to determine the direction of each email (inbound / outbound etc.) and to compute the number of Active Email Accounts at this customer.

Add one or more data guardians - these are just email addresses. Additional guardian addresses may be added later. These data guardians will receive transcript emails raised by some users accessing that company's data.

If you required a cross reference to an accounting system or similar, then add that code here. It is informational only.

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1. The **“Tag Name”** is used to identify your company within the Cryoserver system. It is used in the URL when connecting to the system, and elsewhere – as described in other parts of the Administration Guide.

The tag name will default to **“cryoserv”** – but you may change this to a short name that you would recognise and remember.

So, for the company named **“A Company Ltd”** we may use the short name of **“acompl”**, as shown here:

Company and Contact Details:

Tag A short (3 to 16) character name for this company - used in the URL to access the login page.

- The first **Administrator** account must be defined. All other accounts – including additional administrators – can only be added after logging in with this account. So please make sure you take a note of these settings.

For the **Username** field: We recommend that you use your standard network login username, or some familiar username, to which you append “_admin”. This is to prevent possible issues later, if Active Directory / LDAP integration is configured.

Administrator Details:

Username	Password	Email
<input type="text" value="jdoe_admin"/>	<input type="password" value="*****"/>	<input type="text" value="jdoe@acompany.com"/>

- Your company may receive mail using a range of different **Email Domains** – the names that appear after the @ sign in an email address.

Please include here at least the *main* email domain – if LDAP integration is to be set up later, then the remaining domains can be obtained from there.

Enter each domain in turn in the first box, and press “**Add**”. Here I have added 2 domains:

System Configuration:

Email Domain(s)

acompany.com
 cryoserver.com

Enter email domains used in email addresses for this company. These are used to determine the direction of each email (inbound / outbound etc.) and to compute the number of Active Email Accounts at this customer.

- And you will need to add at least one Data Guardian. These are just email addresses of any people that should audit the privileged search or administrative activity.

We always recommend that you provide 2 data guardians – or to ensure that they are not given any other privileged access.

Data Guardians

jfisher@acompany.com

Add one or more data guardians - these are just email addresses. Additional guardian addresses may be added later. These data guardians will receive transcript emails raised by some users accessing that company's data.

I would need to press the “Add” button in order to include the ssmith@acompany.com to the list of Data Guardians.

When you have finished, press “NEXT” to progress to the next wizard panel.

We now need to provide a way for emails to be sent out from the new Cryoserver system.

You may enter your internal email server – perhaps your Microsoft Exchange – or an external mail forwarding service (like MessageLabs).

Step 6 - SMTP Setup

MailServer Address:

SMTP Connection Type: on Port
(Default SMTP port 25, SSL port 465)

Test Email: [TEST SMTP CONNECTION](#)

Alert To:

[ADD](#) [REMOVE](#)

Alert From:

[PREVIOUS](#) [NEXT](#)

MailServer Address: The IP address of the SMTP server used for sending email alerts.

SMTP Connection Type: Connection type for the MailServer.

Test Email: Test email address.

Add one or more data guardians - these are just email addresses. Additional guardian addresses may be added later. These data guardians will receive transcript emails raised by some users accessing that company's data.

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Cryoserver will send out an alert at the end of each day, summarising the mails that it has processed that day. And if there are any issues, the system will also send alerts. You can add as many recipients for these alerts as you wish. You could also include an address provided by your reseller or cryoalert@cryoserver.com.

The ‘sender’ of these alert messages can be any email address – it does not necessarily have to be a real address. If you wanted this to have a friendly name, the type that first, followed by the email address in <angle brackets>.

The “Next” screen is just a confirmation panel. If the settings look correct, then click “Apply”.

Welcome

License Agreement

License - Trial Id

Identity

Company Details

SMTP Setup

Confirm

Confirm Settings and Apply

Following is the list of user input for all the sections. To apply these settings click on 'Apply' else click on 'Cancel' to reset all settings.

License Details Section

License ID
 Company Name: A Company
 Contact Name: John Doe
 Contact Email: mbeedell@cryoserver.com
 Contact Phone: 0786675445
 Company Address: 123 Company Street, Company Town
 Language: English
 Country: United Kingdom
 Post Code: AC01 2AB

Identity Section

Runmode: Standalone
 Preferred URL: mailarchive.acompany.com

Company Details Section

Company Name: A Company
 Contact Name: John Doe
 Email: mbeedell@cryoserver.com
 Phone: 0786675445
 Address: 123 Company Street, Company Town
 Post Code: AC01 2AB
 Language: English
 Country: United Kingdom
 Tag: acomp
 Email domain(s): acompany.com cryoserver.com
 Admin username: jdoe_admin
 Admin email: jdoe@acompany.com
 Super User username: cryoserver_su
 Super User email: mbeedell@cryoserver.com
 Data Guardians: jfisher@acompany.com@smith@acompany.com
 Reference:

Email Section

MailServer Address: mail.acompany.com
 SMTP Connection Type: Plain on Port 25
 Alert To: mailarchive.alerts@acompany.com
 Alert From: Mailarchive Alerts

PREVIOUS APPLY CANCEL

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It will ask for one final confirmation.

mbeedell@cryoserver.com
 jfisher@acompany.com

Message from webpage

?

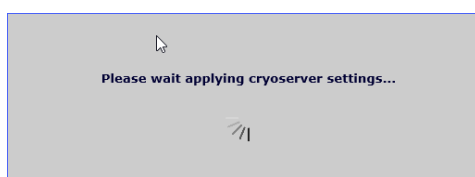
This operation would apply values of all the sections displayed.
 Are you sure you want to continue?

OK Cancel

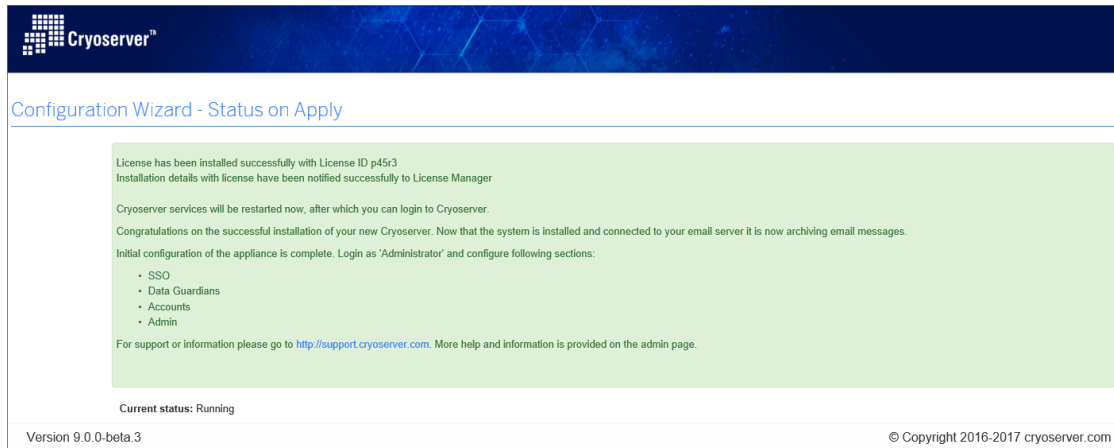
mail.acompany.com
 Plain on Port: 25
 mailarchive.alerts@acompany.com
 Mailarchive Alerts

PREVIOUS APPLY CANCEL

And then it applies all of this configuration to the new Cryoserver system, and then restarts the services.

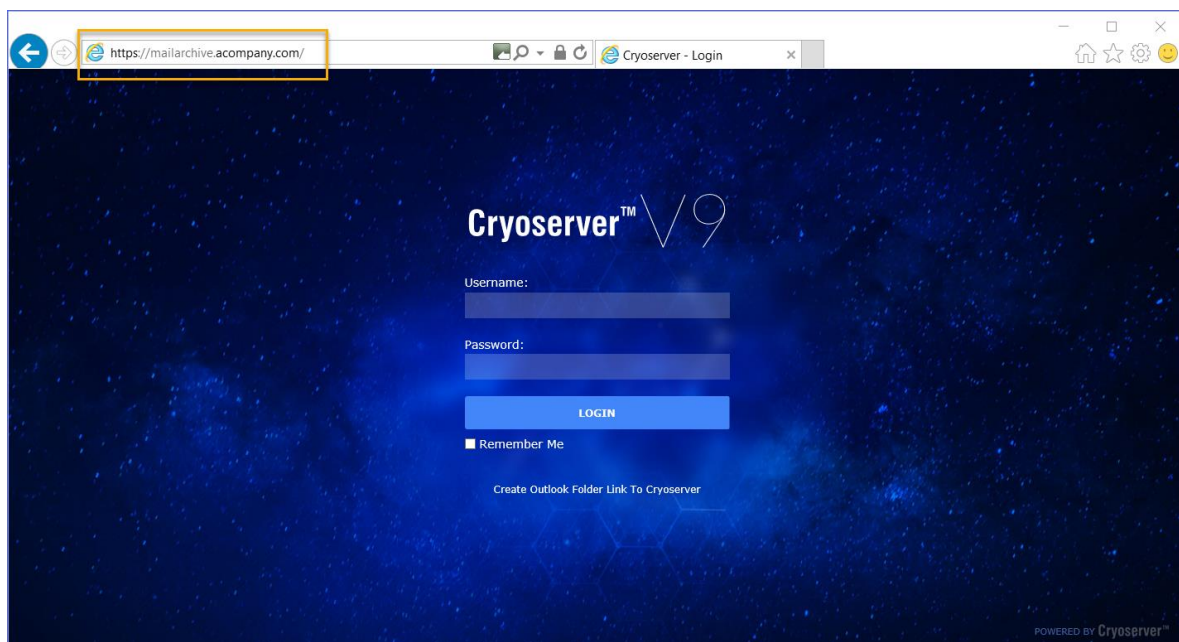


It can take a minute or two – no longer than 5 minutes – and then the final screen should show:



The screen will be different if this new cryoserver is unable to access the internet. In that case it will ask you to download a file to send to the license for confirmation.

Reset the browser's URL back to the 'preferred url hostname' or the ip address or server hostname and now you should see the standard Cryoserver login:



You will now need to log in using the administrative Username and Password that you entered in the Setup Wizard. The default administrator login, as documented in the Administrators Guide will not be available.

The system will now be in “Trial Mode” and useable for 30 days – unless you have obtained a license with different limits and applied this at the start of the Setup Wizard.

3.2.2 Following an Upgrade

If you have been using Cryoserver already, and it is upgraded to Version 9, then the process is a little different.

Here you will need to log-in with an administrative username and password – as these should already exist from before.

Cryoserver™

Welcome to Cryoserver!

Your Cryoserver has been successfully upgraded. A license needs to be installed before Cryoserver can be used. The following steps will lead you through the installation of the Cryoserver license.

Please login in order to proceed further.

Username:

Password:

LOGIN

Version 9.0.0-... © Copyright 2016-2017 cryoserver.com

After a successful login, you have only one choice – to apply a License. This should have been emailed to you prior to the upgrade process.

Cryoserver Upgrade

Your Cryoserver version has been upgraded to support licensing and a license needs to be installed before Cryoserver can be used.

If you have already been issued with a license, please click on the below button and proceed to install the license.

YES I HAVE A LICENSE

Version 9.0.0-beta.2 © Copyright 2016-2017 cryoserver.com

On the “*Install License*” panel, you can either upload the License .dat file (if it was saved to disk); or you can open the .dat file in **Notepad**, and copy paste the content.

The screenshot shows the Cryoserver 'Install License' interface. The 'License ID' field contains '76bi'. Below it, a license key is pasted into the 'Paste the license here' field. To the right, an email from 'LicensePortal@cryoserver.com' is open, showing a message titled 'Trial request for Cryoserver approved'. The email body states: 'Dear Customer, Your trial request for cryoserver has been approved, now you can use Cryoserver product for a trial period of 45 days from Apr 10, 2017. Please find below your license ID. The license text is included in attached file (license.dat). Please contact us if you need any help in setting up Cryoserver. Your License Id: g76bi'. A Notepad window is open showing the license text from the attached file.

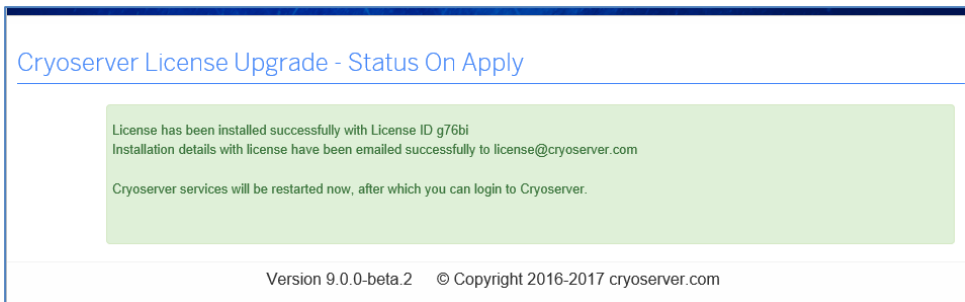
The details contained within that license should now display on the web page.

Make any minor corrections to the Company and Contact details that were included in the License, and then you may install it.

If the details are completely incorrect, then please do not install the license. It may have been sent to you by mistake.

The screenshot shows the 'Install License' page with the license ID 'i76bi'. The license text is pasted into the 'Paste the license here' field. A blue 'FETCH DETAIL' button is next to the text area. Below the license text, there is a message: 'The following details are included in the license. Please check and make any changes if any of the details are wrong. The updated license will be returned to FCS(UK) Ltd. at the end of the wizard.' Below this message are several input fields for user details: Company Name (Win Cryo), Contact Name (Merlin), Contact Email (merlin.beedell@cryoserver.com), Contact Phone (88372983428), Company Address (Here), Language (English), Country (United Kingdom), and Post Code (HTHT). At the bottom, there is a blue 'INSTALL LICENSE' button and the footer text 'Version 9.0.0-beta.2 © Copyright 2016-2017 cryoserver.com'.

Once installed, if the Cryoserver is able to connect to the internet, then it will contact the License System to tell it that the license has now been installed.



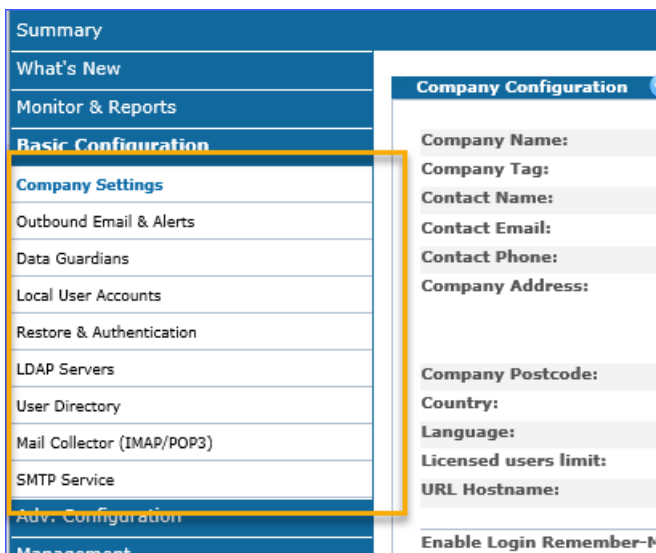
If the Cryoserver is unable to access the internet, then you will be asked to download and forward the licence confirmation data back to your reseller or to license@cryoserver.com

Once you connect to Cryoserver, you will be able to review your License from the administration area:



3.3 Basic Setup

After Installing Cryoserver you will then need to configure it with your details and requirements.



You will need to log in to Cryoserver using either the administrative username / password that was set during the Setup Wizard, or the default administration user as documented in the instructions here or with your product notes.

Then it is strongly recommended to access each of the “Basic Configuration” menu panels – completing any of them as needed. Once these have been completed, you will be ready to get email data to flow into the system. Each of the “Basic Configuration” panels are described in later

sections of this guide.

The key parts to complete here are:

1. **Local User Accounts** – for additional Administrators, plus Basic or Privileged search user accounts. See section 4.5 for a description of the various user types; and section 5.4 for details on adding each type to the system.

2. **LDAP Connection** – if the Cryoserver can access your Active Directory or eDirectory or Domino LDAP service, then it can be used for a range of useful purposes – but mostly to allow your staff to log in to view their own emails.

Please refer to later sections of this guide that detail each of the Basic Configuration panels.

3.4 Current Mail - Journaling

Getting mail *into* Cryoserver is the next main step. “Journaling” is the common term for taking a copy of *new* mail being received or sent from an organisation. Microsoft Exchange / Office 365 have very good facilities for Journaling; and Lotus Notes have a similar system. Many other mail servers have a journaling type facility too. And for others, like Gmail or Hotmail, Cryoserver can use facilities like the “Mailbox Reader” in a polling mode to extract recent emails.

Please review section 4.2 - Mail Journaling for full details on the setup of Journaling for a variety of mail servers. Here is a short summary

3.4.1 Exchange 2007/10/13/16 and Office 365

- Add an **SMTP Outbound Connector** for *complianceinternet.co.uk* (or the domain that you have been advised to use) to the ip address or DNS name of the Cryoserver. Ensure the *cost is less* than the default (*) connector. i.e. this cost is 1, and the default cost is 2.
- Add a **Contact** for cryouser@complianceinternet.co.uk or the email address that you have been advised to use.
- Send a test email to the contact – it should pop into Cryoserver and show on the monitor page as processed.
- Add a **Journal Rule**, at the HUB transport level *or* at each Mail-Store containing mailboxes that you need to journal. Set the Journal Recipient to be the contact / email address that you have been advised to use for Cryoserver.

3.4.2 IBM Lotus Domino Notes:

- Add an SMTP Outbound Connector document for *complianceinternet.co.uk* (or the domain that you have been advised to use) to the ip address or dns name of the Cryoserver.
- Edit the [global] server document to enable Journaling [can be tricky to find this tab] TO a ‘mail-in’ database with the email address cryouser@complianceinternet.co.uk (or the address you have been advised to use).
- Add a Journal Rule, to specify that all mail is to be journaled.
- Add the SMTP Outbound Security to allow specific journal headers to be transmitted to the Cryoserver.

3.4.3 Novell GroupWise

- GroupWise does not offer a Journaling function – instead it uses the combination of a Trusted Application (that has access to all mailboxes) and a retention flag (to hold deleted items until archived).
- Cryoserver has a separate Trusted Application utility that uses IMAP to extract new and legacy email.

3.5 Monitoring – what is happening?

At this point Administrators should be able to view the mail flowing into Cryoserver on the Monitor page. Log in as an administrator, then click the Monitor menu. New mail items waiting to be processed appear in the Spool Queue [1]. A spool agent starts to process these items [2].

Monitoring			
Site: production		Actions	
Node	Host	State	Information
sd-001	fcs-aceraspire1	Online	Server clock: Tue Dec 20 08:17:01 GMT 2011 NTP not set
se-001	fcs-aceraspire1	Online	1 spool size = 3, respool size = 0 error queue size = 0, processed = 0 agent 0: none, 0 B (7 minutes) 2
sp-001	fcs-aceraspire1	Online	agent 1: u5rzURqKq0.q, 5,5 KB (2 seconds) agent 2: none, 0 B (7 minutes) agent 3: 9emhoxemmQ.q, 6.1 KB (2 seconds) agent 4: IaXfmpGAOm.q, 967 B (2 seconds) agent 5: none, 0 B (7 minutes)
sn-001	fcs-aceraspire1	Online	250.3 MB (Calculated at 20-Dec 08:17 AM).

Each time you refresh this page, you should see the [3] Processed count go up, and at least some [2] Agents (0 to 5) showing a small time (a few seconds) – indicating that they have been, or are, active with new email.

se-001	aceraspire1	Online	-
sp-001	fcs-aceraspire1	Online	3 spool size = 3, respool size = 0 error queue size = 0, processed = 3 agent 0: none, 0 B (10 minutes) agent 1: none, 0 B (1 second) agent 2: none, 0 B (10 minutes) agent 3: none, 0 B (3 minutes) agent 4: none, 0 B (1 second) 2 agent 5: none, 0 B (1 second)

If you can see mail is being processed, then press the “Refresh Search Cache” action button. This releases any new email data into the Search engine, otherwise recent mail will not be found immediately when searching. Indexes are refreshed circa every 30 minutes, or as defined in the admin area. To optimise the system we do not expect a user will immediately search for an email they have just sent/received, and this is why we stage the refresh.

Log Out of the Admin area, and log in as a user (one that you added earlier in the Cryoserver admin area, or if LDAP settings were configured: your usual network user-id and password). Press the **Search** button – do you see any results?

3.6 Legacy Mail

Next you may need to get your existing email into the archive – we call this your “legacy data”. There are many sources of this data, but you will probably wish to do one or more of the following:

- Extract mail from **user mailboxes**. For this the *mailbox reader* feature of Cryoserver is used. See chapter 10. This uses EWS or IMAP or POP3.
- Extract mail from **PST** archives. For this the optional *pstimport* module is recommended.

- Transfer mail that already exists in **.eml** format. For this the *import manager* feature of Cryoserver is used. See section 9.3.
- Extract mail from other sources – a range of other services are available. Please discuss the requirements with our technicians for advice.

Please review section 4.3 for details on a variety of methods of getting mail into Cryoserver.

3.7 Web Certificate

To be able to view Cryoserver within the Outlook client – and to remove any “certificate warning” that you may see in any standard browsers – you will need to create a suitable Web Certificate. See section 4.9 for full details on certificate creation and signing. Below is a short summary of two approaches.

If you do not have a suitable certificate already, then these are the steps to create one:

1. Generate a “*Self Signed Certificate*” from the Cryoserver admin area.
2. Obtain the “*Certificate Request*” – a small text file, typically with the file extension *.csr*. You should be able to view it using notepad.
3. Register this certificate request with a Certificate Authority (CA) – either a service internal to your network domain; or one of the many paid for public authorities.
4. Wait for the response from the CA – which may be a few minutes for a standard certificate, to a few days for a fully verified merchant grade certificate.
5. Upload the intermediate (chain) certificates together with your signed certificate. If this step fails, then it may relate to the “root” certificate (of the CA) not yet being included in the java runtime on the Cryoserver’s server. Obtain the appropriate root certificate from the CA and upload this as well as the intermediates and signed certificate again.

If you already have a “**Wildcard certificate**” (one that starts with a * - like **.acompany.com*) that is used on a number of different servers in your organisation, then a simplified approach could be used:

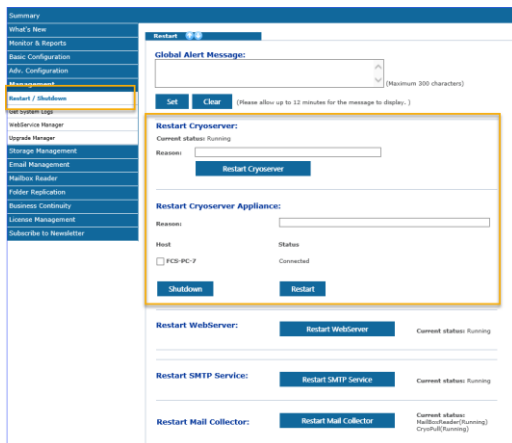
1. **Export** your ‘wildcard’ certificate:
 - a. From any *Windows IIS* server where the certificate is already registered. This generates a “.pfx” file (a PKCS-12 format file) that is encrypted with a password that you set during the export.
 - b. **If** you do not use IIS or a Windows CA, then you can export the certificate using openssl commands from a Linux system as appropriate for use with a Tomcat web server.
2. **Upload** this .pfx file into the Cryoserver, together with the file’s password. Do this using the Administration, web certificate panel. It will replace any existing certificate on the Cryoserver.

You will need to restart Cryoserver’s Web Server to make the new certificate become active. If you have any issues accessing Cryoserver after this, then try using the plain “**http:**” connection. You may need to try a few times to get past Cryoserver’s redirect to the https:.

3.8 Starting & Stopping Cryoserver

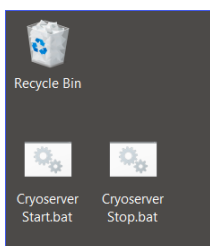
You would not usually need to restart or stop Cryoserver, but if you did then please do not simply hit the power button except as a last resort! The safest way is to use one of the following methods:

1. Use one of the shutdown / restart methods in the Administration area – under the management menu:



See section 7.1 for further information.

2. For a Linux based appliance or VM system, use the **cryo_mgmt** menu on the console screen or over a Putty session. Your *installation guide* has the Linux support user login details.
3. For a Windows based installation, use the Start/Stop scripts:



These batch scripts can be found in `/opt/cryoserver/cryoserver/winwrapper/`

4 Essential Topics

This chapter summarises the key aspects of the Cryoserver Archive system, which will help Administrators understand how it functions.

4.1 Accessing Cryoserver

Cryoserver is accessed via a *Web Browser* – even when using the “Outlook Interface”. This section looks the various ways to access the Cryoserver web interface and how the Administrator may control or set this access to others.

It is also possible to access Cryoserver via a web-enabled API (Application Programming Interface). This is SOAP based. It can be used to embed Cryoserver into a Portal or used to access the search features from other devices – like a mobile phone.

4.1.1 The standard URL

If you just enter the Cryoserver hostname into your browser, then the system should resolve to the standard Cryoserver interface (<https://your-cryoserver>).

Please Note: The *hostname* of the server may be different to the web address that you would like to use. For example, the server may have the hostname *IC-UKLONDC-CRY1*. But you would want users to access it with a more friendly name of *mailarchive.acompany.com* – to do this you would need to add an ‘A’ record to your internal DNS for *mailarchive* in your *acompany.com* domain.

Also Note: The Cryoserver web application name can be configured to be optional: Usually the web application name is always appended, and is usually named “cryoserver”

<https://your-cryoserver/cryoserver>

But this is not always required, and the web server can be configured to not need a name:

<https://your-cryoserver>

And, if desired, Cryoserver can be *re-branded* (on application) to have an alternate name, both in the URL and in most places where the word “Cryoserver” is used – both on-screen and in emails:

<https://your-cryoserver/aco-mailvault>

The default interface provides a login for Basic / LDAP Basic / Privileged **and Administrators**. If Single-Sign-On (SSO) is enabled, you may need to log-out in order to log in with an administrative account; *or* use the “**Switch Identity**” feature, if available (see later for details).

The default Cryoserver Administrative Login is:

Username: **cryoserver_admin**

Password: **cryoserver**

Email address: support@cryoserver.com (where any password reset would be sent)

Administrators are encouraged to either:

- Reset email address of this account and then reset the password

- Or add extra administrative accounts, one for each member of staff that requires administrative access. Then *disable the default account*.

All of these steps are described later in this document.

* All Cryoserver systems up to version 9 came with a default “company” with a *company tag* of “**cryoserv**”. You will often see the “cryoserv” name being added to the URL. From version 9, the company tag and company name and contact details are set during the setup wizard.

A *company tag* is:

- Is a short name (between 3 and 16 characters) for a company in Cryoserver.
- Uses only lowercase letters and numbers – no spaces.
- It is used in the URL to identify a specific company’s archive that you need to access (on multi-tenant systems).
- Is saved as a ‘**cookie**’ in your browser, so you may find that it connects you correctly without including the company tag.
- Keeps your data separate on the server: archived data is stored on the server under the company tag name.
- Can be used for the email address (company-tag@your-cryoserver) when “journaling” emails to the Cryoserver system.
- It can only be changed on request.

Therefore, you will often see the URL in your browser including the company tag:

<https://your-cryoserver/cryoserver/cryoserv>

or

<https://your-cryoserver/cryoserv>

But if it is not included, then the web page will then try to use the tag name stored in a *cookie*.

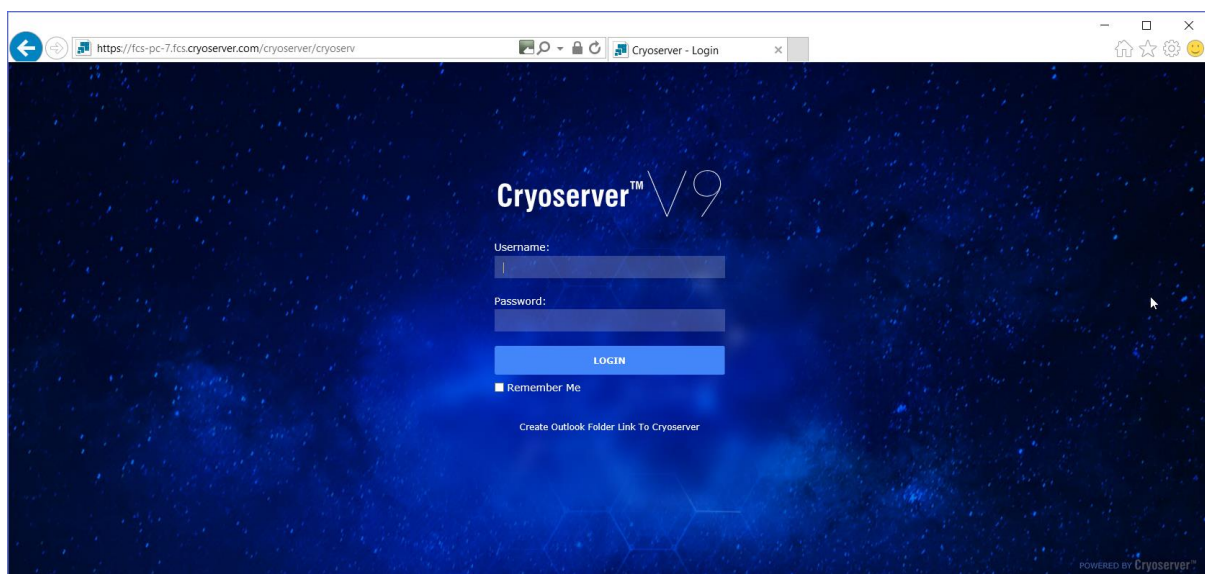


Figure 1 - The standard *Login* page

There are several placeholders the Administrator can control on the Login page:

1. The administrator can enable two extra options that would appear next to the login button: If “**Single Sign On**” (SSO) is enabled for the company, then you will see the “*Quick Connect* (SSO)” button. This uses your current Windows Login Token to validate with Active Directory.
Alternatively, you can tick the “**Remember Me**”. This will remember your Username & Password as an encrypted cookie, *until you explicitly log-out*.
[See *Basic Company Configuration & Advanced Configuration -> Single Sign On*]
2. The “**Create Outlook Folder Link**” will download and run a VBS script that adds a folder entry to the user’s Outlook Client (all current versions). This Folder will show the Cryoserver Web Page within Outlook.
[**This option is enabled by an Administrator. See Outlook Folder Link**]
3. An optional ‘Disclaimer’ message can be added. The content is entirely up to the administrator, including its font size and colour. [See **Basic Company Configuration**]

4.1.2 General Login for *Multi-Tenant* Systems

When logging in to a **Multi-Tenant** Cryoserver system, and you do not specify the required *company tag* in the URL, and the IP Address of your PC is not within the IP Range of any single Cryoserver company, then the “Generic Login” page will be displayed. In this case, you are requested to enter an email address and matching password.

A *Company Tag* is just a short name (between 3 to 16 characters, no spaces) that is set when a new company / tenant is added to the system.

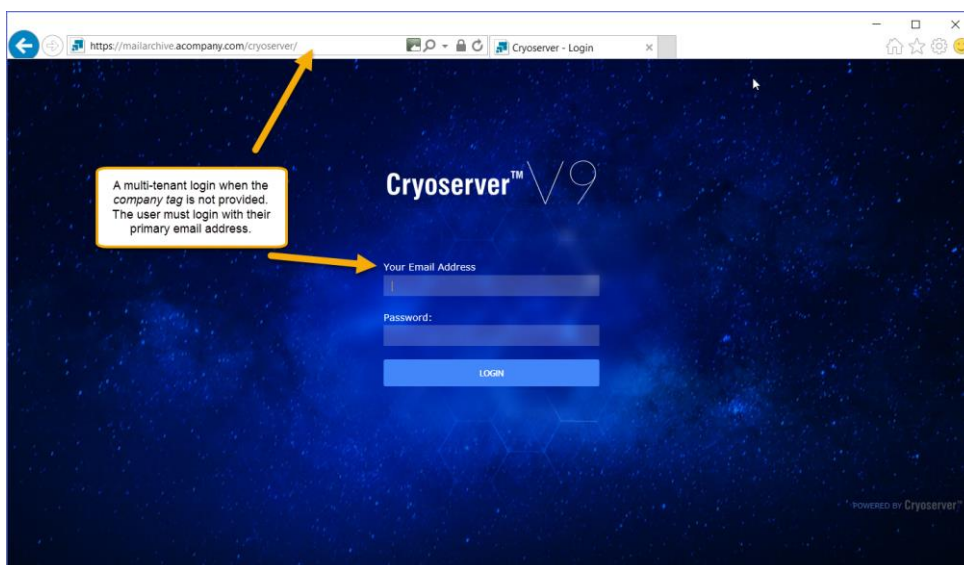


Figure 2 - The ‘unknown tenant’ Login page

1. The URL does not include a “Company Tag”, and a company tag has not been remembered in a cookie. Either alter the URL in the browser to include the company tag, or...
2. As prompted, you must enter *your email address*, rather than a Username.

4.1.3 Accessing the Outlook interface

Adding the word **outlook** to the end of the standard Cryoserver URL will result in a simplified web interface that is more suited for displaying within the Microsoft Outlook client (Windows only – Apple’s version does not support web folders). It is best used when *Single-Sign On* (SSO) is enabled – as it is *only usable by Basic users*.

The full URL, with the “cryoserver” web application name and a company tag (cryoserv):

<https://your-cryoserver/cryoserver/cryoserv/outlook>

Though it could also be configured to a shorter URL:

<https://your-cryoserver/cryoserv/outlook>

And if the company tag name is already stored as a cookie in your browser, it could just be:

<https://your-cryoserver/outlook>

Please note: Outlook will start a **fresh browser session** whenever you access the Cryoserver Folder shortcut. Previous search criteria and results will be cleared.

Administrative Notes:

1. Outlook will *only* display https: web pages that have a **valid SSL certificate**. This means that the certificate must:
 - * Match the URL hostname (the certificate’s cn=**NAME** matches the https://**NAME**)
 - * The certificate date range must still be valid
 - * The certificate is recognised as a “trusted root” OR is signed by a recognised Certifying Authority (CA).All of these points will be explored later in this document.
2. For SSO (Single Sign On) to work, the URL must be recognised as an “**intranet**”. You may need to add the Cryoserver URL into the browsers intranet site list.

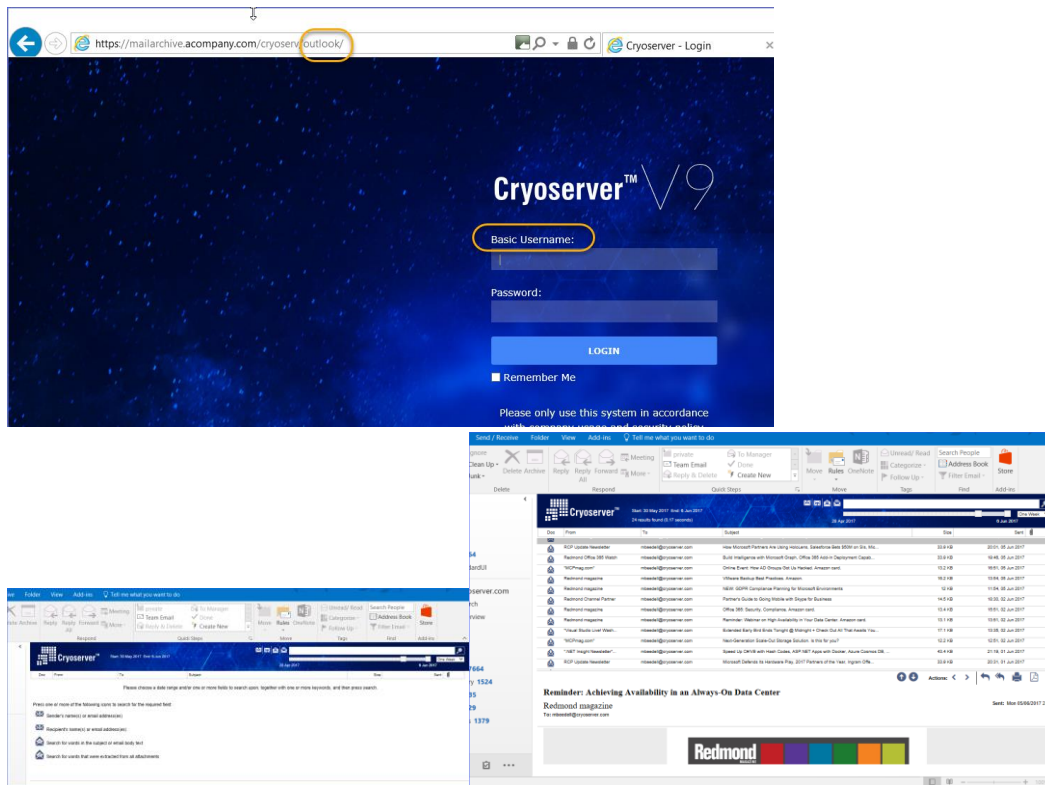
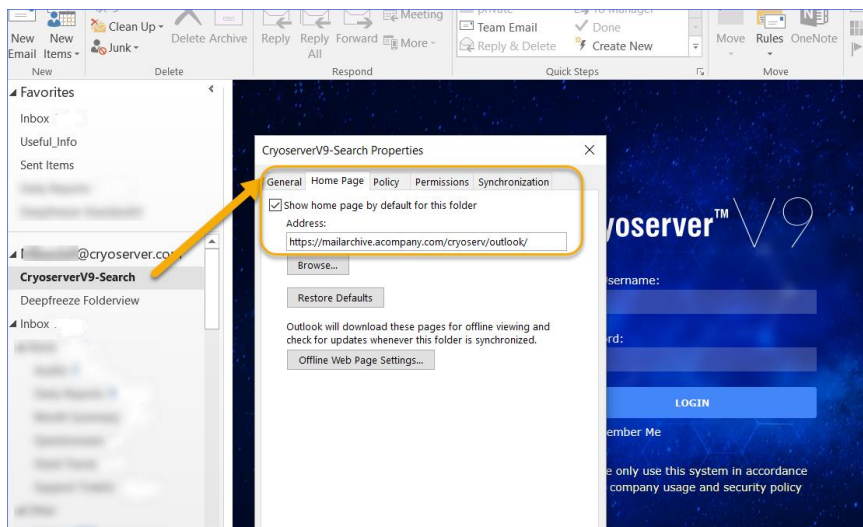
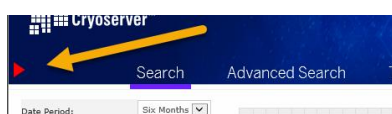


Figure 3 - The "Outlook" User Search Interface



4.1.4 Folder Replica view

Introduced in Cryoserver Version 8, it is possible to replicate the Outlook folder tree of selected or all users and public folders – and even PST File content. This process adds quite an overhead to the Cryoserver system, but it is a very valuable extra service.



The URL extension required to directly access the Folder view of Cryoserver is **“folderview.do”**

The full URL, with the “cryoserver” web application name and a company tag (*myco*):

<https://your-cryoserver/cryoserver/myco/folderview.do>

Though it could also be configured to a shorter URL:

<https://your-cryoserver/myco/folderview.do>

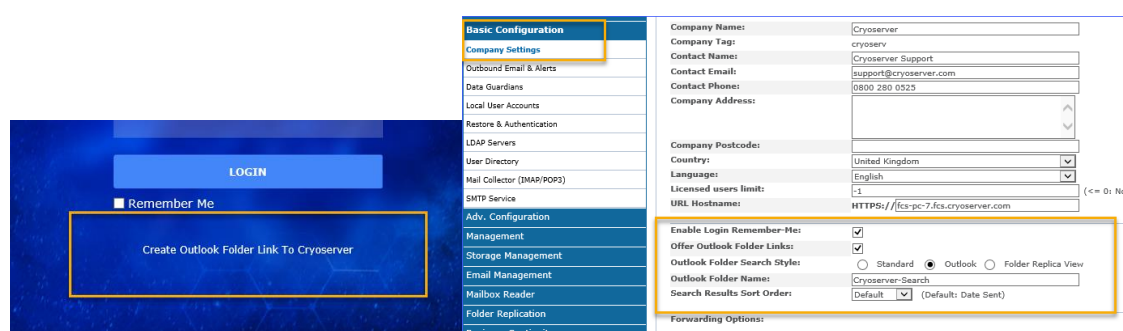
And if the company tag name is already stored as a cookie in your browser, it could just be:

<https://your-cryoserver/folderview.do>

If your account is not registered for Folder Replication, then the system will revert back to the *standard full search view* instead.

4.1.5 The “Create Outlook Folder link to Cryoserver” feature

Users can add a folder link to Cryoserver using a link on the Login page. As an administrator, you may control which view, described above, the user will obtain when following this link.



Further details in section 5.1.3.

4.2 Mail Journaling

The term *Journaling* refers to the process of **taking a copy of every email as it is being transported through a mail server**. Some email systems have formal ways to achieve this, while others have work-arounds. The format of the Journal mail may also differ from system to system. Things to consider are:

1. Will **BCC** and **Distribution Group** details be recorded? This is usually determined by the inclusion of “**ENVELOPE**” data with the Journal Copy of each email. Only **Exchange**, **Lotus Notes** and **Teamware** support this feature.
2. Will it archive **Duplicate** mails? Most Journaling systems will send *up to 3 copies* of an email, no matter how many recipients.
 - a. With *Envelope Wrapped* formats, you may get duplicate copies of an email but with different sets of recipients in each copy. Typically:
 - * One for **Internal** recipients
 - * Another for **External** recipients
 - * A third for recipients of any **Distribution Groups**.
 These duplicate copies *must* be recorded in Cryoserver.
 - b. With *non-envelope mails*, any duplicates should be removed either by Cryoserver or via the tool that captures the email for archiving. [See 4.6 Email De-Duplication]

For mail already sitting in user mailboxes (**Legacy Import**), other techniques and technologies are needed to extract or export the email into the Archive. Mail extracted from user mailboxes do not have the original recipient 'Envelope' – and so bcc and original distribution list information cannot effectively be recovered.

Email Server	Journal Technique	Journal Email Format	Legacy Import
Exchange 2000/3	Journal to an Exchange Mailbox. Cryoserver IMAP Collector used to download & remove the emails.	Plain (default) OR Envelope, as determined by the ' exejcfg ' utility.	<i>Mailbox Reader</i> feature of Cryoserver, using IMAP only. Or a third party utility to extract emails. It could read direct from the "EDB" database file.
Exchange 2007/10 & 2013/2016 Office365	Journal to Mailbox or Direct to Archive (smtp)	Envelope format only.	Cryoserver's Mailbox Reader feature (using IMAP or EWS).
GroupWise	The Cryoserver IMAP based 'Trusted Application' can scan user mailboxes. A <i>Retention</i> feature (if set) prevents deletion of user mail until it has been collected. Mail remains in the users 'trash' folder.	Plain (no envelope).	The Cryoserver Trusted Application can also obtain old mail from user mailboxes.
IBM Lotus Notes / Domino	Journal to Mailbox or direct to Archive (smtp)	To V8 - Plain (no envelope) Since V8, a 'recipients' flag has been included – and recipient data is included in the email headers.	3 rd party tools can be used. OR Cryoserver IMAP Mailbox Reader – if permissions allow.
TeamWare	Journal Direct	RC3564 – Delivery Report format. This includes BCC	3 rd Party tools

		and Distribution Group recipients.	
Scalix	Journal Direct (bcc all setting)	Plain only	3 rd Party tools
MDaemon	BCC Journal – though rules are needed to capture group addressed emails	Plain only	.EML File copy direct into Cryoserver.
SendMail	Requires a plug-in filter	Plain only	3 rd Party tools
Most Others	Typically a “BCC all” option	Plain only	3 rd Party tools

4.2.1 Plain Email format (RFC822)

All internet mail is in this format – but for the purposes of this discussion, we are referring to mail that does not include one of the “envelope wrapper” sections.

An email always starts with a HEADER. This shows key elements of the email – such as the *Subject*; *Date*; *From*; and *To*:

However, the *from/to/cc* text does **not need to tally with the actual recipients**. The text can be quite random. The *actual* recipients [for a single domain] are provided and validated completely separately to the email text and are included only in the *envelope* part of the smtp conversation. The *envelope* would include BCC recipients – which are never included in the email headers [except for Lotus Notes 8+ with the *Journal Recipients* option turned ON].

```
Received: from localhost.localdomain (localhost.localdomain [127.0.0.1])
        by mailhost3 (Postfix) with ESMTP
        id 11342AB2BBA; Mon, 13 Dec 2016 15:30:42 -0500 (EST)
From: "whatis.com" <WhatIs-A326FCB0DD764F2D@lists.techtarget.com>
To: "James Hardy" <james.hardy@cryodemo.com>
Subject: Word-of-the-Day: positron
content-type: text/plain; charset=ISO-8859-1
content-Transfer-Encoding: 7bit
X-Mailer: TargetMail E-Mail By TechTarget.com
Message-Id: <20021216203042.11342AB2BBA@mailhost3>
Date: Mon, 13 Dec 2016 15:30:42 -0500 (EST)
```

Figure 4 - Example email headers

The remainder of the email is made up of the various parts – body text, attachments etc.

The problem with plain email journaling and usually also for imported emails is that:

1. BCC Information will *never* be included; and
2. Email addresses can include *Distribution Groups* and *Secondary email addresses*. In both cases Cryoserver will use LDAP, if configured, to expand these addresses as follows:

- For any email addresses found in the From/To/CC headers that match any of the *Local Email Domains* that you registered with Cryoserver...
 - Convert *secondary* email addresses to the corresponding *primary* email address
 - Expand Distribution groups, to collect the primary addresses of every recipient.

This expansion of plain mail email addresses can be disabled via the administration area (see Adv. Company Configuration).

4.2.2 Exchange Envelope Wrapper format

Exchange version 2000 sp 4 plus rollup fix August 2004, introduced a new format for Journalled mail – by adding an “Envelope Wrapper”. This wraps the original email with another email that lists every *final* recipient. The original email becomes an attachment – and thus the original headers are preserved. This is both very efficient to process – and also **Compliant**, as it includes all ‘final’ recipients. Final recipients include: **BCC** recipients, **Distribution list** recipients and **redirected** recipients (where the intended recipient has a forwarding rule). For outbound mail, it lists the intended external recipients as well.

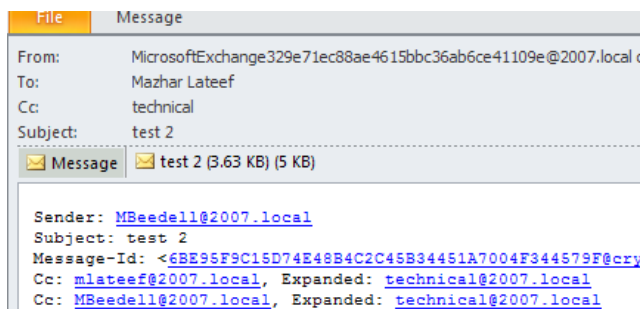


Figure 5 – An example Envelope Wrapped Email

Cryoserver will extract the recipients from the Envelope text. It will not need to expand distribution groups or convert alias email addresses into primary email addresses. No further LDAP lookups are required when processing Envelope Wrapped emails – and is very efficient.

4.2.3 RFC3462 Delivery Report format

This email format is only used by TeamWare email server for journaling purposes. All email systems can generate a Delivery Report, typically where an email fails to be delivered and a report is raised to identify which recipient(s) were affected.

```
This is a multi-part message in MIME format.

-----_NextPart_000_01BC_01C57059.D81E45B0
Content-Type: message/delivery-status
Content-Transfer-Encoding: 7bit

Original-Recipient: rfc822; Merlin.Beedell@cryoserver.com
Final-Recipient: RFC822; Merlin.Beedell@cryoserver.com
Disposition: automatic-action/MDN-sent-automatically; displayed
X-MSExch-Correlation-Key: EhM9pgVLdEKwIYWQ8jyMog==
Original-Message-ID: <5B8E2C44131A5C459C5BA6D7DD397C0701700F11@SANDESHA2.lcyhq.com>

-----_NextPart_000_01BC_01C57059.D81E45B0
Content-Type: message/rfc822
```

Figure 6 - A delivery report

Cryoserver will extract the Original or Final recipient data from the Delivery Report, and will not need to perform further Address Book lookup.

4.2.4 Lotus Notes 'Journal Recipient' format

Lotus Notes does not allow one email to be an attachment to another email – and will always 'flatten' any attached emails so that they become body-text of the main email. This means that the 'Envelope Wrapper' format cannot be supported by Notes. Instead, the extended recipient data (bcc recipients and expanded distribution group recipients, plus any direct recipients) will be listed in the email headers instead.

Due to the limited size restrictions on email headers, a single journal copy of an email may only list up to about 100 recipients in this way – resulting in many duplicates for a mail sent to thousands of recipients. Many additional headers are inserted by Notes Journaling – but the \$JournalRecipients header is used by Cryoserver – and the values here are in FQDN (Fully Qualified Domain Name) format. This means that Cryoserver will need to convert these to their corresponding standard email address using LDAP in order to correctly index the email for each recipient.

```
X-Notes-Item: Tue, 7 May 2013 16:00:00 +0100;
type=400; flags=6; name=$NoPurge
X-Notes-Item: Lance Baker/Corporate Services/DCC Directorate/tecton@tecton,
Paul B Dunn/Operational Comms/Operational Services/tecton@Tecton;
type=501; flags=46; name=RequiredAttendees
X-Notes-Item: Lance Baker/Corporate Services/DCC Directorate/tecton@tecton,
Paul B Dunn/Operational Comms/Operational Services/tecton@Tecton;
type=501; flags=46; name=AltRequiredNames
X-Notes-Item: 1,
1;
type=501; flags=46; name=StorageRequiredNames
X-Notes-Item: Lance.Baker@tecton.co.uk,
Paul.Dunn@tecton.co.uk;
type=501; flags=46; name=INetRequiredNames
X-Notes-Item: CN=Paul B Dunn/OU=Operational Comms/OU=Operational Services/O=tecton;
flags=6; name=TmpFromItem
Subject: Accepted: Quality assurance validation testing
To: Liz.Corte@tecton.co.uk
Message-ID: <OF3DB6442B.101254C1-ON80257B59.004870C8-80257B59.00487157@tecton.co.uk>
Date: Fri, 26 Apr 2013 14:11:13 +0100
X-Notes-Item: 0;
flags=6; name=Encrypt
X-Notes-Item: CN=Liz Corte/OU=Operational Comms/OU=Operational Services/O=tecton@Tecton;
type=501; flags=2; name=$JournalRecipients
X-Notes-Item: 2;
name=$JournalResponsibility
X-Notes-Item: CN=NotesMail/OU=srv/O=tecton;
type=501; flags=44; name=$UpdatedBy
X-Notes-Item: Fri, 26 Apr 2013 14:11:13 +0100;
type=400; name=$Revisions
X-Notes-Item: tecton.co.uk;
name=FromDomain
```

Here is a section of a Lotus Notes journal email, where the 'Journal Recipients' option is turned on. Cryoserver will need to convert the fqdn name (**CN=Liz Corte/OU=Operational Comms/OU=Operational Services/O=tecton**) to its standard email address (Liz.Corte@tecton.co.uk) via LDAP [an *optional* service on the Domino server].

PLEASE NOTE: If Lotus Notes journal mail is to be delivered direct to Cryoserver over SMTP then the Lotus Notes Outbound SMTP service must be amended to allow these \$JournalRecipients headers to be included. This is strongly recommended!

Here are a couple of descriptions: <http://itknowledgeexchange.techtarget.com/itanswers/domino-journaling-groups/>

Add \$JournalRecipients and \$JournalRecipientsExpanded to the “*Always send the following Notes items in headers*” field. ([Configuration document – MIME](#) > [Advanced](#) > [Advanced Outbound Message Options](#))

Always send the following Notes items in headers:

\$JournalRecipients,
 \$JournalRecipientsExpanded_1,
 \$JournalRecipientsExpanded_2,
 \$JournalRecipientsExpanded_3,
 \$JournalRecipientsExpanded_4,
 \$JournalRecipientsExpanded_5,
 \$JournalRecipientsExpanded_6,
 \$JournalRecipientsExpanded_7,
 \$JournalRecipientsExpanded_8

There reason there are _1 to _9 is that this field can't use wild cards so if the groups in the email are larger the 32K in size another field _n will be created. 9 will be more than enough for most organisations.

4.3 Getting Mail into Cryoserver

Cryoserver processes internet formatted email (rfc822 in mime format). There are three main ways to transfer emails to Cryoserver for processing:

1. **Delivery** to Cryoserver over SMTP
2. **Collection** by Cryoserver using IMAP, POP3 or EWS
3. Import .EML files using **file transfer**.

We are often asked which is better between SMTP and IMAP or EWS. There is no real answer – each has its good points. If the IMAP or EWS collection method is used, but Cryoserver server is down for any length of time, mail will queue in the *journal mailbox* for as long as it takes to rectify the issue (or until it exceeds its mailbox space limits). SMTP delivery may only queue the Journal items, when Cryoserver is down, for 2 to 4 days – though some Exchange versions will protect the Journal queue and allow it to queue for longer.

4.3.1 SMTP email

In order for Journal copies of every mail to be delivered to Cryoserver over SMTP, the following setup details should be observed.

1. **Email Address:** The Cryoserver system will only accept inbound mail for a limited set of email addresses. The default being “cryouser@complianceinternet.co.uk”, although other

addresses can be made available. Cryoserver will not “relay” any emails that are sent to it by mistake.

2. **Routing:** you may need to add an “*Outbound SMTP connector*” to tell your mail server how to route mail to the Cryoserver system. This may be required when:
 - a. Cryoserver’s DNS name does not have an **MX record**. Without an MX record for the email domain then mail servers will not be able to discover the server to deliver the mail to.
 - b. **Bypass “anti-virus” filters.** You would generally need the journal copies to go direct to the Cryoserver and not flow via another 3rd party mail service. Often these external mail agents would either be unable to route the mail to Cryoserver or be unwilling to transfer journal format mails.

On-Premise Cryoserver systems

By default, Cryoserver systems will accept mail sent to “*cryouser@complianceinternet.co.uk*”. This email domain (complianceinternet.co.uk) does not have a public “MX” record – and is not deliverable in the public internet. Therefore, you must define an *Outbound SMTP Connector* in your email system in order route mail for ‘complianceinternet.co.uk’ to the IP address of the Cryoserver system.

Cloud Cryoserver systems

Multi-Tenant or hosted Cryoserver systems will need to have a public IP address and host name. In this case it would typically also have an MX record, so that journal email can route to it without the need for an “Outbound SMTP Connector”. However, you can still add an *Outbound SMTP Connector* to ensure that the journal mail routes *direct* from your email server (or Office 365) to the Cryoserver system avoiding any mail filtering systems (like MessageLabs) that you may be using.

4.3.2 CryoSMTP service

This service is new for Cryoserver version 9. It is an email server service, using SMTP, that allows the mail flow – both inbound and outbound to be configured and monitored by the Cryoserver Administrative area. It replaces the two platform specific services – Postfix on Linux and Windows SMTP Server. It is based upon the Apache James open source mail server service.

4.3.3 IMAP / POP3 / EWS collection

Email can be journaled to a user mailbox on an email server, and then Cryoserver can collect those emails using IMAP or POP3.

Cryoserver’s Email Collector (CryoPull) uses a read-and-delete sequence, so that mail will be removed from the Inbox as it being read into Cryoserver.

Cryoserver provides a simple Administration tool to create one or more IMAP/POP3 collectors.

4.3.4 .EML files (Legacy Exported mail)

Some Cryoserver and third party tools can extract mail out of user mailboxes, PST files, EDB (Exchange Database), NSF (Notes Database), GroupWise archives and many others. These tools can either send files direct over SMTP, or save to .eml files.

.EML files can be viewed using Notepad – or Outlook / Lotus Notes /Outlook Express clients.

.EML files are in internet mail standard format (RFC822). The email content is presented as *Multipurpose Internet Mail Extensions (MIME)*. **NOTE:** Cryoserver does not directly read .msg files – as exported from Outlook. These must be converted to .eml files first.

Cryoserver version 9 provides the ability to connect to a Windows File Share, in order to collect .eml files that you may have extracted.

The key challenges with mail extracted from user mailboxes / pst etc. are:

- **Effective De-Duplication.** It is best to de-duplicate during the extraction phase as this will reduce the quantity of disk needed to hold the extracted data, and to improve performance.
- **Missing** or badly formed Email Address values.
- **BCC** data is lost – and so will the *original* distribution group recipients.

4.3.5 Mailbox Reader Services

In Cryoserver Version 9 it is possible to extract email from *user* mailboxes via IMAP, POP3 and EWS (Exchange Web Services).

Unlike the *Mail Collector* service, the *Mailbox Reader* services will NOT delete any mail from the source mailboxes, and has been designed to extract mail from all folders in the user's mailbox.

In order to access many user mailboxes without the need to add each user's password, a special "**Impersonation Account**" can be configured that will have authority to access the content of all mailboxes.

4.4 Getting mail out of Cryoserver

There are several ways to get mail out of Cryoserver, depending on the requirements. As an administrator, you can control which option is made available to your users, and any limits that should apply.

Single or small numbers of emails, selected from a Basic or Privileged user search results:

Action	Meaning	Administrative Tasks
Forward to Inbox	this will send the email(s) to your account.	<ol style="list-style-type: none"> 1. Configure the <i>Outbound SMTP server</i> setting in Cryoserver. 2. Select which forwarding options to provide to your users. Up to 3 variations are available.

Restore to Inbox	this will inject the email(s) into your inbox – as though it was never deleted.	<ol style="list-style-type: none"> 1. Restore & Authentication server connections must be added. 2. Select the number of items to restore in one go for basic or privileged users. Set to 0 to disable.
Download	this will download the complete email (including attachments) to the user's pc as a .eml file. Outlook should automatically open this file type, where it can be viewed /forwarded / replied-to / reply-all.	Choose if this action is available to users.
Reply / Reply-all	this is a quick way to respond to an email from Cryoserver – but it will truncate any email content to 250 characters, which may cause formatting issues.	Choose if this action is available to users.

For Privileged Users and selected basic users

Export	<p>All of the results of a search can be downloaded in one or more zip files.</p> <p>Suitable for many thousands of emails.</p> <p>For larger quantities, use the "backend" export, where the zip files are generated on the Cryoserver disks and the user is emailed when they are ready for downloading.</p>	<p>The size limit and location of the export data.</p> <p>You may allow specific "basic" users to also have export rights.</p>
---------------	--	--

For support engineers only

Bulk Export	A command-line facility that will export the entire archive, or portions of it, to .eml files.	<p>Request this if you need special export needs.</p> <p>As this usually requires extra disk provision and management, this will usually raise a consultancy fee.</p>
--------------------	--	---

[to do – add cross references to the setup guide sections]

4.5 Cryoserver User Types

There are three types of *local* user that can be defined within Cryoserver (administrator; privilege; basic), plus a user's standard network login (LDAP user type). The final type is a *data guardian*.

Administrator	<p>A user that can configure and manage the Cryoserver system. This user cannot search or view the email data.</p> <p>This document is a guide to the facilities provided by this user type.</p>
Privilege	Search access to the WHOLE repository, or to all email in specified domains.
Privileged and Delete	<p>This is a new account type in Version 9. It is used to authorise and perform “Audited Deletes” of data from the Cryoserver system. A <i>different</i> user must perform the initial search, which the Privileged and Delete user can then authorise.</p> <p>This facility is not enabled by default.</p>
Basic	<p>A standard Search user, restricted to only view mail for the configured email addresses.</p> <p>NOTE: By creating a Basic account with a list of Secondary Email Addresses that belong to other users, you create a special class of ‘Privilege-like’ user. You should enable the Auditing options on the Basic user account in these cases. This is useful say for a compliance officer who needs to regularly query the mail across a team of staff members.</p>
LDAP	<p>A Basic User – but accessed via the users’ Network Login (typically Active Directory). You do not create these user accounts – but simply configure one or more LDAP connections.</p> <p>With Cryoserver V8, you can Link two LDAP connections – so one performs Login Authentication, and the other returns the User’s email address and account details. A user can delegate access to another user as well.</p>
Data Guardian	<p>Guardians are simply email addresses. They receive <i>transcripts</i> at the end of an Administrator or Privilege user session. They can review the emails that were viewed by a Privilege user.</p> <p>When a <i>Basic / LDAP</i> user logs in, and their email address matches a data-guardian email address, then they will be provided access to a “Transcript Search Reference Review” facility. This allows them to see the emails that were viewed by a Privilege User. Please note, if a transcript is reviewed, a <i>new</i> Transcript is created showing the Guardian’s reviewing activity.</p>

4.6 Email De-Duplication

Most email servers with a Journaling capability will send a single copy of each email to Cryoserver – regardless of the number of recipients. However, there are a range of reasons why duplicate emails are valid – and for that reason Cryoserver will process duplicate emails without attempting to de-duplicate them.

Examples of valid Duplicates, where each copy *should* be kept in Cryoserver:

- Exchange Journalled mails in a “journal wrapped” format;
- Lotus Notes with the *Journal Recipients* option enabled, will send duplicates for every 100 (approx.) recipients.

Duplicates that *should* be rejected by Cryoserver can include:

- Any Mail that is NOT in a Wrapped format.
- If you have multiple email domains (@company.com and @another.co.uk), the sender’s email system may see these as two separate email systems, and will send separate copies to recipients of each email domain.
- Some email sending systems may send an email to each recipient as separate SMTP connections.
- If recipient mailboxes are spread across separate servers:
 - Each server may Journal Separately (i.e. **Scalix**)
 - A single journal point will set a ‘has been Journalled’ flag, and no further journaling will occur (**Lotus Notes**). However – sometimes separate Journaling is exactly what *is* needed, for example: where each server represents a separate business unit or operating country, each with independent Journal/Archive needs.
 - **Exchange** will check the chosen Journal Endpoint. If an email is archived once already (and has a ‘has been journalled’ flag set BUT the journal recipient is *different* on the second server, then duplicate journaling will occur. This is particularly noticeable where:
 - Some remote Exchange servers have *different* Administrators – the journal recipient details will not transfer correctly and all sorts of issues arise (no journaling or duplicate journaling). This occurs when separate Exchange systems are brought together under a new Domain tree.
 - We have seen some customers upgrading from Ex2003 to Ex2007/10 to have caused duplicates. Please contact support@cryoserver.com for guidance on this.

Import Email / Mailbox Reader Extraction:

- Importing ‘Legacy’ email will typically read each user mailbox separately – hence the same email sent to two users will appear twice in the Importer.
- Mailbox Reader systems – such as the **GroupWise** GCIDaemon – will extract mail from each user mailbox.
- In these cases, a strategy of *local* de-duplication followed up with “Does this email exist in Cryoserver” web-service call to Cryoserver should ensure that as few duplicates are exported as possible.

Some multi-server Email servers – like Scalix – will journal independently from each server, meaning that duplicates will occur. The journal copies, in this case, are in plain (rfc822) mail format without an envelope part. These *need to* be de-duplicated by Cryoserver.

Other servers, like Exchange, will create duplicates – but the “Envelope” part of the journal mail will list only those recipients that that particular copy was sent to. This is CRITICAL for compliance reasons, and is a legitimate cause of duplicates.

In summary – if the email server system creates non-envelope email, then de-duplication by Cryoserver is a valid choice. For envelope journal mail, there is little need for Cryoserver de-duplication to be enabled.

Typically, any duplicate emails will arrive at Cryoserver within a few seconds of each other. For the sake of efficiency, Cryoserver can maintain a short rolling (1 or 2 hour) ‘cache’ of message-id’s – and use this for de-duplicate checks.

The screenshot shows the 'Company Configuration' page in Cryoserver. The left sidebar contains a navigation menu with items: Summary, Monitor & Reports, Basic Configuration, Adv. Configuration (highlighted), SSO - Single Sign On, NTP Configuration, Web Certificate, Adv Company Config, Retention Limit, and Reports limits. The main content area is titled 'Company Configuration' and includes several settings:

- Document Types:** im, email
- Default Locale:** Inherit system default locale (English - United Kingdom)
- Allow Direction Search:**
- Deduplication Options:** Scan all archive Data (default) (dropdown), Only deduplicate non-envelope emails (basic rfc822 mail)
- Exclusion retain period:** 0
- Basic User Search Results Limit:** 1000
- Priv User Search Results Limit:** 5000

The 'Deduplication Options' section is highlighted with a yellow box in the original image.

Figure 7 - Deduplication options in Cryoserver

If you are performing any form of legacy mail importing, we recommend that you select the **Scan All** option, with the **Only deduplicate non-envelope emails** ticked.

We recommend that deduplication is performed twice – once while extracting data, and again by Cryoserver while it is processing it. For example, the Mailbox Reader has deduplication options so that both checks are made.

In order to perform deduplication checks while extracting legacy emails, the system will need to create a database of Message-ID values. Over time this database can get *very large* indeed. We recommend that the Mailbox Reader connection is removed after usage so that the deduplication database list is removed as well.

Figure 8 – Mailbox Reader deduplication settings (for Legacy Import)

4.6.1 Message ID and Thread Index

Message-ID is a unique value for each sent email – in other words, every time a mail is sent, a fresh new message-id is created and put into the email headers. It is used by Cryoserver to detect duplicate copies of the same email. Where an email, during its transport though the Mail Server, generates *separate* Journal copies of the *same* email for different types of recipients (i.e. for internal, external & distro group email addresses) – each journal copy would have the same message-id.

However, the **sender's copy** of the email may not have the Server-Assigned message-id. Instead it will have a locally defined message-id in the copy found in the user's Sent Items folder. Thus, the sender's copy of the email may not match the message-id of any of the recipients' copies. For Microsoft Outlook/Exchange, we find that the "Thread Index" may be used to match sender and recipient copies of the same email in these cases.

A thread-index can be created by a mail client (e.g. Outlook). For a new email, a new thread-index is created. For a reply or forward, the thread-index is *extended* allowing for a chain of related IDs to be embedded in the thread index value. However, there is no guarantee that all email clients do this, or do this consistently.

Message-ID is also used by Cryoserver for Stubbing and Mailbox Extraction (vacuum) and PST Reader, to try to link a mailbox email with its copy in Cryoserver.

Cryoserver can also use Thread Index in the Stubbing, Mailbox vacuum and PST reader to link a Sent-Items email with its copy in Cryoserver. For Cryoserver Customers pre Version 7, a **reindex** may be required to create the database of Message-ID's and/or Thread Indexes. Cryoserver Support will be able to perform this if and when needed.

4.7 Additional Services

There are several utility applications that work well with Cryoserver to provide solutions to a range of business tasks. This document is a very quick overview of most of these utilities.

Some of the utilities described here are Windows PC installed applications that can be freely downloaded. Some will require a license to remove any trial limits.

<https://apps.cryoserver.com>

4.7.1 Legacy Mail Import

Importing mail that already exists in an email system, or in other archives, can be a difficult task.

- How to access the emails
 - With valid permissions – to access a range of different user mailboxes
 - At an acceptable speed – selection of a suitable API can be critical
- How to de-duplicate (both within the utility and with Cryoserver).
- How to stop-start an export, so that it continues from where it left off (keeping a progress database)
- What limiting criteria to use (date range, email size, mailbox selection etc).
- How to fill-in missing data
 - PSTs do not contain email addresses for the local domain's address book – so to patch in email addresses from, say, LDAP.
 - Cleanse old internal-style email addresses (Lotus Notes hierarchical names to email address conversion)
- Good error logging, so that issues can be quickly resolved.
- How to get the export data to Cryoserver (as files or delivered over smtp)

4.7.1.1 GroupWise Mail Collector (GCIDaemon)

This utility can run on the Cryoserver, or on any pc. It uses IMAP as a 'Trusted Application' in order to visit every user mailbox on any PostOffice servers. To obtain a 'Trusted Application' key code, a separate registration utility must be run on a PC that has the GroupWise admin tools (ConsoleOne) installed, and has access to the domain server path.

It can run either as a legacy collector, or as a live mail collector – in which case the 'retention' flag should be enabled to prevent mail from being deleted before it is collected by this utility.

See section 4.7.4 for further details.

Mailbox Readers (IMAP / POP3 / EWS)

This feature introduced into Cryoserver version 7 allows legacy mail to be extracted from specific user mailboxes using IMAP, POP3 or EWS (Exchange Web Services). Unlike other extraction methods, this requires a login to each user mailbox that you wish to extract mail from. Except for EWS, you cannot provide a single login to access a range of different user accounts.

EWS (Exchange Web Services) allows for *Impersonation*. A single User Login may be extended via PowerScript commands, to have full access rights to any number of user mailboxes. This may be used instead of the separate Exchange "Vacuum" utility to extract out mail from many Exchange mailboxes.

IMAP and **POP3** may be used to collect mail from *personal* mailbox servers – such as **Hotmail** (via secure POP3) or **Gmail** or any number of other systems.

PST Import

PST Import is an optional web-based facility that can be added to a Cryoserver system. PST Files can be uploaded or transferred from a UNC file share, so that they can be read and the mail extracted *directly* into Cryoserver.

Third Party tools

There are many 3rd party utilities that can extract email from a range of sources. Here are some that we have come across:

Source Data	Utility name	Notes
EDB (exchange database)	Systools (www.systoolsgroup.com)	A good, and relatively cheap utility. Take care that the original email “message-id” is preserved in the output emails.
	Lepide (www.lepide.com)	A professional product with a good UI and feature set.
PST	Systools plus many others	We found many good tools, but none provided the deduplication and email address correction facilities that are provided by the <i>Cryoserver PST Import</i> facility.
MSG	Systools plus many others	Each .msg file is a single email. This is the standard export format from Outlook for individual emails. .msg files contain binary (unreadable) data, in a special format. Cryoserver cannot directly read or output in this format. It is unusual to have a large pool of .msg files. It is more likely to have PSTs instead.
OST	www.sysinfotools.com www.ost2.com and others	An OST is the “offline cache” of a user’s Exchange Mailbox, as used by Outlook. It is created when you select “cached mode” when creating an Outlook Profile. It is roughly the same as a PST – but has a different security wrapper. Therefore PST Importing tools cannot directly read them. But they can be converted to PST using a number of tools – or even exported direct to .EML files.

4.7.2 Mail Stubbing

Mail Stubbing is a way of reducing the disk used by email in the primary mail system (i.e. Exchange). It does this by removing just attachments and embedded images (Exchange 2010+) – and replacing the attachment with a link to the corresponding attachment in Cryoserver. Cryoserver’s attachment only stubbing is also known as ‘clientless stubbing’ – as it does not require any special client plug-in to use.

With Attachment Only stubbing, any attachments are replaced by a secure HTML link to the Cryoserver system. By clicking the link, the user's browser will connect to Cryoserver – which will download the corresponding attachment to the user.

4.7.2.1 Exchange Stubbing Server

Stubbing is commonly referred to as **Mailbox Storage Management**. It is one way to reduce the volume of email data in your mailbox stores without deleting the emails.

The Cryoserver Stubbing Service utility runs on an Exchange Server, or on any server via “Remote Powershell”. It accesses the selected user mailboxes, and converts any *attachments* in the selected emails to a URL Web link (a ‘stub link’) to the copy of that attachment in Cryoserver.

This screen shot shows an example of a stubbed email, where a number of image attachments were removed from the email on Exchange, and replaced with html web links. You can see that this has reduced the email size by up to 5Mb.

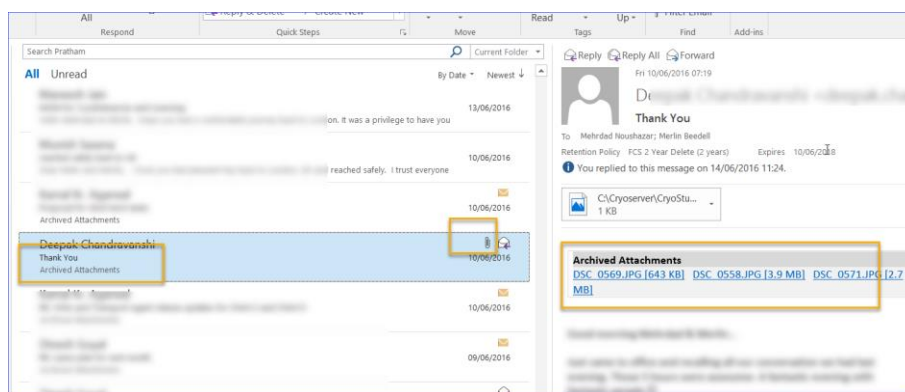


Figure 9 - Example of a Stubbed Email

4.7.2.2 OWA Plug-In

Resolves the Stub Links on the Exchange Server – so the end user does not need to have direct access to the Cryoserver System in order to view the attachments.

4.7.2.3 Exchange Transport Stack Plug-in

This ensures that when a *stubbed* email is forwarded to an *external* recipient; any stub links are removed and the original attachments are put back into the email.

4.7.3 PST Creator

This utility is designed to create one or more PST files from an “Export” of emails from Cryoserver.

A privilege user may export all emails from a Search or the selected items from a Folder. These will create one or more Zip files containing eml files – each eml file being a complete email, including attachments.

The PST Creator takes one or more .zip files that contain .eml files, and creates a PST file that contains all of these emails.

This utility can be obtained from <http://apps.cryoserver.com>

4.7.4 GroupWise email collector

GroupWise does not have a Journaling facility. Instead it offers a 'Trusted Application facility – allowing the application to have the privilege to access every user mailbox. And it offers a 'Retention Flag' system, where emails are prevented from being permanently deleted until the Trusted Application has read the emails, and updated the retention flag (a date/time stamp) on that users' mailbox.

The GroupWise email collector (GCIDaemon) is used to read emails from all Postoffice Mailboxes, and transfer them to Cryoserver. It uses IMAP with a Trusted Connection to gain access to every user's mailbox. It can be used to read current 'live' email, as well as bulk reading all existing emails.

Configurations are done by Cryoserver Support personnel.

4.7.5 Lync / Skype for Business utility

It is possible to extract Instant Messaging (IM) conversations from Lync or Skype for Business (S4B) using a PowerShell command. However, to pass this data over to a Cryoserver system, on a regular basis requires an application.

Cryoserver has a utility application that can regularly extract these Lync / S4B conversations and send each as a specially formatted transcript. It will send them using SMTP – as standard emails – to the required Cryoserver system, meaning that it supports both on-premise and cloud hosted archives.

4.7.6 Bulk Export from Cryoserver

If there is a need to export some emails from Cryoserver, any *Privilege* user has the ability to export a few thousand emails. The output will be one or more .Zip files, each containing up to 20,000 email files (.eml files). This works well when the quantity of emails is moderately limited (up to 10Gb exports).

If a *huge* export is required – say for 200 Gb or more – then this is possible to perform directly on the server. However, this service will need to be performed by a Cryoserver Support Engineer by request. This would be a chargeable service due to the time and complexities that these exports often encounter.

This service can be used to Export out mail for a particular domain or that reference one of a number of email addresses (typically used if a company splits off a business unit). It can also select mail from a date range.

The Cryoserver Export facilities can create *Envelope Wrapped* emails – which will include the BCC and expanded Distribution Group recipients (if these were available in the original email).

4.8 Document types (email / im / voice)

Cryoserver is designed to work with Email type data. However, some emails can be containers for additional types of data. One type is Instant Messaging (IM) transcripts – an MSN 'chat' log / Lync / Skype for Business conversations.

If you have a IM gateway system in your organisation (e.g. GroupWise Sametime , Microsoft Lync, or similar) then it is possible to get these to log chat conversations and send them as transcripts to the Cryoserver Archive.

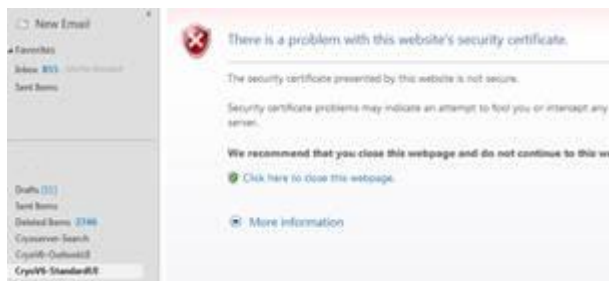
Cryoserver is designed to look for a signature in the headers of emails, and if an IM transcript signature is found, then the email is processed into a separate area to normal emails. The search-index data and display of these items in a familiar format than the email format. To enable the processing of IM messages into Cryoserver, a Cryoserver module license is required.

Voice Recordings may also be captured in Cryoserver. It supports two methods:

- To poll an FTP or SFTP for voice recording files. If any are found, an email wrapper is created and the item stored in Cryoserver and REMOVED from the source FTP site.
The file name will determine the caller and recipient's phone numbers;
OR
- A recording transcript email is received by Cryoserver, either containing the recording as an attachment OR a URL link to the voice recording file. If a URL Link is found, then Cryoserver will fetch the File from the link and embed it in the file.

4.9 Web Certificates

If the Cryoserver Web Certificate is invalid, then **Outlook will not allow access** to the Cryoserver Folder Link feature. Whilst a normal browser is more forgiving and will show *why* it fails and allow you to continue – after you click the Certificate Warning page.



There are 3 reasons why a certificate fails:

1. The URL Hostname (https://**url-hostname**/cryoserver...) must match the certificates' "cn=" value. In more modern certificates, it should also match one of the "Subject Alternative Names" in a **SAN Certificate**. SAN Certificates are more expensive to sign by a Public CA than a single name or wildcard certificate. Furthermore they are no longer supported to include both INTERNAL as well as EXTERNAL names (e.g. mailarchive.mailfast.com *and* mailarchive *and* FC1-LONCRY1).
2. The current date/time must be between the start and expiry date of the certificate.
3. It must be "authenticated", either by **Signing** or by registering the certificate on your PC as a **"Trusted Root"**.

There are 2 ways to create a fresh new certificate for a Cryoserver.

1. Use the Administration area -> Adv.Config -> Web Certificate to create a new "Self Signed" certificate. Or;

2. Use any external system to create one: e.g. IIS7 or a paid-for certificate authority, or at the powershell / openssl command line.

In all cases, a “**Self Signed**” certificate is generated. No system will automatically ‘authenticate’ such a certificate and a browser will show a warning. You will need to either **sign** the certificate with a Certificate Authority (CA) of some sort, or register this as a Trusted Root.

This document shows how to create a Certificate for Cryoserver and sign it via a Microsoft Certifying Authority service.

4.9.1 Create a Self-Signed Certificate

In the Administrator Web area of Cryoserver, select the Adv. Configuration, Web Certificate menu.

The web certificate for this Cryoserver system may be generated in one of two ways:

1. To create a self-signed certificate here. You may then get this signed by a CA and upload the completed certificate and, optionally, the chain and root certificates.
2. To create a certificate on a separate system (like Microsoft IIS version 7 or higher, under the 'Server Certificates' section) and once signed, export this as a PKCS12 (.pfx) file with a password. This can be uploaded here.

After changing the certificate, the Web Server will need to be restarted. [[Restart Web Server](#)]

Manage Certificate

Your current preferred URL hostname is <https://robin-PC> and will be used in any emails that link to this site. Change this via [Global Settings](#).

Create Self-Signed Certificate: *The following settings are extracted from your current certificate:*

URL/DNS Name	HTTPS://	<input type="text" value="robin-PC"/>
Organization:		<input type="text" value="FCS"/>
Department:		<input type="text" value="Technical"/>
City:		<input type="text" value="London"/>
State:		<input type="text" value="London"/>
Country:		<input type="text" value="United Kingdom"/>
Key Size:		<input type="text" value="2048"/>

Current Certificate Summary:
Alias: tomcat, Type: JKS, Common-Name: robin-PC, Expiry-Date: 19-Aug-2019, Key: Sun RSA public key, 2048 bits

Get Certificate Signing Request:

Upload and Import Certificates:
Either upload the certificate file(s) or use the Base 64 encoded certificate text (as provided by the certificate agency). To use the Base 64 encoded text, click the 'Use Certificate Text' button and then copy and paste the certificate text in the provided text area.

Root Certificate :	<input type="text"/>	<input type="button" value="Browse..."/>	<input type="button" value="Use Certificate Text"/>
Intermediate Certificate:	<input type="text"/>	<input type="button" value="Browse..."/>	<input type="button" value="Use Certificate Text"/>
Intermediate Certificate 2:	<input type="text"/>	<input type="button" value="Browse..."/>	<input type="button" value="Use Certificate Text"/>
Signed Certificate:	<input type="text"/>	<input type="button" value="Browse..."/>	<input type="button" value="Use Certificate Text"/>

Select an alias to view its details:

Upload PKCS12 Certificate

Upload PKCS12 certificate (a .pfx, .pkcs12 or .p12 file):

Password:

Select File:

Figure 10 - Creating a Self-Signed Certificate

Fill in the fields of the “Create Self-Signed Certificate”. If this certificate needs to be signed by a public CA (Verisign, Thawte etc) then the fields must be filled with reasonable data to reflect your business, otherwise they may delay the signing of the certificate.

1. The URL/DNS Name should be the desired name that users would enter in a browser to connect to this Cryoserver system.
By default this will show either the server hostname or the IP address. Please overwrite with the correct name, as appropriate.
NOTE1: Most Public CA's currently only sign certificates with a key size of 2048.
NOTE2: You cannot yet create a multi-name (SAN) certificate with this system.
2. You can check the existing certificates by looking at the Summary section. This lists all certificates in the "KeyStore" for the Tomcat Web Server.
The "duke" certificate is only used for internal Cryoserver usage (secure RMI).
The "tomcat" certificate is the one that shows in the user's Browser.

If the "Self Signed Certificate" is created correctly, then you will see a success message at the top, and the Summary section is updated.



To Sign the certificate, you must obtain the "Certificate Signing Request" by pressing the *Download CSR* button.

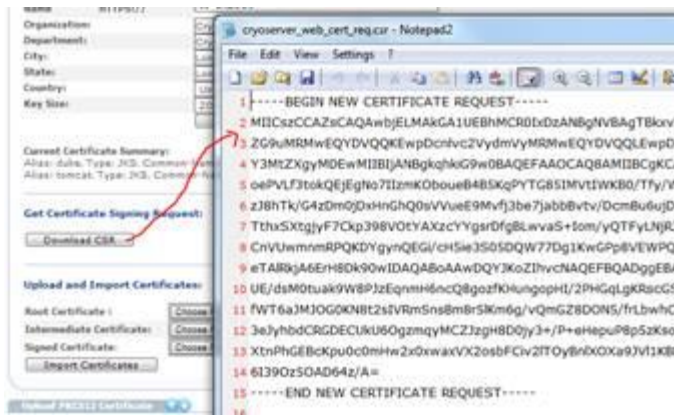
OR

If you simply want to register this Signed Certificate as a valid Trusted Root, then you can follow the instructions at

<http://www.cryoserver.com/support> > Cryoserver-Certificate-Fix.pdf

4.9.2 Signing a Certificate

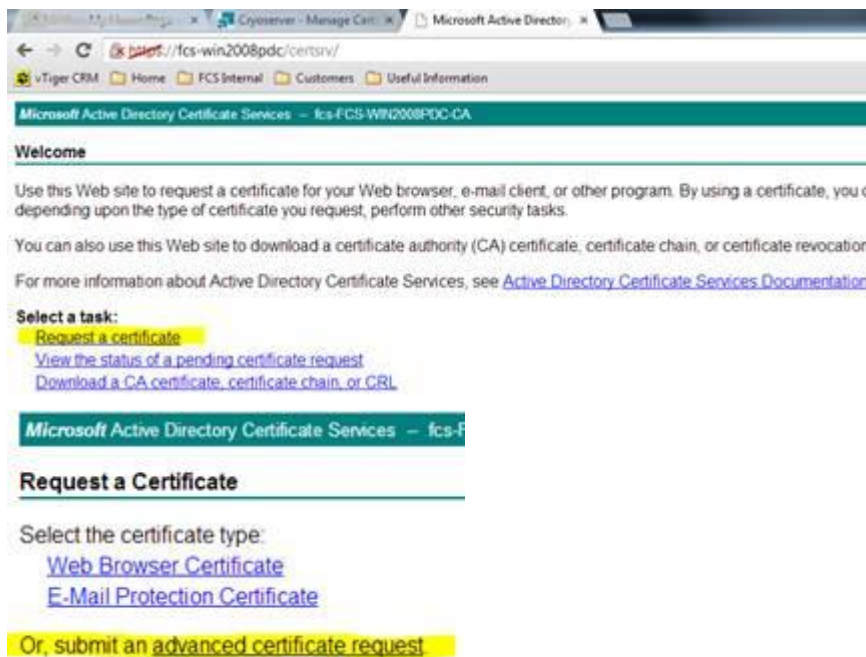
The "cryoserver_web_cert.csr" file obtained from the Self Signed Certificate via the Download CSR button can be opened in a text editor. This can then be copy-pasted into a number of Public CA signing systems.



With a Windows CA server that you may have installed in your company domain, you will need to access it via its Web:

<https://<server>/certsrv>

From here select “Request a Certificate”



On the Advanced Certificate Request, paste in the entire text of the .CSR file, including the BEGIN and END lines...

Microsoft Active Directory Certificate Services – fcs-FCS-WIN2008PDC-CA

Submit a Certificate Request or Renewal Request

To submit a saved request to the CA, paste a base-64-encoded CMC or Saved Request:

Base-64-encoded certificate request (CMC or PKCS #10 or PKCS #7):

```

MFT6a.7K0OGKXf8t2eIVVm3ne8mr5l3m6g/vQmG2
3eJyhbdcR3DECKU6Ogzmgy6C2JagHSD0y3+/F+
XtnPhGE50Kpu30Om8W2x0awaxVXZ0abFC1v2lTOy
6I39Oe5DAD64z/A=
-----END NEW CERTIFICATE REQUEST-----
    
```

Additional Attributes:

Attributes:

If this screen offers **CERTIFICATE TYPE OPTIONS**, you *MUST* select “**Web Certificate**”. Any other type will not suffice. If some Certificate Types are offered, but not a Web Certificate type, then you may need to access the Windows CA from a different PC – perhaps even directly from the CA Server.

If the Certificate is accepted by the Windows CA, then you will immediately receive the signed reply. Download only the Certificate, *not* the chain (certificate plus the intermediate certificates that link it to this Windows CA).

It does not matter if you select DER or Base 64 encoding. The only difference is that the Base64 encoded version may be opened in Notepad, looking like the CSR only longer.

Microsoft Active Directory Certificate Services – fcs-FCS-WIN2008PDC-CA

Certificate Issued

The certificate you requested was issued to you.

DER encoded or Base 64 encoded

[Download certificate chain](#)

The file will ALWAYS be named “certnew.cer” – we suggest that you rename it to reflect the Web that it is signing.

Back in Cryoserver, you can now upload the signed certificate.

Upload and Import Certificates:

Root Certificate: No file chosen

Intermediate Certificate: No file chosen

Signed Certificate: certnew.cer

The “Root” certificate is only needed for new or unusual Certification Authorities. A Windows CA will not need a Root. Many well-known CA roots are already stored in the Java Runtime (CACERTS).

You should not need to install a “Chain” of **Root** and **Intermediate** Certificate(s) in the case of a Windows CA. If you did require one, then you can download it from the Windows CA web:

Microsoft Active Directory Certificate Services - fcs-FCS-WIN2008PDC

Download a CA Certificate, Certificate Chain, or CRL

To trust certificates issued from this certification authority, [click here](#).

To download a CA certificate, certificate chain, or CRL, [click here](#).

CA certificate:

Current: fcs-FCS-WIN2008PDC-CA

Encoding method:

- DER
 Base 64

[Install CA certificate](#)

[Download CA certificate](#)

[Download CA certificate chain](#)

[Download latest base CRL](#)

and use the Intermediate Certificate upload to place it into the Cryoserver.

Clicking the “**Import Certificates**” button on the Cryoserver Web Certificate panel, the certificate (and any root and intermediate) will be VALIDATED as they are imported. If successful, you will see two responses in this Web page. At the top it should say “Certificate(s) imported...”

Certificate(s) imported. Please check logs for details.

Create Self-Signed Certificate:

URL/DNS Name	HTTPS://	fcs-ax2010
Organization:		
Department:		
City:		
State:		
Country:		United Kingdom
Key Size:		2048

Create

Current Certificate Summary:

- Alias: addtrust, Type: JKS, Common-Name: fcs-FCS-WIN2008PDC-CA, Expiry-Date: 06-Jul-2018, Key: Sun RSA public key, 1024 bits
- Alias: duke, Type: JKS, Common-Name: Duke, Expiry-Date: 23-May-2011, Key: Sun RSA public key, 1024 bits
- Alias: tomcat, Type: JKS, Common-Name: fcs-ax2010, Expiry-Date: 09-Jul-2014, Key: Sun RSA public key, 2048 bits

And the summary section will list the resulting Certificates in the Tomcat Web Server’s KeyStore. Notice that the Expiry Date is now exactly 1 year.

In this case we added an Intermediate certificate, which is given the alias “addtrust”.

To make the certificate visible to all users, you will need to restart the Cryoserver Tomcat Web service. Click the link at the top of the page.

The web certificate for this Cryoserver system may be generated in one of two ways:
 1. To create a self-signed certificate here. You may then get this signed by a CA and utilize the completed C
 2. To create a certificate on a separate system (like Microsoft IIS version 7.0 or higher, under the “Server Cert
 After changing the certificate, the Web Server will need to be restarted. [Restart Web Server](#)

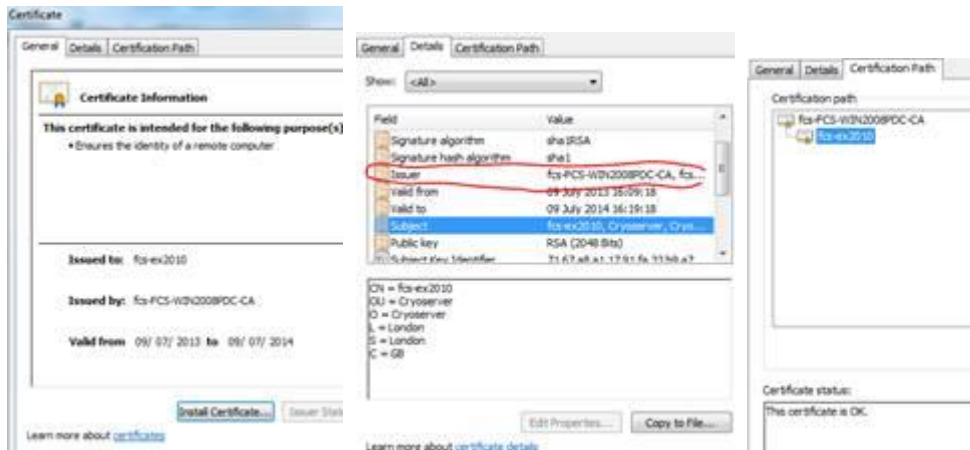
Restart WebServer:	Restart WebServer	Current status: Running
Restart Mail Collector:	Restart Mail Collector	Current status: MailBoxReader(Running) CryoPull(Stopped)

Check the Monitor Page first if you need to see who is connected before the restart.

You will need to **start a fresh browser session** to see the new certificate. Simply refreshing the current browser will display the old cached certificate.



If successful, then the web will show a valid padlock or similar.



Notice that a Signed Certificate has an Issuer, which makes it part of a 'chain' of certification.

With a Windows CA, all computers on that local Domain will accept the Web Certificate without showing a warning.

4.9.3 Re-Issuing a certificate

You will need to repeat the *Download CSR -> Sign -> Import Signed Certificate* process again in order to renew the Certificate before it expires. You should not need to upload any Root or Intermediate certificates this time.

4.9.4 The Windows CA system

The Windows Certification Authority service may be installed on any Windows Server platform. It is one of the standard optional components. Once installed, it becomes the CA for the whole Domain and is difficult to change later.

It provides two user interfaces – a Web interface, though which new requests may be placed, and resulting signed certificates downloaded. This is shown above.

It also has a Windows UI which is available on the server. You can use this to list and revoke certificates that were requested via the Web interface. Here is the certificate that was Requested and Signed as shown earlier in this document.

Request ID	Requester Name	Binary Certificate	Certif...	Serial Number	Certificate Effective Date	Certificate Expiration
13	FCS\FCS-WIN20...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	CA Ex... 18b99c3000...	05/08/2010 19:34	12/08/2010 19:44
15	FCS\FCS-WIN20...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	CA Ex... 11bbaf7f000...	14/10/2010 11:16	21/10/2010 11:26
14	NT AUTHORITY\...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	3a725a0f000...	25/10/2010 11:34	25/10/2011 11:44
17	NT AUTHORITY\...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	3a77975e000...	25/10/2010 11:40	25/10/2011 11:50
15	FCS\administrator	-----BEGIN CERTIFICATE-----	MIIF+DCC...	5e848090000...	31/10/2011 11:44	31/10/2012 11:54
16	FCS\administrator	-----BEGIN CERTIFICATE-----	MIIF+DCC...	5e8f1a8f000...	31/10/2011 11:56	31/10/2012 12:06
17	NT AUTHORITY\...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	5994bc94000...	09/10/2012 12:36	09/10/2013 12:46
18	NT AUTHORITY\...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	5a023452000...	09/10/2012 14:35	09/10/2013 14:45
19	NT AUTHORITY\...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	5a19600a000...	09/10/2012 15:01	09/10/2013 15:11
20	NT AUTHORITY\...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	5a1f110d000...	09/10/2012 15:07	09/10/2013 15:17
21	NT AUTHORITY\...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	5a29425b000...	09/10/2012 15:11	09/10/2013 15:21
22	NT AUTHORITY\...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	5a26b097000...	09/10/2012 15:15	09/10/2013 15:25
23	NT AUTHORITY\...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	5a0fe7ea000...	10/10/2012 08:54	10/10/2013 09:04
24	NT AUTHORITY\...	-----BEGIN CERTIFICATE-----	MIIF+DCC...	430e32ef000...	09/07/2013 16:09	09/07/2014 16:19

4.10 Backup or Mirroring?

This section describes a range of backup and disaster recovery scenarios.

The most comprehensive backup facility is to use a mirroring Cryoserver system. This way you get real-time backup of *processed* email data. It does require a second Cryoserver with the same processing and disc capacities.

Virtual Machines such as VMWare with snapshot replication technologies can provide alternative approaches.

Many SAN technologies also offer disk level mirroring.

The next level down is traditional Backup – for example Symantec Backup Exec.

And finally, disk sharing – providing file level access to the data repositories.

With all of these mechanisms, the challenges are usually seen when trying to recover the system from the backup.

With any form of file level backup (SAN / Backup / disk share), the server o/s and software will need to be re-installed separately.

Another complexity of file level backup is that the Cryoserver data grows, making a *full* backup longer and longer over time.

Finally, some files are in constant flux while the system is running – such as the Index files. It is recommend for Cryoserver application should be halted before a file backup, and resumed afterwards – otherwise parts of the backup will effectively be out-of-sync, corrupt, invalid, or errored by the backup service (read-lock issues). With Symantec Backup Exec, it is possible to issue commands to Halt and Resume Cryoserver – and the incremental Backup technique works very well in Cryoserver too.

The following topics discuss the most used options.

4.10.1 Symantec Backup Exec

Symantec Backup Exec requires an agent to be installed on all servers that will need to be backed up – including at least one of the Cryoserver systems. A support engineer will install the agent (called ‘vrt ralus’) software on a Linux system. The installer for this agent will be found on the server where the BackupExec Manager Console is installed, under the linux directory. By using the software from your BackupExec installation media, we can ensure that the correct version is installed.

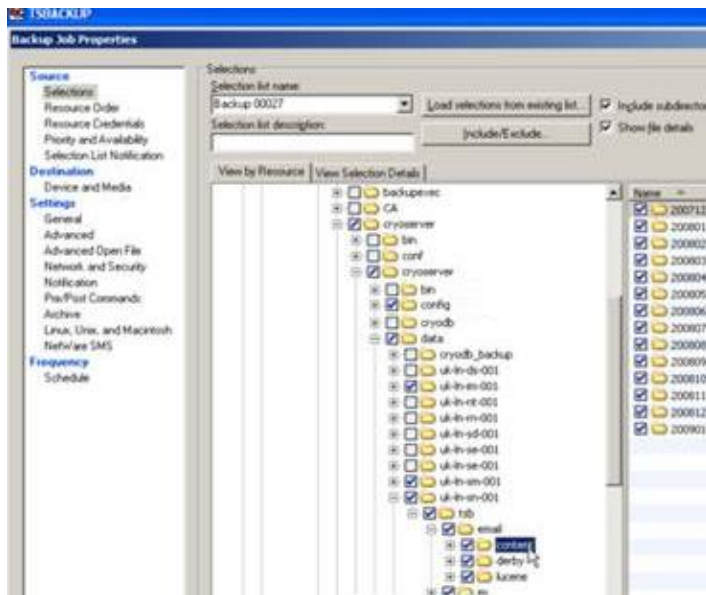


Figure 11 - Selecting Cryoserver files in Backup Exec

Backup Exec can execute o/s commands at the start and end of the backup. It is now possible to execute ‘halt’ and ‘resume’ commands on Cryoserver. The ‘halt’ will release all locks on the system, fairly quickly. This is better than stopping/starting Cryoserver.

Here is an example of these commands when run directly on the server:

```
> /opt/cryoserver/cryoserver/bin/cryoserver.sh command -x halt
Executing command: halt
Halt successful
```

and

```
> /opt/cryoserver/cryoserver/bin/cryoserver.sh command -x resume
Executing command: resume
Resume successful
```

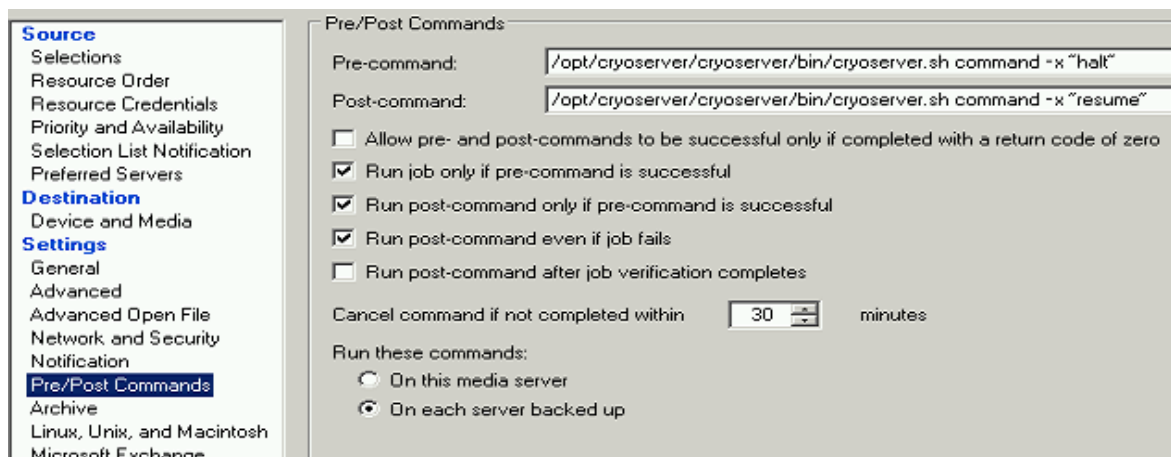



Figure 12 - Halting & Resume Cryoserver in BackupExec

We found that the full commands as entered here failed to execute as expected and so simplified scripts were created (one for halt and one for resume). In this way symbols such as the – (minus) sign and double quotes could be avoided in the command entered here.

If Cryoserver is not halted or stopped, then errors will show, like this:

```

cryoserver/data/uk-ln-rn-001/database/dbex.lck in use - skipped.
cryoserver/data/uk-ln-sn-001a/cryoserv/email/derby/dbex.lck in use - skipped.
cryoserver/data/uk-ln-sn-001a/cryoserv/im/derby/dbex.lck in use - skipped.
cryoserver/data/uk-ln-sn-002a/cryoserv/email/derby/dbex.lck in use - skipped.
cryoserver/data/uk-ln-sn-002a/cryoserv/im/derby/dbex.lck in use - skipped.
cryoserver/data/uk-ln-sn-003a/cryoserv/email/derby/dbex.lck in use - skipped.

```

A full or incremental backup of files under these directories will provide a comprehensive backup of the Cryoserver data and configuration:

```

/opt/cryoserver/cryoserver/data
/opt/Cryoserver/Cryoserver/config

```

Other files and directories may be included. Please discuss requirements with a Support Engineer.

To restore a Cryoserver system from this backup requires the following steps:

1. A server with a linux or windows o/s, with sufficient disk space.
2. The BackupExec agent to be installed – to act as the restore agent
3. To install a base Cryoserver system
4. To restore the data and configuration from the backup
5. To re-seat the configuration databases from the restored data
6. Adjust the configuration to match this new server, and requirements of the DR scenario.
7. Start the Cryoserver
8. Test & adjust as needed

Clearly, some of these steps require assistance from a Support Engineer, and will take about 4 hours to complete – plus the time to restore the data.

NOTE: You can backup from a Linux system, and restore to a Windows server.

4.10.2 Cryoserver Mirroring

This is a recommended configuration and preferred by customers. It requires two separate Cryoserver servers – one is the Primary and the other is the Mirror or DR server.

Journal Mail flows to the Primary server, where it queues up as a set of simple text files – in the ‘spool queue’. These are not mirrored.

Cryoserver then processes each mail in the spool queue, and if a mirror server is configured, then the email data is set over to the mirror server at that time. Any issues that occur will result in the email(s) being errored – ensuring that both servers have matching data in their stores.

Other benefits of a Mirroring configuration:

- Searches will be performed across both servers – ensuring that CPU and disk activity is spread across systems. [This can be adjusted to target specific servers]
- The Status of the all servers is visible on the Monitor page.
- Re-spooled error emails will continue their processing from the point that they last reached – ensuring that the two servers are in sync.
- The synchronisation is in Real-Time – unlike a backup which can become several hours out of date.

A Mirror Cryoserver can be made into a complete standalone server, when a DR situation arises. Currently a Support Engineer is required to oversee the process, but it should only take a few minutes to get the system up and running again.

4.10.3 Cryoserver Email Copy feature

This feature, historically known as “**Trash-Copy**”, is a way to have two entirely independent Cryoserver systems with one server sending a copy of every mail – in Scheduled Batches – to the other server, where they are processed again.

In this scenario, the second or ‘central’ Cryoserver system could potentially take copy feeds from multiple satellite Cryoserver systems.

As all systems are effectively independent full working Cryoservers’, they are all immediately searchable, and can be maintained (stopped/started/upgraded etc.) independently of each other.

The copy feature will ensure that each email is held in a copy queue until it has been successfully copied to the target server. If the target server is off-line for some days, the synchronisation queue will grow and grow until the target server is back online.

A Cryoserver System Engineer is required to enable the trash-copy feature.

5 Basic Configuration

An administrator can configure and manage many aspects of the system. This section describes all of the available Administrator options.

To refine a Cryoserver with the minimum set of details for a company, Administrators should visit all of the Basic Configuration Menu panels.

Although it is labelled 'Basic' in many cases the underlying technology is anything but basic. Some care and attention must be applied so that the most appropriate settings are applied.

5.1 Company Settings

These are a mix of settings that mostly affect the look and feel of the system to search users (basic and privilege users). Please Note: This panel is due to be divided into separate menu panels during the Version 9 time frame.

Cryoserver

Summary

- Monitor & Reports
- Basic Configuration**
 - Company Settings
 - Outbound Email & Alerts
 - Data Guardians
 - Local User Accounts
 - Restore & Authentication
 - LDAP Servers
 - User Directory
 - Mail Collector (IMAP/POP3)
 - SMTP Service
 - Adv. Configuration
 - Management
 - Storage Management
 - Email Management
 - Mailbox Reader
 - Folder Replication
 - Business Continuity
 - License Management
 - Subscribe to Newsletter

Company Configuration

Company Name:

Company Tag:

Contact Name:

Contact Email:

Contact Phone:

Company Address:

Company Postcode:

Country:

Language:

Reference:

Licensed users limit: (<= 0: No limit)

URL Hostname:

Enable Login Remember-Me:

Offer Outlook Folder Links:

Outlook Folder Search Style: Standard Outlook Folder Replica View

Outlook Folder Name:

Search Results Sort Order: (Default: Date Sent)

Forwarding Options:

Forward To Inbox: Basic/LDAP User Privileged User Enter the maximum number of items. 0=No Forward, 1=Single Item, more=Limited multiple Item forward.

Allow forward to others: Basic/LDAP User Privileged User

Sender Address:

Standard Forward: Basic/LDAP User Privileged User

Zipped then attached: Basic/LDAP User Privileged User

Inline Forward (non-forensic): Basic/LDAP User Privileged User

Restore To Inbox (via IMAP/EWS): Basic/LDAP User Privileged User Enter the maximum number of items. 0=No restore, 1=Single Item, more=Limited multiple Item restore.

Download Message: Basic/LDAP User Privileged User

Priv User Message Summary: Never (User cannot override the setting) No (User can override the setting) Short (Max 300 characters) Long (Max 600 characters)

Basic User Message Summary: Never (User cannot override the setting) No (User can override the setting) Short (Max 300 characters) Long (Max 600 characters)

Search Results Page Size:

Disclaimer Message:

Header Links:

Version 9.0.0-beta.3 (Running as a Trial) support@cryoserver.com as cryoserver_su / A company

5.1.1 Company & Contact details

The Company Name should be set, as this is displayed throughout the system.

Company Name:	A company
Company Tag:	aco
Contact Name:	John Doe
Contact Email:	j.doe@acompany.com
Contact Phone:	0787654321
Company Address:	Wigglesworth, London
Company Postcode:	SE1 2UK
Country:	United Kingdom ▼
Language:	English ▼
Reference:	AccountRef 144-5
Licensed users limit:	0 (≤ 0: No limit)
URL Hostname:	HTTPS://fcs-pc-7.fcs.cryoserver.com

Set the name of the company and the contact details. The contact details are currently information only.

The contact details are initially set during the Setup Wizard for all new Cryoserver installations, and this contact is copied to the License Details. You can change the License Contact independently from the Company Contact on this panel.

Company Name

The full name of the company. It will appear on the login page and in the footer line of all subsequent pages, and on some alert emails.

j.doe@acompany.com as jdoe_admin / A Company

Company Tag

This is a short ID name for the company. For multi-tenant Cryoserver systems, each company will have a different Company-Tag.

This name can be used in the URL to access a specific company's Login.

https://<cryo-hostname>/cryoserver/aco

This name cannot be changed (via the Admin area) after the company has been created.

The company tag is also displayed in any "Preferences" pop-up panel:



Contact Name / Email / Phone

Although these details are not currently used anywhere in Cryoserver, it is a good idea to ensure that these are modified to include the best contact at the company for queries about Cryoserver – both by your staff and users, and for Cryoserver Support technicians.

Reference

You may include any text as a “reference”. This could be used to link to an Accounting system, project number or any other reference desired.

Cryoserver supports an API, allowing remote systems to connect and query various aspects of the system. This reference, in combination with the API, could be used to automate some business process.

Licensed Users Limit

This is the number of ‘active’ mailboxes that you believe *should* be being recorded by Cryoserver. As emails are being archived, Cryoserver will be computing an “Active Mailbox Count”.

When the computed ‘active mailbox count’ exceeds this expected ‘licensed mailboxes’ then it highlights the usage data to the administrator.

NOTE: “Active Accounts” are computed by Cryoserver as the number of unique ‘local’ email addresses that were used for both **sending and receiving** mail. It is computed on a daily basis, and averaged over the month. ‘Local’ addresses are defined as those that match the configured local email domains.

URL Hostname

This is the base URL that you would prefer all of your users to access the system by. This should be the fully qualified name [FQDN]. By this I mean the full URL including the company’s network domain – typically in the form: hostname.company.com

By default the Cryoserver will use the **server’s hostname** as the base URL. This is often not the best name to use – and instead a more suitable name is added into **DNS**. Now Cryoserver can be accessed using 3 different URL’s:

<https://server-hostname>

<https://dns-name>

<https://ip-address>

So that cryoserver can generate emails that contain links to parts of the system: Password Reminder, Export completed emails, scheduled search emails, stubbing attachment links; it is important to tell Cryoserver *which* URL you would prefer to use.

And the Web Certificate should be created to match the preferred URL name. With a SAN Certificate, you can also include all of the alternate URL names that should be accepted by browsers.


5.1.2 Login ‘Remember Me’

If this option is enabled, then a “Remember My Login” tick-box will show on the login page.

If a user ticks this option when they login, then their username and password will be *encrypted* and stored in a browser cookie. The next time they access Cryoserver, the login page will be skipped. This is particularly useful for the OUTLOOK folder link.

Use this if Single Sign On (SSO) facilities are not available.



NOTE: If the user explicitly 'Logs Out' of Cryoserver by clicking , then the 'Remember-Me' cookie is reset, and the user will need to re-enter their password.

5.1.3 Outlook Folder Link

URL Hostname:	<input type="text" value="HTTPS://fcs-pc-7.fcs.cryoserver.com"/>
Enable Login Remember-Me:	<input checked="" type="checkbox"/>
Offer Outlook Folder Links:	<input checked="" type="checkbox"/>
Outlook Folder Search Style:	<input type="radio"/> Standard <input checked="" type="radio"/> Outlook <input type="radio"/> Folder Replica View
Outlook Folder Name:	<input type="text" value="Cryoserver-Search"/>
Search Results Sort Order:	<input type="text" value="Default"/> (Default: Date Sent)
Forwarding Options:	

Figure 13 - Login Remember-Me and Outlook Folder Links administrator options

The Outlook Folder Links are provided in TWO places. Firstly, on the Login Page:

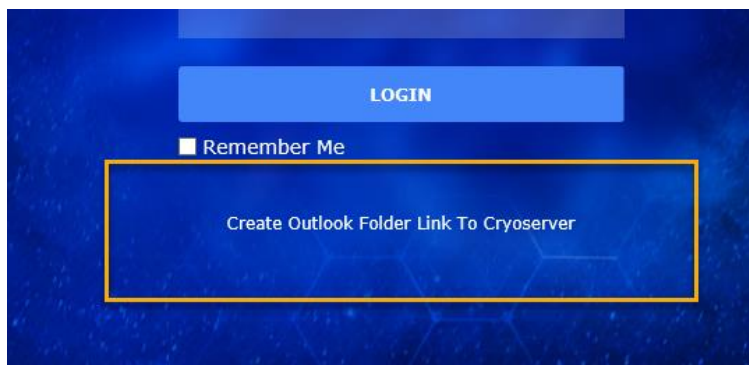
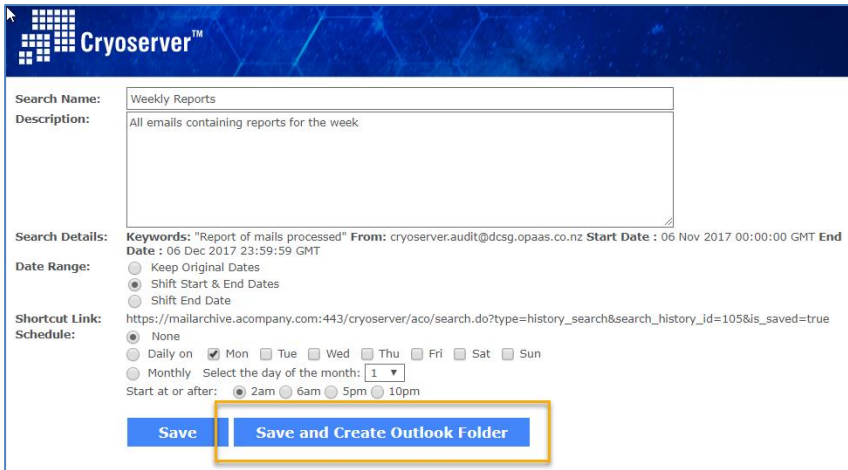


Figure 14 - The Outlook Folder Link on the Login Page, if enabled.

The Folder in Outlook that is created when the user clicks the link will be given the name entered here.

And secondly place that offers Outlook Folder Links is on the "Saved Search" panel. In this case the Folder Link in Outlook is given the same name as the Saved Search.

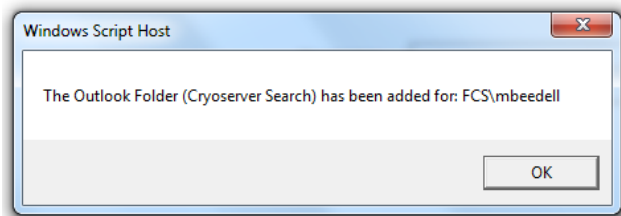


Or..

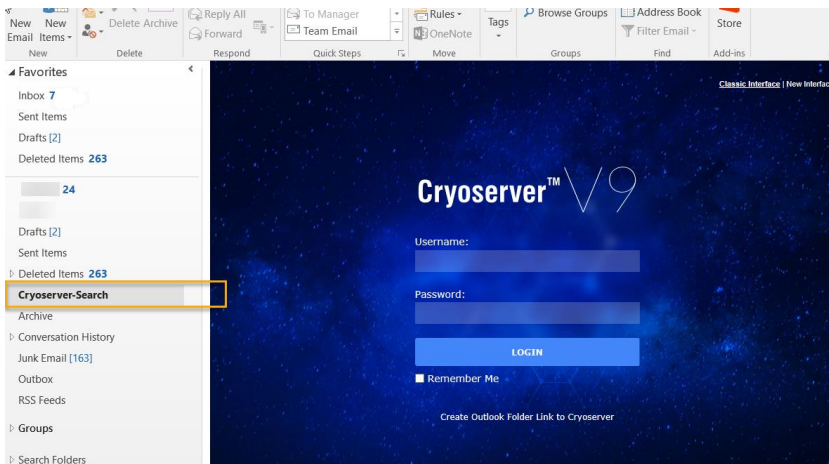


Figure 15 - The Save Search Outlook Folder Link

When an end user clicks on one of these links, Cryoserver will download a bespoke Cryoserver VBS Script to the user's PC which can be executed if the Browser Permissions and any Global Policy restrictions allow.



The effect of this VBS Script is to add a folder entry to the users Outlook Client, which has a "Home Page" link to the Cryoserver URL.



NOTE 1: For any HTTPS web to display within Outlook, the Web Certificate MUST be valid.

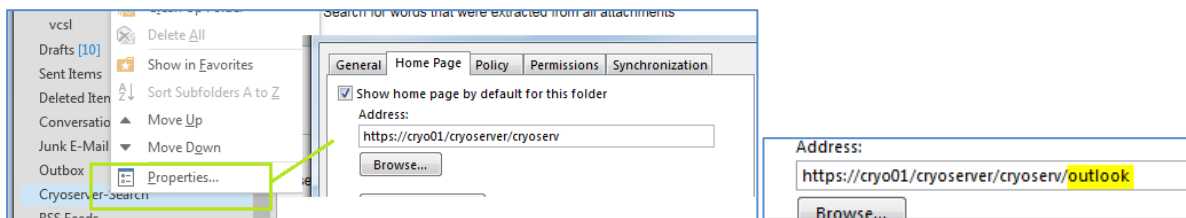
NOTE 2: These links work best if the Single Sign On (SSO) or the “Remember Me” options are used. For SSO to function, the Cryoserver Web MUST be recognised as being within the “Intranet Security Zone” (and not the Internet or Trust Site zones)

Outlook Folder Search Style

Cryoserver offers three search stylings – Standard, Outlook or Folder Replica. This shows the Outlook view.

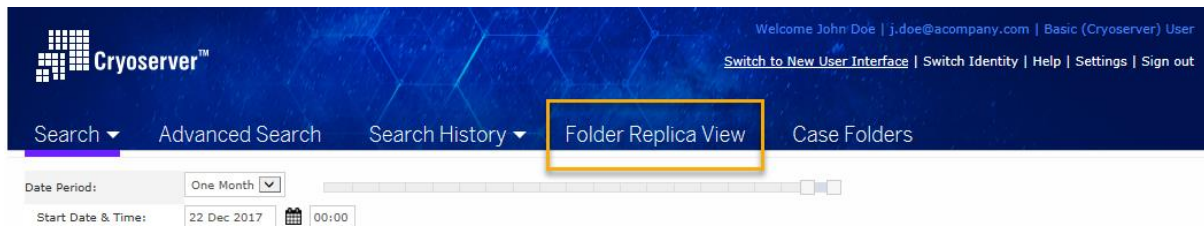


You can alter the required view *after* creating the outlook link. Open the Outlook Folder Properties, and add or remove the word “outlook” at the end of the URL.



ALSO: Users can easily switch between views by clicking the Top Left Cryoserver Logo.

If **Folder Replication** is enabled, you will see the *Folder Replica View* menu:



Folder Name

The Name of the folder in Outlook can be set via this Company Configuration Administration panel. The default is “**Cryoserver-Search**” Administrators are welcome to alter this to something more appropriate for the organisation via Basic Configuration > Company Settings area.

Deployment of the Outlook Folder Link via Group Policy

Administrators can push the Outlook Folder Link to all users in the organisation, via Group Policy. However, Administrators will need to ensure that VB Scripts can run on the target PC's, and that they have Outlook installed.

If you download the standard Outlook Folder VBS script, and open it in Notepad, you will find that you can edit it to disable any Pop-Up dialog boxes. Set the line “bQuiet = true”:

```
rem *****
rem ** Script to add a folder to the current user's Outlook
rem ** The user must have one MAPI (Exchange) connection
rem ** And the folder will be added at the root level (same level as Inbox)
rem ** The folder will open to display a Web Page.
rem ** For the target URL: Please ensure that any HTTPS certificate is valid, else the folder will not display
rem **
rem *****
rem ** Jun 2012 MGB at FCS - Adapted from sample scripts
rem ** Jan 2017 MGB - add Quiet Mode flag for non-prompted (Group Policy) usage
rem *****
on error resume next

dim strFolderName
dim strCryoURL

strFolderName = "Cryoserver-Search"
strCryoURL = "https://mailarchive.acompany.com:443/cryoserver/aco/outlook"
dim bQuiet
bQuiet = false
rem *** set bQuiet to true for use as a Group Policy deployed script

rem **** If any command line arguments have been supplied:
rem **** If only 1 arg: use this as the folder URL, with the default folder name of "Cryoserver Search"
rem **** the first will be the Folder Name,
rem **** and the second will be the URL to Cryoserver

Set colArgs = Wscript.Arguments
if colArgs.Count = 1 then
    strCryoURL = colArgs.Item(0)
elseif colArgs.Count = 2 then
    strFolderName = colArgs.Item(0)
    strCryoURL = colArgs.Item(1)
end if
```

You can also run the script passing one or two parameters. These parameters will override the values for *Folder Name* and the *Cryoserver URL*.

The remainder of the script will:

- Start up Outlook, if it is not running.
- Bind to the Outlook.Application object.
- Insert the Folder under Inbox (showing a warning if it already exists).
- Display a completion message.

5.1.4 Recovering Emails - Forwarding options

These are optional “Action Buttons” that the users may find useful when viewing an email in Cryoserver. They allow an email to be forwarded back to their in-box in a range or formats.

Forwarding Options:

Forward To Inbox : 1 Basic/LDAP User 100 Privileged User Enter the maximum number of items. 0=No Forward, 1=Single Item, more=Limited multiple item forward.

Allow forward to others: Basic/LDAP User Privileged User

Sender Address:

Standard Forward Basic/LDAP User Privileged User

Forward As Attachment (Action Text)

(Message Text)

Zipped then attached Basic/LDAP User Privileged User

Inline Forward (non-forensic) Basic/LDAP User Privileged User

Standard Forward (Action Text)

(Message Text)

Restore To Inbox (via IMAP/EWS): 10 Basic/LDAP User 1000 Privileged User Enter the maximum number of items. 0=No restore, 1=Single Item, more=Limited multiple item restore.

Download Message: Basic/LDAP User Privileged User

Figure 16 - Forwarding Options

The pop-up label text of the action can be changed from the default, if you enter something for the (**Action Text**). In this case the default text of “**Non-Forensic Forward**” has been replaced by “**Standard Forward**”

And here we see the pop-up action text as a search user would see it:

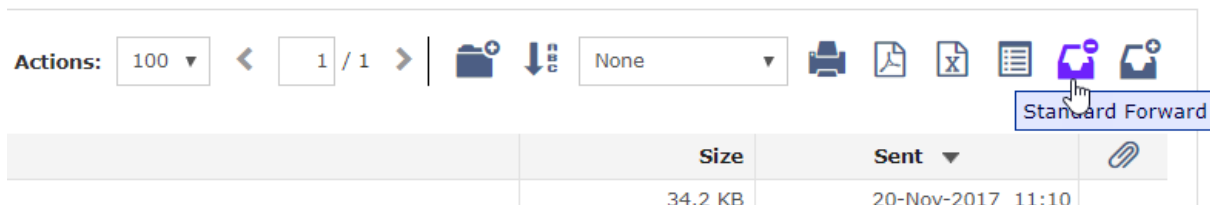


Figure 17 - Action Icons & the hover-over action text

The body text of the forwarded email will contain a short message from Cryoserver. You may override the default text by entering your own wording in the (**Message Text**) box.

Forward to Inbox

Forward to Inbox returns the original email as an attachment, thus preserving the original email headers. *Lotus Notes* will alter these forwarded items – removing the attachment and placing its content in-line with the main email. For a forensic copy with Lotus Notes, we recommend enabling and use the Zip option.

The standard Forward to Inbox feature will return a message to the user’s Primary Email Address. It will display a short summary of the original email, and attach the original email – thus preserving the original email headers.

The administrator can change the first line of Message Text in the forwarded email, as indicated below.

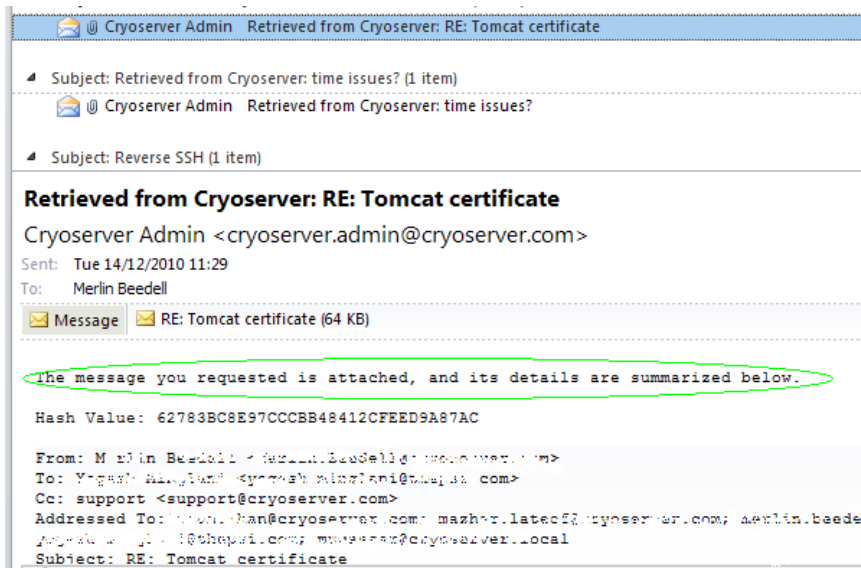


Figure 18 - Forward to Inbox, showing the default message text

Zip and Attach

Zip and Attach returns the original email as a zipped attachment to a new email. We recommend this is used for *Lotus Notes* deployments to preserve the original email for forensic or compliance analysis.

In-Line Forward (non-forensic)

An email forwarded from Cryoserver using the Inline Forward (non-forensic) action will show the body text of the original email in the body of the generated email. The original email headers are not preserved for forensic analysis. However, the original attachments are included.

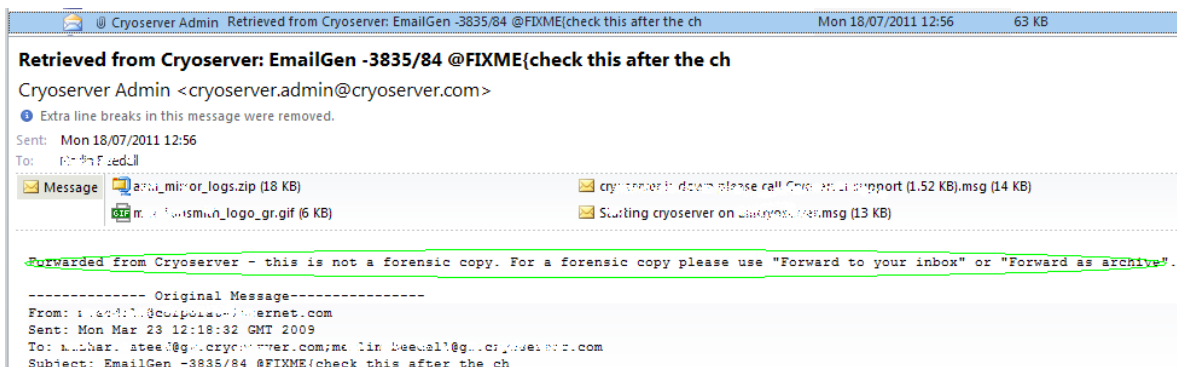


Figure 19 - In-line forwarded email, showing default Message Text

The Administrator can amend the first line of text that shows in the forward email – as highlighted in the Company settings area.

5.1.5 Recovering Emails - Restore to Inbox (via EWS or IMAP)

Restore to Inbox (via EWS / IMAP) allows an **LDAP user** to restore one or more emails to their own Mailbox; or a **Privilege user** to restore emails to any user for which they have the password to

access. Mail is only restored to the Inbox. The EWS / IMAP server to which this action connects is set via the **Restore and Authentication** panel.

Download Message

Download Message will download the email to the user as a .EML file. In many cases, this will be opened automatically by the mail client (e.g. Outlook) on the users' PC.

5.1.6 Message Summary

The search results show a portion of the email body text, with any keywords highlighted. The default setting is 300 (approx. 3 lines preview of the email).

The screenshot shows a configuration panel with two sections: "Priv User Message Summary" and "Basic User Message Summary". Each section has four radio button options: "Never" (User cannot override the setting), "No" (User can override the setting), "Short" (Max 300 characters), and "Long" (Max 600 characters). The "Short" option is selected for both sections. Below these sections is a "Search Results Page Size" dropdown menu set to "100".

Figure 20 - Message Summary Options

These options change how much of the email is displayed in the result listing:

Never – the summary text is never shown, and the user cannot override this. This option may be useful for Privilege users to prevent inappropriate viewing of email content.

No – no summary is shown, but the user can override this.

300 / 600 – show approximately 3 or 6 lines of text.



Figure 21 - No message summary

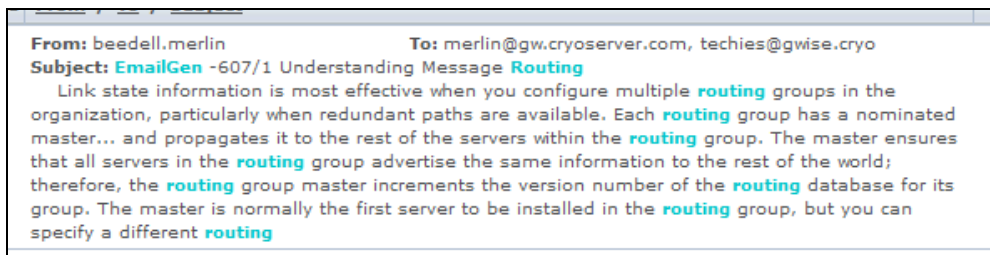


Figure 22 – Example of 600 character message summary

*Users can change their preferred Message Summary size via their preferences, unless the Administrator set the **Never** option here.*

5.1.7 Search Results page size

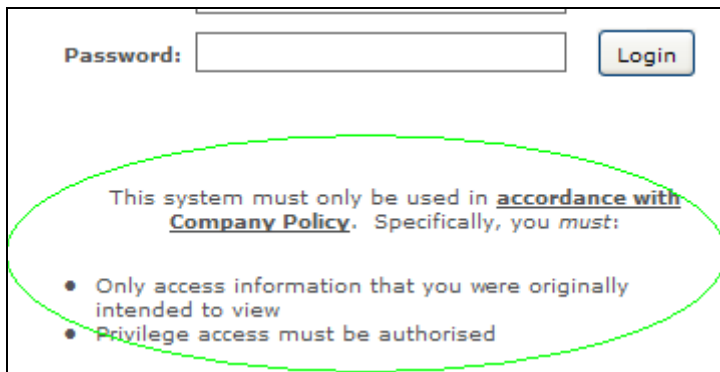
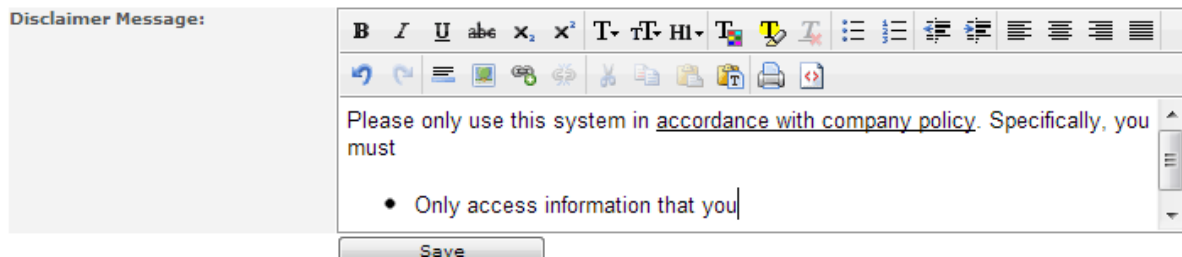
The number of search results to show on a single web page. **Default is 100.**

The time to display a lot of results (300 to 500) can increase the load time – particularly if 600 character Message Summary is to be shown. However, viewing several results at a time can be very useful to the users – particularly when they are using the “group-by” search results action.

Users can change their preferred results page size via their preferences.

5.1.8 Disclaimer Message

This is a message that appears on the Login page, below the User Name / Password area.



5.1.9 Header Links

This is text that will appear in the title banner of the Login page. You can add your standard intranet links, or any other text as required.

5.2 Outbound Email & Alerts

This section defines details about emails *from* Cryoserver.

These are typically:

- User's Forward-to-Inbox emails
- Privilege & Admin user's session transcripts sent to the Data Guardians
- System status and alert emails – for both regular daily health checks and ad-hoc error alerts.

Figure 23 - Outbound Email and Alerts

5.2.1 (Outbound) Mail Server

It is recommended that a single global setting for the Outbound SMTP Server. To do this, tick the “**System wide SMTP Service**” and click the “**System Alert Settings**” link on the right.

MailServer Address is the DNS name or IP address of an SMTP server - typically the company's Email server or SMTP gateway.

SMTP Connection Type can usually be left at “Plain”. If you have a secure email server, or one that requires authentication, then you should select “TLS” or “SSL”.

Port is typically left blank – and that default value of 25 is assumed. If you require an “SSL” connection, then the port will need to be entered (the standard SSL port being 465).

Authorisation Required? Is needed if Administrator's wish to **relay** mail to email addresses outside of the organisation (for example, to allow ALERTS to be sent to cryoalert@cryoserver.com), or if your mail server is restricted to only accept mail from authorised sources (like an anti-spam filter).

Instead of using Authorisation, most organisations set up a **receive connector** in Exchange (or other mail system) that would allow relay only for mail from specific

sources (ip address). For example, see. <http://exchangeserverpro.com/how-to-configure-a-relay-connector-for-exchange-server-2010/> for further details.

Authorisation User & Password: If authorisation is required, then enter the user & password of any valid user of the local network.

5.2.2 Email Domains

Email Domains are the companies' public email address domains. Cryoserver uses these for two purposes:

1. To determine the **direction** of each email - inbound / outbound / internal / outmix [a mix of outbound *and* internal recipients] / unknown [no matches] – by checking the email domains of the sender and recipients against this list of domains. (See **Email Direction** below)
2. **Email Address Expansion:** IF an email is *without* a Journal Wrapper (see section 4.2.2) then any *local* email addresses – as determined by this list – are checked against LDAP for distribution list expansion.



- Please Note. After LDAP has been configured, it is possible to obtain a list of email domains via the “User Directory” menu.

By setting the Local Domains, it is possible to report on the recent/actively used local email addresses.

Cryoserver™

Total 17 active users found during period [01-Mar-2015 00:00 to 12-Mar-2015 16:29] for company staplediets:-

Export to: Excel | XML | CSV

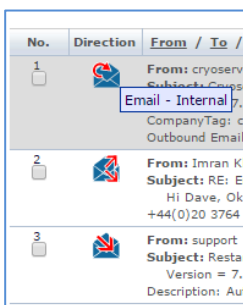
User Identity	Sender	Recipient	Total
dclayton@staplediets.com	1	3	4
fcspublicmailfolder@staplediets.com	1	1	2
hjeffs@slimyou.co.uk	1	44	45
ikhan@slimyou.co.uk	748	13,134	13,882
jclayton@staplediets.com	17	168	185
jourumble@staplediets.com	20	127	147
kathy.rose@gymhealth.com	15	104	119
mbedeel@staplediets.com	1,156	15,647	16,803
mlateef@staplediets.com	273	13,377	13,650
mnoushazar@slimyou.co.uk	759	13,178	13,937
msamy@staplediets.com	3	97	100
publicfoldermail@gymhealth.com	8	8	16
renato.tuveri@staplediets.com	269	13,146	13,415
krrothery@staplediets.com	220	14,633	14,853
sarah.healey@slimyou.co.uk	23	81	104
scornish@staplediets.com	63	4,522	4,585
smerrylees@staplediets.com	15	121	136

Email Direction

When processing each new email, the sender and each recipient is checked against this list of Local Email Domains, and the **direction** of each email is calculated as follows:

Inbound	Sender does not match any Local Email Domains.
	At least one recipient matches a Local Email Domain.
Outbound	Sender matches a Local Email Domain
	All recipients fail to match any Local Email Domain.

Internal	Sender matches a Local Email Domain All recipients match Local Email Domains.
OutMix	Sender matches a Local Email Domain Only some recipients match Local Email Domains, others do not. .. this is a mix of Outbound and Internal
Unknown	No matches with any Local Email Domains for sender or any recipients. Ideally NO email should have the Unknown direction.



The email direction is visible in the end user search under the Direction column.

5.2.3 Raise and Alert if no mail is processed

This setting allows an email alert to be raised by Cryoserver if it has not processed any emails for the configured number of hours (4 hours by default).

NOTE: There are separate, similar, alerts associated with mail collected from IMAP or EWS sources.

However, this setting allows the system to notify Administrators when ALL of the various sources of mail has stopped (SMTP sources, Mailbox Reader, IMAP/EWS Collector, Importer tools).

For DEMO systems (where no new mail is expected), please set this to 0 – to stop these alerts!

5.2.4 Current User Email Address

Current User Email Address is the email address of the administrator that is *currently logged in* – and is the address where a summary of some of these admin edits are sent.

We recommend Administrators change this email address to a local user.

5.2.5 Alert and Audit addresses

The following are **Global Settings** but are presented here for the convenience of usage.

Alert To

Alert To is one or more email addresses where the alerts – both daily status and error details – are to be sent.

- **We Recommend:** Create a “Cryoserver Alert” distribution group in your email system [e.g. in Exchange / Active Directory].

Add any administrative Cryoserver users into this group – which may be different to other IT groups.

- Add ***cryoalert@cryoserver.com*** in order for Cryoserver Support to become aware of any issues at your site. *However*, for this address to work
 - Your email server should “**Allow Relay From**” the Cryoserver IP address (see Setting Relay in Exchange 2007 onwards);
 - Or
 - Add a ‘contact’ in your email server to represent the *cryoalert@cryoserver.com* address – and use this contact in the Distribution List as recommended above.
 - Or
 - Use an Encrypted (TLS or SSL) and Authenticated (User & Password) SMTP connection.

Alert From

Alert From is an email address for the Sender of the system alert emails. It can be entered in the form . If the emails are to be sent to Cryoserver Support (cryoalert@cryoserver.com) then please enter the Company Name in the address:

Alert From:

The address does *not need to be a real user email address*. Just set it so that it looks reasonable.

NOTE: If the “Alert From” and “Audit From” email addresses on this panel are initially blank, then the *first* email domain entered into the “**Local Email Domains**” list above will auto-generate a suggested addresses for both Alert From and Audit From.

Audit From

Audit From is an email address for the sender of transcript emails to the Data Guardians. It can be entered in the form .

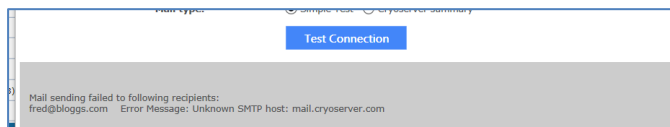
* Transcripts can be found by a Data Guardian or Privileged user by searching for this *Audit From* email address in Cryoserver.

* Transcripts will be sent to the specified data guardians (where they will be journaled back into Cryoserver like any other email). *If there is a problem* sending a transcript, then Cryoserver will process the transcript directly into Cryoserver so it will still be found using a search of the archive.

Test SMTP Connection

Test SMTP Connection button can be clicked to send a test email to the *Alert Recipient(s)* using the settings just entered. The outcome of the action will be displayed below. If there is a problem sending the test, then it is often due to the ‘Relay’ or restrictions on the Receive Connector of the SMTP server.

Any problems sending the test email will be displayed on the pop-up panel:



Save will save these settings, and they will be immediately used by Cryoserver.

Setting Relay in Exchange 2007 onwards

Mails from Cryoserver will **ONLY** be received by user accounts local to the SMTP server (the company Exchange or GroupWise system etc.) **UNLESS** it is configured to *allow relay* from the Cryoserver system **OR** if the 'authenticated connection' option is used.

1. On the **Remote Network settings** page, follow these steps:
 - a. Select the existing **0.0.0.0 - 255.255.255.255** entry, and then click .
 - b. Click **Add** or the drop-down arrow located next to **Add** and type the IP address or IP address range for the remote messaging server or servers that are allowed to relay mail on this server. When you're finished entering the IP addresses, click **OK**.
 - c. Click **Next**.
2. On the **New Connector** page, review the configuration summary for the connector. If you want to modify the settings, click **Back**. To create the Receive connector by using the settings in the configuration summary, click **New**.
3. On the **Completion** page, click **Finish**.
4. In the work pane, select the Receive connector that you created.
5. Under the name of the Receive connector in the action pane, click **Properties** to open the **Properties** page.
6. Click the **Permission Groups** tab. Select **Exchange servers**.
7. Click the **Authentication** tab. Select **Externally Secured (for example, with IPsec)**.

See <http://exchangeserverpro.com/how-to-configure-a-relay-connector-for-exchange-server-2010/> for further details.

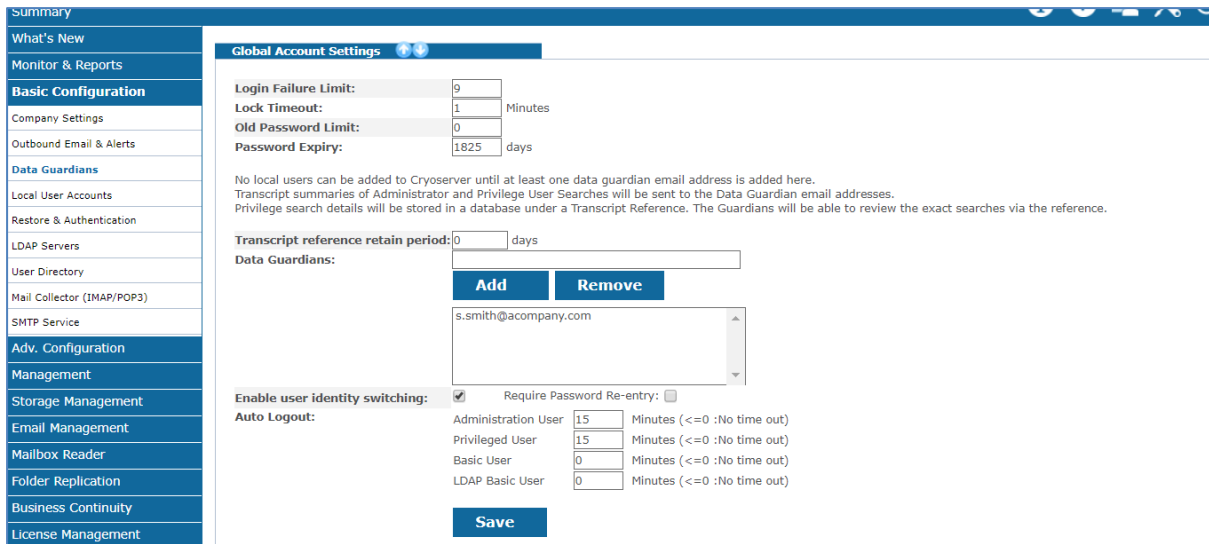
5.3 Data Guardians (and Identity Switching)

Before you can add any Local User Accounts to Cryoserver, you *must* specify at least one Data Guardian. A data guardian is, from Cryoserver’s point of view, just an email address to which Transcripts (of Administrator access and Privilege User searches) will be sent.

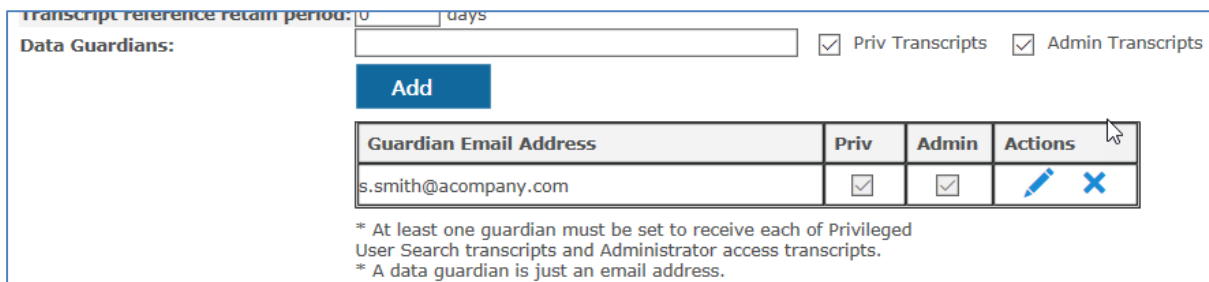
NOTE: From version 9.0.2, you can specify *different* guardians for each of administrative or privilege usage audit transcripts.

If a user logs in to Cryoserver, and their primary email address matches a Data Guardian address, then they will see the Transcript Ref tab. From this they can review the emails that were opened by a Privilege user.

This panel also includes some general login restrictions and settings for *local user* accounts (not LDAP accounts).



From version 9.0.2, you can specify Data Guardians that only receive one type of audit transcript:



5.3.1 Login Restriction Settings

These settings are not related to Data Guardian or Identity Switching. They relate to Local User Accounts only (accounts created in Cryoserver).

Login Failure Limit: How many times can a user attempt to log-in with the same user ID before the account is locked out?

Lock Timeout: The number of **Minutes** that the user account will be locked for after an incorrect password was entered more than the *Login Failure Limit* number of times. Minimum is 1.

Old Password Limit: If a user's password has expired and must be changed, must it be different to the last few passwords? Enter 0 to tell Cryoserver that the user can re-enter the same password again.

Password Expiry: The number of **days** before a password expires, after which it must be changed. A user is given one 'grace' log-in with their old password.

5.3.2 Data Guardian settings

Transcript reference retain period: The number of **days** that the details of each email viewed by a Privilege User, and summarised under a Transcript Reference, will be held in Cryoserver. The default is 0 (the transcript reference details will never be deleted). If a value other than 0 is used, then the Data Guardian will not be able to review a Privilege User search that was performed more than that number of days ago.

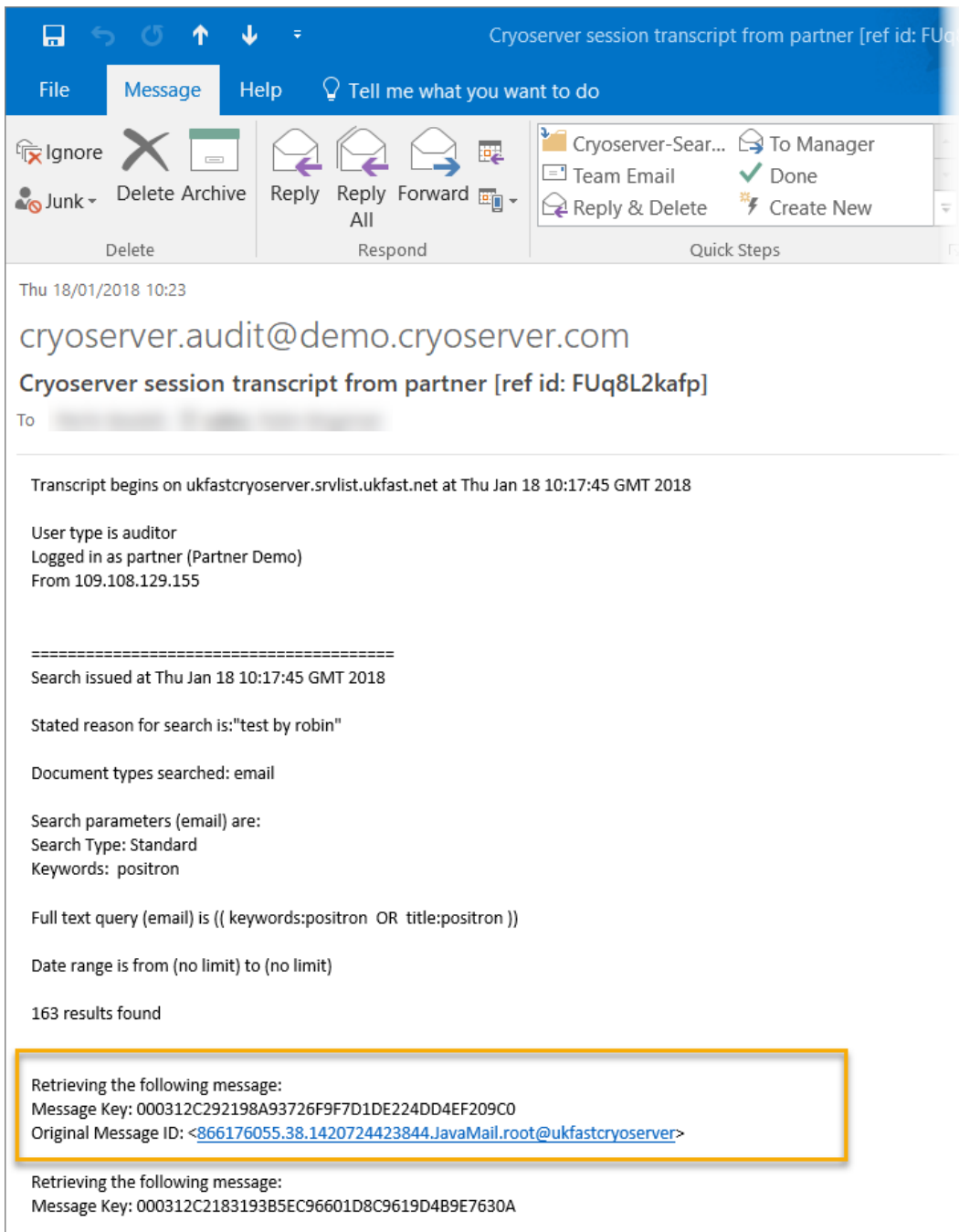
Data Guardians: Add in the email addresses of each person who should oversee the activities of Administrators and Privilege users.

Recommended Data Guardian candidates are:

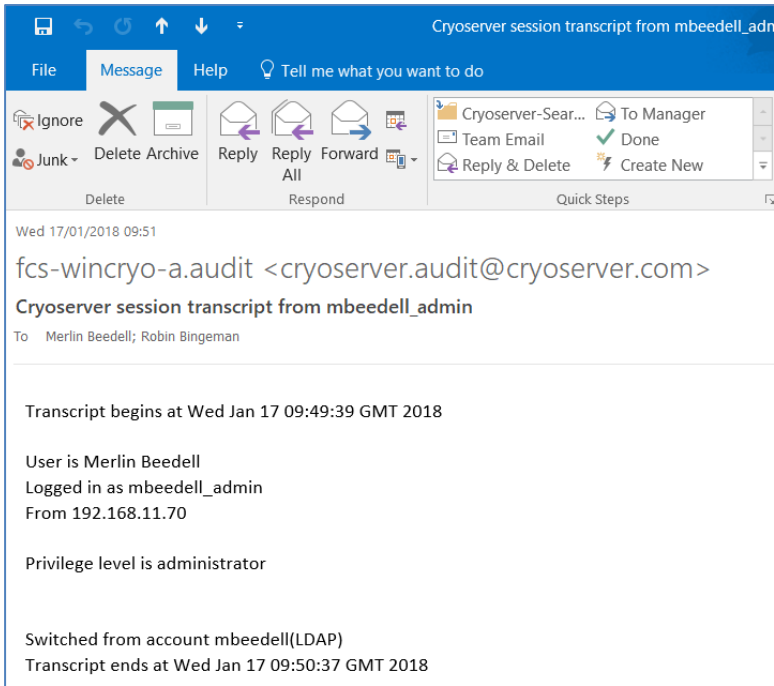
- HR Manager
- Compliance Manager/Officer
- IT Manager
- CEO / senior staff
- Union Leader

Example transcripts:

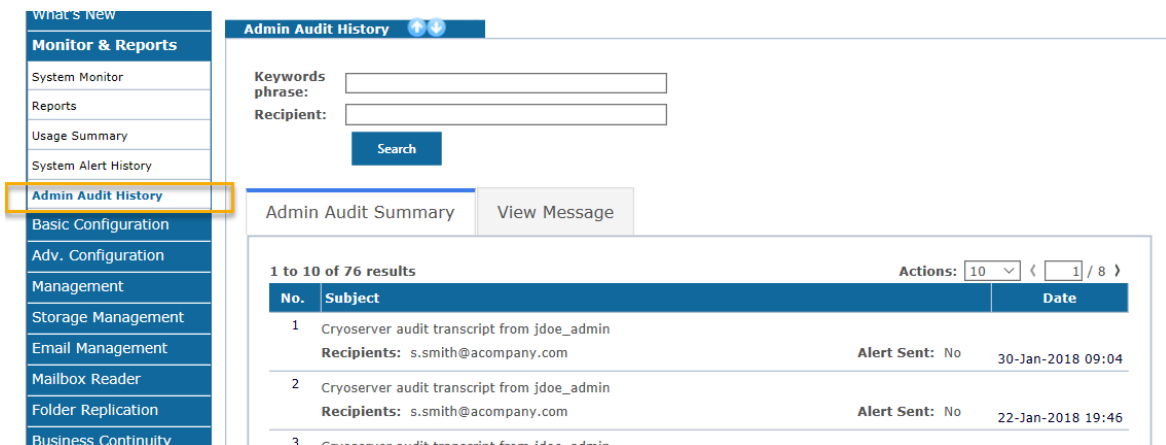
This is a transcript resulting from a Privileged User access. In this case the user named "partner" performed a search and viewed some of the results (highlighted below).



A typical Administrative Audit often contains very little. Not every administrative change is captured and recorded in the transcript. Generally just user account creation and alteration is recorded. A typical transcript would look more like this:



NOTE: Administrative Audits can also be searched and viewed via the Reports Administrative section. This is true even if the system was unable to send the email to the intended recipients:



5.3.3 Identity Switching

Enable user identity switching:	<input checked="" type="checkbox"/>	Require Password Re-entry:	<input type="checkbox"/>
Auto Logout:	Administration User	<input type="text" value="15"/>	Minutes (<=0 :No time out)
	Privileged User	<input type="text" value="15"/>	Minutes (<=0 :No time out)
	Basic User	<input type="text" value="0"/>	Minutes (<=0 :No time out)
	LDAP Basic User	<input type="text" value="0"/>	Minutes (<=0 :No time out)

This feature allows a user to switch from one account to another account. Switch Identity is available under the following conditions:

1. Where two or more accounts have the **same primary email address**. Typically this refers to one or two local user accounts and an LDAP account, as follows:
 - a. User logs in using their LDAP (Active Directory) account.

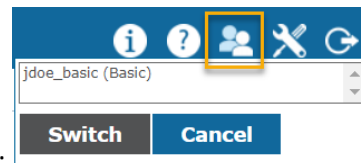
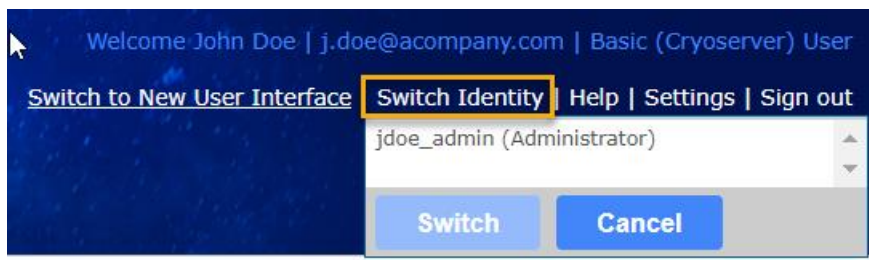
- b. They “switch identity” to their Cryoserver Administration or Privilege user account (e.g. accounts that have the same primary email address)
2. Where one user has provided “**Delegation**” access rights to another user; or the administrator has created a delegation or link-to connection between two accounts.

After a user has switched to a different account, certain actions are no longer allowed:

- The user cannot create or alter delegation links.

This remains true even when they switch back to the account that they originally logged in with.

If a user has the ability to switch identity, they will see a “**Switch Identity**” link in the header menu bar.



Or in the Administration area, a “double headed” icon is used:

And the footer bar will indicate if the user has switched from another account.



Figure 24 - Using the Identity Switch feature

Enable user identity switching and Require Password Re-entry

The feature can be disabled – or you can require for passwords to be re-entered. If a password re-entry is needed, then the password of the original login (usually your LDAP Network password) may be entered OR the password of the account you are switching to. Currently, all accounts have the same “security level” – meaning that you can switch (for example) between a ‘basic’ account to a ‘privileged’ account without requiring password re-entry

Automatic Logout

You can set the system to automatically logout from a switched-to account, *after a period of inactivity*. We encourage you to set timeout value – particularly for Privileged and Administrative accounts.

Switch Identity based on Primary Email Address

Any accounts that have the same primary email address will be granted the ability to “Switch Identity” between these accounts. For Cryoserver *local user accounts*, this is set as shown in the picture below:

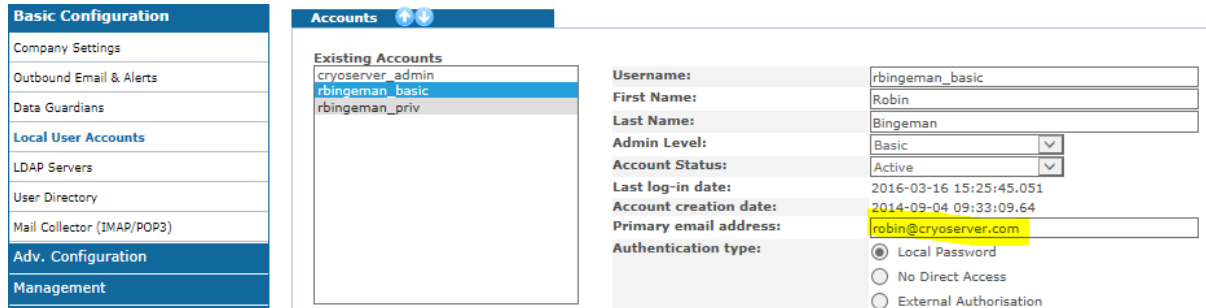


Figure 25 - Identity switch links on the Primary Email address

A user accessing Cryoserver using an LDAP / Active Directory or Single-Sign-On (e.g. ADFS / SAML) can switch to Local accounts.

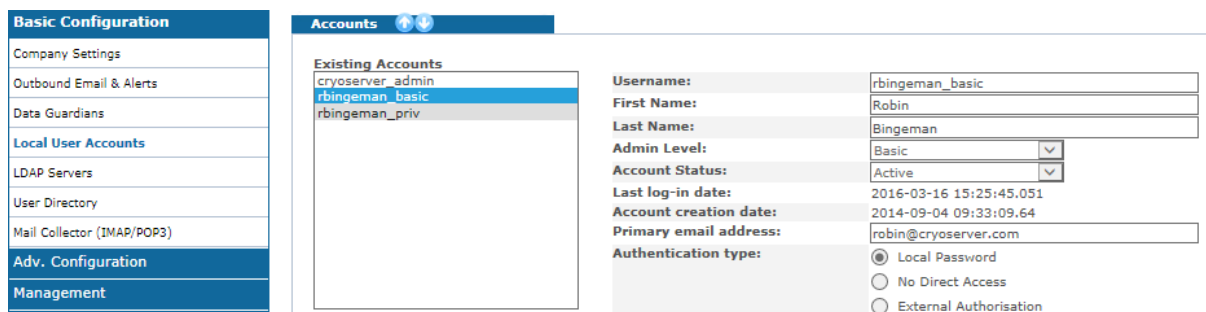
Delegation Links

A basic user (LDAP or a basic local user account) can allow another user to access their account, via their settings panel. An administrator can view/edit/remove these links.

See *Linking One Account to Another Account* for further information.

5.4 Local User Accounts

After at least one Data Guardian has been defined, then Cryoserver local user accounts can be created. Cryoserver supports 3 local user types, Administrator; Privilege and Basic, as discussed in section 4.3.5 .



All user types have the following details:

Username: This is the unique username as entered into the Login page. We recommend that the name is different to a user’s network login id name. We suggest that you append **_admin / _priv / _basic** to the username to ensure that it is different to a user’s standard login name, and it also indicates the type of user.

First & Last Name: The user’s full name to display in various places in Cryoserver.

Admin Level: The type of this user. One of Administrator / Privilege / Basic

Account Status: One of Active or Locked.

Primary Email Address: This address is where any email *from* Cryoserver will be sent for this user. This will include reset Password and Forward-to-inbox emails.

Once a new account is saved, a random password is assigned and emailed to the new users' Primary Email Address. If Cryoserver is unable to send this email, then the password will be displayed on this screen.

Other details for the different account types are discussed below.

5.4.1 Administrator user type

An administrator cannot search.

Only administrators can reset passwords – and access the 'Forgotten your Password?' login facility.

- NOTE: If an administrator uses the 'Forgotten your Password?' feature, a new password will be emailed to the Administrator's Primary Email Address.

There is a single default Administrator (cryoserver_admin) which is used to set-up the initial Cryoserver system. Please ensure that the email address of this account is changed – typically via the "Outbound Email & Alerts" menu, *Current User Email Address* setting.

We recommend that additional administrator accounts are added – one for each member of IT staff who may need to administer the Cryoserver system. Then the Data Guardian transcripts will indicate which user had logged in.

There are no further Details required for the Administrators account.

5.4.2 Privilege / Privilege & Delete User types

This user can search across ALL email in that Cryoserver system (or that Cryoserver Company, when in multi-tenant mode) *unless* one or more **searchable domains** are added. A **Privilege & Delete** user type has the ability to *authorise* a deletion request. This account type will only become available if you have a **license** to use it. In all other respects, this account type is the same as a standard Privilege account. Any searches made by Privileged users will raise an *audit transcript* that is sent to the Data Guardian(s).

Admin Level:	Privileged & Delete
Account Status:	Active
Last log-in date:	
Account creation date:	
Primary email address:	
Authentication type:	<input checked="" type="radio"/> Local Password <input type="radio"/> No Direct Access <input type="radio"/> External Authorisation
Searchable Domains:	<p>Restrict the Privilege user to emails to and from these domains. Leave blank for un-restricted searches.</p> <div style="display: flex; justify-content: space-between;"> Add Remove </div> <input type="text"/>
Exclude Addresses and/or Domains:	<p>Prevent items with these email addresses and/or domains from being included in search results. Leave blank for un-restricted searches.</p> <div style="display: flex; justify-content: space-between;"> Add Remove </div> <input type="text"/>
Other Auditors:	<p>Additional email addresses that receive summary search transcripts from this account. This is in addition to the Data Guardians.</p> <div style="display: flex; justify-content: space-between;"> Add Remove </div> <input type="text"/>

Searchable Domains: are restrictions on the Privilege user – so that *only* email to or from an email address in one of the Searchable Domains will be returned.

If a company is an umbrella for a number of brands – like the hotels in a hotel group – and each brand has its own email domain, then you can create a separate privilege user for each brand/domain. The privilege user would only be able to search across the emails for their brand (email domain).

Exclude Addresses: If one or more staff wish to be specifically excluded from any Privilege Search

Results (including any emails where they were just one of several recipients) then enter their email addresses here.

Other Auditors: are additional or alternative email addresses where Data Guardian transcript emails will be sent for this user. This is of particular use if Searchable Domains are used – as you may have a Data Guardian for each company brand / email domain.

5.4.3 Basic User type

A basic user can *only* search and view mail that match the email addresses specified for their account. This is similar to a user connecting via LDAP (i.e. with an Active Directory user login).

A basic user is not *normally* audited (i.e. No Data Guardian transcript will be sent following any searches).

NOTE: Basic accounts can be set up to view **any number of different user mailboxes** – by entering several *secondary email addresses* that relate to other mailboxes. In this mode, the basic account should be audited – and it is recommended to ensure that the **auditing** options are used when creating such an account.

Secondary Email Addresses: Add as many email addresses that this user should have authority to view.

Add *several addresses at once* by entering a **comma or newline separated list**, and pressing the Add button.

Figure 26 - Adding a Basic User

Enable Share Folder: The results of a search can be saved as a Case Folder, and comments given for each email in that folder. There are times when that folder of emails needs to be viewed by, for example, a supervisor. This option will allow for a Folder to be shared.

Figure 27 - A folder with share capabilities

Enable Sample Search: This will display a 'Random Selection' feature to the Search User, where only a percentage of the possible results will be returned to the user. This is useful for compliance officers who are obliged to conduct random sample searches on a regular basis to check for potential breaches of the company or business regulations.

Figure 28 - What the user will see if "Enable Sample Search" is selected

Exclude Primary Address From Search: This is useful where a basic account is designed to be *Team Supervisor* account – an account where email addresses of a team of people are added to the ‘secondary addresses’. All searches should be conducted across that team of people – but should not include the team supervisor themselves.

This should be used with the Auditing options described below.

Exclude Secondary Addresses From Search: A convenience feature. Unlikely to be useful.

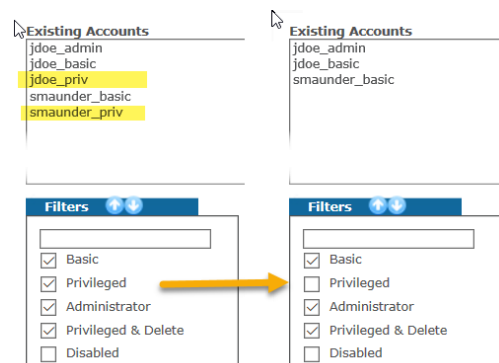
NOTE: Any LDAP or Local Basic User can select exactly which email addresses are to be used for their searches from the Preferences area.

Enable Auditing: If this account is knowingly able to access other user email addresses, then it *should* be audited. With this enabled, at least one of the Data Guardian options *must* be selected.

Auditing by Data Guardians: Tick this if the company-wide Data Guardian(s) are to receive transcripts of searches conducted by this account.

Other Auditors: Enter email addresses of alternative Auditors who should receive transcripts of searches conducted by this account.

5.4.4 Filtering the User List



The Local User list can be filtered to show only Basic OR Privileged OR Administrator users – or any combination – by selecting the appropriate tick boxes. If you select the **Disabled** option, then the User List will only show accounts that have the *Account Status* of Disabled.

5.5 Restore and Authentication

Restore is a technique used to inject email back into user mailboxes from the archive.

Authentication is a technique to verify a user’s password at login.

This panel allows you to define connections to your email servers. These will be used to provide email “Restore To Inbox” and “Login Authentication” services to your users. This allows you to set up a connection to an older email server and newer one to assist during mailbox migration.

The system will allow either IMAP or EWS to be used.

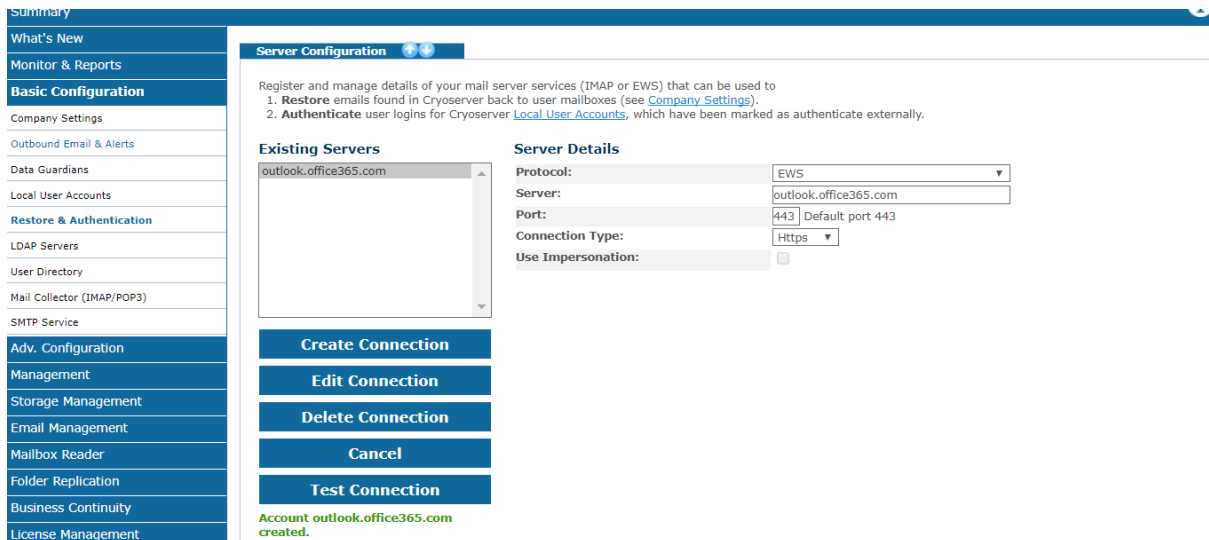
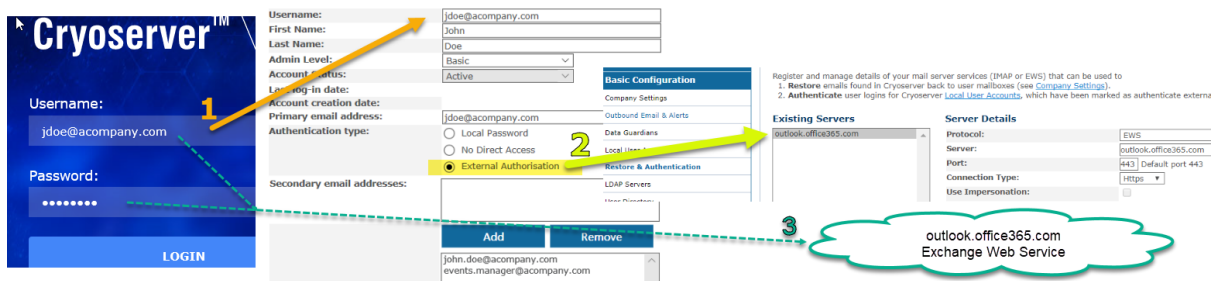


Figure 29 - Restore and Authentication

5.5.1 Authentication

Cryoserver 'local user accounts' must be created, with "External authentication". When the user tries to login, the username entered by the user will be used to obtain the *local user account's* details. Finding that external authentication is required, the username and the password from the login web page are then passed to *each* of the Restore and authentication connections, where a login is attempted using the configured protocol (IMAP or EWS). If the login succeeds, then the user will be logged in to Cryoserver using the details (name & email addresses) from the local user account. No account details from the remote mail servers will be obtained or used – only the login test.



The Login authentication sequence is:

1. User enters their *username* and *password*
2. If the *username* matches a local user account, that has "external authorisation".
3. For **each** entry in the "Restore and Authentication" list;
 - a. Open a connection to the remote EWS or IMAP service
 - b. Pass the Users username and password to the EWS or IMAP login sequence
 - c. If the EWS or IMAP login succeeds, then the user gains access to Cryoserver – using the details of the "Local User Account".

If login fails, then the system will revert to try other login methods (first by testing other *local user accounts* and then trying *LDAP*, if configured).

IMPORTANT NOTE: Because the **username** entered on the login page is passed to the EWS or IMAP service – this *same* username **MUST** be set in the Cryoserver *local user account*.

- For **Office 365** – the username will *always* be an email address. And the server will be “outlook.office365.com”.
- For **IMAP** or on-premise Exchanges – the username could be the “SAMAccountName” or the “User Principal Name” (an email address type format).

5.5.2 Restore

Cryoserver supports the ability to restore emails from the archive back to your mail server. See “**Recovering Emails - Restore to Inbox (via EWS or IMAP)**”. It can use either IMAP or EWS (Exchange Web Services). We recommend using EWS for Exchange 2007 or greater.

IMAP or EWS Server address is the DNS or IP address of the **front-end** or **CAS** server.

Connection Type: For IMAP we strongly recommend using either TLS or SSL. Only use Plain connections if your network is otherwise secure. EWS only supports HTTPS, which is inherently secure.

Port: **IMAP** Plain or TLS - default value of 143 is assumed. An SSL connection will default to 993. **EWS** uses the default HTTPS port of 443.

Impersonation: (EWS Only) If Impersonation is selected, and a suitable username / password of a valid impersonation user account is entered, then emails can be “restored” **without your users needing to enter a password**. This is most convenient – but it could lead to security issues. So please use this option with caution.

USAGE NOTE: *Multiple* Email Server connections can be entered – but if you do enter more than one, then the end users will be prompted to select which to use – and this may confuse users. However, this technique can be used in a mixed server environment – e.g. during a server migration (e.g. Exchange 2013 to O365) or if you have both **Lotus Notes** and **Exchange**. Users will select from the *server names* entered here and will need to understand which to use. However, once a user has successfully connected once, Cryoserver will remember this and not prompt again.

5.6 LDAP Servers

LDAP is the common name for accessing the content of directory servers such as Microsoft Active Directory, Novel eDirectory or Lotus Domino. Cryoserver uses LDAP in three ways:

1. To assist when validating a User Login [if ‘translate user’ option is used]; and/or
2. To expand email addresses in non-enveloped emails
3. To provide User Account lists for selection purposes under:

- a. User Directory [to Link accounts or to extend via Add Address]
- b. Mailbox Reader [to select accounts to read mail from]
- c. Folder Replication [to select accounts to replicate the Outlook Folder tree]

The LDAP admin page sets up one or more connections to an organisations LDAP server (typically known as the Domain Controller).

Create an LDAP connection by clicking the [Create New Connection] or by copying an existing connection. The recommended sequence of steps is shown below:

1. Enter your local PDC/AD/LDAP server name or IP address

2. Press the "Fetch Base DN"

3. This should fill in these boxes

Then enter a user & password. Any user – they do not require a mailbox or any permissions other than to allow read-only search of the LDAP directory.

4. Enter User & Password, and 'Save Details'

It makes sense to select a user account where the Password is unlikely to change frequently. By creating an account specific to Cryoserver (like 'cryoserverLDAP'), its usage & role will be clearer sometime later when Administrators review the user accounts in the LDAP directory.

Now "Test Connection". There are generally 3 outcomes:

1. Connected successfully with valid credentials.

2. Failed with following error message: [LDAP: error code 49 - 80090308: LdapErr: DSID-0C0903C8, comment: AcceptSecurityContext error, data 52e, v23f0φ]

3. Failed with following error message: fcs-pdc-a:389

- 1. The Connection & User/Password works OK
- 2. The User/Password is incorrect in some way
- 3. [Sometimes after a long wait] The Connection to the LDAP server has failed or is blocked in some way.

For most basic Windows / Exchange-Based systems, this is all that you need to do. But there are some advanced usages, which we explore in the following sections.

5.6.1 Username and the Login process

After a user enters their Username / Password into the Login panel to access Cryoserver, the following sequence of events occur:

1. Check if the username matches any LOCAL Cryoserver user accounts (not LDAP accounts). If so, test the Password (by encrypting it and matching against the stored encrypted copy).

IF no matching local user account OR if the password fails to match then,

2. For each LDAP connection (that provides the “Authentication” service), construct the complete User-ID [see below] and,

At this point there are *two very different ways* in which Cryoserver will perform the Login process:

IF the “**Translate Users**” option is **YES**

3. Login with the *Configured* LDAP User
4. Using the “Translation Key” field, perform a Directory Search for the user:
LDAP Search Where Translation Key = User-ID; For example..
“SAMAccountName = jcrumble”
NOTE: This will only search in each of the **Search DNs** (if configured).
5. If the search finds the user, then confirm their password by “binding” to this account.

However, if the “**Translate Users**” option is **NO**

3. Directly test the username and password by performing an LDAP “Bind” using the constructed User-ID and Password.

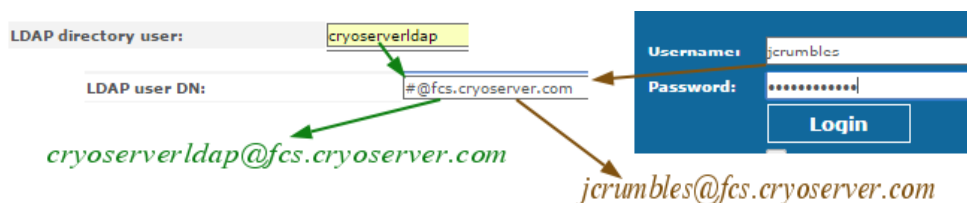
5.6.2 Constructing the User-ID from the Username

The **LDAP Directory Username** is combined with the **LDAP User DN** field to create a complete user identifier (**User-ID**) that the LDAP system (Active Directory / Domino / eDirectory etc) would accept in an LDAP “Bind” command. The “Bind” command will verify a User-ID and Password combination.

The most typical format, for **Active Directory**, is of the form:

#@company.base.dn

The # symbol will be replaced with a user name – either the one entered by a user into the Cryoserver Login page – or the *LDAP Directory User* entry. Like this:



The system also allows for the older Windows login user id style:

NT-DOMAIN\#

Again, the # symbol will be replaced by the users' login username.

For **Lotus Notes**, **eDirectory** and others the User-ID may need to be in the **FQDN** format:

CN=#,OU=Organisational Unit, **O=Organisation**, **DC=local**.

To make it easier, the system can automatically append the **Base DN** into this text if you tick the **“Append Base DN”** option. We also recommend that the **“Translate Users”** feature is used where the FQDN format is required:

LDAP directory user: **cryoserverldap** LDAP base DN: **DC=fcs,DC=cryoserver,DC=com**

LDAP user DN: **CN=#,OU=ServiceAccounts,OU=FCS**

LDAP append base DN: No Yes

CN=cryoserverldap,OU=ServiceAccounts,OU=FCS,DC=fcs,DC=cryoserver,DC=com

LDAP translate users: No Yes

LDAP translation key: **samAccountName**

LDAP search DNS: **OU=CVSUsers,OU=FCS,DC=fcs,DC=cryoserver,DC=com**
OU=Employees,OU=FCS,DC=fcs,DC=cryoserver,DC=com
OU=ExternalAdmins,OU=FCS,DC=fcs,DC=cryoserver,DC=com
CN=ThirdParties,OU=FCS,DC=fcs,DC=cryoserver,DC=com
CN=Users,DC=fcs,DC=cryoserver,DC=com

With "Translate users"
 Phase 1 - Connect with configured user
 Phase 2 - Search directory for Username
 Phase 3 - 'Bind' to confirm Password

Search for (samAccountName = jcrumbles) within each Search DN

5.6.3 Using the Email Address as a Login Username

The Login logic is altered if an **@** symbol is detected in the Username entered by the user (e.g. the user enters their Email Address). In this case it will cause the LDAP login logic to:

1. Match with the **LDAP primary email address** attribute (usually **'mail'**)
2. Inspect only the LDAP Connections that are **associated with** the email domain from the email address.

Email Domains: select from list

LDAP Type: **ActiveDirectory**

LDAP primary field name: **mail**

In this case, the LDAP connection will be used to validate an email address login **ONLY** for **staplediets.com**.

To match more domains, Edit the connection and CTRL-CLICK each domain – and they will become Highlighted.

Username: **jcrumbles@staplediets.com**

does match with this LDAP connection.

Username: **jane.spurr@droponesize.org**

Password: []

Login

Remember Me

Login Failed: Username or password not recognized

But here the email address does not match with this LDAP connection, and login will fail unless... at least one LDAP Connection will need to **select/highlight** the **“droponesize.org”** domain is also selected in the LDAP Connection.

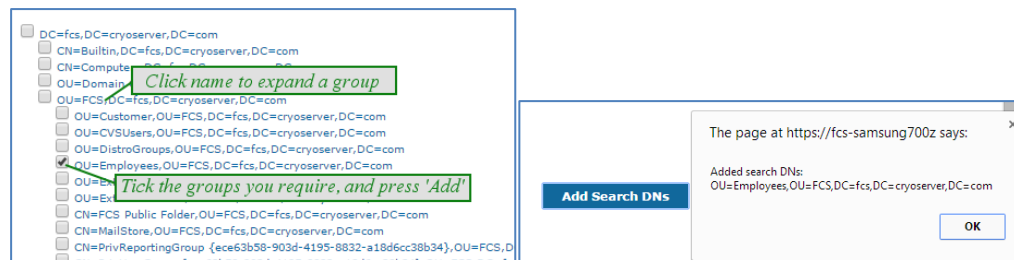
5.6.4 Restricting Users by Search DN's (OU Groups)

The **LDAP Search DN's** list can be left blank or set to the **BaseDN** value – meaning that the WHOLE directory tree is searched to match a User Account (for Login Authentication)

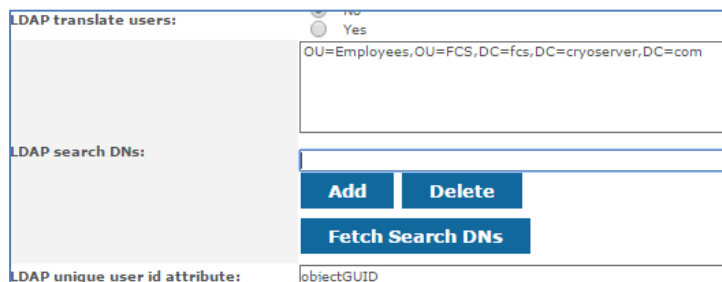
For **Lotus Notes**, you should enter the value “**root**”.

However, if your Directory Tree is very large, or you wish to restrict Login Access to only users in selected OU Groups, then you can enter the required Directory Branches (typically Organisational Units / OU groups).

To select groups from the LDAP tree, press the “**Fetch Search DN's**” button – a popup dialog should appear (if your browser allows pop-ups).



Pick the required OU Groups from the Pop-Up dialog box, and press the “**Add Search DN's**” button.



5.6.5 Email Domains

Select which local email domains this LDAP server is to be used for.

1. This allows for users in a Domain Forest, where different LDAP servers represent just one tree of the forest. Each LDAP server will validate users for one or two email domains, not the whole forest of domains.

Users will need to enter their full email address into the Cryoserver Login, so that Cryoserver can select the appropriate LDAP server to validate the user against.

2. This allows for *email address expansion* to be performed only on the associated email domains.

You should now be able to [Save Details]. Cryoserver will immediately start to use these settings. There may be a delay, when mail is currently being processed, as the system has to flush the LDAP cache from memory.

Press the [Test Connection] to check that this LDAP Connection allows the Login settings that have been entered.

After creating an LDAP connection, you should test to see if it works. There are three levels of testing:

First, to click the [Test Connection] button on the LDAP panel.

Second: To use the *User Directory* menu entry in the Admin area. See 5.7 below.

Third: See if someone can log-in to Cryoserver using their network login credentials.

5.6.6 Other LDAP Settings – Fields and Patterns

LDAP unique user id attribute:	objectGUID
LDAP Type:	ActiveDirectory ▼
LDAP primary field name:	mail
LDAP primary field pattern:	(.*)
LDAP secondary field name:	proxyAddresses
LDAP secondary field pattern:	(?:^smtp:)(.*)
LDAP display field name:	displayName
LDAP translation key:	samAccountName
LDAP creation date field :	whenCreated
LDAP Attribute for IMAP Username:	
<p><i>*The following fields are used when processing new mails without a Journal Envelope wrapper (RFC822 format). Email addresses need to be de-aliased and distribution lists expanded by CryoMailArchive. However, Envelope formatted mail provides the full and final set of email addresses - so no further ldap action is needed.</i></p>	
LDAP secondary field format:	(proxyAddresses=smtp:{0})
LDAP member field name:	member

Figure 30 - Additional LDAP configuration options

To enable Cryoserver to work with a wide range of LDAP servers (such as GroupWise eDirectory and Lotus Notes/Domino) there are a number of facilities to modify the way that items of information are extracted from the Directory.

Unique user id attribute: In order to ‘key’ a user when they log in to a unique identifier for the user, this value is fetched from the LDAP server. For Active Directory, the default “objectGUID” works well. For other LDAP services, the “cn” value would be more appropriate. This value is no longer critical to Cryoserver – it was used to ‘key’ each email to the associated user mailboxes, but this is no longer supported.

LDAP Type: If “Active Directory” is chosen, then the remaining fields will be reset to standard values. You can override any of these defaults by typing a new value over the default. Any field that is left BLANK will revert to the default value for Active Directory.

If “Custom” is selected, then the following fields should be specified, otherwise some features will stop functioning.

Primary field name: This is the name of the LDAP field that contains the user’s *Primary Email Address*.

Primary field pattern: This is a “regular expression” that determines how to extract the user’s primary email address from the value returned from the LDAP Primary field.

The default of (.*) will extract ALL text.

Secondary field name: This is the name of an LDAP field that contains the user's *Secondary* or *Alias email addresses*. LDAP Servers will return an array (list) of values.

Secondary field pattern: This is a "regular expression" that Cryoserver uses to extract an email address out of each value returned from the LDAP server for the Secondary field name. This can be quite complex! Servers like Active Directory will return a whole host of different types of address – such as X500 addresses, and cc-mail addresses (if the gateway is installed), as well as typical email addresses. This MUST use a bracketed group, and any text returned in the second group will be used.

The default pattern of (?i:^smtp:)(.*) will extract any text that follows the prompt "smtp:".

Please refer to a good tutorial on regular expressions – as they are very cryptic and beyond the scope of this guide.

Display field name: This is the LDAP field that contains a nice-to-display name for the user. There are usually quite a few candidate fields that could be used!

Translation key: The LDAP field containing a user's Login ID. This value is used in conjunction with the *Translate Users* (Yes/No) option when a user Logs in to Cryoserver. This is explained in [Constructing the User-ID from the Username](#)

Attribute for IMAP Username: We find that logging in to IMAP may require a non-standard username – for example, when using a *Linked Exchange in a Forest Domain*.

Secondary field format: This is used when processing new mail into Cryoserver, to convert an alias email address into a primary email address. It places the email address extracted from the email into the {0} part of the format text.

This is ONLY used when the email being processed is NOT enveloped. AND where the email domain in the email address extracted from the mail headers matches one of the domains selected for this LDAP connection in Cryoserver.

The default value is (proxyAddresses=smtp:{0}) meaning that Cryoserver will connect using the configured LDAP Directory User, for each applicable email address perform an LDAP Search like this (proxyAddresses=smtp:an.example@email.address.com)

Member field name: This is the LDAP field that contains a list of Distribution Group members. Each member will be a FQDN pointer to the LDAP entry for that group member – which would be either user entries, or another distribution group.

Use display name in search? : If Administrators have imported from PST files without using an LDAP Feature within the **PST Extraction Utility**, then you will find that all local users will ONLY show their Display Name. The email address will have vanished. This is because the PST data discards email addresses in favour of an internal active directory identifier (**X400 address**) and the **display name**. The extraction process will typically only export the display name. Cryoserver can help here – as it can search and find emails based on the Display Name – as though this was a real email address.

SO – If Administrators have imported PST data with display names instead of email addresses (for local user accounts) then you should find that **ticking this option will greatly help basic/ldap users from finding these PST emails** that refer to them.

5.6.7 Email Address Expansion

Another usage of LDAP is to expand **local** email addresses. By this we mean:

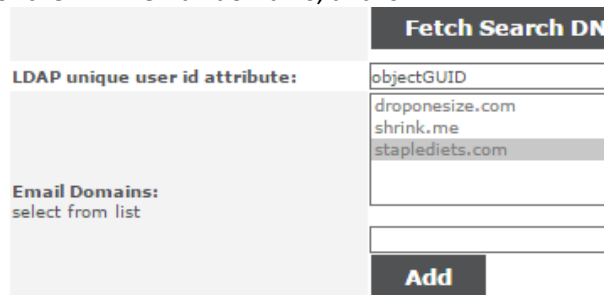
- For any email address that matches one of the configured ‘Local Email Domains’..
 - To convert an “*alias*” or secondary email address to its matching **Primary Email Address**.
 - To expand any *distribution group* email addresses into a list of user primary email addresses.

If an email is received in Cryoserver that does *not* have an ‘**envelope wrapper**’ [most common in **Imported Email**], then email addresses will be expanded as follows:

1. Check if the Company Advanced Settings allows expansion:



2. Extract the To: and Cc: text from the email headers
3. Split the text into each email address – typically a display name followed by an email address.
4. Extract the internet email address part from each address entry (remove any display name part)
5. For each address that matches one of the LDAP email domains, and is..



SELECTED in the LDAP Connections:

- a. Look-Up the Primary address in LDAP – if NOT found, then
- b. Look-Up the Secondary address in LDAP
- IF a or b finds an entry:
 - c. Does it have any ‘members’ – if so, it is a distribution group. Extract each ‘member’, returning each primary email address, or further expanding any members that are also distribution groups.
6. Cache the results, so subsequent lookup for the same address is faster.

If the email header looks like this:

```
Received: from pav01s002.pvl.local ([172.16.0.12]) by pav01s002.pvl.local ([172.16.0.12])
with mapi; Thu, 23 Jul 2009 16:01:39 +0100
Subject: Cryoserver Disk Space.
Date: Thu, 23 Jul 2009 16:01:36 +0100
Message-ID: <25BC0130988EC84FA47FD10EE8B3619675376979D4@pav01s002.pvl.local>
From: "Tim Wurch" <Tim.W@joline.co.uk>
To: "Diet Support" <support@staplediets.com>, "Robin" <robin@droponesize.com>
```

Cc: "Ben Moes" <Ben.Moes@joasme.co.uk>

Then the candidate addresses to convert in this email is:

support@staplediets.com

robin@droponesize.com

ben.moes@joasme.co.uk

If the configured LDAP entry was associated with email domains "staplediets.com" then:

support@staplediets.com

1. LDAP Search (mail=support@staplediets.com) -> no match
2. LDAP Search (proxyAddresses=smtp:support@staplediets.com) -> Match Found [to helpdesk@staplediets.com]
3. LDAP Entry has 'member' entries – it is a distribution group
4. LDAP Lookup for each 'member', returning primary email address field value: mb@staplediets.com ; ml@shrink.me and ik@droponesize.com

robin@droponesize.com

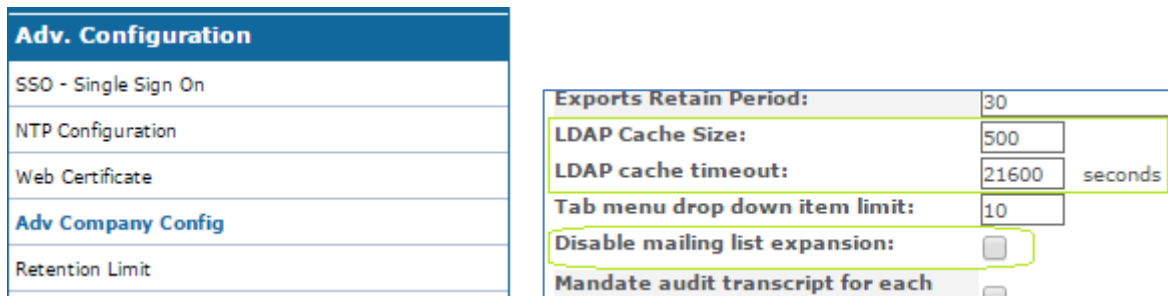
1. The email domain is 'local' but is not associated with an LDAP connection – no expansion.

ben.moes@joasme.co.uk

1. Users email domain (@joasme.co.uk) is not a 'local' domain. No processing needed.

5.6.8 Disabling LDAP email-address expansion

Under Advanced Configuration -> Adv Company Config, tick the "Disable Mailing List Expansion" option.



5.6.9 LDAP Performance – Cache size

Also note that two other LDAP settings are available in the Advanced Company Configuration – *Cache Size* and *Cache Timeout*. These refer to the number of LDAP entries (local email addresses + expansion details, if any) that will be held in memory to speed up repeated lookups. These items will remain in memory for the specified timeout period – after which the entry will be removed from the in-memory cache.

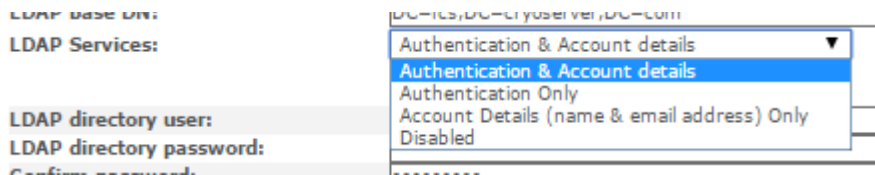
With Envelope Wrapped email, no email address expansion would occur anyway – so the LDAP Cache / Timeout and Expansion options are of limited use.

With **non-envelope email** [typically from Imports or non-Exchange systems], the LDAP address expansion (if enabled) then plays a **dramatic part in the overall system performance**.

A cache (of any type) will use memory – so the larger the cache, the more memory it requires. Thus the LDAP Cache Size should reflect the number of local email addresses commonly in use – including distribution groups, balanced against the memory available on the Cryoserver system. A Cryoserver on a 20 Gb server can cache several thousand LDAP entries, while a 2 Gb server should be limited to no more than the default 500 entries.

5.6.10 LDAP Services: Disabling an LDAP Connection

By default, each LDAP Connection that you add is immediately activated for standard usage (it will both Authenticate users and return their Account Details).



If you have several LDAP servers, Administrators could configure them in Cryoserver, but disable some of them. **Edit** the connection and set the *LDAP Services* to **“Disabled”**.

NOTE: Cryoserver uses the LDAP Server Name as the unique key in the database – you cannot define two connections to the same LDAP server using the same name (to do this, define one using the DNS name, and the other with the IP address).

5.6.11 Dual / Linked LDAP Servers

For Active Directory Forests with “Linked Exchange” services, users will need to *authenticate* their Login against one AD, but will need to access a *different* AD to obtain their various Email Address (*account*) details.

For Lotus Notes, and some other Email Servers, users could log-in against Active Directory, but then access a Domino LDAP service in order to obtain their Email Address details.

Cryoserver supports these two scenarios. Administrators will need to configure a *pair* of LDAP Connections – one for “Authentication” and the other for “Account details”.

1. The First LDAP Connection that Cryoserver will use is the “Authentication” connection – this will ‘prove’ the Users Login Username and Password.
 - a. If this login is successful it will return a “Linking Attribute” value.

The linking attribute will contain a value from LDAP that is unique to that user, and that can be used to lookup the same user in the “Account” connection...
2. Cryoserver will then switch to the “Account Details” connection and:
 - a. Use the configured user to gain access to the service,
 - b. Perform a Directory Search based upon the “Translation Key” attribute with the value of the “Linking Attribute” from step 1 above.
 - c. If the lookup is successful, then return the primary & secondary email addresses and use these for the user in Cryoserver.

Here is an ‘authentication’ LDAP Connection:

Outbound Email & Alerts	Existing Servers	Server Details
Data Guardians	192.168.11.202 [Account Details] fcs-pdc-a [Auth]	LDAP Server: fcs-pdc-a
Local User Accounts		LDAP Port: 389
LDAP Servers		LDAP Connection Type: <input checked="" type="radio"/> Basic unencrypted <input type="radio"/> SSL <input type="radio"/> TLS
User Directory		LDAP base DN: DC=fcs,DC=cryoserver,DC=com
Mail Collector (IMAP/POP3)		LDAP Services: Authentication Only
Adv. Configuration		Link to Server: 192.168.11.202 Please set the 'LDAP translation key' as the linking attribute.
Management		Link Attribute: msExchMasterAccountSid
Email Management		

And here is the “Account” LDAP connection that it will link to:

192.168.11.202 [Account Details] fcs-pdc-a [Auth]	LDAP Server: 192.168.11.202
	LDAP Port: 389
	LDAP Connection Type: <input checked="" type="radio"/> Basic unencrypted <input type="radio"/> SSL <input type="radio"/> TLS
	LDAP base DN: DC=fcs,DC=cryoserver,DC=com
	Referred by Server(s): fcs-pdc-a
Save Details	LDAP Services: Account Details (name & email address) Only

It will need its “translation key” field to be modified according to the chosen “link field” on the authentication side.

LDAP secondary field pattern:	(?i: ^smtp:)(.*)
LDAP display field name:	displayName
LDAP translation key:	objectSID
LDAP creation date field :	whenCreated
LDAP Attribute for IMAP Username:	

Here the default (for Active Directory) of samAccountName is changed to “objectSID” – which will correspond to the “msExchMasterAccountSid” attribute value returned from the authentication process.

5.6.12 Testing LDAP & Address Lookups

After creating an LDAP Connection, the easiest next step is to click the “Test Connection” button. This will validate that Cryoserver can ‘bind’ (LDAP term for login) to the configured user account.

There would typically be 3 outcomes:

1. Connection works
2. Connectivity issues to the LDAP Server. This can cause a *LONG DELAY* in seeing any response to the “Test Connection” button. Check that the SERVER & PORT and SSL/TLS protocols are appropriate.
3. Configured Connection User credentials issues – typically incorrect password. You should quite quickly see a response.

If the “Test Connection” works, then there are three things you can do to ‘prove’ LDAP is working for you.

1. Use the “Test Address Lookup” button. This allows Administrators to see how Cryoserver “Expands” an email address.
2. Use the “User Directory” feature – described in the next section

3. Try to log-in as a user. Use a separate browser session (NOT ANOTHER 'TAB' in the same browser), and try to login using your network credentials.

NOTE: Cryoserver supports [under the hood] two different LDAP API's – one from Novell and the other is JNDI (a standard Java feature). If you use GroupWise eDirectory, then you may get better results from the Novell API – but for all other connections, the JNDI method is preferred [and is the default]. If you get continual LDAP errors, then ask for a Cryoserver Service Engineer to try the 'other' API.

The service engineer will need to use the following command to alter this:

```
# commandutils.sh setsystemconfig preferred_ldap_method 1
```

Where 1 = Novell or 2 = JNDI

Cryoserver will need to be restarted after this change.

5.7 User Directory

This provides a User Account search and display facility. The search will either be against one or more LDAP servers, or against the local Cryoserver user database.

Enter a few letters of a user's name (display name or email address) in the "Search For" box – followed by a * wildcard and press Enter. The system should, if LDAP is correctly configured, return some matching names and address details.

LDAP / Cryoserver Realm: Whether to query the LDAP directory or the Local Cryoserver User database. Typically, it would only need to search the LDAP service.

LDAP Servers: if there are multiple LDAP connections, then only select the one(s) that you wish to query.

Search For: Enter the account name that you are looking for. Enter the * wildcard where needed – typically at the end of the search name. The system will try to find matches based on 3 LDAP Fields:

Primary Email Address (typically the 'mail' field)

Secondary Email Address (typically the 'aliasAddresses' field)

Display Name (typically the 'displayName' field)

So if you search for `a*` the system will return ANY matches on
`mail=a* OR aliasAddresses=a* OR displayName =a*`

Allowed Link To: Instead of searching for an LDAP user, this lets you find **users with Links**.

Leave the Search For: **blank** and this field is not used.

Enter a **linked email address** or just `*` into this box, to list accounts with matching links.

See the 'Link Accounts' section for further information on Account Linking.

Additional Address: Any LDAP user account can be extended in Cryoserver with extra email addresses. Use this search *instead* of the Search For, to locate any user accounts that have had added addresses.

See "Adding Additional Addresses" section for further details.

Search Filter: Filters can be used to refine LDAP searches for specific purposes. You can create filters to only return User accounts or only Distribution Groups, or to remove Service accounts from the results.

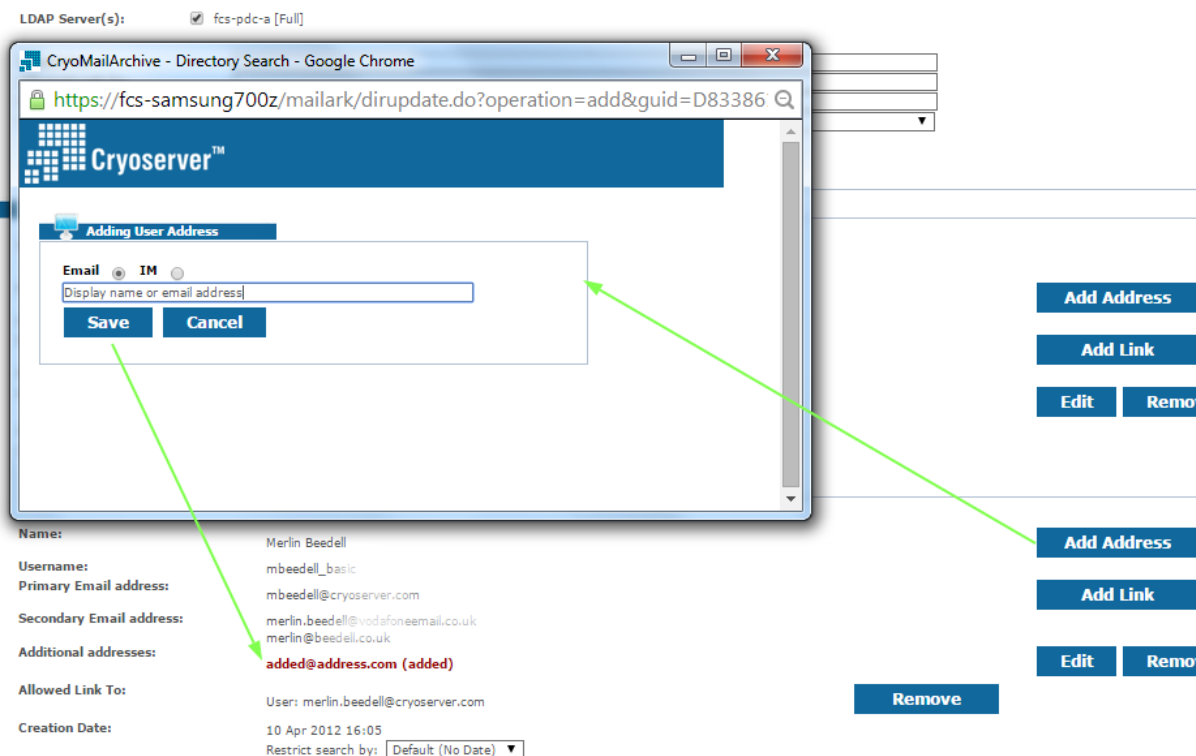
See "LDAP Search Filters" section for more information.

Search DN's: If the LDAP Connection has one or more Search DN's defined, then you can narrow down your search to just one or two of these DN's.

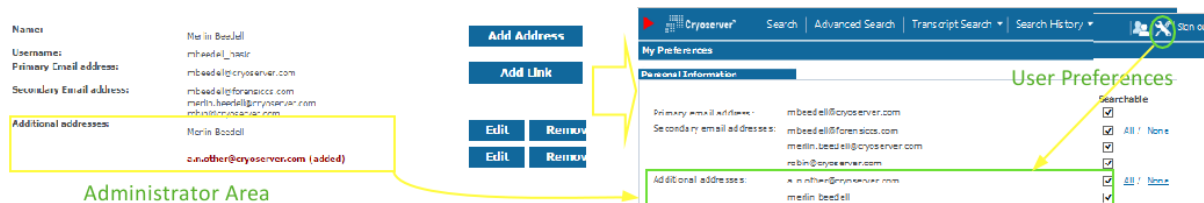
5.7.1 Adding Extra Addresses to an LDAP User Account

When a user logs in with their LDAP credentials, Cryoserver will obtain all of their various email addresses – and use these for Search purposes (e.g. to search only mail sent / received by any of their email addresses, both old and new). It is sometimes desirable to add extra email addresses to LDAP user accounts in Cryoserver, typically for one of these reasons:

1. To give access to **another users email**: e.g. a manager's email to their PA. [However, we suggest that you use the '*Link Account*' feature instead.
2. To include a user's **private mail** (e.g. Hotmail) when they search. This assumes that private mail is being collected as well as business mail. Cryoserver's "Mailbox Reader" makes this possible.
3. To cope with **Import Mail**, where the old email contains non-standard email address values.
4. For **Lotus Notes / GroupWise**, where secondary/alias email address data is not shared with the LDAP Directory.



Perform an LDAP Search to find the user account to which extra addresses are to be added. The click the “Add Address” button. You can add **any text** as an email address – but it will only be of value if it matches a *complete* Sender or Recipient email address recorded in Cryoserver.



End users can choose if they want to include these additional email addresses in their searches – under the Preferences section, they can tick the addresses that are to be included in every search. The more addresses, the wider the search becomes.

There are some limitations with this approach:

1. LDAP login’s are not audited – so no audit trail is created if you add addresses relating to other user accounts, allowing a user to search other user’s email.
2. Every search by that user will include all email addresses – so mingling results for all addresses. This can be confusing – a preferred method is to “Link” accounts instead.

The ‘Add Address’ feature adds a lot of flexibility – but also adds responsibility on the Administrator. *Please use it wisely.*

5.7.2 Linking One Account to Another Account

An alternative to *extending* a user account with extra email addresses, as shown earlier, is to provide User Account Links. An account link allows a user to “**switch identity**” from their login account to another account.


Cryoserver has had this feature for some time, based only on Primary Email Addresses – if two or more accounts have the same Primary Email address, then the user can “Switch Identity” between these accounts.

Account Links can be created by:

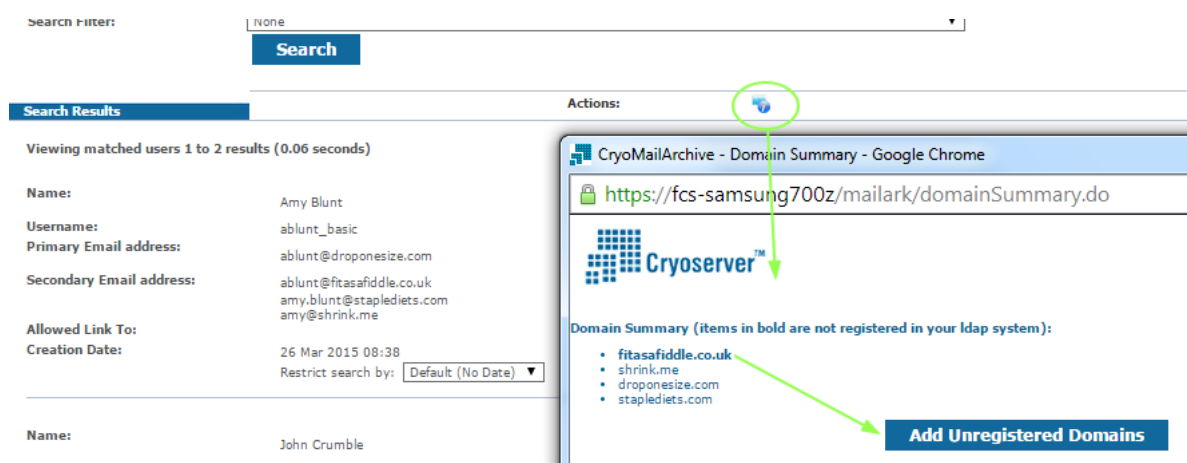
- Administrators via the *User Directory* menu panel.
- End Users via their *Preferences* panel. They can allow another user to access their account.

5.7.3 Obtaining your Local Email Domains list

You can view the list of local email domains extracted from the results of an LDAP search. You can use this list to

The **Show Email Domains** action button:  after an LDAP search with results, this action button will appear. It displays a list of email domains extracted from the primary & secondary email addresses returned in the search. These are candidate email addresses to be included in the ‘Local Email Domains’ list – as entered either the Outbound Email and Alerts (section 5.2) or LDAP Servers.

Entries in bold are missing from the current ‘local email domains’ list in Cryoserver. Press the button to start the process to select and add the required domains to your local configuration.



The screenshot shows the Cryoserver search results page. At the top, there is a search filter set to 'None' and a 'Search' button. Below this, the search results for 'Amy Blunt' are displayed, including her name, username, primary and secondary email addresses, and creation date. To the right, an 'Actions' menu is visible, with the 'Show Email Domains' icon circled in green. A browser window titled 'CryoMailArchive - Domain Summary - Google Chrome' is overlaid on the right side of the page. It shows the URL 'https://fcs-samsung700z/mailark/domainSummary.do' and the Cryoserver logo. Below the logo, a 'Domain Summary' section lists email domains: 'fitasafiddle.co.uk', 'shrink.me', 'droponesize.com', and 'staplediets.com'. The first three domains are in bold. A green arrow points from the 'Show Email Domains' icon to the 'Add Unregistered Domains' button at the bottom right of the browser window.

5.7.4 User Directory Search with Dual (linked) LDAP Connections

In the case shown in the following picture, we see two LDAP Connections – one is for Authentication, and the other is for Account details. The Authentication LDAP connection links to the Account LDAP connection on *msExchMasterAccountSid* linking to ObjectSid. The ObjectSID is a binary field, which

will result in some odd looking characters against the **Username:** label in the output listing of the Account Details LDAP server.

LDAP realm: CryoMailArchive realm:
LDAP Server(s): 192.168.11.211 [Account Details] fcs-pdc-a [Auth]

Search For: mer*
Allowed Link To:
Additional Address:
Search Filter: None
 OU=FCS,DC=fcs,DC=cryoserver,DC=com
fcs-pdc-a Search DNs:

Search

Search Results Actions:

Viewing matched users 1 to 2 results (0.09 seconds)
 Viewing 1 result(s) from LDAP Server fcs-pdc-a
 Viewing 1 result(s) from LDAP Server 192.168.11.211

LDAP Server: fcs-pdc-a
Name: Merlin Beedell
Username: mbeedell
Primary Email address:
Secondary Email address:
Allowed Link To:
Creation Date: 05 Jul 2010 08:30
 Restrict search by: Default (No Date)

LDAP Server: 192.168.11.211
Name: Merlin Beedell
Username: ☪_☪3g.T☪P
Primary Email address:
Secondary Email address: mbeedell@cryoserver.com, merlin@cryoserver.com, mbeedell@fcs.pdc.com, merlin.beedell@experimental.cryos.com, merlin.beedell@cryoserver.com, merlin.beedell@fcs.pdc.com, merlin.beedell@fcs.pdc.com
Allowed Link To:
Creation Date: 05 Jul 2010 08:30
 Restrict search by: Default (No Date)

Username that the user would enter on the Login page

Email Addresses returned for this user login

The UI does not currently display all of the linking attribute from the Authorisation LDAP connection – so if you have problems setting up Dual / Linked LDAP Connections, then you may need a separate LDAP Browser. Please contact the support desk for help and guidance on this.

5.8 Mail Collector (IMAP or EWS)

Basic Configuration

- Company Settings
- Outbound Email & Alerts
- Data Guardians
- Local User Accounts
- LDAP Servers
- User Directory
- Mail Collector (IMAP/POP3)**
- Adv. Configuration
- Management
- Email Management
- Mailbox Reader
- Folder Replication
- Business Continuity

Email Collector

The Email Collector will download mail from a Journal Mailbox. It will perform a READ-AND-DELETE loop, removing mail from the mailbox. Do not use this to collect mail from standard user mailboxes – for that use the "Mailbox Reader" facility. Please view the current status of any Email Collectors on the Monitor page.

Existing Connections

- fcs-ex2010

Connection Details

Username: [field]
Password: [field]
Protocol: IMAP
Server: fcs-ex2010
Connection Type: TLS
Port: 143 (Default port 143)
Check Every: 60 seconds
Enable:
Idle Alert Period: 0 Hours

Create Connection
Edit Connection
Delete Connection
Test Connection

Figure 31 - Adding a Mail Collector connection

The mail collector is one way of getting emails into Cryoserver. It uses a Read-and-Delete routine – so mail **will be deleted** from the selected user account. Only the Inbox is read – sub-folders are ignored.

Its purpose is to obtain “Journal Mail” from a Journal User Mailbox. Journal Mail is normally a copy of mail as it was being transported over SMTP and may include additional delivery information compared to the original email.

IMAP is the default and preferred protocol. It has been successfully used for many years. However, EWS has been recently added for Exchange systems.

Idle Alert Period setting can be used to detect if the collector stops collecting (but where emails from other sources continue to be received – meaning that other ‘fail flow’ alerts would not be invoked).

With Exchange 2007+

- Journal Mail can be delivered *direct* to Cryoserver over SMTP, instead of to a Journal Mailbox. Use this method if you prefer IMAP/EWS over SMTP for Journal Mail.
> The **ONLY** benefit of Mail Collection over direct SMTP delivery is that will hold the queue of mail for much longer if Cryoserver is down for any reason.
- You may use the **EWS** protocol instead of IMAP. Some additional options will become available relating to a couple of strategies to delete the downloaded emails as efficiently as possible. Please try each of the options to see which works best after some time in your environment.
- If using **IMAP** service may need to be installed and enabled for the journal account. Exchange no longer installs this by default.
NOTE: On a Paired Exchange, you would need to enable the IMAP service on the Load Balancer NOT on each Exchange.
- The ‘*SSL Enabled*’ option should be selected here – unless the default settings in the Exchange are changed.
- The user mailbox details entered here should be one selected in the/a Journal Rule in the Organisation -> Hub Transport level, or in the Server -> Mail-Store level.

With Exchange 2000 & 2003

- IMAP Collection from the Journal Mailbox is the preferred method to obtain Journal mail from Exchange 2003. It is the **ONLY** method that Exchange supports with the “Journal Wrapper” support (which includes BCC recipient data into the Journal copy).
- You can enter the Exchange Mailbox Server that holds the Journal Mailbox account OR a front-end / CAS Exchange server.
- You can use ‘plain’ unencrypted connection – but TLS encryption is preferred (else the account login is passed unencrypted).
- NOTE: On a Paired Exchange, you would need to enable the IMAP service on the Load Balancer NOT on each Exchange.

With GroupWise

- This requires a very special IMAP reader (known as the ‘**GCIDaemon**’). Do not use the Mail Collector specified here. A Cryoserver engineer will need to deploy the GCIDaemon to be installed and configured for your site.

With Lotus Notes

- You will probably use direct (SMTP) mail delivery, and *not* require this collector service.
- For Direct SMTP delivery, use a Mail-In database option, but set to the email address for the Cryoserver. Appropriate SMTP Connector documents will be needed to route direct to the Cryoserver.

With Scalix / MDAemon and others

- These support BCC replication of mail (direct SMTP delivery) – so no need for this Mail Collector.

5.9 SMTP Service (optional)

Some systems have built-in Cryoserver SMTP Email Server service. This replaces any OS Specific SMTP Mail server – typically Postfix on Linux systems and Windows SMTP Service on Windows.

This service can be installed on any Cryoserver system – it is Java based.

The screenshot displays the Cryoserver web interface. The left sidebar contains a navigation menu with categories like 'Summary', 'What's New', 'Monitor & Reports', 'Basic Configuration', 'Adv. Configuration', and 'Management'. The main content area is divided into two sections:

- SMTP Settings:** This section includes a 'Receive mail for domain:' field with the value 'complianceinternet.co.uk'. Below it is an 'Additional Email Domains:' list with 'Add' and 'Remove' buttons. Other fields include 'Encryption Type' (set to 'Plain'), 'Port' (25), 'Add Company Header' (checkbox), 'Spool Directory' (/opt/cryoserver/cryoserver\data/uk-ih-sp-001/spool), 'Import Directory' (/opt/cryoserver/cryoserver\data/uk-ih-sp-001/import), 'Critical Free Space' (2 GB), and 'Check Frequency' (5 minutes). A 'Save' button is at the bottom.
- Net Ranges:** This section has a heading 'The following Mail Server IP addresses are registered for receiving mails.' followed by an empty list box. Below are 'From:' and 'To:' input fields, 'Add' and 'Delete' buttons, and a radio button option for 'Restrict access to network range connections?' (set to 'No'). A 'Save' button is at the bottom.

At the bottom of the page, the footer shows 'Version 9.0.3', the user 'j.doe@company.com as jdoe_admin / A Company', and the Cryoserver logo.

Once enabled, there are two aspects to configure:

- The global service details – see

6 Advanced Configuration

6.1 Single Sign On (SSO)

Single Sign On is a technique to use your current Windows domain login to access Cryoserver, bypassing the log-in page. Passwords are NOT passed during SSO, but instead your current windows user 'token' is used for validation purposes. A token is computed each time that you log-in to a Windows domain, so it cannot be cached and used at another time. This system only works with NTLM or NTLMv2 tokens – designed to only work in Microsoft Domains.

Furthermore, to prevent *man in the middle* attacks, the user token includes a 'source pc identifier'. To validate SSO, the Windows Domain Controller will check that the source of the validation request (Cryoserver) is the same as the source pc encoded into the token (the user's pc). In order for this to work, the Cryoserver server needs to be registered as a Computer in the Windows Users & Computers list.

Figure 32 - Enabling Single Sign On (SSO)

As stated on the screen, the following tasks should be performed:

1. First a COMPUTER account must be created in Active Directory Users and Computers.
2. Then use the script SetComputerPass.vbs to give it a password (use the 'Download Script' button).
3. Enter the domain, computer account name and password details here, and press Apply
4. Then use the Management -> Restart -> Restart WebServer.

The Cryoserver will then be able to create an authenticated connection to your Domain Controller, over which secure SSO connections may be passed.

Further Details:

Your internal AD Domain: You can get this from the LDAP Base DN. It is typically like company.local or company.com

Computer Account Name: If the 'computer' account name added to Active Directory Users & Computers is "CryoserverSSO" then this value will be

CryoserverSSO\$

Notice the required \$ sign at the end. Active Directory adds this automatically when you create the account.

Computer Account Password: A computer account cannot be assigned a password via AD Users and Computers. So to set a password, download and run the '**SetComputerPass.vbs**' script. This will prompt you for the computer account name, and then let you set a password. Enter that same password here.

DNS (optional): SSO service will locate your PDC and any other DC's via DNS. It will validate a user against any DC that it can contact. If the Cryoserver has DNS correctly configured (so domain names resolve in other parts of Cryoserver configuration – like LDAP server names and Outbound Email and Alerts: email server) then leave this blank. Otherwise enter the IP address of an internal DNS server.

Site Name: If your users are in a Forest of Domains, then enter the site name of the local tree of your domain. Most single domain companies will not require this.

After saving this configuration, the web server will need to be restarted to ensure that SSO starts being used. To do this, navigate to the Management menu, and use the Restart menu item.

If there are further issues with SSO, then you may need to review the logs. There is a button here to do this.

6.2 NTP Configuration

Some features of Cryoserver require that the server's clock is correct. For example, the Retention Policy Deletion activity that runs each day, will not run correctly, or at all, if the server clock cannot be validated.

This panel allows you to

- Configure an NTP Source which can be tested regularly by Cryoserver to ensure that the server's clock has not drifted. If drift is detected, then alerts will be raised by Cryoserver.
- Test an NTP Source to see if it is responding correctly.

NOTE: This setting does NOT currently alter the Operating System / Hardware clock. It only uses the NTP source to check if the local clock is correct or not. The O/S will need to be separately configured to ensure that its clock is kept up to date.

Figure 33 - NTP Configuration

Recommendation: Set the NTP Source to your Domain Controller's IP address – if on a Windows Network.

6.3 Web Server Certificate

This feature will allow either a Self Signed Certificate to be created and signed by an external CA. Or a Certificate created by an external agent can be installed.

Please see section 1 above for full details.

6.4 Adv. Company Configuration

This feature contains a wide range of occasionally used settings.

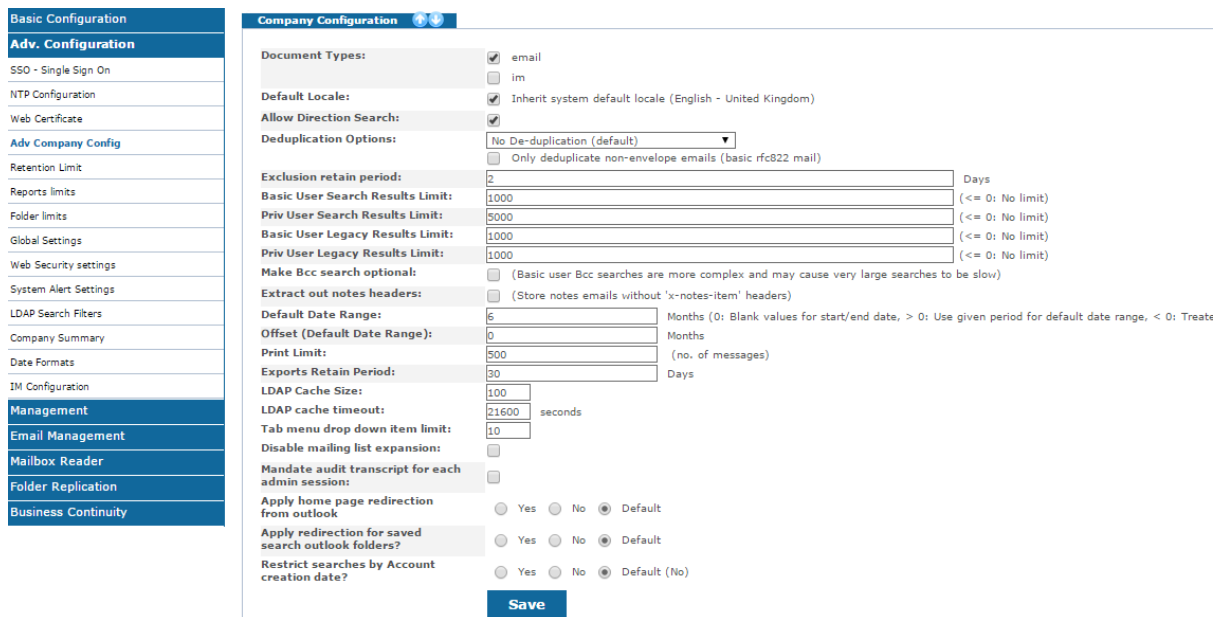
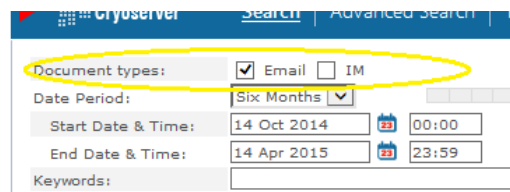
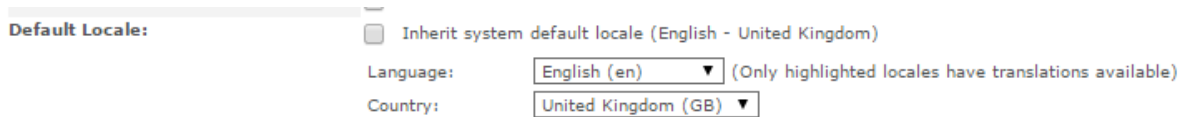


Figure 34 - The Adv. Company Config page

Document Types: email / im – This extends the **search screen** to show either email / im (instant message) or both. However, you will need an additional license to allow Cryoserver to process IM transcript mails – and we recommend working with Cryoserver Support on how IM transcripts should be captured. We support an agent to capture **Microsoft LYNC** messages; and the Epillio agent for **IBM Sametime**; and Actiance Vantage agent that can capture nearly all types of IM message, including Bloomberg.



Default Locale: You can override the system-wide locale (language for the on-screen prompts, and formatting for numbers and dates). This is typically only needed in a multi-tenant system.



By de-selecting the “Inherit” option, you can then select from a standard range of countries and languages.

Allow Direction Search: (Yes/No) This makes visible/invisible a line of Search options for Incoming / Outgoing / Internal / Outmix / Unknown. The default is to show the options.

Enable Sample Search: Percent Pages Messages
 Direction: incoming outgoing internal outmix unknown
 Reason for Search:

These assume that the system has the correct set of **Email Domains** entered into the **Outbound Email & Alerts**, or the LDAP pages. When each email is processed into Cryoserver, each mail address is inspected – and if any match the Email Domain list, then the Incoming / Outgoing / Internal direction can be determined.

If the Email Domains are corrected or completed sometime after the system is running, then any existing data will need to be **Re-Indexed** to correct this ‘direction’ feature. A Support engineer will be required to do this.

See section 5.2.2 for the description of the Directions an Local Email Domains.

Deduplication Options: These determine if or when Cryoserver will perform de-duplication checks.

We Recommend: that you select Scan all archive data AND tick the Only de-duplicate non-envelope emails. See section 4.6 for additional information on De-Duplication.

Deduplication Options: Scan all archive Data (can be very slow)
 Exclusion retain period:
 Allow Direction Search:

Deduplication is actually a complex topic to fully understand, let alone describe. However, here are some suggestions:

Cryoserver uses the MESSAGE-ID header in each email as the key to finding duplicates. Any process that alters the MESSAGE-ID (for example, by a LEGACY Extraction Utility that creates new email files) will result in duplicates being un-detected by Cryoserver.

If the source of email to archive is **Exchange or Lotus Notes** with the ‘Journal Recipients’ option selected, then Journal Mail will contain a “Wrapper” listing the recipients of *that copy* of the email. Duplicates SHOULD be retained in order to fully capture all *delivered to* recipient data. To ensure this, please tick the Only de-duplicate non-envelope emails option.

If you have multiple sources of email to archive, for example Multiple **Scalix or Postfix or Sendmail** Mail Servers, where the same email is likely to be separately journaled from each server, then selecting **4 Hour or 1 Day message-id cache** options is recommended.

If you have any LEGACY IMPORT mail of any kind, then these *should* be de-duplicated. These are most likely to be UN-WRAPPED emails – meaning that the ‘delivered-to’ information is

no longer available and duplicates will be identical in all respects [unless edited by the end user, which is possible in Outlook and many email clients].

Exclusion retain period: The number of Days to keep emails that have been excluded from Cryoserver via an *Exclusion rule*. Default is 2 days.

Currently this queue of retained mails is not visible in Cryoserver – it is there so that Cryoserver Support can verify that the excluded mail is the complete and correct data set.

Search Limits

The following four options determine the number of items *each* index will yield for each search. As Cryoserver data is split over several indexes, the actual maximum number of results shown to a user can be much higher than these limits AND the user will see a 'Full Search' button that will override the limits. However, these are used to limit the amount of server memory for each user search. And because a search resulting in many thousand results may require more refinement.

Basic User Search Results Limit: (<= 0: No limit)

Priv User Search Results Limit: (<= 0: No limit)

Basic User Legacy Results Limit: (<= 0: No limit)

Priv User Legacy Results Limit: (<= 0: No limit)

The value "less than zero" means "no limit" i.e. -1. Any positive number will limit the result count yielded from each search index.

Make Bcc search optional: This makes visible a tick-box on the Privilege User search screen, next to the Recipients names search box. It determines which index field is used for search purposes – meaning that the search can be performed against the DELIVERED TO recipients (from the mail 'Envelope') rather than the standard ORIGINAL RECIPIENTS list (the visible recipients from the standard Headers).

Extract out notes headers: Lotus Notes (from ver 8) has a 'journal recipients' feature that adds a whole host of 'meta-data' including the final recipients [inc. BCC & Distribution Group recipients] into each email, as **x-notes-item** header entries. These *should be removed* from the final email that the user sees within Cryoserver – but it can help to resolve some issues if these are left in the emails during the initial acceptance phase of Cryoserver.

The following two options change the default date range shown on the users search screen.

Default Date Range: Default is 6 Months

Use 0 for Demo Cryoserver systems – which will leave the start/end dates as Blank values

Offset (Default Date Range): Default is 0 Months (ie, 6 months up to today's date)

Print Limit: The maximum number of messages that the Print Results list feature will support. We recommend a setting of 500 or lower, or you may find the printer will print 500+ pages.

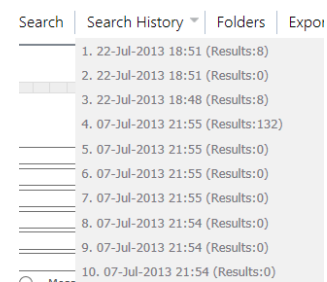
Exports Retain Period: The number of Days to keep any Back-End export's on the Cryoserver disk. After that period, the export files will be deleted during the nightly housekeeping tasks.

The following two settings refer to the LDAP connection(s) for this company. The LDAP cache is used when processing new email, when email addresses are being resolved (an alias email address is converted to its primary address, and any distribution lists are expanded). The cache will prevent the same LDAP lookups from being repeated- speeding up Cryoserver. However, a Cache does use memory, so these determine some sensible limits.

LDAP Cache Size: The number of ‘resolved’ email addresses to cache. **Recommendation:** Set this to the approximate number of active mailbox users – particularly if un-wrapped emails are being journaled or imported.

LDAP Cache Timeout: The number of minutes to hold an entry in the cache for. After this time, the entry is removed and a full LDAP lookup will be needed to restore the cache entry. This ensures that any edits to LDAP (say, a change to a distribution group) will be seen by Cryoserver in a timely manner. **Recommendation:** Set this to -1.

Tab Menu Drop Down Limit: sets the number of items to list in the Search menu bar.



Disable mailing list expansion: This option will turn off the default LDAP Lookups on non-journal-wrapped emails (basic rfc822 mails – typically *imported* emails or ones from scalix/postfix/sendmail/mdaemon type sources). See [Email Address Expansion](#) (Section 5.6.7) for more details.

Mandate audit transcript for each admin session: If you require an audit trail for every login to the administration area – even if it is only to view the system monitor panel – then you can check this option. By default only certain administration actions (like adding a new user) will result in a transcript being raised.

Apply home page redirection from Outlook: We found that non-European character-set / language settings can result in the initial web page displayed within Outlook to display the wrong character-set. By forcing a web page refresh, addresses this anomaly. So if you access Cryoserver from within Outlook, and the initial web page does not look correct, then try this option.

Apply redirection for saved search outlook folders: Similar to the ‘home page’ redirection – if you access your Saved Searches via Outlook Folders, but find that the UI does not behave correctly then please try using this option.

Restrict searches by Account Creation date: IF your LDAP service (Active Directory / eDirectory / Domino) provides an accurate date on which every employee *joined* the company – then you can ensure that every user can only search from their start Date. If they select or enter search dates prior to their LDAP account creation date, then Cryoserver will warn the user and adjust the dates accordingly.

This will ensure that a new employee that happens to have been assigned the same email address as an ex-employee, from searching back in time to reveal the ex-employee’s mail.

You can apply this on a per-user basis, rather than this global setting, via the User Directory. See Section [5.7 User Directory](#)

6.5 Retention Limit

The **Retention Limit** is the number of days that emails will be retained by Cryoserver. It uses the email's date – and not the date on which the mail was processed into Cryoserver. Mail older than the retention period will be **permanently deleted** by a daily housekeeping task (that runs at midnight). The retention limit setting **REQUIRES SUPPORT** to assist: you must provide some proof, for example a signed letter, that a specific retention period is to be applied.

By default, Cryoserver will not remove any data – a setting of 0 will keep the data forever.

Instead of, or in conjunction with, a retention limit it is now possible to set **SEARCH DATE LIMITS**. This will limit the *earliest date* that certain classes of user or local user accounts can set for any searches. This lets Administrators to retain data for longer than your business actually requires or the users are aware of – just for those occasions when this would prove very useful.

Basic Configuration	Retention						
Adv. Configuration	Current retention period is 20000 days [Enabled]						
SSO - Single Sign On	Change Retention Period						
NTP Configuration	Warning: Any items in CryoMailArchive older than this date would be permanently REMOVED once a retention period is set. To prevent accidental adjustment of this setting, a code must be entered before the changes can be made. Please contact your Cryol						
Web Certificate	Notes:						
Adv Company Config	<ul style="list-style-type: none"> The retention process starts at midnight each day. To ensure the time is correct, an NTP Source should be set. The process may not always immediately release disk space. 						
Retention Limit							
Reports limits							
Folder limits							
Global Settings							
Web Security settings							
System Alert Settings							
LDAP Search Filters							
Company Summary							
Date Formats							
IM Configuration							
Management	Search Date Limits						
Email Management	Changes to Search Date Limits saved successfully						
Mailbox Reader	<p>NOTE: The following restrictions cause the "Search Start From" date to become limited. This allows you to set perceived retention p users may be given special access rights to view the whole repository. Setting 0 will revert to an unlimited search.</p> <p>Basic user Date Limit: <input type="text" value="20"/> <input type="text" value="Months"/> (14 Aug 2013)</p> <p>Privileged user Date Limit: <input type="text" value="50"/> <input type="text" value="Months"/> (14 Feb 2011)</p> <p>Privileged User Exceptions:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Period</th> <th>Calculated Date</th> </tr> </thead> <tbody> <tr> <td>mbeedell_priv</td> <td><input type="text" value="6"/> <input type="text" value="Years"/> Restore Default</td> <td>14 Apr 2009</td> </tr> </tbody> </table> <p style="text-align: center;">Save</p>	Name	Period	Calculated Date	mbeedell_priv	<input type="text" value="6"/> <input type="text" value="Years"/> Restore Default	14 Apr 2009
Name	Period	Calculated Date					
mbeedell_priv	<input type="text" value="6"/> <input type="text" value="Years"/> Restore Default	14 Apr 2009					

For Retention to be fully successful, the NTP settings **MUST** be set up. This ensures that the Cryoserver clock is correct, and a malicious user cannot set the Cryoserver clock forward in order to force a large email deletion process. **IF THE SYSTEM detects local server clock drift when compared to a remote NTP service, then alerts will be raised.**

A code is required to be entered in order to adjust the Retention Date setting. This code can be supplied by a Cryoserver Support engineer. Again, this is to prevent casual setting of the retention period which might cause large scale mail removal.

If a retention limit or search date limit is in force, and the user enters a search "Start Date" that is before the limit, then the system will adjust it like this:

Document types:	<input checked="" type="checkbox"/> Email	<input type="checkbox"/> IM
Date Period:	Custom	
Start Date & Time:	14 Apr 2013	00:00
End Date & Time:	14 Jan 2014	23:59
Keywords:		
Parties:		
From:		
To:		
Attachment Names:		
Attachment Keywords:		
Direction:	<input type="checkbox"/> incoming	<input type="checkbox"/> outgoing
	<input type="checkbox"/> internal	<input type="checkbox"/> outmix
	<input type="checkbox"/> unknown	
<input type="button" value="Search"/> <input type="button" value="Clear"/>		

The Start Date has been adjusted to (14 Aug 2013) as per the applicable search date limit.

No messages matched your search criteria, please try again.

6.6 Reports Limits

The report engine summarises a range of things into per hour/day/week/month and year levels. This admin area determines how many of each of these summary levels to keep. These are the defaults:

Hourly: 240 hour summaries

Daily: 30 days at day summary level

Weekly: 26 weeks at a week summary level

Monthly: 24 months at a month summary level

Yearly: 5 years at a year summary level

By setting these, the system will adjust the “Threshold Date” in the Reports screen. The “Start Date” will not return data earlier than the Threshold Date for the selected Summary Period.

Reports	
Report Type:	Traffic
Period:	Date Quick Select
Start Date:	16 Aug 2013
End Date:	22 Aug 2013
Period:	<input type="radio"/> hour <input checked="" type="radio"/> day <input type="radio"/> week <input type="radio"/> month <input type="radio"/> year Threshold Date: 23 Jul 2011
<input type="button" value="Fetch"/>	

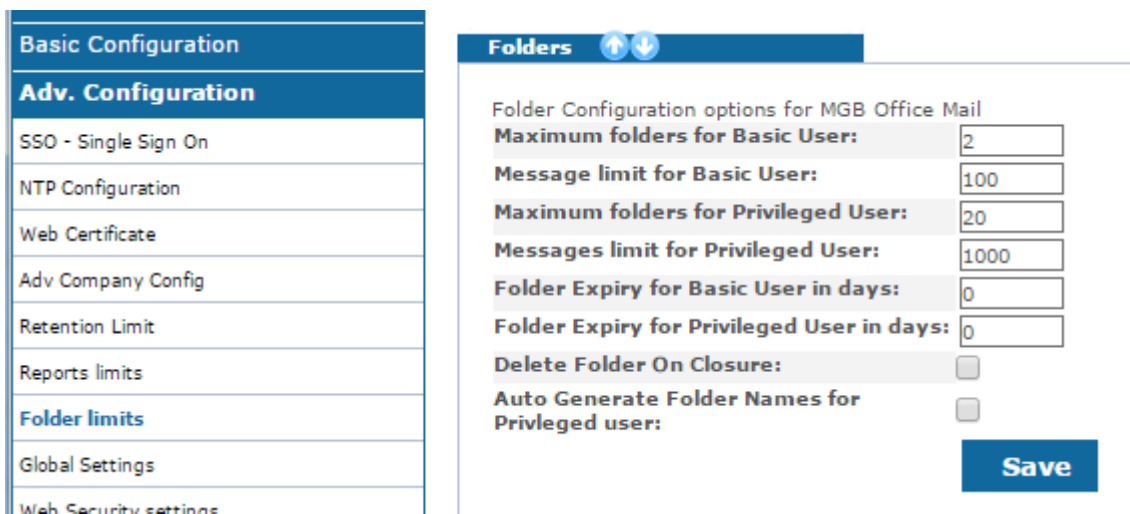
Figure 35 - Reports - the threshold date

6.7 Case Folder Limits

NOTE: Effective from Version 8 “Folders” has been renamed to “**Case Folders**” to make more of a distinction from Replication Folders.

Search Users can save the **results of a search to a “Case Folder”**. Once saved to a Folder, each email may be commented upon, and flags may be applied.

These saved search results are held in a database. To help to prevent this database getting too large, there are a few limits on the usage of Folders, restricting users to x number of folders and privileged users to y folders.

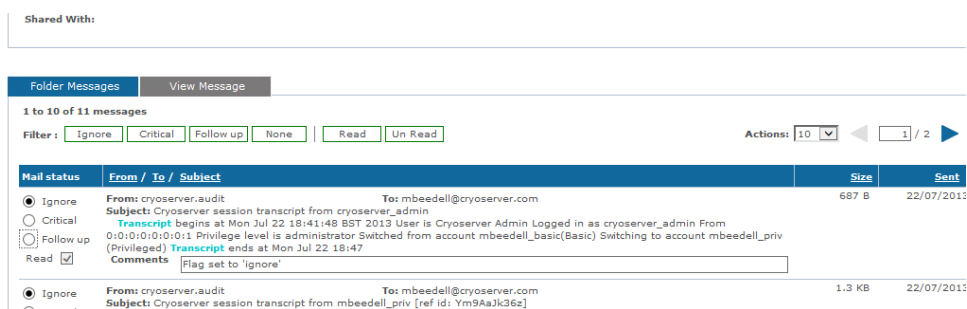


If a folder is “Deleted” by the search user, it is not immediately deleted UNLESS the “**Delete Folder on Closure**” administration option is selected.

Search Users Access Case Folders via the main menu



And they will be able to review each email, setting flags and comments – as the following screen shot shows.



When the Search User deletes a Folder, then unless the “Delete Folder on Closure” option is selected, the folder will remain in the database. The Administrator is then required to permanently delete the folder via the Email Management -> Folder Management option.

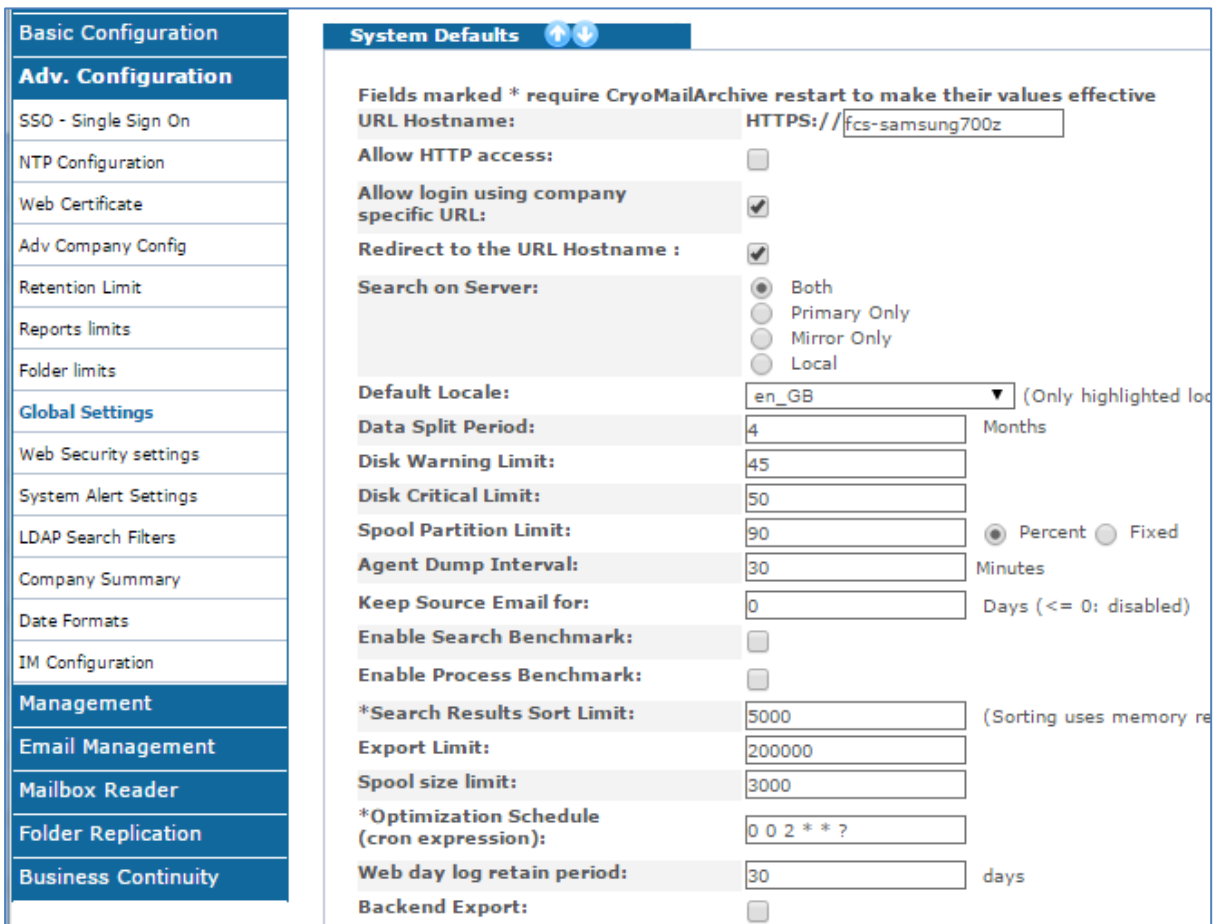


Details	User	Created On	Items	Updated On
Name: folder 1 Description: Queries:	mbeedell_basic	15:53 13/08/2013	11	15:55 13/08/2013

Delete

6.8 Global Settings

These are settings that apply to a whole system, and not just to a single Company managed in Cryoserver [where set up in multi-tenant mode]. We would recommend these settings should only be altered under the guidance of a Cryoserver Support Engineer.



System Defaults

Fields marked * require CryoMailArchive restart to make their values effective

URL Hostname:

Allow HTTP access:

Allow login using company specific URL:

Redirect to the URL Hostname :

Search on Server: Both
 Primary Only
 Mirror Only
 Local

Default Locale: (Only highlighted loc

Data Split Period: Months

Disk Warning Limit:

Disk Critical Limit:

Spool Partition Limit: Percent Fixed

Agent Dump Interval: Minutes

Keep Source Email for: Days (<= 0: disabled)

Enable Search Benchmark:

Enable Process Benchmark:

*Search Results Sort Limit: (Sorting uses memory re

Export Limit:

Spool size limit:

*Optimization Schedule (cron expression):

Web day log retain period: days

Backend Export:

Agent Dump Interval: The maximum number of **Minutes** that a Spool Agent will be given to process a single email. After this time the spool agent will be deemed as ‘stuck’ and will be closed and re-started. A “*stack dump*” of the various process threads will be logged at the time of the problem.

This logged information can be used to determine the cause of the problem, and to help design a solution. The email(s) will be re-queued for re-processing later (up to 3 tries) – if it still fails to process, then it will be ‘errored’.

***Separate Legacy JVM:** If your system has been upgraded from an old Cryoserver Version 1.3, then this data is made available via a “Bridge” to the old 1.3 code. The old 1.3 code, if required, will normally run in the same Java work space (memory & threads). This option will prevent the V1.3 code from starting up with the Version 6 code – and allow the old 1.3 code to run independently – perhaps even on a separate server. Other adjustments will be required to actually configure and run the V1.3 code elsewhere – which support engineers will be able to set up.

Keep Source Email for: Set the number of **Days (or <= 0 for ‘disabled’)** that Cryoserver will hold each raw email file, as received by the Cryoserver system via smtp or imap etc., after it has been processed. When set to 0, the feature is turned off, and the mail files will be deleted after being successfully processed into Cryoserver.

This feature was previously known as the “*trash period*”.

If your Cryoserver is set to use the **Trash-Copy** method to keep two separate independent Cryoserver systems in-sync with the same email data (rather than the usual mirroring system), then a positive number **MUST** be entered here. Typically, 1 or 2 is needed. If the mail fails to be copied from one server to another, then the source mails will **NOT** be deleted, and will remain in the trash-copy queue until they are successfully copied. Support engineers will be required to set up the Trash Copy facility.

Disk Warning Limit: Cryoserver will send Alert emails if any disk partition used by Cryoserver is filled beyond this limit. Default is 90 **Percent**.

Disk Critical Limit: Cryoserver will *stop processing* emails if any writeable storage node’s disk partition fills by more than this limit. Default is 95 **Percent**.

Default Locale: A locale is a two-part setting, of a LANGUAGE and a COUNTRY. There are a range of standard locales in Cryoserver. The default is English / England (**en_GB**).

Some locales will result in the labels shown on the Cryoserver web pages to show in the selected language.

The locales also determine some formatting layouts for Numbers and Dates.

Enable Search Benchmark: Select this if you wish to obtain detailed information about the performance of each and every stage of every Search. To see the log, you would need to use the ‘get logs’ administrative facility, found under the Management menu.

Enable Process Benchmark: Select this if you wish to obtain detailed information about the performance of each and every stage used when processing each email. This can generate a lot of information. The log will 'roll' so it will not get too large. To see the log, you would need to use the 'get logs' administrative facility, found under the Management menu.

***Optimization Schedule (cron expression):** A nightly task that will optimise the indexes of any new data processed that day. During Optimisation, the disk usage will rise – depending on the volume of new data processed that day. After Optimisation, the indexes will be (much) smaller than before.

The scheduler expression is Second Minute Hour Day-of-Week Month Command

So the default of [0 0 2 * * ?] says,

“every 0th second and 0th minute on the 2nd Hour, of every day and month, run the command” (the ? is replaced by Cryoserver with the required command)

Above expression states: – the optimise is run at 2am every day when the system is at it's quietest.

***Search Results Sort Limit:** To try to limit the amount of server memory used when displaying Search Results to users, the system will only sort results if less than this limit. A large sort can be very slow too.

Export Limit: A very large export *may* indicate a user trying to extract information for un-authorized purposes. To prevent accidental or invalid use of the export facility, this will prevent any exports where the search returns more results than this limit.

Backend Export: A flag to turn on or off the facility to perform Backend Exports (where an export is performed to the Cryoserver local disks and on completion an email is sent to the end user with a link to retrieve the download files).

The only case for turning this feature off, is where the local Cryoserver disks are already quite full.

A support engineer can direct exports to a non-default disk partition, i.e. one with the most space.

Convert tnef contents for forwarding purpose:	<input checked="" type="checkbox"/>
Stop mirror CryoMailArchive with primary:	<input type="checkbox"/>
Storage Node size refresh interval:	<input type="text" value="30"/> Minutes
Idle index refresh interval:	<input type="text" value="300"/> seconds
Forced index refresh interval:	<input type="text" value="1800"/> seconds
Refresh mirror indexes together :	<input checked="" type="checkbox"/>
Apply home page redirection from outlook:	<input type="checkbox"/>
Apply redirection for saved search outlook folders?:	<input type="checkbox"/>
Mailbox Reader De-duplication:	<input type="text" value="Mailbox Reader downloaded messages"/>
*Separate Legacy JVM:	<input type="checkbox"/>
File attachment setting (Business Continuity Mode)	
Maximum size of attachment data:	<input type="text" value="100"/> MB
Maximum size of attachment file :	<input type="text" value="20"/> MB
Maximum files attached:	<input type="text" value="20"/> Files
Non Respoolable Error:	<input type="text" value="ci.cryoserver.exceptions.ExpiredMessageException
ci.cryoserver.exceptions.LateSpamException
ci.cryoserver.exceptions.EarlySpamException
ci.cryoserver.exceptions.BadEncodingException"/>
	<input type="text"/>
	<input type="button" value="Add"/> <input type="button" value="Delete"/> <input type="button" value="Delete All"/>
Enable Stop Words:	<input checked="" type="checkbox"/> Edit Words List
	<input type="button" value="Save"/>

Convert tnef contents for forwarding purpose: Microsoft Exchange will send emails *internally* – e.g. from one Exchange to another – in a format known as TNEF (Transport Neutral Encapsulation Format). On sending email to *external* recipients, Exchange *should* covert these to internet mail standard format (i.e. MIME). Unfortunately, sometimes this conversion does not always happen correctly and Cryoserver may receive email with TNEF content. **This should be a very rare event – and indicates an issue with Exchange if it does occur.**

Cryoserver is able to Extract, index and display *most* TNEF formatted emails.

However, when extracting these mails back out of Cryoserver (Forward-to-inbox / Download / Restore to Inbox), this TNEF content may result in an un-readable email. This option will, for the forward-to-inbox option(s), convert the TNEF content (bodytext and attachments) to an internet standard email format which will be readable by any email client.

Allow login using company specific URL: For multi-tenant systems, users from different companies can access Cryoserver by including their *company tag name* in the URL. With this feature turned OFF, then the users *must* connect from an IP address that is within the configured company ip address range.

Storage Node size refresh interval: To reduce the overhead of summing up the disk sizes of (potentially) many hundreds of files that are held within each Storage Node, this task is now performed as a background task that runs only after this number of **Minutes**. This means that the Monitor page may not always show the current node sizes – but at least the monitor page should display very quickly.

Web day log retain period: The number of **days** worth of Web access logging to keep on the server disk. These logs are named cryoserver_YYYYMMDD.log, and hold information about user activity. Use the Management -> Get Logs feature to view these logs.

Stop mirror Cryoserver with primary: If selected, this will cause the Cryoserver service on the mirror server to stop when the primary server is stopped. Not useful unless you are a support engineer!

Spool size limit: The system will send an alert if the Spool Directory holds more (email) files than this limit. It is an indication that the system is not processing emails. However, if you have a system that receives a large block of emails on a regular (hourly or daily) basis, which causes Cryoserver to send a 'spool size limit exceeded' alert each time – then adjust this to a higher value. Default is 3000. We recommend customers refine this setting dependent on the traffic volumes.

Allow HTTP access: By default Cryoserver web access always uses HTTPS (i.e. certificate based encryption of all data that flows between the user browser and the server). If you do not need this level of security, then you may access Cryoserver using plain (unencrypted) access by selecting this option.

URL Hostname: Some Emails sent by Cryoserver to end users will include a URL link back to the Cryoserver (e.g. backend export). By default, these URL's will be based upon the HOSTNAME of the server. If, however, your users access via a more appropriate (DNS registered) name, then this generated URL may not work – or be rather confusing to end users. So set this to the required (DNS) name that your users use when accessing Cryoserver.

Idle index refresh interval: New email that is processed into Cryoserver will not be searchable until the Index Cache is Refreshed. The system will do this automatically if there has not been any new email to process for this number of **seconds**

Forced index refresh interval: New email that is processed into Cryoserver will not be searchable until the Index Cache is Refreshed. On very busy systems, the 'Idle' refresh may not occur for several hours – so the system will force a refresh after this number of **seconds** (typically equivalent to 30 minutes).

Refresh mirror indexes together: New email that is processed into Cryoserver will not be searchable until the Index Cache is Refreshed. For recent (within the last 30 minutes) search results to be consistent, both primary and mirror Cryoserver should refreshed at the same time.

Data Split Period: The number of **Months** worth of email data to hold in a single search index. The default is 4 months, which is perfect for the majority of customers. With high email load (over 50,000 per day), we recommend this to be reduced to 2 months as a split range.

Search on Server: Both / Primary Only / Mirror Only / Local . In some circumstances it is desirable to target a specific server (if you have a Mirroring Cryoserver set-up) to respond to all Search requests. Each search will query a number of separate indexes – and (with the default setting of "Both") each index will be selected from any of the available Cryoserver systems.

If there have been index issues or situations resulting in the same search returning different result counts, then this option will allow you to control the situation.

The value “Local” will mean that users connecting to the mirror server will query only the mirror server indexes, and similar for the primary server.

6.9 Global SMTP Settings (optional)

This is an optional service that replaces any email server service installed in the host operating system (e.g. replaces Postfix or Windows SMTP Service).

NOTE: This service currently only supports INBOUND (journal) mail – mail flowing to the Cryoserver. It cannot yet be used to route outbound mail.

Here we configure the main settings of the service. A Basic configuration panel is available to set up the per-company details.

The screenshot displays the Cryoserver administration interface. On the left is a navigation menu with categories like 'What's New', 'Monitor & Reports', 'Basic Configuration', 'Adv. Configuration', 'Management', and 'Storage Management'. The main content area shows two configuration panels:

- SMTP Settings:**
 - Receive mail for domain: This server will accept mail for archiving when sent to this email domain: cryoserv@complianceinternet.co.uk
 - Additional Email Domains:
 - Buttons:
 - Encryption Type:
 - Port:
 - Add Company Header:
 - Spool Directory:
 - Import Directory:
 - Critical Free Space:
 - Check Frequency: (in minutes)
 - Button:
- Net Ranges:**
 - The following Mail Server IP addresses are registered for receiving mails.
 -
 - From:
 - To:
 - Buttons:
 - Restrict access to network range connections? Yes No
 - Button:

Version 9.0.3

j.doe@acompany.com as jdoe_admin / A Company

powered by Cryoserver

6.10 Web Security Settings

In order to try to prevent malicious execution of code either on the Cryoserver itself, or on the End User PC via the Cryoserver Web, several security features have been implemented. Some aspects of these Web Security settings may be relaxed or further restricted via this administration panel. However, these default Web Security Settings are restrictive enough for general but secure usage.

The field that is most likely to be of general use is the “**Allowed Referrer Hosts**”. This plays two key roles:

- 1. Intranet Links to Cryoserver:**

To prevent websites that you are not aware of from linking to this Cryoserver system. In

theory, a malicious third party web site may try to mask the Cryoserver web behind its own UI. Therefore, for *your internal Intranet web* or any other portals that you know about that link to the Cryoserver Web – you will need to add their hostname to the referrer list here. Without this your users will see an “Unknown Referrer – access denied” message – showing the referrer host name that is not known to Cryoserver. If this host is OK – then enter it into this admin page.

2. Stubbing URL Links when Security is enabled (transport agent / OWA Plugin):

Stubbing services will convert attachments in Exchange Emails to URL links. These URL links will open the attachment from Cryoserver. If *Stubbing URL Security* is enabled (a tick box on this admin page) then every time a Stub URL link is followed, Cryoserver will try to obtain the users Login username to see if they are valid to view the attachment [a sender or recipient of the email containing the attachment].

However, to allow the “Transport Agent” and the “OWA Plug-in” will also follow these URL links – but they will need to bypass the Security check. So please enter the server name / IP address on which the Transport Agent and OWA Plug-In are installed.

The screenshot shows the 'Web Security settings' page. On the left is a navigation menu with categories: Basic Configuration, Adv. Configuration, Management, Email Management, Mailbox Reader, Folder Replication, and Business Continuity. The 'Web Security settings' section is active. It contains several configuration options:

- Referrer Validation Level:** Radio buttons for Low, Medium (selected), and High. Descriptions explain the validation levels.
- Allowed Referrer Hosts:** A text input field, 'Add', and 'Remove' buttons. Below is a list box.
- Malicious web parameter handling:** Radio buttons for None, Error, and Convert (selected).
- Ensure HttpOnly cookie:** Radio buttons for True and False (selected).
- Force a login check for Stubbing URL Links:** Radio buttons for On and Off (selected).

A 'Save' button is located at the bottom of the settings area.

Figure 36 - Web Security Settings

6.11 System Alert Settings

These are a range of System-Wide settings that affect the number and types of Alert email that the system will generate. **Please Note** that all alerts are recorded to a database and can be reviewed via the *Monitor & Reports* admin area (and the “[System Alert History](#)” link is provided here to access it).

Basic Configuration	System Alert Settings
Adv. Configuration	System Alert History
SSO - Single Sign On	Fields marked * require CryoMailArchive restart to make their values effective
NTP Configuration	Error Mails Per Day: <input type="text" value="6"/>
Web Certificate	Error Check Period: <input type="text" value="14"/> Days
Adv Company Config	Error Messages Limit: <input type="text" value="100"/>
Retention Limit	Error Trace Lines: <input type="text" value="5"/>
Reports limits	Send Respool Error Alert: <input type="checkbox"/>
Folder limits	Send Start Stop Notification: <input type="checkbox"/>
Global Settings	Send Daily Message Processing Report: <input type="checkbox"/>
Web Security settings	Daily report format: <input type="text" value="Short"/>
System Alert Settings	Send Monthly Usage Summary Report: <input type="checkbox"/>
LDAP Search Filters	Notifier Severity:
Company Summary	<input type="checkbox"/> Critical
Date Formats	<input type="checkbox"/> Urgent
IM Configuration	<input type="checkbox"/> Normal
Management	<input type="checkbox"/> Informational
Email Management	<input type="checkbox"/> Cleared
Mailbox Reader	<input checked="" type="checkbox"/> ALL
	Alert Support Contact: <input type="text" value="Cryoserver Support <support@cryoserver.com>"/>
	Sender Address: <input type="text" value="Cryoserver Admin <cryoserver.admin@cryoserver.com>"/>
	Audit From: <input type="text" value="auditor1 <cryoserver.audit@cryoserver.com>"/>

Error Mails Per Day: If some emails error, then this limits the number of alerts raised as a result.

Error Check Period: Send a reminder after this number of **Days**, if there are still error emails in the system.

Error Messages Limit: Only send reminders if there are more than this number of error emails.

Error Trace Lines: In order for Support Engineers to understand the reason why an email errors, then a “Stack Dump” is needed to show what Cryoserver was doing at the time of the problem. This setting limits the quantity of information to a small but reasonable amount.

Send Respool Error Alert: If Cryoserver encounters an error while processing an email, it will be re-queued (into the respool directory) for re-processing again later. Sometimes problems are transitional (like LDAP or Connectivity issues) – and re-processing is an appropriate thing to do. After 3 attempts to process an email, if it still has a problem, then it will be sent to the Error queue, when an alert may be sent. By default, no alert will be raised for mail that is being re-queued for re-processing – unless you set this option.

Send Start Stop Notification: By default, whenever Cryoserver is started or stopped, an alert is sent. If this is not appropriate (say, when Cryoserver is stopped as part of a daily backup), then un-set this option.

Send Daily Message Processing Report: Every night - at midnight – a summary of that days processing will be sent to the Alert recipient(s). If this is not appropriate, then you can turn off this feature with this option.

Daily report format: Long/Short/None. The daily summary report can include a list of the number of emails processed each hour. These can be presented as a LONG single column list, or as a SHORT table (6 lines, 4 columns) – or this hour summary can be turned off (NONE). It also includes the number of unique senders, data storage, and other useful reporting metrics.

No Mail Received Alert Period: If Cryoserver does not receive any email to process, then there may be a problem – and an Alert will be sent. This setting determines how many **Hours** to wait before sending the alert(s).

***Notifier Severity: Critical/Urgent/Normal/Informational/Cleared/ALL** The classes of emails that the system will send. It does not make much sense to disable any of these!

MailServer Address: This is the IP address or DNS name of an SMTP server (typically your main email server). All outbound email from Cryoserver will be delivered here.
This setting is also available on the Configuration -> Outbound Email and Alerts menu.

Alert Support Contact: [note – this value is not currently used by Cryoserver]. This is any useful text that will be included in Alert emails and displayed to End Users if a web error arises. Enter a name and phone number of the best contact to handle problems with the Cryoserver system.

Mail Server Settings

The system alerts can be sent via a *separate* SMTP service compared to the “Outbound Email and Alerts”. However, in most cases we recommend this is set to the *same as the* SMTP service.

Mail Server Settings

MailServer Address:

SMTP Connection Type: on Port: (Default SMTP port 25, SSL port 465)

Authorization Required:

Fill in the options here the same as for the “Outbound Email and Alerts”.

Spool Agent Settings

The following settings determine the number and behaviour of the “Spool Agents” that process all incoming items into Cryoserver. These are displayed in the Monitor page.

Spool Agent Settings

Agent Lock Interval: Minutes

Agent Restart Limit:

***Agent Count:**

Agent Lock Interval: If an agent takes more than this number of **Minutes** to process an item, then it is considered ‘stuck’ and the agent will be stopped, the email is errored, and a fresh new agent process is started. An alert will be generated.

Agent Restart Limit: How many times can spool agents be re-started before the system is considered as un-stable and no further restart events will occur. This will eventually stop emails from being processed and requiring assistance from a Support Engineer to resolve the situation. Luckily, this is very rare indeed!

***Agent Count:** How many agents should run in parallel? Each agent has some memory and performance overheads.

The default of 6 is satisfactory for most situations.

Use 1 or 2 for a server with less memory and slower cpu, or where the ‘mirror’ server is attached over a slow network link,

Use more than 6 on a well specified server that has very high email traffic.

6.12 LDAP Search Attributes

The screenshot shows the 'LDAP Search Filters' configuration page. On the left is a sidebar with navigation links: Basic Configuration, Adv. Configuration (selected), SSO - Single Sign On, NTP Configuration, Web Certificate, Adv Company Config, Retention Limit, Reports limits, Folder limits, Global Settings, Web Security settings, System Alert Settings, LDAP Search Filters (selected), Company Summary, and Date Formats. The main content area is titled 'LDAP Search Filters' and contains the following text: 'In order to list only valid Mailbox User accounts and Distribution Groups in CryoMailArchive, you may provide additional LDAP an LDAP query. These filters would only apply to LDAP connections providing account details.'

Under 'Existing Filters', there is a list box containing two entries: '(User) Only user account types' and '(Group) Only group account types'. Below this list are three buttons: 'Create New Filter', 'Edit Filter', and 'Delete Filter'. To the right, the 'Filter Details' section shows: 'Filter Name: Only user account types', 'Filter For: User' (with a dropdown arrow), and 'Filter Query: (sAMAccountType=805306368)'. A note below the query says 'Please only use LDAP query syntax'. At the bottom right, there is a link: 'See [http://technet.microsoft.com/en-us/library/aa996205\(v=exchg.65\).aspx](http://technet.microsoft.com/en-us/library/aa996205(v=exchg.65).aspx)'.

Figure 37 - LDAP Search Attributes

Cryoserver may provide listings of User Accounts in various places in the Admin Area (**Mailbox Reader** and Basic Configuration -> **User Directory**). It obtains the list of User Accounts from LDAP – but these often include many accounts that are *disabled* or *service accounts* that are not valid for general use by Cryoserver. This system may be used to try to limit the accounts being returned from LDAP to only valid user accounts or distribution list entries.

Different LDAP services (Active Directory / eDirectory / Lotus Domino) will mark LDAP entries with “Attributes” that serve as markers to define the type and usage of the entry.

Here is a good description for Active Directory:

<http://www.selfadsi.org/ads-attributes/user-userAccountControl.htm>

For example, to get **Disabled** user accounts only, this type of LDAP query may be used...

```
(& (UserAccountControl:1.2.840.113556.1.4.803:=2) (msExchHomeServerName=*) (objectClass=User) (msExchRecipientTypeDetails=1))
```

Or to get **Active** user accounts, use this query.

```
(& (! (UserAccountControl:1.2.840.113556.1.4.803:=2)) (msExchRecipientTypeDetails=1))
```

If you are able to query your LDAP system, and can find a way to list ONLY user accounts without including the service or disabled accounts, then you may find this LDAP Search Attributes panel most useful. Here you can enter the required search attributes that Cryoserver can add to any LDAP searches to only return real User or Distribution Group data.

6.12.1 Usage of LDAP Filters

These filters may be used to help when searching the LDAP Directory – to narrow down the number of results to just ones that are appropriate for your usage.

Basic Configuration

- Company Settings
- Outbound Email & Alerts
- Data Guardians
- Local User Accounts
- LDAP Servers
- User Directory**
- Mail Collector (IMAP/POP3)
- Adv. Configuration
- Management

User Search

LDAP realm: CryoMailArchive realm:

LDAP Server(s): 192.168.11.211 [Account Details] fcs-pdc-a [Auth]

Search For:

Allowed Link To:

Additional Address:

Search Filter:

Search

[LDAP Search Filters](#)

Filters can be used in:

- User Directory searches (as picture above)
- Linking User accounts
- Mailbox Reader – account selection
- Folder Replication – account selection

A filter that removes disabled and service accounts and only lists current live accounts can be most useful in these cases.

6.13 Company Summary

The idea of the Company Summary panel is to display all of the key configuration settings in a single web page, so that it could be printed off for your records.

Company Name: fcs merlin laptop
 Company Tag: cryoserv
 Contact Name: Merlin
 Contact Email: mbeedell@cryoserver.com
 Contact Phone: 0800 280 0525

Search Result Actions:

Forwarding sender:	Cryoserver Admin <cryoserver.admin@cryoserver.com>	
Forward to Inbox:	<input checked="" type="checkbox"/> Basic/LDAP User	<input checked="" type="checkbox"/> Privileged User
Zip and Forward:	<input checked="" type="checkbox"/> Basic/LDAP User	<input checked="" type="checkbox"/> Privileged User
Inline Forward:	<input checked="" type="checkbox"/> Basic/LDAP User	<input checked="" type="checkbox"/> Privileged User
Restore to Inbox via IMAP:	<input checked="" type="checkbox"/> Basic/LDAP User	<input checked="" type="checkbox"/> Privileged User
Download as .eml:	<input checked="" type="checkbox"/> Basic/LDAP User	<input checked="" type="checkbox"/> Privileged User

Disclaimer: Please *only* use this system in accordance with company policy.
[\[Edit Company Settings\]](#)

Outbound Mail Server: mail.cryoserver.com TLS, Authorization Required
[\[Send test email to\]](#)

IMAP Server: mail.cryoserver.com Plain
[\[Test IMAP connection \]](#)

Email Domains: beedell.co.uk
 cryoserver.com
[\[Edit Outbound Email Settings\]](#)

Data Guardians: mbeedell@cryoserver.com
[\[Edit Data Guardians & Login Settings\]](#)

Administrators: 1
 cryoserver_admin - mbeedell@cryoserver.com

Privileged: 1
 mbeedell_priv - mbeedell@cryoserver.com

Basic Users: 1
 mbeedell_basic - mbeedell@cryoserver.com (merlin.beedell@vodafoneemail.co.uk, merlin@beedell.co.uk)

Figure 38 - Company Summary

This is a summary of many of the key settings of this Company.

6.14 Date Formats

The format of the date header in every email is well defined by the RFC822 standard. However, some Email Clients and mail generation systems do not follow the RFC822 standard, resulting in a wide range of date formats. Cryoserver tries to handle all of the variations that have been detected over many years.

Cryoserver will always try to obtain the date from the standard Email “Date:” Header. If this fails then it will try to obtain the date from the topmost “Received: from” header – as indicated here.

```
Received: from localhost ([127.0.0.1]) by mail.atbua.eu (Kerio Connect 8.0.0)
(using TLSv1/SSLv3 with cipher AES128-SHA (128 bits)) for
support@cryoserver.com; Mon, 18 Feb 2013 10:25:08 +0100
From: Przemyslaw Kojlo <przemyslaw.kojlo@atbua.pl>
To: 'support' <support@cryoserver.com>
Subject: FW: Display message
Date: Mon, 18 Feb 2013 10:24:36 +0100
Message-ID: <FED4FD657A20420A845B3D7617B42127@ATBUA5>
MIME-Version: 1.0
Content-Type: multipart/mixed;
boundary=" b0bafccb-d020-4e31-834b-c03e6ea0e729_"
```

But the *Received: from* header date/time will be slightly different to the Email date/time (32 seconds in this example) – meaning that some email matching services (like **Stubbing**) may fail to accurately locate an email in Cryoserver if the *Received: from* date/time is used by default.

If Cryoserver cannot determine the date from the email headers, it will raise an error like this:

```
ci.cryoserver.server.core.CryoserverException: ci.cryoserver.exceptions.DateFormatException: Unrecognized date format:
2014-04-22T10:59:25+0100
```

If you know that some internal mail generation service creates emails with a particular non-standard format, then you can enter its format here.

The screenshot shows the 'Date Formats' configuration page. On the left is a navigation menu with 'Date Formats' selected. The main area is titled 'Recognized Date Formats:' and contains a list of date format strings. Below the list are buttons for 'Add', 'Delete', 'Delete All', and 'Save'. At the bottom of the main area is a 'Test Date Parsing' button.

The formats use standard codes, which are described as follows...

Letter	Date or Time Component	Presentation	Examples
G	Era designator	<u>Text</u>	AD

y	Year	<u>Year</u>	1996; 96
M	Month in year	<u>Month</u>	July; Jul; 07
w	Week in year	<u>Number</u>	27
W	Week in month	<u>Number</u>	2
D	Day in year	<u>Number</u>	189
d	Day in month	<u>Number</u>	10
F	Day of week in month	<u>Number</u>	2
E	Day in week	<u>Text</u>	Tuesday; Tue
a	Am/pm marker	<u>Text</u>	PM
H	Hour in day (0-23)	<u>Number</u>	0
k	Hour in day (1-24)	<u>Number</u>	24
K	Hour in am/pm (0-11)	<u>Number</u>	0
h	Hour in am/pm (1-12)	<u>Number</u>	12
m	Minute in hour	<u>Number</u>	30
s	Second in minute	<u>Number</u>	55
S	Millisecond	<u>Number</u>	978
z	Time zone	<u>General time zone</u>	Pacific Standard Time; PST; GMT-08:00
Z	Time zone	<u>RFC 822 time zone</u>	-0800

Pattern letters are usually repeated. The number of repeats determines the exact presentation:

- **Text:** For formatting, if the number of pattern letters is **4 or more**, the **full form** is used; otherwise a short or abbreviated form is used if available. For parsing, both forms are accepted, independent of the number of pattern letters.
- **Number:** For formatting, the number of pattern letters is the minimum number of digits, and shorter numbers are zero-padded to this amount. For parsing, the number of pattern letters is ignored unless it's needed to separate two adjacent fields.
- **Year:** For formatting, if the number of pattern letters is 2, the year is truncated to 2 digits; otherwise it is interpreted as a number.

Examples

The following examples show how date and time patterns are interpreted in the U.S. locale. The given date and time are 2001-07-04 12:08:56 local time in the U.S. Pacific Time time zone.

Date and Time Pattern	Result
"yyyy.MM.dd G 'at' HH:mm:ss z"	2001.07.04 AD at 12:08:56 PDT
"EEE, MMM d, 'yy"	Wed, Jul 4, '01
"h:mm a"	12:08 PM
"hh 'o''clock' a, zzzz"	12 o'clock PM, Pacific Daylight Time
"K:mm a, z"	0:08 PM, PDT
"yyyyy.MMMMM.dd GGG hh:mm aaa"	02001.July.04 AD 12:08 PM
"EEE, d MMM yyyy HH:mm:ss Z"	Wed, 4 Jul 2001 12:08:56 -0700
"yyMMddHHmmssZ"	010704120856-0700

RFC # 822 - Standard for ARPA Internet Text Messages

5. DATE AND TIME SPECIFICATION

5.1. SYNTAX

```

date-time = [ day "," ] date time ; dd mm yy hh:mm:ss zzz
day       = "Mon"/"Tue"/"Wed"/"Thu"/"Fri"/"Sat"/"Sun"
date      = 1*2DIGIT month 2DIGIT ; day month year ; e.g. 20 Jun 82
month     = "Jan"/"Feb"/"Mar"/.. etc../"Dec"

time      = hour zone ; ANSI and Military
hour      = 2DIGIT ":" 2DIGIT [":" 2DIGIT] ; 00:00:00 - 23:59:59
zone      = "UT" / "GMT" ; Universal Time
          / "EST" / "EDT" ; Eastern: - 5/ - 4
          / "CST" / "CDT" ; Central: - 6/ - 5
          / "MST" / "MDT" ; Mountain: - 7/ - 6
          / "PST" / "PDT" ; Pacific: - 8/ - 7
          / 1ALPHA ; Military: Z = UT;
                  ; A:-1; (J not used)
                  ; M:-12; N:+1; Y:+12
          / ( ("+" / "-") 4DIGIT ) ; Local differential; hours+min.

```

(HHMM)

5.2. SEMANTICS

If included, day-of-week must be the day implied by the date specification.

Time zone may be indicated in several ways. "UT" is Universal Time (formerly called "Greenwich Mean Time"); "GMT" is permitted as a reference to Universal Time. The military standard uses a single character for each zone. "Z" is Universal Time. "A" indicates one hour earlier, and "M" indicates 12 hours earlier; "N" is one hour later, and "Y" is 12 hours later. The letter "J" is not used. The other remaining two forms are taken from ANSI standard X3.51-1975. One allows explicit indication of the amount of offset from UT; the other uses common 3-character strings for indicating time zones in North America.

You can test these formats via the "Test Date Parsing" button.

6.15 IM Configuration

Instant Messages can be captured by a range of third party products, and converted into an email format that Cryoserver can then archive.

Cryoserver has support for:

Actiance Vantage border-patrol service, which is able to trap most IM services (e.g. MSN / Yahoo / Sametime / Bloomberg). (<http://www.actiance.com/vantage>). Please Note: This product was previously named “**Facetime**”. Some references to *Facetime* still remain as a result of this.

Skype for Business / LYNC Capture – a service developed by Cryoserver to obtain, reformat and deliver IM messages extracted from Powershell commands.

Epilio Sametime plug-in– a service created by Epilio (<http://www.epilio.com/>) that captures and re-formats current Sametime conversations for delivery to Cryoserver. It uses the same Email Format as the **LYNC Capture** service.

Please Note that your Cryoserver system will need to have a License setting to allow IM formatted messages to be recorded. Until the license is added, all IM messages will error as follows:

Subject: [Errored Mail] msg for uk-In-sp-001 on deepfreeze, Severity = Normal

Error occurred on account cryoserv with following trace - ci.cryoserver.server.core.UnsupportedFeatureException: **Document type im is not enabled for company cryoserv** at
 ci.cryoserver.server.core.StorageDirectorImpl.checkDocTypeEnabled(StorageDirectorImpl.java:1572) at
 ci.cryoserver.server.core.StorageDirectorImpl.storeDocument(StorageDirectorImpl.java:1206) at
 ci.cryoserver.server.core.SpoolManagerAgent.storeDocument(SpoolManagerAgent.java:1702) at
 ci.cryoserver.server.core.SpoolManagerAgent.processEmailDocument(SpoolManagerAgent.java:1104)

Please contact Cryoserver Support in order to apply the required License.

If the IM is licensed, but the IM’s message formatting (the wrappings added by the various IM Capture services in order to deliver IM as email messages) does not match Cryoserver’s expectations, then the following error alert will be raised:

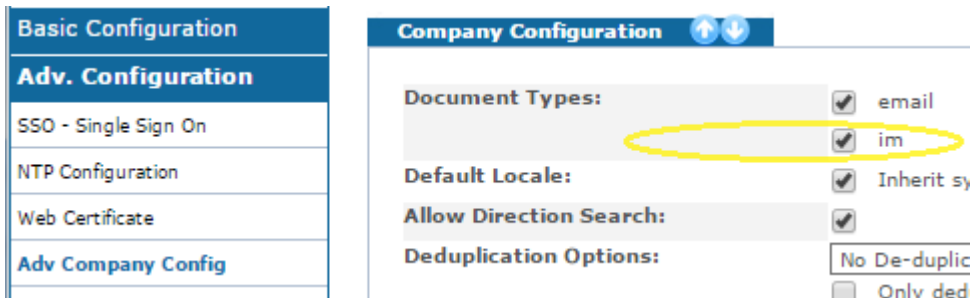
Subject: [Errored Mail] msg for uk-In-sp-001 on bdcryoserver-p1, Severity = Normal

Error occurred on account unknown-account with following trace -

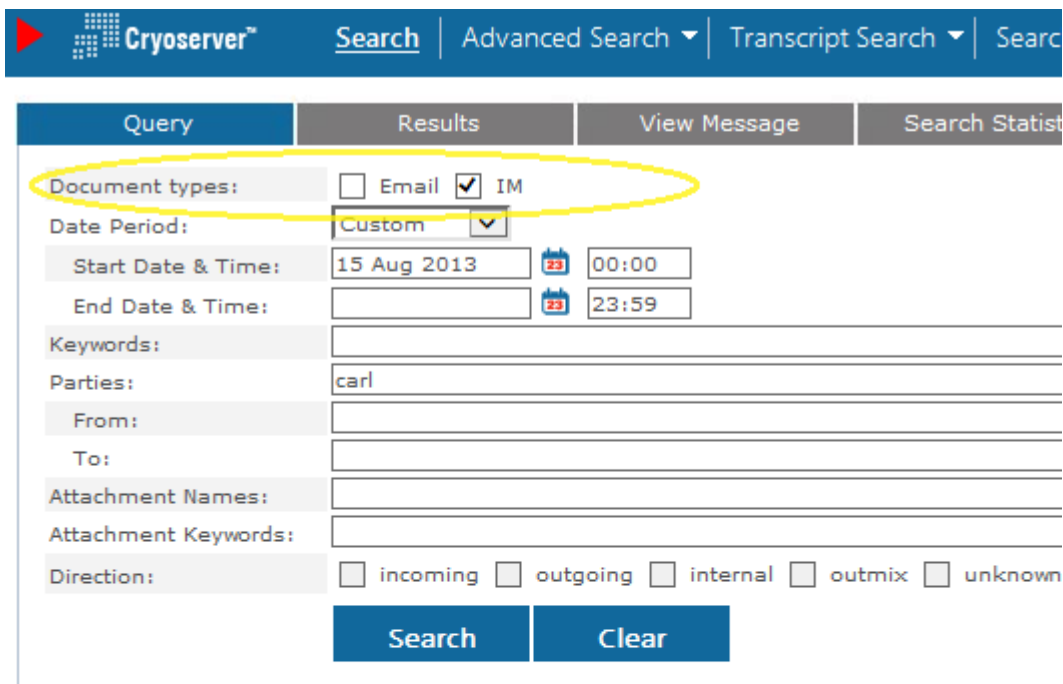
ci.cryoserver.server.core.CryoserverException: java.lang.RuntimeException: **Invalid transcript format**

6.15.1 Making IM Search options visible to End Users

In order for users to be able to search for IM messages, you must also make the IM search option visible to users. You can do this via the *Advanced Configuration* -> *Advanced Company Config*.



Now when users log in they will be able to search for IM messages:



Viewing all 10 results (0.53 seconds)

No.	Direction	From / To / Subject
1		Participants: carl tyler, mbeedell@cryoserver.com Subject: IM_29a2e656-0ff2-43ae-889c-86540496c86d mbeedell@cryoserver.com [2014-02-28 11:42:56 (UTC)]; body { margin: 0 0 0 0; padding: 0 0 0 0; color: #d2d2d2; } .messageBlock { padding-left: 10px; padding-right: 10px; }
2		Participants: carl tyler, mbeedell@cryoserver.com Subject: IM_29a2e656-0ff2-43ae-889c-86540496c86d mbeedell@cryoserver.com [2014-02-28 11:42:56 (UTC)]; body { margin: 0 0 0 0; padding: 0 0 0 0; color: #d2d2d2; } .messageBlock { padding-left: 10px; padding-right: 10px; }

7 Management Tasks

7.1 Stopping & Restarting (Server and services)

The screenshot displays the 'Restart' configuration page in the Cryoserver management interface. On the left is a navigation sidebar with categories like 'Basic Configuration', 'Management', and 'Restart / Shutdown'. The main content area is titled 'Restart' and contains several functional sections:

- Global Alert Message:** A text input field for a message (maximum 300 characters) with 'Set' and 'Clear' buttons. A note indicates a 12-minute display duration.
- Restart Cryoserver:** A section with a 'Reason' input field and a 'Restart Cryoserver' button. The current status is 'Running'.
- Restart Cryoserver Appliance:** A section with a 'Reason' input field and a table of hosts. The table has columns for 'Host' and 'Status'. One host, 'fcs-samsung700z', is listed with a 'Connected' status. 'Shutdown' and 'Restart' buttons are provided for the selected host.
- Restart WebServer:** A section with a 'Restart WebServer' button and a 'Current status: Running' indicator.
- Restart Mail Collector:** A section with a 'Restart Mail Collector' button and a 'Current status: MailBoxReader(Running) CryoPull(Running)' indicator.

7.1.1 Global Alert Message

This will set a message that will pop-up on any user's browser if they are logged in to Cryoserver.

You could use this to inform users about forthcoming works.

7.1.2 Restart Cryoserver

This will restart the Cryoserver *services* (the executable application) on all servers.

For compliance requirements, a reason needs to be stated prior to the restart for the audit trail.

7.1.3 Restart Cryoserver Appliance

These options will *shutdown* or *restart* the selected **appliance server**. A shutdown will power-down the server – typically for expected server-room maintenance, or so that the server can be moved to a new location.

An audit trail comment is required.

NOTE: If the Cryoserver appliance has an IPMI interface, and it has been configured and connected to the network, then the server can be powered-down and powered-up via the IPMI web portal.

IPMI is also known as Integrated-Lights-Out (ILO) on HP servers, and DRAC on DELL servers.

7.1.4 Restart WebServer

This will just restart the Cryoserver web server service on the current server. This may be required if the certificate is changed, or if the Single Sign On (SSO) is enabled or disabled.

7.1.5 Restart Mail Collector

This will restart the IMAP/POP3/EWS Email Services. There are currently two types of service:

The 'CryoPull' Journal **Mail Collector**. This is the read-and-delete service that is required only when collecting mail from a dedicated Journal Mailbox.

The **Mailbox Reader & Folder Replication** services. These perform read-only access to one or more user mailboxes.

Restart these services only if there is reason to believe that some mailbox access has stopped working. Please contact Cryoserver Support if you need help with these.

7.1.6 Restart SMTP Service (optional)

If the integrated CryoSMTP James email server is installed, then you will be able to restart that service here.

7.2 Get System Logs

This provides a way to access the server logs for analysis by Support Engineers. It extracts just the most recent logging data from any selected Cryoserver hosts, and compresses the details in to a ZIP file to download or email.

Basic Configuration	
Adv. Configuration	
Management	
Restart / Shutdown	
Get System Logs	
Webservice Manager	
Email Management	
Mailbox Reader	
Folder Replication	

Get System Logs

Host: fcs-samsung700z

Logs: Backend logs
 Web logs
 Config Details

Last: lines

Email:

Figure 39 - Management - Get System Logs

We recommend to tick *all* options and download or email the logs to your machine, then forward the logs to your support contact.

Please note that the "Config Details" option will not include password details. It abstracts only a small number of items from the configuration database and some configuration files.

PLEASE NOTE: It can take **up to 3 minutes** to obtain the logging data from all servers.

7.3 WebService Manager (for Stubbing services)

Cryoserver WebServices, is used by **Stubbing** services. These WebServices should automatically start up with the Cryoserver Web Server. However, if this is not the case, then this feature provides a way to re-start it.

Restart the WebServices by pressing the 'Deploy' button.

To test Web Services are running, click the URL link.



Figure 40 – Cryoserver’s WebService response if it is *correctly* deployed

If the “Deploy” action does not start the web services, please contact a Cryoserver Support Engineer.

PLEASE NOTE: This CryoService is built-in to Cryoserver to support Stubbing Services. For *highly* enriched Cryoserver WebServices, a *separate* installation of the “**CryoAPI**” would be required. The CryoAPI is needed for complete Search or Administrative collaborations such as *Phone Apps* and *Sharepoint Portal* integrations.

8 Storage Management

This is a new feature introduced in version 9. It currently allows:

1. **Usage limits** to be altered for selected disks/mounts. There are 'global' limits for **Warning** (when alert emails are sent) and **Critical** (when Cryoserver will stop writing data to that disk).
2. **Storage Nodes** (where archived emails and the corresponding search index is stored) to be added or modified between *read-only* or *writable*. If additional disk resources are made available to the system, then new storage nodes can be allocated to use that new disk.

Additional functionality is expected to be added in later releases. For example, integrity testing and re-indexing, import node management, 2nd Level Storage management, move / migration and consolidation of archive data, restore management (after a DR situation).

Partitions Actions: Refresh

Host	Partition	Total Capacity	Available Capacity	% Used	Warning Limit	Critical Limit	Actions	Status
FCS-PC-7	C:\	237.07 GB	33.96 GB	85%	90 %	98 %	Save	Services running: [cryodb, dbbackup, import mail manager, mailarchive, reindexscopesdb, uk-ln-sd-001, uk-ln-sn-001, uk-ln-sn-002, uk-ln-sn-501, uk-ln-sp-001]

Storage Nodes

New Storage nodes can be added here by specifying the base partition for the storage node. Data directory of storage node would be created under "cryodata" directory in the specified partition.

Add New Storage Node

Storage Nodes	Host	Partition	Type	Status	Change Status
uk-ln-sn-001	fcs-pc-7	C:\	Standard	Online	Active
uk-ln-sn-002	fcs-pc-7	C:\	Standard	Online	Readonly
uk-ln-sn-501	fcs-pc-7	C:\	Import	Online	Active

9 Email Management

This menu provides access to several facilities that manage email and related data.

9.1 Error Mail Manager

An email may occasionally error in Cryoserver for any number of different reasons and at any point in the processing sequence.

To prevent some emails from failing due to intermittent issues, like network connectivity or LDAP connections, the system will automatically **respool** some classes of erroring email. These emails will be *re-processed up to 3 times* before they fully error. There will be a delay of some hours between each reprocessing attempt.

If, after any respool attempts, an email errors, Cryoserver will:

1. Preserve the *source* email file in an Error directory on the Primary Cryoserver system.
2. Preserve the cause of the error (known as a *stack trace*) alongside the error email file.
3. Send an error **alert** for the *first* email that errors with a particular ‘class’ of error that day.
4. Send a summary report each day, indicating the number of errored emails.
5. Error Emails are grouped into ‘exception classes’. The class relates to the cause or reason for the item erroring.

Errors may occur at any part of the processing path for an email. Here are some key points:

- Read and validate an email file. A number of key attributes (message-id, date, sender etc.) are determined at this stage.
An invalid/unreadable email file will error under the “Unknown-Account” error section.
- The Email Date is critical because emails are stored in date based data stores, for efficient search and recovery.
*If the **Date:** header in the email is not of the RFC822 standard format, or is very old (before 1st Jan 2000 or before any **retention period**), then the email will error.*
Cryoserver can use the date found in a “**Received: From**” header – which is stamped with the date/time of the *sending email server*.
- For Un-Wrapped emails: Expand Email addresses via LDAP. This de-aliases any local email addresses (convert any secondary email addresses to the *primary* email address); and then if the address is a distribution group, then expand these to list all recipients of that group.
LDAP related errors may occur at this point.
- Encrypt & Compress the email and Store the email and ‘envelope’ recipient data.
Errors are unusual at this stage, but may occur when obtaining or storing the email identifiers and message-id into a database.
- Extract the keywords from the email text and attachments. Store this in a Lucene Index.
Errors with keyword extraction / attachment reading and Index issues will occur here.
- If there is a Mirror server, repeat the store and index processes on the Mirror.
Errors with communication and connectivity to the mirror, as well as processing errors, can occur at this stage.

The Error Email Manager provides visibility to the **headers** of mail that failed to successfully process into the archive. It also shows the Cause of the Error (the stack dump). From this you may decide what should be done with these emails.

Figure 41 - Error Email Manager

The Error Email Manager groups issues under the Company name or the “Unknown-Account”. And then further groups under the *Exception Class name* which caused those emails to error.

Click on an Exception Class *name* and up to 10 errored items will be listed. Click the “Review Email Headers and Error Trace” and a pop-up web page will display further details:

For *all* emails within the *selected* Exception Classes, you have 3 choices:

Normal Respool This simply moves the error items back into the spool queue where they will be re-processed again.

This option can be used when some action has been taken to resolve the issue that caused the errors.

Respool using Date from Received header This is for any groups of emails that have errored due to a date related issue. Here are some examples:

```

EarlySpamException: Spam message with too old date (Sat Jul 15 11:21:16 EST 13
DateFormatException: Unrecognized date format: 15-JUL-2013 06:00 AM
LateSpamException: Spam message with future date (Thu Jul 01 14:25:29 EDT
2021)
ExpiredMessageException: Message dated before retention period

```

Delete This will remove all mails from the selected error classes, with an associated audit report.

Please check the email headers, to be sure that the emails cannot be processed or that they are not the sort of emails that you would wish to archive.

9.2 Exclusion Rule Manager

This feature allows you to set a rule that will exclude mail from being processed into the Storage Node repositories.

Mail (data files) that are excluded will be held in a separate sub-directory on the server for a small number of days (default is 2 days) before they are deleted by the daily management tasks.

Figure 42 - Adding an Exclusion Rule

Each rule will exclude mail which EXACTLY MATCHES the criteria provided. This criteria includes * wildcard values – **caution** must be employed.

Cryoserver does not allow you to review the excluded mail and to re-queue the excluded mail after changing the rules for Compliance reasons.

9.3 Import Mail Manager

This section helps with transfer and processing of mail files from alternative sources.

All Import mail must be provided as .EML files. These are MIME encoded files as defined by the RFC822 and related standards.

Import Mail Manager

Import Processing Mode: Auto Manual Process Import Queue Now Stop Moving Import Queue

Import File Move Delay: Minutes

Process this Import data as normal spool mail? Yes No

Move import data to trash with trashing enabled? Yes No

Save

Current State: Stopped

Connection to Windows File Share

Fill in the boxes below from your UNC path details.

UNC Path\Host\Share\Path:

File Filter:

Authorization Required:

Enabled: Test Connection must succeed before you can enable this connection

Save and Test Connection

Please create a Windows file share into which you can place .EML files for importing into Cryoserver. Enter the hostname or IP address and the share name into the boxes above, plus a user/password if required. The importer will READ and DELETE the files - so delete permissions are required. Confirm that the connection is valid, by clicking the Save and Test Connection button. If this works, then check the 'Enabled' check-box to enable it.

Import Status

Directory	Import Count	Import Size
cyrosrv	24	218 KB (Calculated at 14-Mar 05:02 PM)
Total	24	218 KB

Figure 43 - Import Mail Manager

Cryoserver can connect to a Windows Network File Share on any PC or Server in your environment. This can be used to collect .eml files that have been extracted from a 3rd party software tool.

9.4 Folder Management

Users can save their search results into Folders, for careful analysis over time. When the user 'Deletes' a folder, it will not actually be deleted, but marked for removal. This system will allow these folders to be permanently deleted.

Folders are stored in a database. They do not hold a copy of each selected email, but a pointer to the item in the storage node repositories.

This feature will be extended to allow folders to be *restored* to the owner, or to be restored to any privileged user.

Folder Management

This screen shows Folders that have been marked for deletion. Press Delete to permanently remove them.

Details	User	Created On	Items	Updated On
Name: sales leads Description: deal reg rate Queries:	jcronin	12:13 18/07/2014	261	12:13 18/07/2014
Delete				
Name: Lanvare_141003_060002_5818 Description: Queries:	rbingeman	06:00 03/10/2014	315	06:00 03/10/2014
Delete				
Name: Today's email Description: Queries:	rbingeman_basic	11:27 04/08/2008	80	17:54 28/11/2008
Delete				
Name: EMAS_140328_060000_6663 Description: Queries:	rbingeman_priv	06:00 28/03/2014	1,576	06:00 28/03/2014
Delete				
Name: LCD Description: LCD investigation Queries:	rbingeman_priv	10:35 27/03/2014	44	10:36 27/03/2014
Delete				
Name: EMAS_140327_060000_6663 Description:	rbingeman_priv	06:00 27/03/2014	1,576	06:00 27/03/2014

10 Mailbox Reader

It is possible to collect email from normal user mailboxes. The mails will be downloaded by Cryoserver without deleting or otherwise altering the emails. The Mailbox Reader will access all folders (or as specified).

The *Mailbox Reader* differs from the *IMAP Collector* (CryoPull) service – which performs a Read-And-Delete cycle from the Inbox. CryoPull service is designed to work only with Journal Mailboxes. The Mailbox reader is designed to access any number of user mailboxes.

The Mailbox Reader service can

- Collect from **IMAP** or **POP3** or **EWS** (Exchange Web Service) mailbox sources.
- Use secure connections (TLS or SSL or HTTPS)
- **Backfill**: Collect up to a specified date in order to backfill a Cryoserver with data up to the date/time that the Email Server started Journaling]
- **Infill**: Collect between a date range in order to fill in any gaps caused by some issue.
- **Live Collect**: By using the **Polling** mode, it will continue to collect all recent mails. Use this if your Mail Server does not support a Journaling facility. Most useful for *Hotmail* type accounts.

The Mailbox Reader is configured in two parts – firstly to create a **connection** to a mail server system. Then to add **user** mailboxes to read from that connection. The following sections describe this process.

10.1 Mailbox Reader Connections

The protocol you wish to use for accessing and reading from the mailboxes will depend on the mail server. We suggest the following choices:

- For Exchange 2007 onwards, use **EWS** (Exchange Web Services). This is a powerful facility and is becoming more efficient and effective with later Exchange releases.
- For most other mail sources, use **IMAP** (Exchange 2003 / Gmail / Hotmail / etc.)
- Only use **POP3** as a last resort!

Then you will need to discover the server from which to access the mailboxes.

For Exchange, the **CAS server** is usually preferred – as this offers the IMAP (if enabled) and EWS web services. For **EWS** you **MUST** enter the correct *server* host name – it must match the services' certificate and standard URL. Please note: If this is not correct, EWS will not authorise the connection and errors.

For IMAP/POP3, you will generally use the service names that are well documented by the various mail vendors.

The screenshot shows the 'Connection Configuration' window. On the left is a navigation menu with options: Basic Configuration, Adv. Configuration, Management, Email Management, Mailbox Reader (selected), Connection Settings, User Configuration, Folder Replication, and Business Continuity. The main area is divided into 'Existing Connections' and 'Connection Details'.

Existing Connections: A list box contains 'imap.vodafoneathome.co.uk', 'pop3.live.com', and 'imap.gmail.com'. Below it are buttons: 'Create Connection', 'User Configuration', 'Edit Connection', 'Delete Connection', 'Stop Download', 'Test Connection', and 'Show Current Progress'. The 'Current State' is 'Running'.

Connection Details:

- Protocol: IMAP
- Server: imap.gmail.com
- Domain: (empty)
- Port: 993 (Default port over SSL: 993)
- Enable this Connection:
- Idle Alert Period: 4 Hours
- Connection Type: SSL
- Include Folders: inbox,[gmail]/sent mail
- Exclude Folders: (empty)
- Use Impersonation*:
- Run Mode: Polling
- Selection Range: All mails
- Check Every: 500 seconds

A 'Hide Advanced Settings' button is located below the details. Below that, there are checkboxes for 'Queue Messages For Import Node' (checked) and 'Mailbox Reader De-duplication' (Mailbox Reader downloaded messages). A radio button group for 'Process this Import data as normal spool mail?' has 'No' selected. A footnote at the bottom states: '*All mail servers may not support impersonation with IMAP. Please use "Test Connection" to verify impersonated access after saving the settings.'

Figure 44 - Creating a Mailbox Reader connection

EWS is now the recommended method for mail extraction from an Exchange system. EWS can be a little slower and less efficient compared to MAPI based protocols (e.g. CDO) – so if speed or flexibility is your concern, then you may need to use of the Cryoserver Mailbox “Vacuum” utility. It is installed directly on any Exchange server (mailbox or CAS) for maximum speed. This is licensed separately.

For the EWS Mailbox Reader, the settings that you are most likely to require are shown here:

The screenshot shows the 'Connection Configuration' window with 'Existing Connections' and 'Connection Details' sections.

Existing Connections: A list box contains 'mail.cryoserver.com'. Below it are buttons: 'Cancel' and 'Save Connection'.

Connection Details:

- Protocol: EWS
- Server: mail.cryoserver.com
- Domain: (empty)
- Port: 443 (Default port 443)
- Enable this Connection:
- Idle Alert Period: 4 Hours
- Use Autodiscovery Mode:
- Connection Type: Https
- Include Folders: *
- Exclude Folders: (empty)
- Ignore Non Email Items:
- Use Impersonation:
- User Id: cryojournal
- Password: (masked with dots)
- Get Powerscript Commands: [Get Powerscript Commands](#)
- Run Mode: Polling
- Selection Range: All mails
- Check Every: 60 seconds

10.1.1 Mailbox Reader Connection settings

Server: Enter the server’s URL host name that would correspond to the Exchange server certificate – as you would use when using OWA. In this example, we would access our own mailboxes in OWA with this URL <https://mail.cryoserver.com/owa>. So use the hostname from that URL.

Domain: Dependent on network requirements, this may or may not be needed.

Port: For EWS this will always be the standard https port, which is 443.

Idle Alert Period: This will cause an alert emails to be sent by Cryoserver to the alert recipients if no mail is collected by this connection over the specified period.

Use Autodiscovery Mode: This will initialise the connection details via the email addresses of the user mailboxes that are to be collected from. In essence, Autodiscovery is another web based service (which will also require a valid web certificate) that returns all of the server / domain / url and other details for a given email address.

Connectivity Type: for EWS this will always be https:

Include Folders: This is the set of Outlook Folders that you require to download email from. Generally, this will be from ALL folders – so the * wildcard can be used. Otherwise a comma separated set of folder names can be provided.

For Sub Folders, you will need to enter the full path – each part separated by a forward slash. For example: inbox/archive mail/* ,sent mail

PLEASE NOTE that the * will mean that non-email folders will be accessed

Exclude Folders: If you wish to exclude specific folders that would otherwise be Included, then enter a comma separated set of folders here.

Concurrent Account Download Limit: The number of mailboxes that will be queried *in parallel*.

Ignore Non Email Items: This tells the Collector to only attempt to download items that have recognised flags indicating the content is a standard email. Some imported emails or post-processed emails (like stubbed items) will have a different 'item class' flag – and you can ensure these are not collected via this option. If the collector is 'skipping' items that you believe *should* be collected, then try un-ticking this option and re-running the collection.

Use impersonation: This is a technique that allows a special user login account to have read/write access to **all mailboxes** in the Exchange. Without Impersonation you would need to provide the *password for every mailbox that you wish to collect mail from*. Impersonation is needed when you wish to collect mail from more than one mailbox. See section *Impersonation & Throttling* below for more information.

Run Mode: This will say “Polling” if there is no END DATE for mail collection. Without an end date, the system will need to repeatedly scan mailboxes – a technique used to archive mail from systems that do not have a Journaling feature (like Hotmail / Gmail / Live mail / other IMAP or POP3 sources).

If an end-date is specified, then the Run Mode will say “Date Limited”.

The summary information that is displayed during mailbox collection will be different between Polling mode vs Date Limited mode.

Selection Range / Start / End date & Time: This sets the required period over which mail is to be collected.

For most new archive setups for Exchange or Lotus Notes, we recommend that you use the “All mail up-to” option, and set the end date/time to the time when Journaling was enabled.

Check Every: (seconds) This option shows only for “Polling” connections. After each complete pass over every user account, the system will pause for the duration specified in the Check Every. This allows you to scan mailboxes in hourly or daily intervals, if desired.

10.1.2 Advanced Connection settings

Queue Messages For Import Node: This tells the system to queue the imported mails into the “Import Node” feature of Cryoserver. This allows mails to be queued but not necessarily processed straight away.

Download Chunk Size: This tells the underlying system how many emails to transfer over the connection in each query request. Having a larger number will increase performance at the cost of greater memory and network usage. It is unlikely that you will need to alter this except under the advice of the Support team – following some performance/memory or network issues.

Download MIME in Chunk: Size Limit: MB (<=0: No limit). This specifies if the email content is to be transferred along with the ‘chunk’ of email headers. By default the list of mail headers will be transferred along with the email contents – but only if the content is less than the provided size limit. If an email is larger, then it will be transferred using a byte stream instead.

Mailbox Reader De-duplication: These choices help to identify duplicate emails prior to downloading from user mailboxes. De-Duplication is based upon the “MESSAGE-ID” value. Regardless of these settings..

*De-Duplication **may** still be performed* by Cryoserver as the mails are being processed into the archive repositories. Please check the **Advanced Company Settings** to see if de-duplication is applied [to ‘basic’ rfc822 mail].

- **No Deduplication** – all mail will be downloaded. Repeated downloading will obtain the same emails again. Mails that appear in several user mailboxes will be downloaded regardless.
- **Mailbox Reader Downloaded Messages** – only mails that have not previously been downloaded will be chosen. Cryoserver will create a private database of message-id’s to support this option.
WARNING: With *very* large data sets [i.e., over 10 million emails] , the database can become significantly large – which can affect the local disk usage and the systems internal nightly backup (where the databases are *copied to the local disk*, then *transferred to the Mirror server*, if used)
- **Downloaded messages AND Cryoserver repository** – this will check for duplicates in the downloaded message-id database [see the previous description & warning] AND in the Cryoserver repositories as well. Use this option *only* if there is significant overlap between the Collection source and the mail already in the Archive. For example, during an “**In-filling**” process where only some mails were missing from the archive for some reason.

Process this Import data as normal spool mail? Yes/No: Mail that is collected by the reader should be marked as ‘**Imported**’. This allows for two main aspects to be used:

1. The mails, when viewed in Cryoserver, will show that it was Imported (and thus its authenticity cannot be guaranteed). And
2. That the mail is placed into a separate data storage node from the ‘Live’ mail. This allows for the imported mail to be removed on-mass if there was any problem.

By de-selecting this option the mails will NOT be marked as 'Imported' in the archive and will be processed into the same data files as 'live' mail – making it much harder to bulk remove only the Imported data set.

IMPORTANT NOTE: If a **de-duplication** option is used (and this is both the default and is recommended), then a local database of message-ids will be created. Once collection has been fully completed, then the Mailbox Reader connection should be DELETED – and in doing so, the message-id database will be removed, releasing disk space and speeding up the internal system backups.

10.1.3 Connection Settings for on premise Exchange

We recommend EWS with Impersonation for Exchange. Connect to your CAS server and not direct to any single mailbox server, even if that one server holds the accounts to extract from.

Protocol: **EWS**

Server: <fully qualified DNS name for the CAS server>

Domain: <your network domain may be provided or left blank>

Port: **443**

Connection Type: **HTTPS**

Autodiscovery Mode: <use this option if manual server/domain settings fail>

Include Folders: *

Exclude Folders: **drafts,calendar,contacts,outbox,tasks,suggested contacts**

10.1.4 Connection settings for Office365

You must use EWS with Impersonation for Office365. With Office365, the user's login Username is normally the same as their primary Email Address.

Protocol: **EWS**

Server: <fully qualified DNS name for your O365 account>

Domain: <blank>

Port: **443**

Connection Type: **HTTPS**

Autodiscovery Mode: <use this option if manual server/domain settings fail>

Include Folders: *

Exclude Folders: **drafts,calendar,contacts,outbox,tasks,suggested contacts**

Impersonation: Office365 offers a limited web-based Power Script feature. It is possible to enable Impersonation.

Hybrid Deployments:– A mixture of On-Premise and Office365. This should not affect the Mailbox Reader requirements.

10.1.5 Connection Settings for GMAIL

The connection settings are published by Google. Please note the *Include Folders* setting – this is recommended as some [gmail]/subfolders simply contain subsets of the inbox that have been filtered in some way.

Protocol: **IMAP**
 Server: **imap.gmail.com**
 Domain: <blank>
 Port: **993**
 Connection Type: **SSL**

Include Folders: **inbox,[gmail]/sent mail**
 Exclude Folders: <blank>

10.1.6 Connection settings for Hotmail / Live mail

The connection settings are published by Microsoft.

Protocol: **POP3**
 Server: **pop3.live.com**
 Domain: <blank>
 Port: **995**
 Connection Type: **SSL**

Include Folders: *****
 Exclude Folders: <blank>

10.2 Mailbox Reader - User Accounts

After a connection is created, you will then need to specify which user accounts to collect mail from.

You have two methods of adding user accounts for mail collection

1. **Add Users manually**, by entering their account details direct into the web page.
2. **Select and Add Users from LDAP** directory searches.

Existing Connections

autodiscovery
office365

Add Users Manually

Select Users from LDAP

Connection Settings

If you have more than one mailbox reader connection, then remember to select the required connection first!

After you have created or added accounts then start the download process.

10.2.1 Creating a User Account entry

Click the “Add Users Manually” (or “Create User” on older versions) button. You will see the “User Details” section at the top of the page becomes editable.

The screenshot displays a user configuration window. On the left, under 'Existing Connections', there is a list box containing three entries: 'imap.vodafoneathome.co.uk', 'pop3.live.com', and 'imap.gmail.com'. Below this list are three buttons: 'Connection Settings', 'Cancel', and 'Save User'. On the right, a 'User Details' form is highlighted with a yellow border. It contains four fields: 'Username:' with an empty text box, 'Email address:' with an empty text box, 'Password:' with an empty text box, and 'Enable this User:' with a checked checkbox. A yellow line points from the 'Save User' button to the 'User Details' form.

Fill in the account's Username (used for the account login or access connection), primary email address and password. For **Office 365**, the username is the same as their primary email address.

If **Impersonation** is available, then the **password** can be left blank.

10.2.2 Adding users from LDAP

If Cryoserver has access to LDAP, then you could search and select accounts from this resource. Please note that Exchange 2013 adds a number of "health mailboxes".

If your LDAP server has one or more "Search DNs" associated with it then you must select the required DNs to search under. Only users under the selected OU groups may be searched and listed.

You may also apply a "Search Filter". This allows you to refine the LDAP search query with additional restrictions. By default, Cryoserver provides a simple filter that only returns user accounts (not distribution or security groups).

To search ALL accounts, simply leave the **Search For** box empty and click the Search button.

Please note: enter a part of a users email address or account username, *followed by a ** (a wildcard), then press enter.

You will see the LDAP search terms briefly displayed on screen while the results are being collected.

User Search

LDAP Server(s): 192.168.11.211 [Account Details] fcs-pdc-a [Auth]

Search For:

Search Filter:

Search Results

Viewing matched users 1 to 103 results (0.74 seconds)

	Username	Email address	LDAP Server	Password
<input type="checkbox"/>	Administrator	administrator@cryoserver.com	192.168.11.211	
<input type="checkbox"/>	areynolds	areynolds@cryoserver.com	192.168.11.211	
<input type="checkbox"/>	bbardin	bbardin@cryoserver.com	192.168.11.211	
<input type="checkbox"/>	bharper	bharper@cryoserver.com	192.168.11.211	
<input type="checkbox"/>	cryptest	ctest@cryoserver.com	192.168.11.211	
<input type="checkbox"/>	David.Clayton	dclayton@cryoserver.com	192.168.11.211	
<input type="checkbox"/>	elsa.adler	eadler@cryoserver.com	192.168.11.211	
<input type="checkbox"/>	FCSPublicFolder	fcspublicfolder@cryoserver.com	192.168.11.211	
<input type="checkbox"/>	HealthMailbox913f401	healthmailbox913f40183de649618d5ac2f9a3910bcb@cryoserver.com	192.168.11.211	
<input type="checkbox"/>	HealthMailbox91bcb34	healthmailbox91bcb34962e44b39a493bca3e8b7dfa3@cryoserver.com	192.168.11.211	
<input type="checkbox"/>	HealthMailbox9ab6e90	healthmailbox9ab6e90029d44a708c2e487c9dcbc9ba@cryoserver.com	192.168.11.211	

This will show all the accounts.

Add Users

Tick the required accounts, or tick the topmost box to select ALL entries, scroll right down to the bottom, and then press the Add Users button.

The selected users will now show in the main **Mailbox Reader – User Configuration** panel.

10.2.3 Testing & Starting Collection Downloading

The grid of configured users will be paged, showing the list in blocks of 10 / 20 / 50 or 100 accounts at a time.

Existing Connections

mail.cryoserver.com

User Details

Username:

Email address:

Password:

Enable this User:

Users found: 2

1 to 2 of 2 results Current State: Completed

Actions: 10 / 1

No.	Mailbox Name	Email address	Last Connected / [Date Range]	Downloaded / Deduplicated / Ignored / Errors	Status	Current State	Actions
1	mbeedell	mbeedell@cryoserver.com	2015-04-23 21:08:23.218 / [2014-03-12 To 2015-04-23]	87,480 / 30,062 / 4,501 / 930	Enabled	Stopped	Test / Show Logs / Reset / Retrv Errors / Details / History
2	areynolds	areynolds@cryoserver.com	New	0 / 0 / 0 / 0	Enabled	Not Started	Test / Show Logs / Reset / Details / History

By clicking the “[Test](#)” link against any single user entry, you can validate the Mailbox Reader connection as well as validating login to this user’s mailbox.

If there are issues at this “Test” phase, then it will be displayed in a message – and the issues resolved before attempting to start the Download process.

NOTE: If there are connection issues, the test may **take up to 1 minute to return/timeout**.

If the user account passes the test, then you can select the “**Start Download**” button. The system will now select a number of accounts to access in parallel. You will see this in the “Current State” column.

10.2.4 Mailbox Reader Option Buttons

The User Panel Buttons:

Create User – Manually add a user for Email Collection, where they cannot be selected from an LDAP source.

Add Users – Select one or more user mailbox accounts from an LDAP directory for which mail is to be collected.

Connection Settings – Switch the current view back to the Mailbox Reader Connection panel. It should switch so that the corresponding connection is selected (assuming that you have multiple collector connections).

Edit User / Delete User / Test Connection / Cancel – These options become visible only when a Mailbox user account is selected from the accounts Grid.

Start Download / Stop Download – Although the Mailbox Reader runs as an independent service to Cryoserver, each collector connection can be stopped and started independently. Once a connection is stopped, other actions can be performed – such as adding / updating and removing User Mailbox accounts from which mail is to be collected.

Start Error Mails Retry – If the main collector has completed or been stopped, but some emails were skipped due to errors, then you can re-start the collector to just re-attempt to fetch these problem emails.

It is highly likely that the error mails could only be downloaded successfully if the cause of the error is removed – and in some cases may require an Update to Cryoserver to address the underlying issue.

Please only use this option if you know that the Exchange has had problems during the Mailbox Reader run – or after a Cryoserver Upgrade which has specifically included a fix for Mailbox Reader error cases.

Reset Download – Once the Reader is first run against each Mailbox, and after each sweep over a mailbox during “Polling” mode, the system will record a “Read up to Date/Time” stamp. Thus the system will only ever read forwards from the last pass.

If you wish to collect mail from an **earlier date**, or that there were collection problems and you simply wish to ensure a complete sweep across all data is performed, then press this “Reset Download” button and all accounts will start collection from the beginning again.

10.2.5 Mailbox Reader – Grid of User Accounts

After Account entries have been Created or Added [via LDAP selection], they will appear in the grid in the lower section of the User Configuration panel. The grid is now “Paged” – meaning that only a fixed number of accounts will be displayed at a time. There are many things that can be performed to the grid as well as actions that can be applied to each account in the grid:

- **Refresh** – this will refresh the data displayed anywhere in the visible Grid area. Repeated Clicking on this link will help to view the progress – the download counts and Details display areas will be updated.
- **Actions [Page Size]:** Change the number of accounts to display per page (20 or 50 .etc). [Page Number] Just enter a number of a page to quickly goto that page.
- **Search Filters:** You can search by Mailbox or Email Address. As you type the grid will immediately locate the matching accounts.

NOTE: This will search entries in all pages of data. For long lists there may be some delay between keystrokes.

NOTE 2: It uses a wildcard search – the text you type can appear *ANYWHERE* in the Mailbox name or email address.

Users found: 14		Current State: Not Started Refresh					
Filtered Users: 4		Actions: 10 / 1					
No.	Mailbox Name <small>Search username</small>	Email address <small>mo</small>	Last Connected / [Date Range]	Downloaded / Deduplicated /Ignored / Errors	Status	Current State All	Actions
2	avmore	vmore@staplediets.com	New	0 / 0 / 0 / 0	Enabled	Not Started	Test / Probe / Show Logs / Reset / Details / History
4	dmote	dmote@staplediets.com	New	0 / 0 / 0 / 0	Enabled	Not Started	Test / Probe / Show Logs / Reset / Details / History
7	abitmore	abitmore@staplediets.com	New	0 / 0 / 0 / 0	Enabled	Not Started	Test / Probe / Show Logs / Reset / Details / History
14	molder	molder@staplediets.com	New	0 / 0 / 0 / 0	Enabled	Not Started	Test / Probe / Show Logs / Reset / Details / History

- **Current State:** Filter the grid to only display the accounts with the matching State (Completed / Running / Stopped etc).

Within the User Accounts grid the following “Actions” links are available:

Mailbox Name link - To edit an existing Mailbox Account (to reset the registered user *Password*, or to ‘*disable*’ the account to prevent further collection), click on the username link in the accounts grid. The main buttons on the left will now

Test – Check the account username & password (if *Impersonation* is not used) is valid by performing a login to that account.

Probe – The probe action allows you to view the Folders within the user’s account. You can monitor the actual collection as it happens from each folder via this view.

Mailbox Reader (mbeedell) Current State: Running Hide Empty Folders

Draft Items: 597 Non Email Items: 3,934

Current Cycle Details

Errors Collected: 0

Error(s): 0

Current Folder: inbox/critical. Total Messages: 329. Messages To Synchronize: 1. Falls between: 2014-11-03 18:07:53.0 to 2015-04-27 23:59:00.0

Last error occurred before 10 minutes 52 seconds: Failed to download message. Error: You must load or assign this property before you can read its value.

Statistics of current download cycles:

Folder	Total	Filtered	Downloaded	Deduplicated	Errored	Ignored	Last Item Received Time	Started At	Completed At	Filter Start Date	Filter End Date	Minimum Date	Maximum Date
calendar	1,079	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
contacts	36	1	0	0	0	1	2014-11-28 18:09:58.0	2015-04-27 14:01:46.113	2015-04-27 14:01:56.338	2014-11-26 18:09:58.0	2015-04-27 23:59:00.0	2014-11-28 18:09:58.0	2014-11-28 18:09:58.0
contacts/irs contacts	4	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
contacts/request cache	81	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
conversation history	42	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
deleted items	1,600	0	0	0	0	0	-	2015-04-27 14:01:16.818	2015-04-27 14:01:28.844	2015-04-27 12:02:28.0	2015-04-27 23:59:00.0	-	-
drafts	9	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox	6,657	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/alerts	12,488	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/alerts/alerts	1,320	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/alerts/daily reports	7,171	0	0	0	0	0	-	2015-04-27 14:02:50.995	2015-04-27 14:03:00.995	2015-04-27 10:10:04.0	2015-04-27 23:59:00.0	-	-
inbox/alerts/month summary	1,320	0	0	0	0	0	-	2015-04-27 14:02:16.912	2015-04-27 14:02:30.99	2015-04-20 08:09:00.0	2015-04-27 23:59:00.0	-	-
inbox/alerts/questions	175	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/alerts/track traces	832	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/ethergemmy	2,118	0	0	0	0	0	-	2015-04-27 14:02:30.18	2015-04-27 14:02:40.348	2015-04-27 13:42:40.0	2015-04-27 23:59:00.0	-	-
inbox/etherjournal	829	0	0	0	0	0	-	2015-04-27 14:03:11.232	-	2014-11-05 18:07:53.0	2015-04-27 23:59:00.0	-	-
inbox/etherjournal	596	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone	1,562	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone	159	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/backy	35	0	0	0	0	0	-	2015-04-27 14:01:36.985	2015-04-27 14:01:46.103	2014-05-13 17:55:00.0	2015-04-27 23:59:00.0	-	-
inbox/gemstone/clock	16	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/denise	40	0	0	0	0	0	-	2015-04-27 14:01:58.378	2015-04-27 14:02:06.889	2015-04-21 23:13:18.0	2015-04-27 23:59:00.0	-	-
inbox/gemstone/family	14	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/gem	146	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/school	1	0	0	0	0	0	-	2015-04-27 14:02:08.876	2015-04-27 14:02:16.788	2014-07-03 14:06:00.0	2015-04-27 23:59:00.0	-	-
inbox/gemstone/souls	83	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/tim	76	0	0	0	0	0	-	2015-04-27 14:02:40.336	2015-04-27 14:02:50.995	2015-04-21 11:03:41.0	2015-04-27 23:59:00.0	2015-04-01 01:07:40.0	2015-04-01 01:07:40.0
inbox/gemstone/tim	307	0	0	0	0	0	-	2015-04-27 14:03:00.888	2015-04-27 14:03:11.232	2015-04-27 10:30:31.0	2015-04-18 17:19:00.0	2015-04-18 17:19:00.0	2015-04-18 17:19:00.0
inbox/gemstone/tim	33	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/tim	25	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/tim	6	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/tim	4,950	0	0	0	0	0	-	2015-04-27 14:01:28.854	2015-04-27 14:01:36.985	2015-04-27 13:30:00.0	2015-04-18 16:08:00.0	2015-04-18 16:08:00.0	2015-04-18 16:08:00.0
inbox/gemstone/tim	375	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/tim	5	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/tim	24	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
inbox/gemstone/tim	2	NV	NV	NV	NV	NV	-	NV	NV	NV	NV	NV	NV
Total	45,240	1	0	0	0	1							

Show Logs – Download the current log file for this Mailbox only. Use this option if requested by Cryoserver Support personnel.

Reset – This will cause the Reader to start again with this mailbox – revisiting all folders as though for the first time. Duplicate items should not be selected, but any items that may have been missed [due to the Connection specifying a different Reader Date range], errored or skipped on the first pass to be re-visited again.

You should not need to use this option unless the connection settings have changed or under the guidance of Cryoserver Support personnel.

Restart – If an account is marked as *Exited* (terminated early either due to manual service stoppage or connection errors) or shows as *Completed* for some account but you wish to re-queue the account to be scanned again for mail to download (say, after you have “**Reset**” the account), then click the **Restart** link. This will add the account to the set of accounts due to be scanned for mail download.

NOTE: If there are already many accounts queued to be processed, then it may take some time to actually start the download action on that mailbox.

Retry Errors – If the collection of mail from a mailbox has completed, but that it shows that some emails failed to be downloaded due to errors, then you can try to re-download just the erroring items by pressing this link.

NOTE: Emails that errored once will continue to error until some adjustment is made. The most likely requirement is to get the error cases evaluated by Cryoserver Support personnel which may result in an update to the Cryoserver system that caters for the causes of the error cases.

Details – This opens a panel under this account in the Grid. Additional details about the current collection state of that account will be displayed.

No.	Mailbox Name <small>Search username</small>	Email address <small>Search Email address</small>	Last Connected / [Date Range]	Downloaded / Deduplicated / Ignored / Errors	Status	Current State <small>All</small>	Actions
1	mbeedell	mbeedell@cryoserver.com	2015-04-27 14:01:15.508 / [2014-03-12 To 2015-04-27]	89,515 / 30,148 / 4,535 / 931	Enabled	Completed	Test / Probe / Show Logs / Reset / Restart / Retry Errors / Details / History
<p>Draft Items: 597 / Non Email Items: 3,938</p> <p>Last Cycle Details:</p> <p>Item(s) Collected: 0</p> <p>Error(s): 0</p> <p>Last error occurred before 1 hour 1 minute 50 seconds: Failed to download message, Error: You must load or assign this property before you can read its value.</p>							

History – This opens a new pop-up panel that should show the status of every recorded ‘poll’ of a mailbox.

10.2.6 User Account - Download Counts & Statistics

Multiple user accounts will be accessed in parallel – typically up to 10 mailboxes at the same time. As the mailboxes are visited this sequence of events will occur:

1. Account Login. In some cases a number of attempts will be made to connect to an account, each with different Username / domain format combinations.
NOTE: Very large mailboxes can take many minutes to complete the login phase. For example, under IMAP all emails must be sequentially numbered – and so the first IMAP connection to a mailbox may cause much activity on the Email Server.
2. Read the Folder tree, obtaining the complete item counts in each. Typically a fast action.
3. For each Folder, obtain the list of emails in date sort order, filtered by the current date-range criteria. As a mailbox can be scanned multiple times, so the date-of-last scan is retained so that subsequent scans only read new data.
WARNING: A very large mailbox folder can take over **30 minutes to sort by date**. This has been seen with folders with over **20 million items**.
If you have mailboxes like this (over 20 million items in one folder) then the Mailbox Reader can be forced to read items in “**Natural Order**” – which will prevent this sort action. However, this is not recommended for mailboxes where the content is likely to change during the Download process.
Recommendation: PLEASE Contact Cryoserver Support for guidance and best practices.
4. Mails are read, a ‘chunk’ at a time – depending on the Connection Settings. By default this means that up to 10 emails will be downloaded at any time, unless this exceeds a size limit.

Progress can be monitored in the Mailbox Reader - User Configuration grid. Press the “Refresh” link to keep the grid updated. The following statistics are displayed:

Last Connected / Date Range: This shows the date that this collector attempted to login and download mail from this mailbox. It also shows the Date Range for that collection.

Total-to-Date Counts

Downloaded: A [total to date] count of successfully downloaded emails.

NOTE: Depending on the Mailbox Reader and Cryoserver’s deduplication settings, there is a chance that some of these will be *de-duplicated* when processed into the archive repository. Or they could be rejected due to *Exclusion Rules* that you may have set in Cryoserver.

Deduplicated: If Mailbox Reader de-duplication options are used, then this is a count of items that have the same Message-ID as a previously downloaded email.

Ignored: This is a count of items that are *not emails*, or not valid for download purposes. Items could be Calendar appointments, Notes, ToDo lists and so on. Or it could be items created by a third party app that your organisation uses, which uses Exchange as its data store.

Errors: This is a count of emails that failed to be downloaded for any reason.

The sum of Downloaded + Deduplicated + Ignored + Errored should = the *Filtered count* from the Probe panel [but only on the first pass].

10.2.7 Monitor Page - Reader Summary

You can check on the progress of a range of aspects of Cryoserver via the Monitor Page. In the Components section you will find a section summarising the Mailbox Reader:

Name	State	Information
Cryopull	Online	mgbtest: fcs-ex2010: 28-Apr-2015 9:38:09 - fcs-ex2010 [Current Hour: 0, Last Hour: 0]
MailBox Reader	Running	mgbtest: mail.cryoserver.com State: Completed Total downloaded/Total Deduplicated : 89,515/30,148 , Volume Downloaded : 1.54 GB (68,712 messages) [Current Hour: 0, Last Hour: 0]

This shows the Volume downloaded and the current hour / previous hour download counts.

Impersonation & Throttling

Impersonation is a way to access many mailboxes using only a single user Login. This feature applies to both IMAP [but *only* if supported by the Email Provider], and EWS [including Office 365].

For IMAP on non-Exchange systems or those prior to Exchange 2007, an administrative account may be needed. After Exchange 2007, the Impersonation features as described below for EWS would also apply here.

For EWS, any user account can be given Impersonation rights – it does *not* need to be an administrative account. To promote a user to have impersonation rights requires the use of Exchange PowerShell commands. Cryoserver provides template PowerShell Scripts for you to use for this purpose. **Please enter the Username** of the account that you wish to give Impersonation rights to, and **then** click the **“Get Powerscript Commands”** link. In this case the scripts will be edited to include this username.

These can ONLY be run under the **“Exchange Management Shell”** PowerShell environment. A standard windows PowerShell will not have the Exchange script libraries loaded.

To run one of these scripts, you can either view the script in Notepad, and copy-paste the script text into the Exchange Management Shell. Or you could run the .ps1 file from within the Exchange Management Shell by adding an & (ampersand) before the full path to the script file. NOTE: You should be able to drag-drop a 'ps1' script file from File Manager or the Desktop into the

Management Shell – it will paste in the DOS path to the file. If the path contains spaces, then surround the path with double quotes (“a path”) or curly braces ({a path}).

Here is an example that lists the existing user accounts that have impersonation rights. NOTE: You will need to read the Microsoft Documentation to learn more about the many settings and implications of Impersonation accounts.

```

Machine: fcs-exchange-a.fcs.cryoserver.com

Welcome to the Exchange Management Shell!

Full list of cmdlets: Get-Command
Only Exchange cmdlets: Get-ExCommand
Cmdlets that match a specific string: Help *<string>*
Get general help: Help
Get help for a cmdlet: Help <cmdlet name> or <cmdlet name> -?
Exchange team blog: Get-ExBlog
Show full output for a command: <command> ! Format-List

Show quick reference guide: QuickRef
Tip of the day #64:
Want to create a new role group for your administrators? Use the New-RoleGroup cmdlet. The New-RoleGroup cmdlet lets you add management roles and specify the members to add to the new role group. Those members will be granted the permissions provided by the management roles. Type:
New-RoleGroup <role group name> -Roles <role 1>, <role 2>, <role 3...> -Members <member 1>, <member 2>, <member 3...>

Remember, role groups are used to grant permissions to groups of administrators or specialist end users who require special permissions. If you want to manage permissions for end users, use management role assignment policies.

VERBOSE: Connecting to fcs-exchange-a.fcs.cryoserver.com.
VERBOSE: Connected to fcs-exchange-a.fcs.cryoserver.com.
[PS] C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Microsoft Exchange Server 2013>&&(C:\Users\mbeede11\Desktop\ps_list_impersonation_users.ps1)
BaseDN:
Exchange 2013
List of impersonated users:

-----
Name                               Role                               RoleAssigneeName  RoleAssigneeType  AssignmentMethod  EffectiveUserName
-----
ApplicationImpersonation-Hy... ApplicationImperso... Hygiene Management  RoleGroup         Direct            All Group Members
ApplicationImpersonation-Hy... ApplicationImperso... Hygiene Management  RoleGroup         Direct            FCS-EX2010
ApplicationImpersonation-Or... ApplicationImperso... Organization Manag... RoleGroup         Direct            All Group Members
ApplicationImpersonation-Or... ApplicationImperso... Organization Manag... RoleGroup         Direct            Administrator
ApplicationImpersonation-Or... ApplicationImperso... Organization Manag... RoleGroup         Direct            Martin Eked 11
ApplicationImpersonation-Or... ApplicationImperso... Organization Manag... RoleGroup         Direct            Keano Brown
ApplicationImpersonation-Or... ApplicationImperso... Organization Manag... RoleGroup         Direct            LynneADMIN
ApplicationImpersonation-Or... ApplicationImperso... Organization Manag... RoleGroup         Direct            LucasFan
CryoStubbingImpersonation      ApplicationImperso... Administrator      User              Direct            Administrator
ImpersonationAssignmentName    ApplicationImperso... cryo impersonation  User              Direct            cryo impersonation
CWRStubbingImpersonation      ApplicationImperso... stubadmin2013      User              Direct            stubadmin2013
-----

[PS] C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Microsoft Exchange Server 2013>_

```

Throttling is a feature of Exchange systems to prevent any single task or mailbox from consuming all server resources and preventing other activities from progressing. However, throttling can cause the bulk mail collection to be unacceptably slow or even to fault.

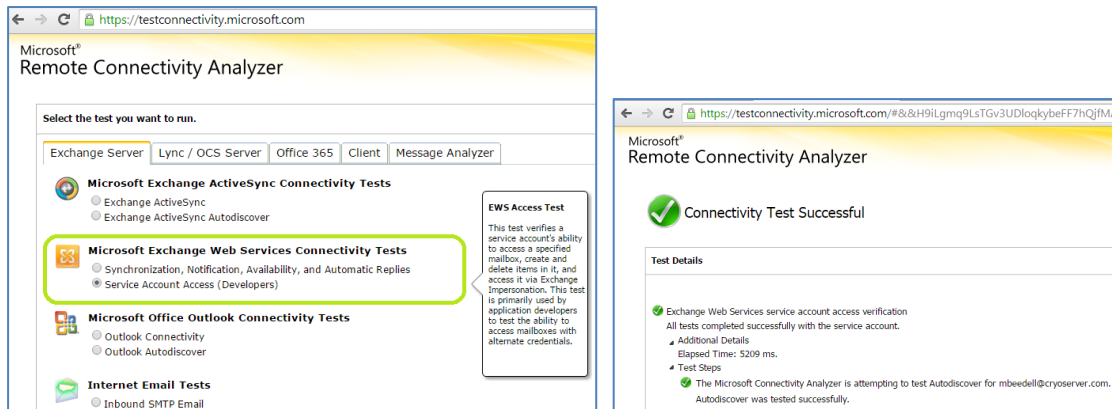
We therefore recommend, for the duration of mailbox collection only, that **Throttling is turned off** from the *Impersonation account* only. Please use the provided Power Scripts to list / set or un-set throttling on the impersonation account.

10.2.8 Testing EWS

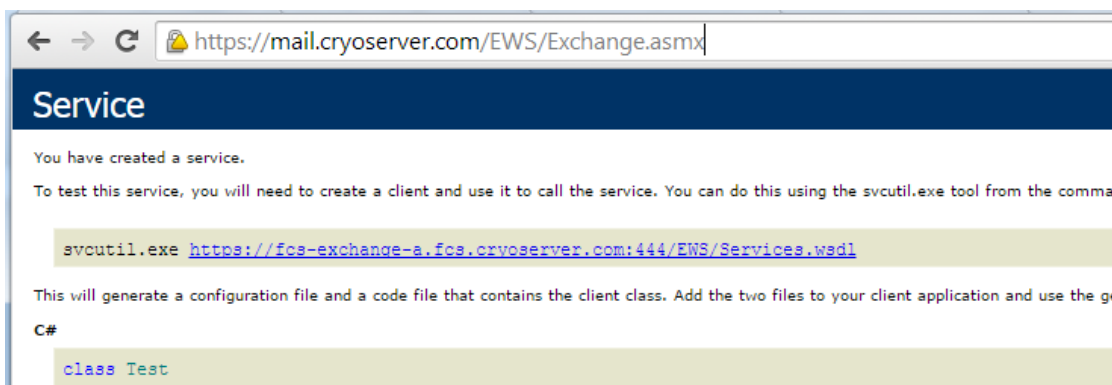
EWS is typically visible via the outside of your organisation (along with OWA). If this is the case, then you can verify that your Exchange has a valid, working, EWS system via this web site:

<https://testconnectivity.microsoft.com/>

This Microsoft hosted web site has a wide range of testing capabilities beyond EWS. But for EWS, it can test “autodiscovery” and “impersonation”. At the end, a detailed report will show if all was working, or exactly which step failed.



For Exchange systems that are not visible to the public web, you may use this very basic test:



Or use this format to list the EWS service WSDL:



Or just use the Cryoserver Connection "Test" feature.

11 Folder Replication

Folder Replication is a feature introduced in Cryoserver Version 8. It uses the same techniques developed for the Mailbox Reader to access all items in selected user mailboxes. However, in this case the Folder tree and the item summary (e.g. message-id / subject /sender / recipients) are captured into a Cryoserver Database. Now the users that have Mailbox Replication can view the Cryoserver archive with that SAME folder tree view that they have created in their Outlook.

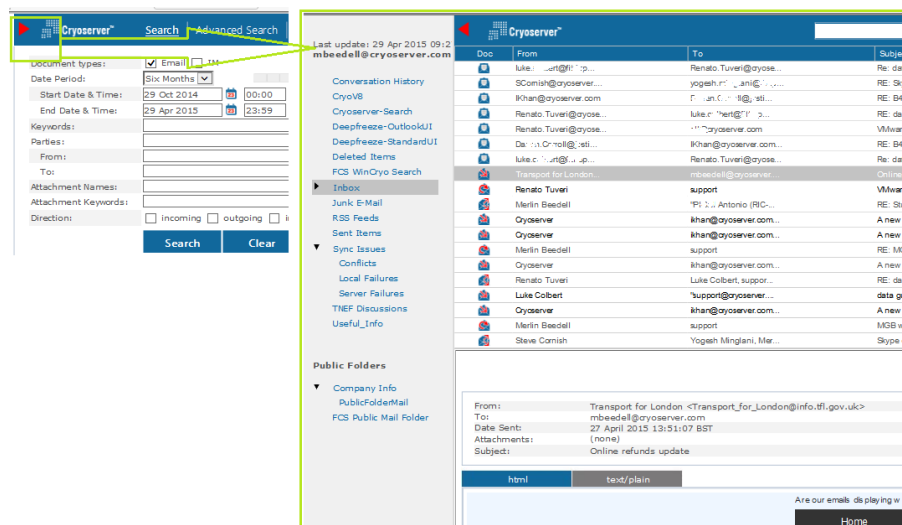
Replication Period: To limit the size of the Cryoserver Database that holds this Folder and Item data, Cryoserver defaults to only collect and retain summary email items **up to YYY days old**. Older data will be held in Cryoserver, but the emails will not be included in the Replicated Folder view. You can set longer replication periods if you require.

NOTE: Future versions of Cryoserver will separate the Replication Period from the Connection settings, meaning that you can have multiple periods of replication for groups of user accounts, all against the same Connection.

Folder Replication will need to re-scan user mailboxes on a regular basis, to obtain the latest set of emails and folders – and to remove items from the database that are older than the replication period [but never from the email archive itself!].

With Folder Replication enabled for a user, that user will see a **red triangle** at the top of their

standard Search UI. On clicking this they will now see the Folder Replication view. All of their folders will be listed together with the emails in those folders.



They can perform searches, which will identify matching emails in any folders – and they will quickly see which folders contain these matching emails. Mails will be restorable back to their originating folder – and you should also see the history of movements – where an email has been moved through more than one folder over time.

Also note that it is possible to replicate Public Folders. This has some permissions implications that are discussed later.

11.1 Connection Settings

Folder Replication Connection Settings are similar to the Mailbox Reader settings. Please refer to the earlier Mailbox Reader documentation for the general settings and the meaning and setup of an Impersonation account.

Folder Replication Connection specific details are:

Check Every: This determines how often the system will scan user mailboxes. A frequent scan will be good for end-users – if they rely on the Folder Replication view. However frequent this will add network and Exchange overheads.

Folder Synchronization Retention Period: This determines the date range of the email metadata to save in a Cryoserver Database for all users under this connection.

NOTE: The size of the database needed to hold replica folder data is determined by the number of users, the size of their folders, and this Retention Period. The size of the database is noted under the “System Director” node on the Monitor page

Storage Director	fcs-samsung700z	C:\	Online	Server clock: Wed Apr 29 13:42:13 BST 2015 NTP on fcs-pdc-a: Wed Apr 29 13:42:29 BST 2015 Up Time: 1 day 19 hours 22 minutes 59 seconds (last restarted: 94.2 MB)
------------------	-----------------	-----	--------	---

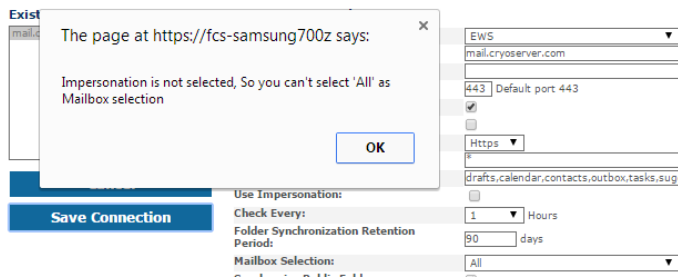
Mailbox Selection: [option only displays *after* adding a connection]

Admin Selection. You can choose which user mailboxes to replicate – so you can offer this view to only those users who would benefit from it. This is the default setting.

All. However, you can simply tell the service to replicate ALL user mailboxes. This would include service and other mailbox accounts that may not actually benefit from folder replication. The only accounts that would not be replicated would be *disabled* users.

>> On “**Save Connection**” the system will obtain the set of users **from LDAP** and add them all to the User Configuration panel.

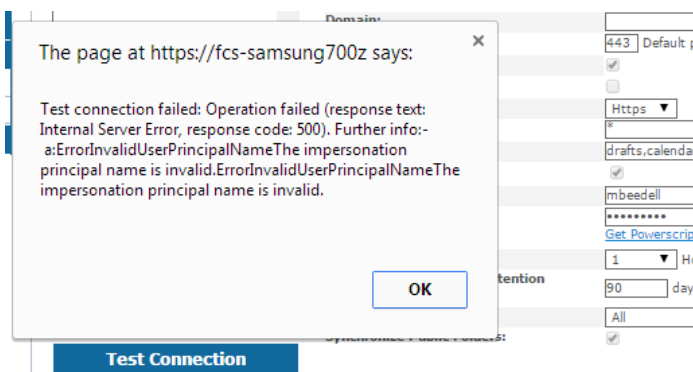
Please note that to replicate ALL mailboxes, you *must* use “**Impersonation**”. Without impersonation you would need to enter the login passwords of each account to replicate.



Synchronise Public Folders: *Applies to Exchange 2013 only:* Choose this option to allow the service to obtain the set of **Mail-Enabled Public Folders** and build a replica database for each.

After saving a Folder Replication Connection, please “Test Connection” to ensure that the connection is valid. After this you will need to add users who’s Folders you wish to replicate.

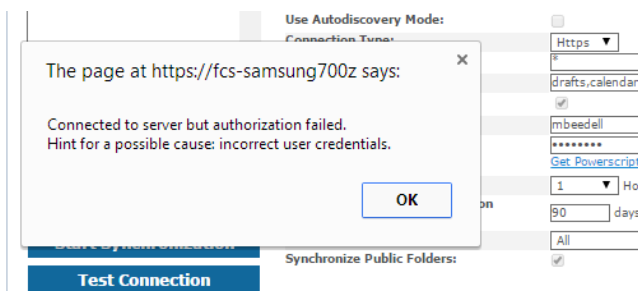
If “Impersonation” is selected, then the “Test Connection” will verify if the account does have the



correct permissions. If the account does not have impersonation rights, then this message will be displayed:

Download and use the Impersonation & Throttling scripts if needed, to assign the permissions.

If the impersonation Username/Password combination is invalid, then this message will show:



11.2 Folder Replication – User Configuration

The settings here are similar to the Mailbox Reader – User Configuration.

If the connection’s “Mailbox Selection” was altered to “ALL” and then Saved, the system will obtain the list of user accounts from LDAP and will add them all to this User Configuration panel. Otherwise this panel will initially be empty until you Create or Add users.

The screenshot displays the 'Configuration' page for Folder Replication. It includes a sidebar with navigation options and a main content area with a search filter for 'LDAP Search Filters'. The 'Existing Connections' section has a search box and a 'Create User' button. The 'User Details' section shows a user named 'bbardin' with email 'bbardin@cryoserver.com'. Below this is a table of users with columns for No., Mailbox Name, Email address, Last Connected, Total Items / Errors, Status, Current State, and Actions.

No.	Mailbox Name	Email address	Last Connected	Total Items / Errors	Status	Current State	Actions
1	Administrator	administrator@cryoserver.com	New	0 / 0	Enabled	Not Started	Test / Probe / Show Logs / Reset / Details / History
2	areynolds	areynolds@cryoserver.com	New	0 / 0	Enabled	Not Started	Test / Probe / Show Logs / Reset / Details / History
3	bbardin	bbardin@cryoserver.com	New	0 / 0	Enabled	Not Started	Test / Probe / Show Logs / Reset / Details / History
4	bharper	bharper@cryoserver.com	New	0 / 0	Enabled	Not Started	Test / Probe / Show Logs / Reset / Details / History

Each account entry consists of a Username and Primary Email Address. If *impersonation* is not used, then a password will be required for each user entry as well.

Once all required accounts have been selected or have been entered, then you can “**Start Synchronisation**”.

If you edit the Connection to set a longer replication retention period, then you will need to “**Reset Synchronisation**”. This will reset every account back to initial settings so that a complete folder scan will be performed.

The same action links are available for Folder Replication users as for the Mailbox Reader.

Test: Check connectivity & login credentials. PLEASE NOTE: if there are connectivity issues, then it can take a minute or two to respond – during which a ‘please wait’ panel will be displayed.

Probe: List the Folder tree and the detailed collection status of each.

Show Logs: Download a log file for this account.

Reset: Cause the next scan of this account to start at the beginning (e.g. reset the ‘last read up-to’ markers).

Details: Expand the grid to display additional collection status details about this account.

History: Currently this is not fully implemented, but should show the summary from a number of the sweeps through this user account.

11.3 Public Folder Replication

Please Note that Public Folder access by EWS (Exchange Web Services) only became available in **Exchange 2013**. Public Folder replication will not function with earlier Exchange versions.

Public Folders are unlike standard user folders in a number of respects:

- They often contain items that are not sent to or from the Public Folder email address. Items are placed into Public Folders via drag/drop actions in Outlook.
- They are typically project oriented – containing mail related to a specific case or matter. Only users who are part of that Project will have visibility to that Public Folder.

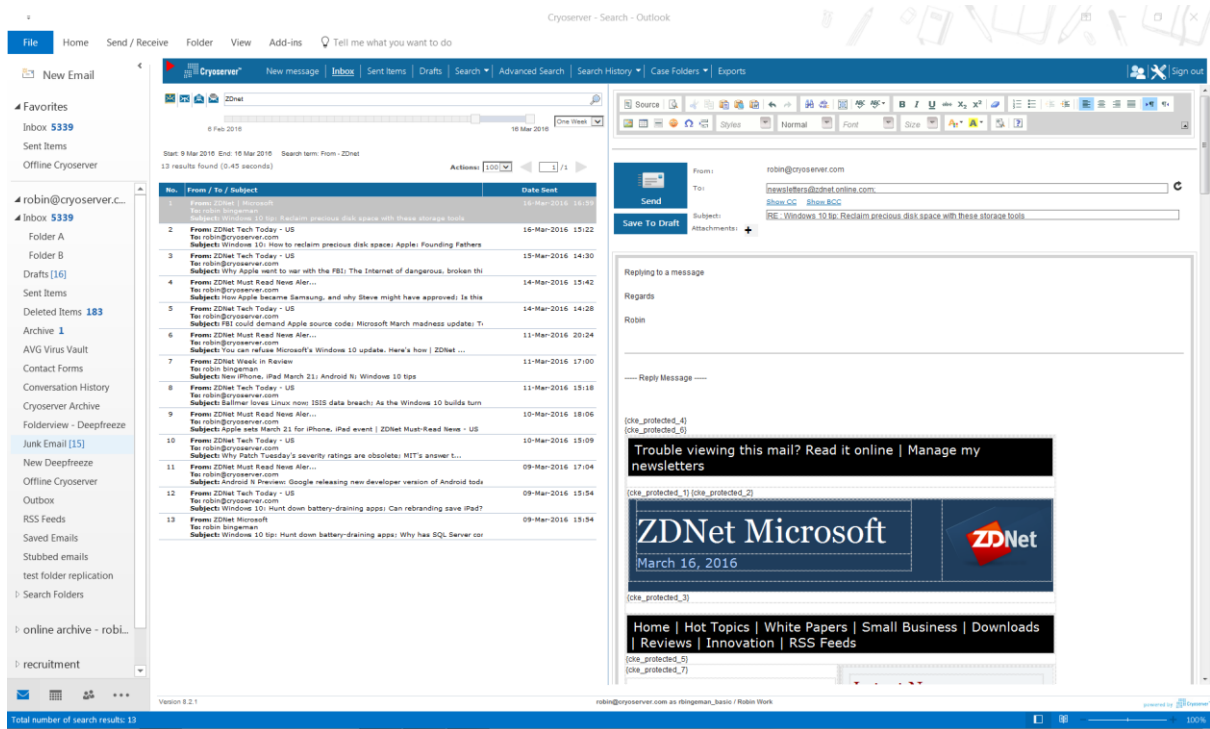
These facts mean that special handling is needed by Cryoserver to allow the content of Public folders to be effective.

1. The content of a Public Folder would need to be replicated over a much longer period – effectively over all time. This is to capture all of the items placed there by drag-and-drop techniques.
2. A user viewing a Public Folder in Cryoserver would need to have “Privileged” style access – as they will be viewing items not sent either to or from themselves, and also not sent to/from the Public Folder email address either.
3. Every folder replication cycle visits all user mailboxes in scope of replication. For every user, it first gets the list of root of normal folders, and synchronizes them (over last remembered synchronization state). Then it gets the root of public folders accessible to the user. If the user has access to any public folder, those folders are returned in this list. Then it synchronizes those public folders, and stores the public folder item entries in a table common to all users (unlike normal folders synchronized under per-user tables), also recording the identity of the synchronized public folder and userid of the respective user who has access the public folder. Now if a subsequent user account visited in folder replication cycle also has access to the same public folder, folder replication would know that respective public folder (with specific identity) has already been synchronized in the current replication cycle. So it would not re-sync it again, but just add the userid to the table column maintaining list of users for respective public folder. When a user opens folder replica view, he is able to see those public folders (under replica view), the tables of which have his userid under the users column.

12 Business Continuity

Business Continuity is the ability to use the Cryoserver product for Replying and Sending new emails when the companies main Email Server is down.

When enabled the Menu list to Cryoserver enhances.



To enable Business Continuity Mode login to the Administrator area > Business Continuity. Ticking Business Continuity Mode and pressing Save will enable the service.



Business Continuity ↑ ↓

Business Continuity Mode:

MailServer Address:

SMTP Connection Type: Plain on Port: (Default SMTP port 25, SSL port 465)

Authorization Required:

Username:

Password:

Push mail:

Alert To:

Typically the mail server address will be a SMTP relay service for the organisation, such as a Gateway device. Please note Business Continuity would only be used if the organisation are not able to use the mail server, and need to use Cryoserver to reply / send emails.

13 Support Engineer tasks

To prevent support issues, some tasks require Cryoserver support to be contacted. These include:

13.1 SMTP mail server (IIS or Postfix)

Mail that is delivered TO a Cryoserver system will be routed via an SMTP server service on Cryoserver's host operating system. These will need to be set up and configured outside of the Cryoserver administration UI.

On a Linux based system, **postfix** is used as the SMTP mail server. It is pre-configured with suitable settings for Cryoserver usage.

On a Windows system, the **Windows SMTP** service that runs under IIS (version 6) is typically used.

Cryoserver Support can assist to set up or alter the configuration to match your requirements.

13.1.1 SMTP 'Sniffer'

A separate utility service is available that can 'sniff' SMTP packets that are travelling on the network segment that the unit is connected to. If the Cryoserver is connected to a hub sitting on the gateway link to the outside, then it should be able to sniff all inbound and outbound mail.

13.2 Disk Management

Addition of extra disk partitions / SAN Luns / NFS shares / USB Drives etc. will require a Support Engineer to assist.

13.3 IP Address changes

Changing the IP address of a Cryoserver server is typically performed by a support engineer. It is important to adjust some configuration files accordingly – otherwise Cryoserver will not start up correctly.

However, for VM Server Images now provide a Management User Login to the o/s that provides commands to change a number of basic things – including the IP address. For more information please review the VMdeployment guides.

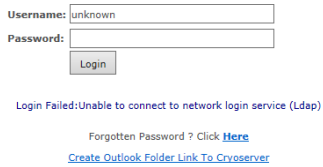
13.4 Switching to Disaster Recovery Mode

In a Disaster Recovery scenario, the Mirror Cryoserver system will need to act as a standalone server. A support engineer is required to manually re-configure the system for this purpose, and to re-set and re-sync the systems after the DR period. The switch from a Mirroring configuration to a DR Standalone configuration take less than 10 minutes. The switch back to the full Mirroring configuration will take a little longer, as the data collected during the DR period would need to be copied to the Primary server.

14 Troubleshooting

14.1 Login Failures

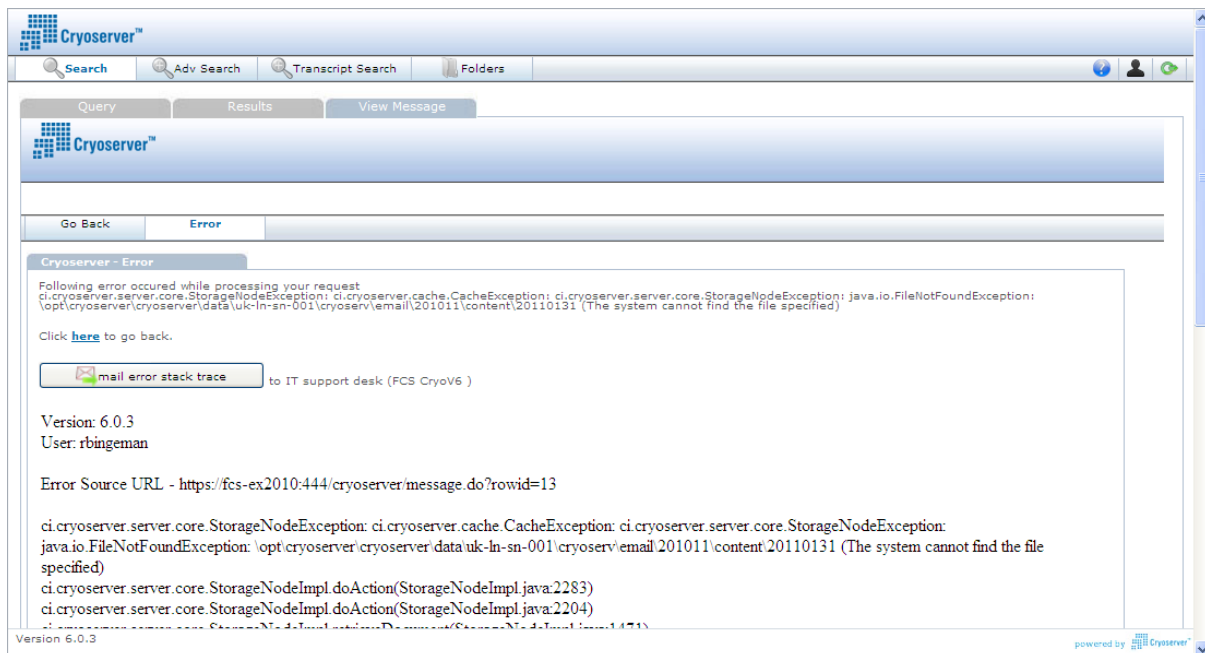
There are several possible issues that may occur when logging-in to Cryoserver.



If the username or password is incorrect OR the LDAP server is not available or incorrect, then the error shown above will appear. Please also check the spellings of usernames and passwords are case sensitive.

14.2 General Error screen

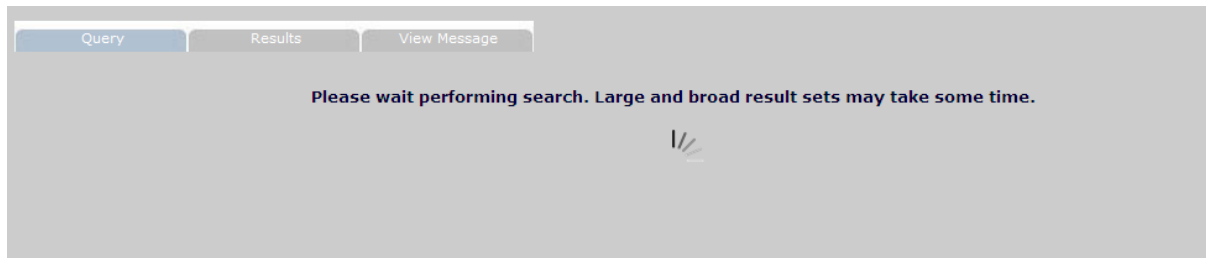
If an *unexpected* error occurs, then a general error report screen will appear, as shown here. If you get a screen like the following, please press the “mail error stack trace”, this will send the logging information to Cryoserver Support Personnel for review. For additional support, please contact support@cryoserver.com for guidance and help.



14.3 Please Wait panel shows for considerable time

If searches are taking a long time i.e. 60 seconds or more, we would suggest the results being collated are many tens of thousands/millions, please press the Right Hand Cross in top right hand corner of the User interface. We would recommend refining the search to produce a modest amount of results.

Some browsers (Internet Explorer v 9) will not auto-hide this panel *unless* the **compatibility mode** is enabled. Sometimes this is located in the URL bar or under the Tools menu.



14.4 Alerts / Forward to Inbox not being sent

If the 'daily alert' or any other alerts, fail then check the Outbound Email and Alerts settings. The configured SMTP server may block the sending of emails to any email address that is NOT in the local domain – as this is regarded as **Relaying**. So ensure that all Alert Recipients are in the local domain OR that you configure your SMTP server to 'Allow relay *from*' the Cryoserver IP address.

NOTE: Since Cryoserver version 6.0.6 you can use an *authenticated* SMTP connection [over TLS/SSL]. In this way the Cryoserver becomes a first class email client and is able to send mail to any email address without requiring any relay settings on the Exchange (or other email server).

15 Conclusion

We would like to thank you for reading this Administration guide and using Cryoserver.

Cryoserver is constantly evolving around customer requests and we would appreciate your feedback with using the demo system.

For support requests please speak with your administrator and as a second point of contact FCS at www.cryoserver.com or emailing support@cryoserver.com

Last edited December 2018