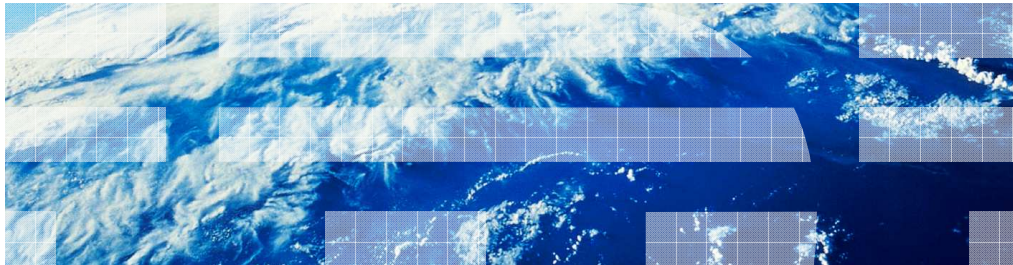

Rational ClearQuest

EmailPlus



This presentation covers EmailPlus, the new Email handling package for IBM Rational ClearQuest.

Table of contents

- Limitations of the original ClearQuest email sending solution
- What is EmailPlus?
- EmailPlus features
 - Configuration
 - Operating modes



The presentation will highlight how EmailPlus has built upon the existing functionality provided in the original ClearQuest email package to include support for richer email content, both in terms of formatting and the type of data which can be included, enhanced rules and a greater choice of email transport mechanisms.

Prior to implementation, refer to the EmailPlus documentation of your specific ClearQuest version for information on limitations of this package with your ClearQuest schema.

No sending context

- Email can only contain:
 - Data from one record
 - New or old field values only
 - Nothing from the environment
 - Nothing from other records
 - No explanatory text

```
Subject: ID:RSDC00000012  
  
Headline: Problem with logon Screen  
Priority: 2-Give Immediate Attention  
Owner:Hawkeye  
Submitter:Gatekeeper  
SubmitDate:2008-09-10 11:23:00  
Description:The user ID field isn't wide  
enough to contain largest permitted value
```



The original ClearQuest "Email" package has limitations, especially with the lack of context of notifications. It can only have information from one record. It can only have new or old values. There is no context within the ClearQuest environment. There is no data from other records. There is no indication as to why an end user is receiving an email.

No rich content

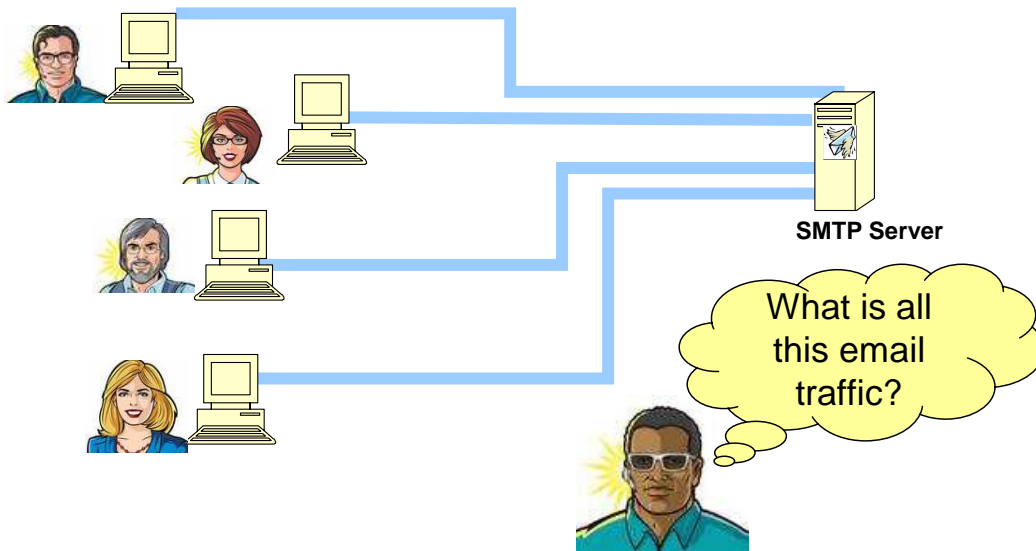
- No emphasis in content
 - Cannot use text effects like bold
 - Cannot use color
 - Cannot insert graphics
 - Cannot add attachments
 - Cannot create a web link to the record

I expect **Rich Content** in my email to highlight important information and improve readability.



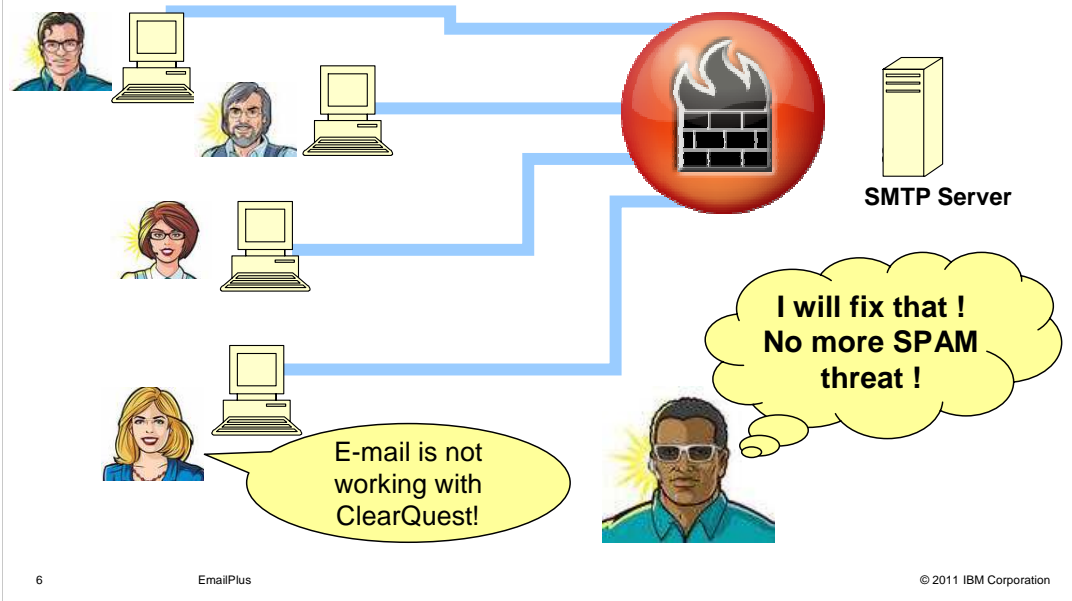
There is also a limitation in the lack of rich content. You cannot use text effects, like using bold formatting or adding colors. You cannot add graphics or attachments to emails. The original package cannot add a link to the email that you can click to view the record.

ClearQuest clients talk directly to SMTP server



With the original ClearQuest "Email" package, the ClearQuest client communicates directly to the SMTP server. This is sometimes an undesirable solution, as a company's IT department might equate such activity to spam.

SMTP server lockdown



Additionally, firewall and networking issues between the clients and the SMTP server can create several notification-related problems.

Other limitations

- Limited rule conditions based on:
 - State transitions
 - Actions
 - Query on data in triggering record only
 - Performance can be a problem with lots of Rules (especially those using queries)
- Limited addressing capabilities
- Not end-user customizable / extensible
- MAPI now effectively useless due to security patches
- Individual users can disable email notifications



Another limitation is that the rules for notifications are limited to ClearQuest state transitions, actions, and querying. These rules can create performance problems in some situations. There are limited addressing capabilities. The original ClearQuest "Email" package is not customizable or extensible. MAPI is not reliable due to security-related changes. Finally, the original ClearQuest "Email" package, individual users can disable email notifications.

What is EmailPlus ?




- A new ClearQuest email package
 - Replacement For default email rules package
 - **Written in PERL**
 - **Any Custom Extensions are done in PERL**
 - Also works in VBScript schemas
 - Certain transport modes require a VB application running on Windows (relay component)
 - Emails based on a template that can:
 - Provide boilerplate text
 - Take data from many sources – Not just the record

EmailPlus is a replacement for the original ClearQuest "Email" package. The EmailPlus package is written in PERL. Any custom extensions for the EmailPlus package are PERL-based. However, the EmailPlus package will work with schema containing VBscript scripting. Some transport modes will require a Visual Basic application to run on Windows.

With the EmailPlus package, emails are based on a template. You can provide standard, "boilerplate" text in your notifications. You can also include data from several sources in the notification. It is not limited to just one record.

What does EmailPlus give you?

- Rich content including:
 - Embedded graphics including ClearQuest charts
 - Hyperlinks / URLs to records, queries, charts, and reports
 - Use text effects such as font, size, bold and color
 - Add file attachments from the triggering record
- Vastly extended rules capabilities
 - Does not use queries
 - No longer limited to just data in the triggering record
 - Can use:
 -  PERL built-in functions PERL functions in your schema
 - ClearQuest API functions
- Users can self subscribe to rules and record changes at administrator's discretion



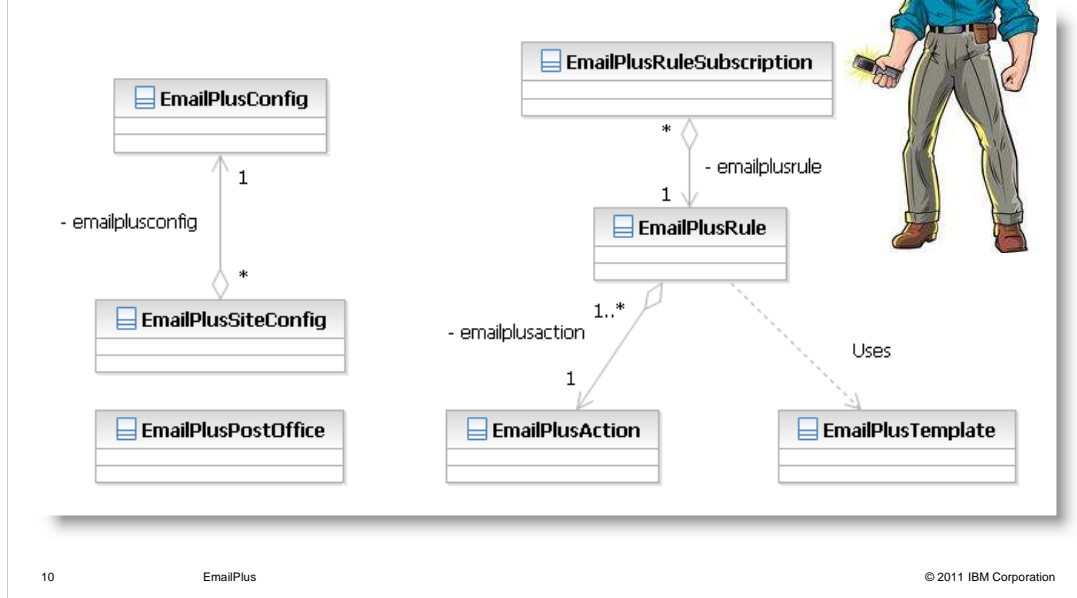
EmailPlus now provides rich content. The package can use embedded graphics and ClearQuest charts. Links to records, queries, charts, and reports are available. You can use text effects like font, size, bold, and color. You can also add file attachments from the records.

EmailPlus has been developed to maximize performance. Queries are no longer used. Instead rule information is cached, meaning that email rules can be processed more efficiently.

You are no longer limited to using data in the triggering record for notification rules, as anything in the ClearQuest environment is usable. Ways to implement rules include the use of PERL functions built into the package, PERL functions that exist in your schema scripts, and ClearQuest API methods.

With the EmailPlus package, users can self-subscribe to notification rules and record changes so long as the administrator has permitted that activity.

How does it work?



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EmailPlus

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EmailPlus can be used in a Multisite environment, but the changes to the EmailPlus records can only be performed at one site. Each site can have a EmailPlusSiteConfig record, which means they can use different protocols for transmitting emails. You can also have one EmailPlus record affect multiple sites.

EmailPlus introduces several new record types to the schema:

EmailPlusConfig - Contains the main controls for configuring the package.

EmailPlusSiteConfig - Defines information about the SMTP and web servers at each site in a ClearQuest Multisite installation or the single site in a non-replicated environment.

EmailPlusPostOffice - Allows requests for email sending to be written to the ClearQuest database which the relay service then processes.

EmailPlusRuleSubscription - Permits individual users to personally subscribe to notifications generated by individual rules.

EmailPlusRule - Defines the conditions under which an email should be generated.

EmailPlusAction - Used by an internal caching mechanism to minimize the impact on performance of rule evaluation. There is no direct interaction with this record type.

EmailPlusTemplate: Defines the templates used for determining the content of and formatting of an email.

EmailPlus configuration record

■ EmailPlus Configuration

EmailPlus Active 1

CQ Email Admin: Mastership:

Site Configurations:

SITE	SMTPServerName	WebServer
<default>	localhost	localhost

2

New Remove

ID: 33554751

Apply
Revert
Print Record
Actions

This is an EmailPlus Configuration record. The first highlighted field is a check box you can use to activate and deactivate the package. In the second highlighted field, you can see a list of available Site Configurations. There is a default Site Configuration available. The list can contain multiple Site Configurations with which you can define actual Multisite sites. Alternatively, you can define a default site which covers all sites with no specific setup. You would use the default site in non-Multisite configurations.

EmailPlus site configuration record (1 of 2)

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EmailPlus

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This is an example of the EmailPlus Site Configuration record. You can see in highlights 1 and 2 the fields that contain the SMTP server name and port values. The third highlight is the Email Transport type. You can select the mode at which you want EmailPlus to operate. More on the transport types later in this presentation.

Other values in this form include the SMTP From and Reply to addresses.

EmailPlus site configuration record (2 of 2)

View EmailPlusSiteConfig

SMTP Config CQWeb Config

Web Server: localhost

Web Server Port: 80

Web Server Protocol: http

Web User ID:

Web Password:

These credentials are used to construct a URL to a ClearQuest record in a generated email (if specified in an EmailPlus rule). The server credentials used will be either:

- The web server for the site that matches the mastership of the recipients user record, or
- The web server specified in the default site record if there is no record that matches the recipients user record mastership.

OK

Cancel

Print Record

Actions

The Site Configuration record has a CQWeb Config tab. Here you can define the connection details for a ClearQuest web server. This server name or address is used in the construction of record links. You can provide a “guest” ClearQuest user ID and password, which automatically logs the end user into ClearQuest and loads the record. If you keep these fields blank, the user will need to login using their own ClearQuest user ID and password. This is a security consideration.

EmailPlus templates (1 of 2)

View EmailPlusTemplate

EmailPlus Template Definition | Templates | Using Rules | Attachments | Debug

Mastership: <local>

Record Type: Defect

Template Name: Sample_New_Defect_Template

Template Kind:

Special Interest Ownership Rule

A Special Interest template is used to notify people who have subscribed to specific record(s) when they change. There can only be one of these per record type.
 An Ownership template is used to notify the old and new owners of a record when ownership changes. Owner field(s) are identified in the schema. There can only be one of these per record type.
 A Rule template is used with one or more EmailPlus Rules to notify people of specified events. You may have many of these.

Description: Sample New Defect template used to inform managers of a newly submitted defect

OK
 Cancel
 Print Record
 Actions

Here is an example of an EmailPlus Template. This is the Definition tab. You select a record type and enter a name for the template. There are three kinds of templates to choose from:

Special interest – Used when notifying those who have subscribed to specific records when they have changed.

Ownership – Used to notify the old and new owners of a record when the ownership of the record changes.

Rule – Used by one or more EmailPlus Rules to notify users of specified events.

EmailPlus templates (2 of 2)

View EmailPlus Template

[EmailPlus Template Definition](#) | [Templates](#) | [Using Rules](#) | [Attachments](#) | [Debug](#)

Email Template Subject: New Defect Submission: #?ID?# : Severity: #?Severity?#

Email Template Body: Template Body is HTML

```


<H1>New Defect Submission # #?ID?#</H1>
<B>This Defect was submitted by: </B>#?submitter.fullname?#( #?submitter?#)<br>
<B>Email: </B> #?Submitter.email?#<BR>
<H2><font color="green">Headline: #?Headline?#</font></H2><BR>
<B><font color="green">Description: </B>#?Description?#</font><BR>
<H2>Current Workload Assignment</H2><BR>
#@embedchart:Public Queries/Distribution Charts/Active Defects by Owner:::@#<BR>
<B>ClearQuest</B><BR>
-//--<BR>
<B>Generating Email Rule Name: </B>#@nameofrule@#<BR>
<B>Actioner User Name: </B>#@actionerusername@#<BR>
<H3>#@URLofEntity::ClearQuest Web Link to New record @#</H3>
                
```

NOTE: When the template body is HTML, the content of the template should include all the necessary tags between <BODY> and </BODY>. HTML content is only possible through the non CQ email transport options or possibly through any custom solution.

Template is boilerplate text with embedded substitution tags

Tags are:
Old Field Value
New Field Value
Meta Tags

Meta Tags:
Built in or
Custom

This is the Templates tab for the same record. Here you can define the template email subject. You can use the highlighted check box to signify if the HTML is in use. When enabled, you can use regular HTML formatting in the template body. Using HTML, you can add images and text formatting. Images that you want to refer to in the template must be uploaded into the Attachments tab.

Template substitution tags

- Replace tag with Current Field Value for example `#{state?#}`
- Replace tag with Old Field Value for example `##state%#`
- Replace Meta Tag with tag value for example `#{@NameOfRule@#}`
- Create **Your Own Custom** Meta tags
- Use Arbitrary PERL Expressions
- Embed field tags in Expressions
 - Operate on Field Value
 - `#{@expression::formatdatetime(#{submit_date?#,1})@#}`

Available meta tags
■ URLofEntity
■ URLofQuery
■ URLofChart
■ URLofReport
■ ActionerUserName
■ NameofUserInField
■ NameOfRule
■ AttachmentByName
■ AttachmentByDescription



There are a variety of substitution tags you can use in the template Subject and Body fields. Hashes with question marks are for current field values. Hashes with percentage symbols are for old field values. Default meta tags are available for use in the templates. You can also create your own meta tags in PERL.

As you can see at the bottom of the screen, meta tags can contain PERL expressions. These expressions can contain references to record fields.

Example HTML based template



```


<H1>New Defect Submission # #?ID?#</H1>
<B>Severity: </B>#@EXPRESSION::if ( #?Severity?# =~ /^1/ ) { "<font color="red">"; } else { "<font
color="green">"; } @#Severity #?Severity?# </FONT><br>
<B>Submission Date :</B> # @expression::formatdatetime(#?submit_date?#,1)@#<BR>
<B>This Defect was submitted by: </B>#?submitter.fullname?#(#?submitter?#)<br>
<B>EMail: </B> #?Submitter.email?#<BR>
<H2><font color="green">Headline:#?Headline?#</font></H2><BR>
<B><font color="green">Description :</B>#?Description?#</font><BR>
<H2>Current Workload Assignment</H2><BR>
#@embedchart::Public Queries/Distribution Charts/Active Defects by Owner::::@#<BR>
<B>ClearQuest</B><BR>---<BR>
<B>Generating Email Rule Name: </B>#@NameOfRule@# <BR>
<B>Actioner User Name:</B>#@ActionerUserName@#<BR>
<H3>#@URLofEntity::ClearQuest Web Link to New record @#</H3>
<B>Generated on: # @expression::GetCurrentDate() ; @#</B><BR>

```

Here is an example of an HTML based template. Notice the use of a schema method `GetCurrentDate()` in the last line. This function is in one of the global scripts in the schema definition. You can also use expressions containing calls to functions in the version of Perl provided with ClearQuest.

Example generated email

- Template is an HTML Body part
- Mail Transport used – SMTP Direct



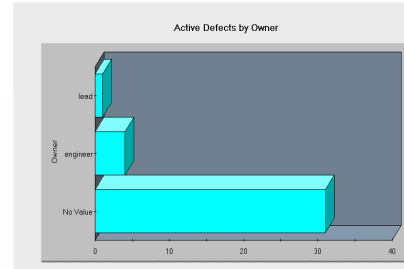
New Defect Submission # SAMPL00000054

Severity: 1-Critical Submission Date : 26 August 2008
 This Defect was submitted by: ClearQuest Administrator(admin)
 EMail: cqadmin@home.com

Headline: A New defect has been born

Description : This new defect occurred while I was running the automated test suite. I noticed that there was an inconsistency in terminology used. In more places the word Logon is used, but on this screen it says Login

Current Workload Assignment



ClearQuest

--//--

Generating Email Rule Name: New Defect Submitted

Actioner User Name: ClearQuest Administrator

[ClearQuest Web Link to New record](#)

Here is an example email based on the example template. Notice the formatted text, image, chart, and link to the record in ClearQuest Web.

EmailPlus rules (1 of 5)

Simple rule of up to five clauses

No database query involved

All rule evaluation done in memory – All rules cached

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EmailPlus

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The EmailPlus rule records allow you to define under which conditions an email notification is generated. You can define as many rules as you like. You can use the check box to activate or deactivate the rule. You base the rule on a record type and an EmailPlus record template of your choice.

Instead of using a ClearQuest query, you can define up to five value criteria. You can also specify fields changed values.

EmailPlus rules (2 of 5)

The screenshot shows the 'View EmailPlusRule' dialog box with the 'Actions / States' tab selected. The 'Action Conditions' section has a dropdown menu set to 'OR'. The 'Action Types' section is set to 'SUBMIT'. The 'State Transitions' section has 'Source States' and 'Destination States' fields. A dropdown menu is open above these fields, showing 'OR' selected. The dialog also includes 'OK', 'Cancel', 'Print Record', and 'Actions' buttons.

Retains State and Action Capabilities of old package

Can be Combined in More Flexible ways

The Actions / States tab allows you to define values based on ClearQuest actions and states. This is similar to the original email package. However, these can be combined with other elements of the rule in more flexible ways.

EmailPlus rules (3 of 5)

View EmailPlusRule

EmailPlus Rule | Actions / States | **Advanced Rule** | To / CC Addresses | Subscribers | Debug

AND Select appropriate Boolean operator if you want to use an Advanced Rule component.
The rule is added to the rest of the expression as either: "AND (Advanced Rule)" or "OR(Advanced Rule)

Advanced Rule:

```
Giv(Severity) eq '1 - Critical' || Giv(Priority) eq '1 - High' || OneOf(['Modify'], 'EMP_GetActionName()') || OneOf(['SUBMIT'], 'EMP_GetActionTypeName()')
```

Validate Rule This button allows you to validate the Advanced Rule expression.

VALIDATED

The Advanced Rule can be "ANY" valid Perl Boolean expression. You can use "ANY" Perl functions and "ANY" functions in your schema's global scripts. This allows you to create very rich conditional expressions.

Arbitrarily Complex Expressions

Can Use PERL, CQ APIs

Can call PERL routines in your ClearQuest Schema

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EmailPlus

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The Advanced Rule tab allows you to define arbitrarily complex expressions for the Rule. You can use PERL, ClearQuest API, or your own PERL routines as defined in your ClearQuest Schema. The Validate Rule button on the bottom of the tab will verify if the content is valid PERL.

EmailPlus rules (4 of 5)

The screenshot shows the 'View EmailPlusRule' dialog box with the 'To / CC Addresses' tab selected. The dialog is divided into two main sections: 'To Addressees' and 'CC Addressees'. Each section contains several fields for defining email addresses and roles. The 'To Addressees' section includes fields for 'Fields' (containing 'Submitter'), 'Groups' (containing 'EmailPlusAdmins'), 'Internet' (containing 'fred@ibm.com'), and 'Project Role'. The 'CC Addressees' section includes a checked 'CC Actioner' checkbox, a 'Fields' field (containing 'Owner'), 'Groups', 'Internet', and 'Project Role'. On the right side of the dialog, there are 'OK' and 'Cancel' buttons. Two blue callout boxes are overlaid on the right side of the dialog, providing additional information about the interface.

Retains Addressing Capabilities of old package

Allows indirect user references to other records

In the To / CC Addresses tab, you can define email addresses in a way similar to that of the older package. An improvement with EmailPlus is that you can define indirect user references to other records.

EmailPlus rules (5 of 5)

The screenshot shows the 'View EmailPlusRule' window with the 'Subscribers' tab selected. The 'Subscriber Lists' table contains one row with 'rat_mastership' in the 'Subscriber Lists' column and 'RuleName' in the 'RuleName' column. Below the table are 'New' and 'Remove' buttons. The 'Permitted Subscriber Groups' field is empty. A note states: 'NOTE: Changing the group list (or group membership) will NOT unsubscribe members who are no longer eligible. If you don't specify at least one group, everyone is'. At the bottom, a message reads: 'You must create a subscriber List for each replica at which you wish users to be able to subscribe to this rule. If no subscriber lists exist for the rule then subscription is not possible.'

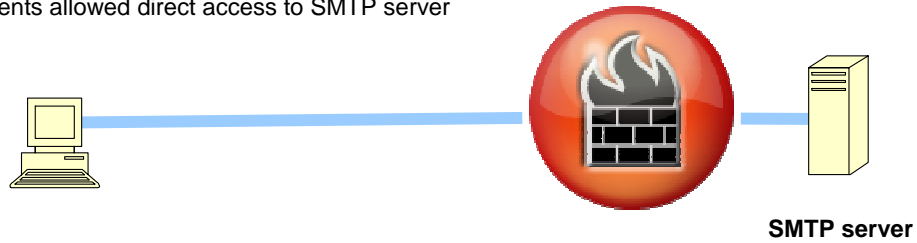
Users can 'Self-Subscribe' to rules at administrators discretion

Subscription controlled by group membership

In the Subscribers tab, you can create Subscriber Lists. These are references to the EmailPlusRuleSubscription records. You can also define which groups that will have the ability to subscribe to Rules.

SMTP direct mode

Clients allowed direct access to SMTP server

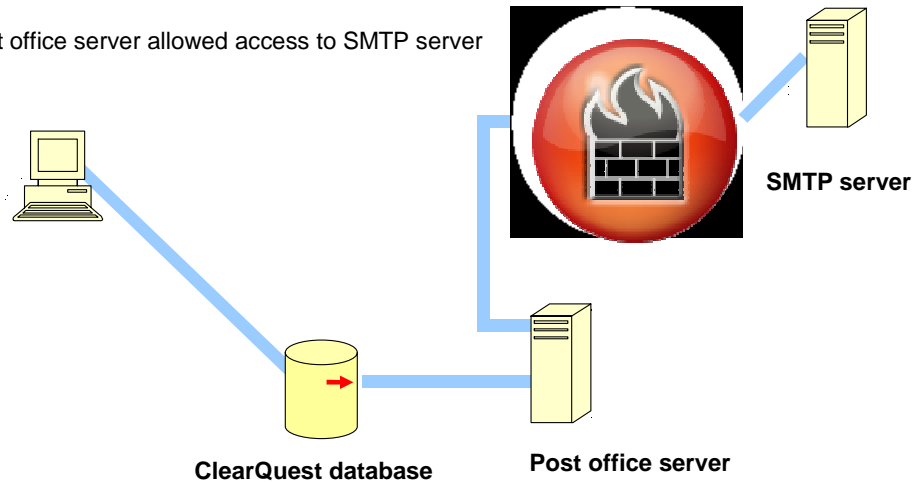


- Can use either:
 - ClearQuest email component
 - PERL e-mail client component

SMTP direct mode allows clients to directly connect to the SMTP server. You can also use the existing ClearQuest email component, CQMail Mode, can only transport in plain text. The SMTP Direct mode allows you to use the full content offering.

SMTP post office mode

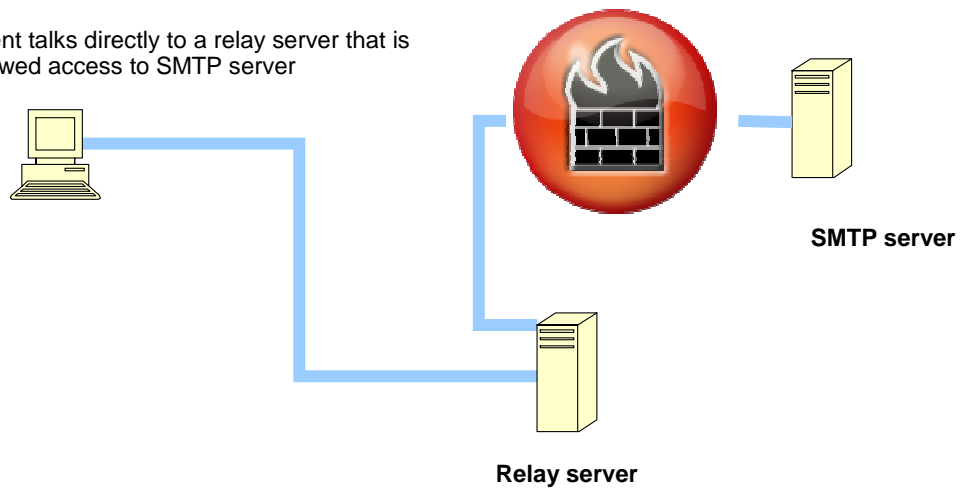
Post office server allowed access to SMTP server



Post Office Relay mode does not require the clients to connect directly to the mail server. Notifications are written to the ClearQuest database as EmailPlusPostOffice records. An application running on a “Post Office” server will then collect that information and interact with the mail server. This creates a single, approved source of contact to the SMTP server.

Network relay mode

Client talks directly to a relay server that is allowed access to SMTP server



You can also use the Network Relay mode. This allows the client to send emails using a relay server. All of the clients interact with the relay sever, but only the relay server communicates with the email server. The relay server itself is not an SMTP server. It is communicates with ClearQuest over a private protocol.

Features by mail transport types

FEATURES	CQ MAIL	SMTP direct	SMTP relay	Post office relay		Custom
				CQ Mail	CDO	
Templates	Y	Y	Y	Y	Y	?
Email rules simple	Y	Y	Y	Y	Y	?
Email rules advanced	Y	Y	Y	Y	Y	?
HTML content	N	Y	Y	N	Y	?
Mail headers	N	Y	Y	N	Y	?
Embedded graphics	N	Y	Y	N	Y	?
Attachments	N	Y	Y	N	Y	?
Mail relay	N	Y	Y	Y	Y	?
Subscriptions	Y	Y	Y	Y	Y	?
Multisite support	Y	Y	Y	Y	Y	?
UNIX platform	Y	Y	Y	Y	N	?
Windows platform	Y	Y	Y	Y	Y	?

 Some modes require a VB application running on Windows

Here is a comparison sheet for the different Mail Transport Types and with which features of the EmailPlus package they are compatible.

EmailPlus post office and relay component

The screenshot shows the 'EmailPlus Relay' configuration window. It features several sections:

- SMTP Server:** A text field containing 'localhost:25' (highlighted 1).
- Listener Port:** A text field containing '36001' (highlighted 3).
- Mail Transport:** Radio buttons for 'Use CQM Mail' (highlighted 7) and 'Use CDO Mail'.
- Stats:** Two text fields for 'Total Copies' and 'Total Relays' (highlighted 8).
- Start/Stop:** 'Start' and 'Stop' buttons (highlighted 9).
- Operation Mode:** Radio buttons for 'Network Relay Mode' (highlighted 2) and 'PostOffice Relay Mode'.
- PostOffice Credentials:** Fields for 'CQ ID' (containing 'admin', highlighted 4) and 'DB' (containing 'emp2'). A 'DBSet' dropdown is set to 'ActiveX'. A 'Valid CQ DB' checkbox is checked (highlighted 5). An 'Edit Credentials' button is present.
- Poll Interval (Secs):** A text field containing '60' (highlighted 6).
- Status:** A green indicator light (highlighted 10) and a 'Status' label.
- AutoStart:** A checked checkbox (highlighted 11).
- Max Log Size(KB):** A text field containing '2048' (highlighted 12).
- Exit:** An 'Exit' button (highlighted 13).
- Log Output:** A large text area showing the log message: '21/09/2009 21:58:45 :: Listening on Port 36001'.
- Footer:** 'V2.0.0' (highlighted 14), copyright information, and the IBM Rational software logo.

This is the EmailPlus Relay component for the Relay Server. You can define the SMTP server and port used for email distribution. You can define the listener port that is used on the Relay Server.

This form controls which relay mode to use. If you use Post Office Relay mode, you must provide a ClearQuest login and database with the fields in highlight Four. This mode requires a database connection to retrieve the emails. The “valid CQ DB” check box indicates a valid connection. You can also define the polling frequency used with this mode.

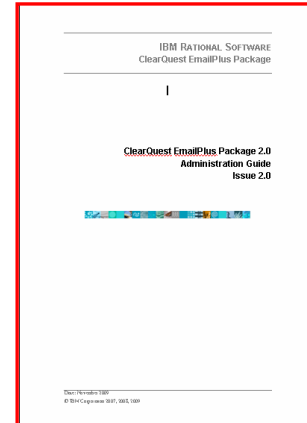
With the fields in highlight Seven, you can select which transport method to use. Using the ClearQuest Mail method will only relay emails in plain text. CDO Mail will give you the capability to relay message with HTML customization intact.

As seen on the right side of the form, you have Start and Stop buttons for the application service. There is a status indicator below those buttons. There is also an AutoStart checkbox. When checked, the application will start with the last configured mode when you open it.

The Stats field seen in highlight eight tells you the total copies relayed and how many relay requests have occurred. You can control the size of the log activity output using the field under highlight 13.

Setup steps

- Extensive / Detailed Administrators Guide is provided
- Install
 - Apply package
 - Enable Record types
 - Create EmailPlusAdmins group
 - Subscribe administrators to group and both to databases
- Configure
 - Create an EmailPlusConfig Record
 - Create EmailPlusSiteConfig record for each site (min1)
 - Choose Transport Mode
 - Provide SMTP Server or relay credentials
 - Create at least one template
 - Create at least one rule



This is an overview of the setup process for EmailPlus. For an extensive and detailed look at the setup process, see the Administrators Guide that is included with the package.

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- Did it help you solve a problem or answer a question?
- Do you have suggestions for improvements?

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mailto:iea@us.ibm.com?subject=Feedback_about_EmailPlus.ppt

This module is also available in PDF format at: [../EmailPlus.pdf](#)

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