Quest

Binary Tree Integration for Notes | FreeBusy 20.13

User Guide

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Legend

CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

IMPORTANT, **NOTE**, **TIP**, **MOBILE**, or **VIDEO:** An information icon indicates supporting information.

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Section 1. Introduction

1.1 Document Conventions

Integration for Notes is the full name of the “heart” of Quest’s Binary Tree complete coexistence solution. Integration for Notes itself is made up of several discrete functions which will be referred to throughout this document by their shorter names.

The two primary pieces of Integration for Notes are contained on the Domino coexistence server (messaging and calendaring workflow or “BTCal”) and on the Windows coexistence server (calendar free/busy lookups or “FreeBusy”). When referring to the actual lookup of free and busy time between Domino and Exchange, “free/busy” is used; when referring to the Integration for Notes product, “FreeBusy” is used. Although FreeBusy is part of Integration for Notes, since it requires its own configuration, it has a separate user guide. While this guide touches on the entire coexistence suite of products, it is focused on the FreeBusy setup.

“Coexistence” (or “Coex”) is used to refer to both the state of interoperability between Domino and Exchange or Office 365 (also known as Microsoft 365) environments, and as the suite of Binary Tree products that create an ideal coex environment—Directory Sync Pro for Notes and Integration for Notes.

1.2 Need for Coexistence

Coexistence is required when multiple messaging environments need to exist together over an extended period of time due to mergers and acquisitions, or during email system migrations. Transparent, highly functional, and stable communication throughout the email environment is mission-critical, making coexistence much more than just a system that ensures email is delivered in a timely fashion.

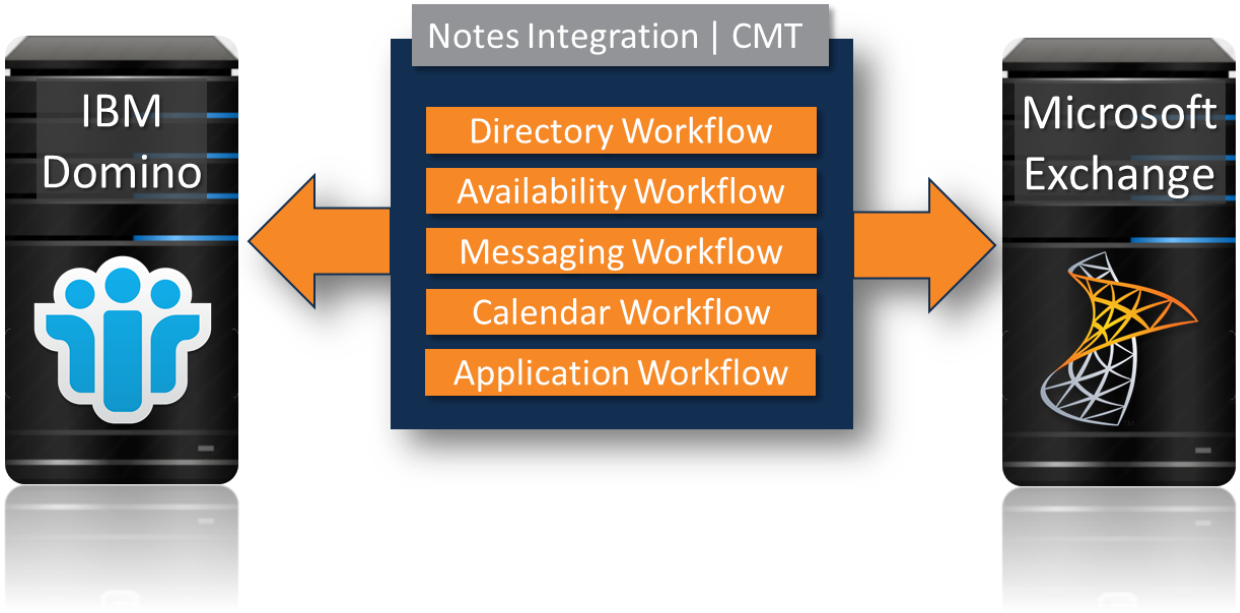
Coexistence between Domino and Microsoft Exchange is successful if the following criteria are met:

- Messages on the destination platform appear exactly the way they appear in the source platform including attachments, rich text, embedded images, and forms
- Cross platform calendaring, including free/busy lookups, is functional
- Email directories are synchronized, allowing transparent access to addressing information (see the Directory Sync Pro for Notes and Active Directory user guide for additional information)

1.3 Integration for Notes: Product Overview

Integration for Notes delivers the highest levels of functionality, stability, and scalability for connection between Microsoft Exchange and Domino. It provides high-fidelity exchange of mail and calendar data. It also intercepts mail and calendar data traveling between the environments, and if necessary, modifies the address and content portions of the message header and body to make coexistence between environments more transparent, functional, and user-friendly. In addition, it preserves user workflow between Domino and Exchange.

“Workflow,” or the flow of data or information between users, applications, or a user and an application is illustrated by the image below, showing the different types of workflow managed in a coexistence environment.



Here is a brief description of how each of the workflow component contributes to making Integration for Notes a complete solution for coexistence:

Directory Workflow/Directory Sync Pro - Used to establish directory synchronization between the two platforms to make sure that user addressing is transparent and functional regardless of the migration status of the users; see the Directory Sync Pro User Guide for more information

Availability Workflow - Provides for calendar free/busy lookups to ensure that users can obtain availability information for other users regardless of the system with which the users are associated

Messaging Workflow - Enables the high-availability, high-performance, and high-fidelity exchange of data that preserves the workflow related to e-mail including document and database links

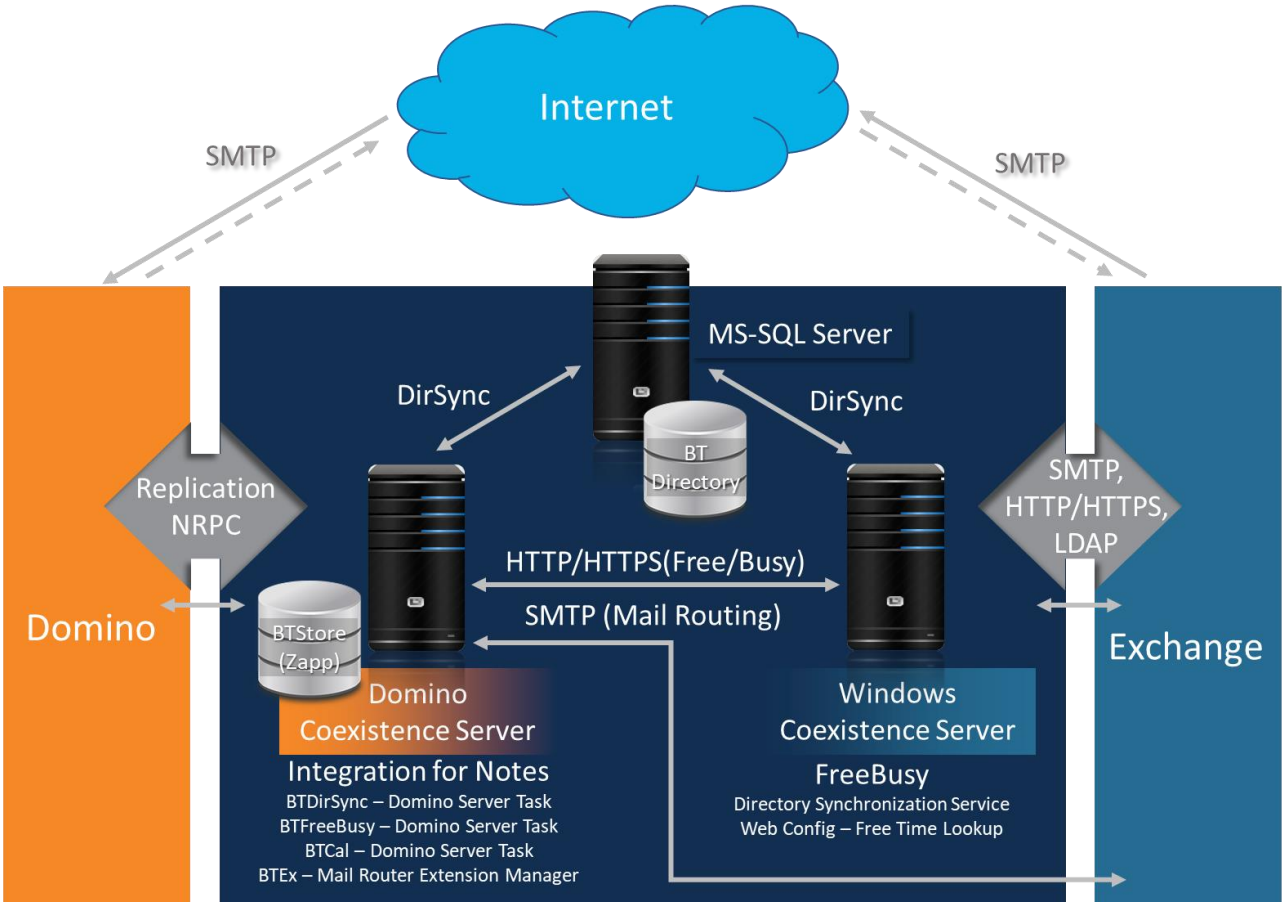
Calendar Workflow - Ensures that calendars stay synchronized between Notes and Outlook users when creating, updating, rescheduling, and cancelling meetings regardless of a user's migration status

Application Workflow - Preserves the ability of a user to receive application-originated e-mails and to perform the actions required by these e-mails

1.4 Coexistence Environment

A coexistence environment consists of three servers, which are specifically configured so that Integration for Notes can be utilized optimally. These servers are:

1. Domino Coexistence Server
2. Windows Coexistence Server (for Free/Busy only)
3. SQL Coexistence Server (for Directory Sync Pro)



In the illustration above, one of the components is the Domino Coexistence Server, which is responsible for supporting coexistence server tasks at the Domino end of the environment. These server tasks include:

1. Messaging/calendaring/application coexistence
2. Free/Busy lookup

The **Windows Coexistence Server**, on the other hand, is designed to support coexistence on the Exchange side with Free/Busy lookup.

The **SQL Coexistence Server** can be a dedicated or shared SQL Server (in the middle of the illustration) and contains a dedicated transitional SQL database, which is utilized for directory synchronization between Domino and Exchange.

Messaging

The coexistence environment is configured to enable mail flow between Domino and Exchange. It is also configured to determine how the e-mail addressing will be handled between the two platforms. Similarly, the system is configured such that there is transitional calendar workflow between Domino users and Exchange users to enable them to schedule/update/reschedule/cancel single occurrences and recurring meetings irrespective of their migration status.

For migrated items with Migrator for Notes, this will not be true until a full post-migration workflow has been implemented.

Directory Synchronization Using Directory Sync Pro

Directory Synchronization is accomplished by reading data from source directories, Active Directory and the Domino Directory, and writing it into an SQL database. In turn, information in SQL is written into target directories, Active Directory and the Domino Directory. The SQL database allows for the customization of data from one directory to another directory. Some of the basic mapping is already completed; however, there are several changes that must be made to accommodate environments ranging from the small business to enterprise deployments. The Domino BTDirSync task handles all the interaction with SQL for reading and writing to Domino. The Windows BTDirSync (full name BinaryTree.Coexistence.DirSync.Exchange.exe) service handles the reading and writing to Active Directory. The Client UI component is used to configure the base settings for connectivity.

Free/Busy

The way a Domino environment implements its calendar Free/Busy queries is different from the way Exchange does. One environment cannot see the availability of users in the other environment. Integration for Notes FreeBusy is designed to enable reliable Free/Busy schedule lookups between Microsoft Exchange and Lotus Domino users by providing the proper address resolution. In other words, to make the two environments communicate with each other, Integration for Notes configures the system such that one environment can determine the Free/Busy status of users within the other environment.

The Binary Tree FreeBusy application is designed to allow for calendar scheduling look ups for meeting bookings. It does not allow for direct calendar access between Notes and Outlook.

Section 2. Scope

Before installing FreeBusy, it is important to know what specific functionality is covered in this document and what is not. For items not included in this document but covered elsewhere, references to the appropriate documentation are provided in the Out of Scope section.

2.1 In Scope

This document covers the installation of a *single FreeBusy pair*. The following topics are also covered:

Configuration of the Domino and Exchange/Office 365 infrastructure to support FreeBusy

2.2 Out of Scope

This document does *not* cover the items listed below. If documentation exists elsewhere, the corresponding references are provided.

DirSync configuration (see DirSync user guide)

Active Directory (AD) schema changes

Project methodology

Creation of an Office 365 tenant and security model

Proxies and firewall changes

Network Load Balancers

Section 3. Recommended Installer Prerequisites

3.1 Recommended Prerequisite Knowledge

An administrator of FreeBusy should have some prerequisite knowledge of Domino and Exchange/Office 365.

Regarding IBM Domino, an administrator should understand:

- How free/busy lookups work between Domino servers
- Domino Replication topology and how Connection docs control replication
- How to configure server and configuration docs
- Domino server and the Notes.INI file; for example, an administrator should know that the last character in an INI file needs to be a carriage return
- Domino Directory Domain docs, in particular, Foreign Domain Docs

Regarding Exchange/Office 365, an administrator should understand:

- How free/busy lookups work to and from Exchange/O365
- Availability address space, organization customization, availability configuration
- The difference between contact, mail enabled, and mailbox enabled users
- How to create an Office365 free/busy proxy account
- How to create a public DNS entry/entries
- How SSL certificates work

Section 4. Pre-installation Requirements

Before installing FreeBusy, the administrator should review this section to be sure the necessary products, permissions, and checklist items have been acquired (refer to the Integration for Notes BTCal FreeBusy Requirements documentation). Some form of directory synchronization is necessary for FreeBusy. While it's possible to manage directory synchronization manually, Binary Tree recommends its own Directory Sync Pro.

4.1 Recommended Products

Directory Sync Pro

Why is Directory Sync Pro recommended?

Before Integration for Notes FreeBusy can be installed, a fully populated GAL (Global Address List) must exist in either the O365 or the local Exchange environments. The GAL can be populated in O365 by manually adding the information from Notes, but this is cumbersome and error-prone.

Directory Sync Pro automates the process of populating the local Active Directory and transferring mail enabled objects from Notes to Exchange/Office 365. Directory Sync Pro populates all mail attributes from Notes to make them available in Outlook. It also populates the target addresses so that they appear in Exchange. All mail addresses will need to be in Active Directory so that they can be synced to the cloud. Directory Sync Pro takes the known valid SMTP addresses in Domino and writes them to Active Directory.

You must use Azure AD Connect to populate the local Active Directory to the Azure Active Directory

Visit *https://www.binarytree.com/products/directory-sync-pro/* and refer to the "Documentation" link at the bottom of the page for more information on Directory Sync Pro.

4.2 Required Administrator Rights and Permissions

To install and configure FreeBusy, the administrator must have certain rights. The required rights are listed below under their corresponding environment.

Domino – Required Rights	Description

Domino Directory access
• Editor access
  ○ Server Modifier role
  ○ Net Modifier role
	The administrator must be assigned "Editor" access with the Server Modifier and Net Modifier roles in the Domino Directory Access Control List.

Domino Server Document(s)
• Add the administrator to the following fields:
  ○ Administrators
  ○ Create databases & templates
  ○ Create new replicas
	The administrator must be listed under the Administrators, Create databases & templates, Create new replicas field on the server documents where FreeBusy will be installed.

Notes.ini edit rights	The administrator must be able to edit the Domino Notes.ini file.

Exchange/O365 - Required Rights	Description
PowerShell rights • Issue commands	The administrator must have rights to issue PowerShell commands.
Exchange roles • Configure Accepted and Remote domain settings	The administrator must be able to configure Accepted and Remote domain settings.
Office 365 roles • Exchange Administrator role	The administrator must be assigned the “Exchange Administrator” role to configure Accepted and Remote domain settings and the Availability Address space.

Windows - Required Rights	Description
Administrator access	The administrator requires admin access to the server(s) where FreeBusy will be installed.

4.3 Administrator Pre-Install Checklist

Use the checklist below to gather the information necessary for successful installation of Integration for Notes FreeBusy.

To answer many of the questions below, administrators should already have the rights listed in the previous section: Required Administrator Rights and Permissions.

Directory Sync Pro (if in use)

- ☐ Deploy Domain name: _____
- ☐ Target SMTP address (domain): _____
- ☐ Local part of internet address, short name or the internet address: _____
  Local part value depends on which was deployed in Directory Sync Pro

Domino

- ☐ Domino Coexistence Server Name(s): _____
- ☐ IIS Coexistence Server Name: _____
  - IP Addresses of the IIS Coexistence Servers: _____
    _____
    _____
- ☐ SSL San Certificates for the Domino FreeBusy Namespace (if required): _____
- ☐ OS and Service Pack Version: _____

  Windows Server 2012 | 2008 R2

  .NET 4.0 | 4.5 and Microsoft Visual C++ v10 dependencies (the necessary C++ runtimes are in the installation package)

- ☐ Domino Version: _____

  Domino 8.5.3 or higher (32-bit version only)

- ☐ Foreign Domain: _____

  The Foreign Domain reference used to route mail for Exchange to the Domino Coexistence server, e.g. Exchange; this reference gets appended to Notes mail messages for users, e.g. Joe Smith/Acme@Exchange
  - *Recommendation: "BTEx" (for on-prem Exchange) "MSO365" (for Office365)*

- ☐ Foreign Domain Mail Box: _____

  The file name to be used when creating the router mail box used by the foreign domain
  - *Recommended value: "btexchange.box"*

- ☐ Directory for Exchange Contacts: _____

  The name of the secondary Domino Directory to be used by Directory Synchronization to

sync contacts from Exchange to Domino.

- *Recommended value: "exchangenames.nsf"*

☐ Exchange Organizational Unit: _____

The organizational unit to be used when creating Exchange contacts in the Domino Directory, i.e. /Exchange; users will be created as Joe Smith/Exchange; this must be a unique value in the Domino environment

☐ Domino Free/Busy Proxy User: _____

The internet address of a valid Domino user; this account is used to proxy Free/Busy requests in the Domino environment from Exchange

☐ Domino entries contain valid and unique SMTP address *(Y/N)*: _____

All Domino Directory entries intended for synchronization must have valid SMTP addresses; these must also be unique in both Domino and Exchange; any pre-existing contacts in the GAL should be removed or disclosed prior to the start of the project

Other

☐ Shared Mail Namespace: _____

If a shared namespace is used for both environments, list it here, i.e. contoso.com

☐ Domino Mail Namespace: _____

Namespace to be used internally to represent the Domino mail environment, i.e. domino.contoso.com; SMTP domain from the target address AD attribute

☐ Exchange Mail Namespace/SMTP Domain: _____

Namespace to be used internally to represent the Exchange mail environment, i.e., for on-prem, exchange.contoso.com or, for O365, <tenantname>.onmicrosoft.com

- Active Directory Server: _____

Name (FQDN) of the Active Directory server that will be used for reading and writing information, i.e. DomainController1.contoso.com

☐ Exchange CAS Server: _____

Name of the Exchange Client Access Server; this server is used for Free/Busy queries

Server Connectivity

☐ Bidirectional communication between Domino and the Domino Coexistence Server(s) is configured using port 1352

☐ Ports 80 and 443 is open on the network between the Windows Coex Server(s) and the Exchange Hub Transport Server(s)

☐ Port 80 or 443 is open between the Windows Coex Server and the Domino Coex Server

Section 5. Configure the Domino environment

Prior to installing FreeBusy, the Domino environment requires some configuration. The Domino environment is primarily configured through a series of documents in the Domino Directory. We suggest configuring the documents using the Notes Administrator client.

For this section, keep the Notes Administrator client open and connected to the Hub server while you make the following changes.

This section (Section 6) covers the Domino Directory documents that require configuration.

5.1 Server Document(s)

5.2 Global Domain Document

5.3 Foreign Domain Document

5.4 Program Document

5.5 FreeBusy Person Document

5.1 Configure the Server Document

You can modify the Domino Directory on any server; however, it's a best practice to make all changes on the Hub server

1. While connected to the Hub server, click the **Configuration** tab and expand **Server** in the left-hand Navigation Pane. Click on the **All Server Documents** view and then edit the coexistence **Server Configuration Document** to match the values in the bullets or tables below.

2. Click the **Ports…** tab then the **Internet Ports**… tab, scroll down to the **Web** section and click on the **Web** tab and make the following changes:

Field	Recommended Value
TCP/IP port number	80
TCP/IP port status	Enabled

3. Click the **Internet Protocols…** tab then the **HTTP** tab; remove any existing entries in the **DSAPI filter file names** field and include only **nBTDominoListener**:

4. Save and close the **Server Document**; replicate the Domino Directory to all servers within the environment

5.2 Global Domain Document

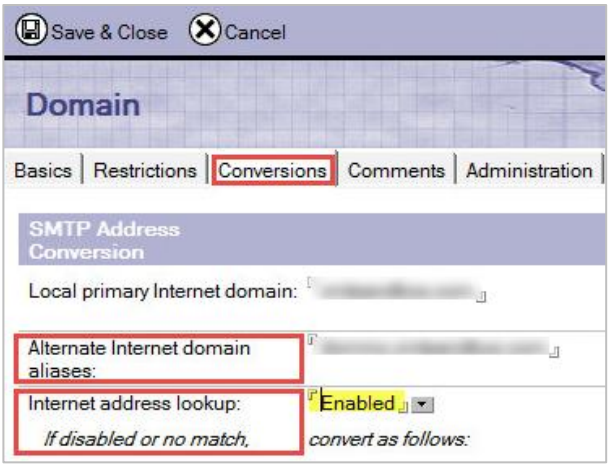
While still connected to the Hub server, return to the left-hand Navigation Pane, expand **Messaging** and click on the **Domains** view. Expand the **Global Domain** category.

Edit the existing **Global Domain Document** to match the screenshot below.

NOTE ! The **Global Domain Document** should already exist. If for some reason it does not, add it with the appropriate values.

1. Select the **Conversions** tab and edit each field to match the recommended values below:

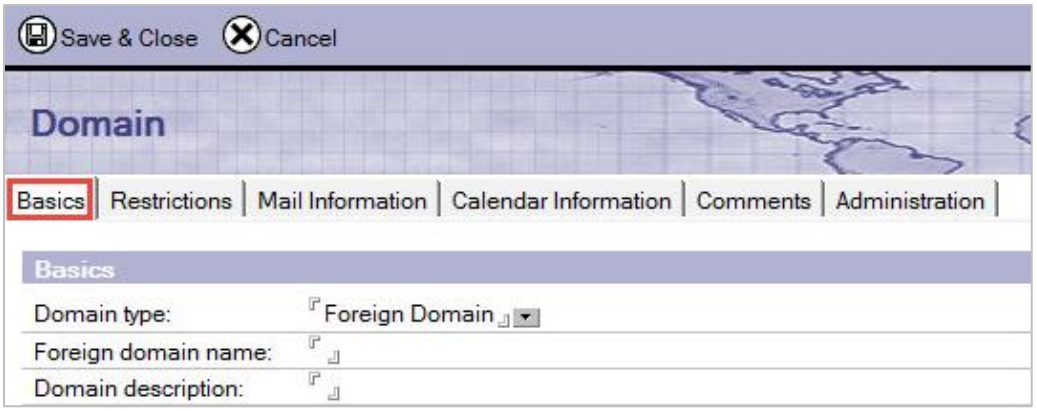
Field	Description	Recommended Value
Alternate Internet domain aliases	The value for the **Alternate Internet domain aliases** will be what you listed in the **Administrator Pre-Install Checklist** **Domino Mail Namespace/SMTP Domain** field, with multiple domains separated by carriage returns	*domino.<PrimarySMTPDomain.com>*
Internet address lookup		Enabled



5.3 Foreign Domain Document

Create the **Foreign Domain Document** by following the steps below:

1. While still in the **Messaging | Domains** view, click the **Add Domain** button
2. In the opened document, edit the fields to match the recommended values listed below:



3. On the **Basics** tab, make the following changes:

Field	Description	Recommended Value
Domain type		"Foreign Domain"
Foreign domain name	Use the value from the **Foreign Domain** line in the Administrator Pre-Install Checklist	[**Foreign Domain** value from **Administrator Pre-Install Checklist**] i.e. MSO365 or BTEX

4. Click the **Calendar Information** tab and make the following changes:

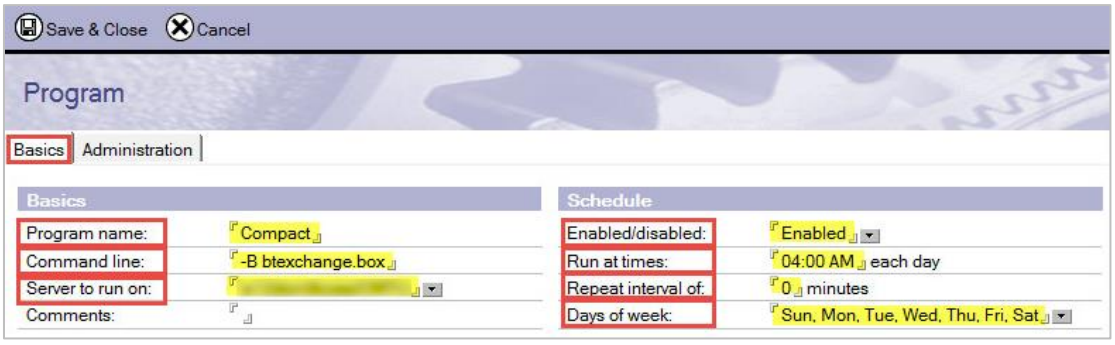
Field	Description	Recommended Value
Calendar server name		[**Domino Coexistence Server Name** value from **Administrator Pre-Install Checklist**]
Calendar system		"btexchange.box"

5. Click **Save & Close**; this new document will need to replicate to all other servers in the Domino domain

5.4 Program Document

Create a new **Program Document** by following the steps below.

1. In the left-hand Navigation Pane, switch from the **Messaging** view to the **Server** view
2. Click on the **Programs** view and click the **Add Program** button
3. In the new **Program Document** that opens, edit the fields on the **Basics** tab to match the following recommended values:



Field	Value
Program name	Compact

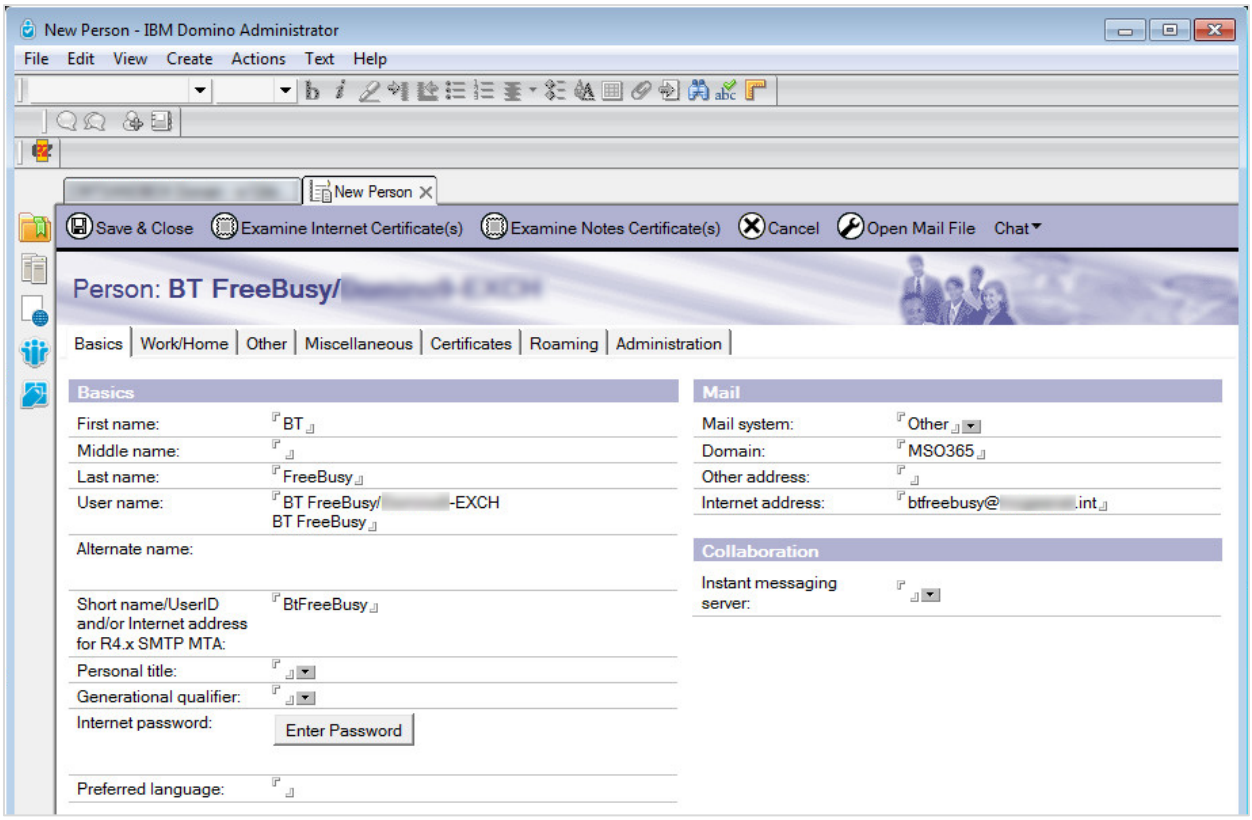
Command line	-B btexchange.box
Server to run on	*<Domino Coexistence Server name>*
Enabled/disabled	Enabled
Run at times	04:00AM
Repeat interval of	0
Days of week	Sun, Mon, Tue, Wed, Thu, Fri, Sat

4. **Save and Close** the document when complete

The values for the **Run at times**, **Repeat interval of** and **Days of Week** fields can be customized to meet the needs of your environment. Our example shows the Domino default values.

5.5 FreeBusy Person Document

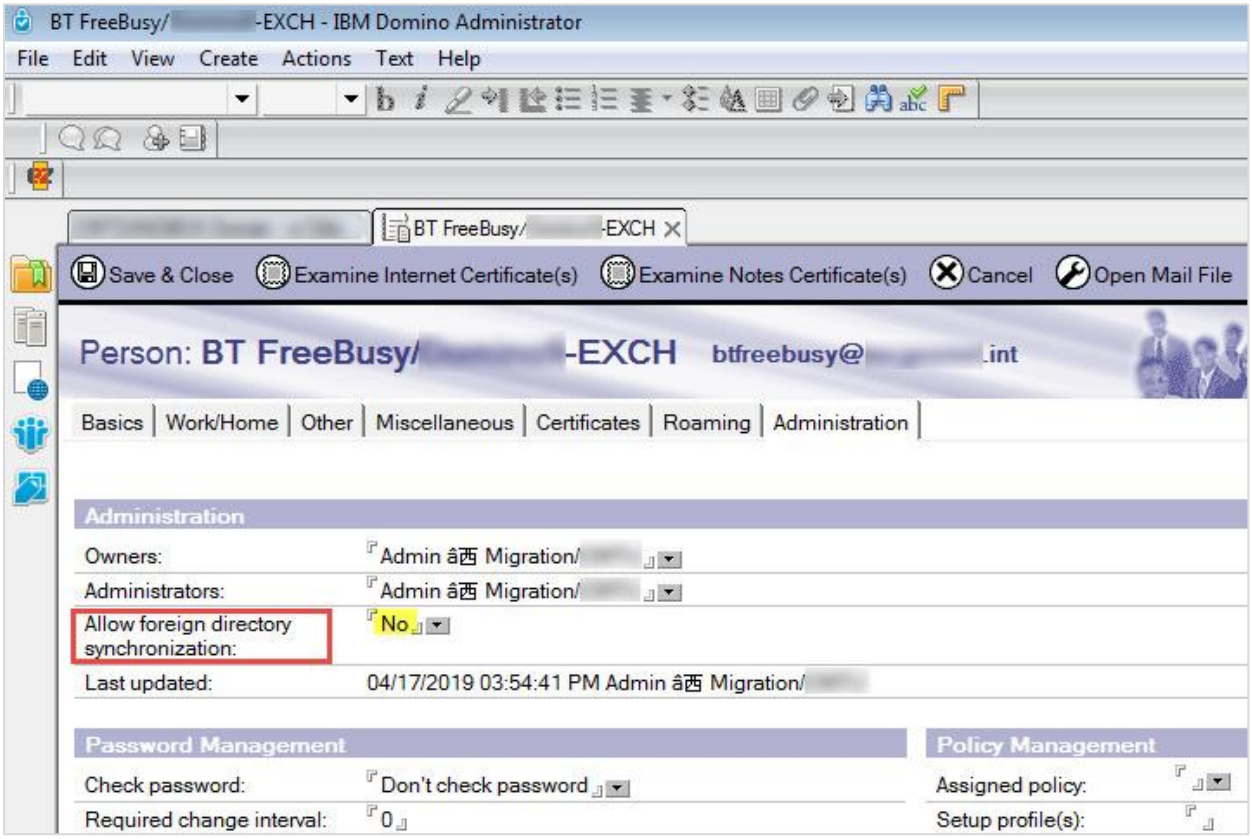
1. Create a new **Person Document** using the field values shown in the table below. This **Person Document** does not need a Notes ID or mailbox, so it is not necessary to create it via the normal Notes registration process. Save and close the document when complete.



Field	Value
First name	*BT*
Last name	*FreeBusy*
User name	*BT FreeBusy/*<DominoOrgName (e.g. “Domino20-EXCH”)> *BT FreeBusy*
Short name	*BtFreeBusy*
Mail system	*Other*
Domain	*<DominDomain>-EXCH* or *MSO365* Same as the **Internet Address <xxx>** under the Administrator Pre-Install Checklist (Must be a unique and valid SMTP address in the Domino environment.)

2. Re-open the newly created **BT FreeBusy Person Document** and click the **Edit Person** button

3. Navigate to **Administration** tab and change the **Allow foreign directory synchronization** field value to **No**:



4. Save and close the document

NOTE ! This Domino account will be used to access the Free/Busy data for all Notes users along with Rooms and Resources. The account does require access to read Free/Busy information. This may require updates for Domino accounts or rooms with restrictions that prevent the default Free/Busy access. Quest recommends removing restrictions to Domino Free/Busy data where possible during migrations.

Section 6. Configure Integration for Notes FreeBusy in Exchange or Office 365

The last step before installing FreeBusy involves configuring Office365 or Exchange to route FreeBusy traffic from Exchange to Domino. For detailed instructions on the necessary changes, scroll to or click on the environment that matches your own:

6.1 Office 365 (O365)

6.2 On-Premises Exchange

PowerShell commands are placed in boxes in Courier font. Commands that are highlighted in yellow require customization based on your environment.

This information should be found in the Administrator Pre-Install Checklist.

6.1 Office 365 (O365)

The administrator performing the configuration must have access to the following:

- The Exchange Management Console or the Exchange Azure Management Console (depending upon the environment)
- The customer tenant with an administrative level tenant account

Unless otherwise specified in this document, default configuration values are used.

Perform the following prerequisite steps from the O365 client tenant interface:

1. Log into the customer's O365 tenant and navigate to the **Exchange Administration** section - https://**login**.microsoftonline.com/
2. Navigate to the **Recipients** section in the Exchange Online Administration Center (**Admin Center**); check under **Contacts** to be sure that the users appear as "Mail users" under the **Contact Type** column with the correct **External Email Address** (Target Address)

If using PowerShell, execute the following commands to connect to O365:

PowerShell

```
$Cred = Get-Credential "admin@tenant.onmicrosoft.com"

$Session = New-PSSession -ConfigurationName Microsoft.Exchange -ConnectionUri
https://ps.outlook.com/powershell/ -Credential $Cred -Authentication Basic
–AllowRedirection

Import-PSSession $Session

Import-Module msonline

Connect-MsolService -Credential $Cred
```

6.1.1 Enable Organization Customization

Run the following commands to verify Organization Customization and, if necessary, enable it:

1. If Organization Customization has *not* already been enabled or you are not sure, run the following command to enable it:

PowerShell
Enable-OrganizationCustomization

If Organization Customization has already been enabled, running the above command will simply return a message informing you that it has already been enabled.

2. Once you are sure that Organization Customization has been enabled, run the following command to create an availability configuration; the address at the end of this command must be the alias or SMTP address of the proxy account setup in the tenant:

PowerShell
New-AvailabilityConfig -OrgWideAccount btFreeBusy@tenant.onmicrosoft.com

6.1.2 Creation of the FreeBusy Proxy Account

Use the following PowerShell commands to create an account that will be used to make Availability Service requests from the Domino environment:

PowerShell
New-MsolUser -UserPrincipalName btFreeBusy@tenant.onmicrosoft.com –DisplayName “FreeBusy Proxy Account” –Firstname “FreeBusy” –LastName “Proxy” –ForceChangePassword $false –Password “{enter complex password}” -PasswordNeverExpires $true

6.1.3 Configure the Availability Address Space

Lastly, run the commands below to create the Availability Address Space using the FreeBusy tenant account; the two highlighted items below should be replaced with your btFreeBusy account and your Autodiscover/Endpoint Reference (EPR) URL:

PowerShell

```
$a = get-credential "btFreeBusy@tenant.onmicrosoft.com"

Add-AvailabilityAddressSpace -AccessMethod OrgWideFB -ForestName domino.domain.com -
TargetAutodiscoverEpr 'https://autodiscover.domino.domain.com/autodiscover/autodiscover.xml' -
Credentials:$a
```

You can verify the domain was setup correctly by running the following PowerShell command, replacing the highlighted text with your tenant name, i.e. “Contoso.OnMicrosoft.com”.

Get-AvailabilityAddressSpace -Identity Contoso.OnMicrosoft.com

This concludes all of the steps required for routing SMTP mail to and from the O365 environment with the Domino Coexistence server. If an on-premises Exchange server is not being configured, skip to the Section 7. Install FreeBusy for Domino section.

6.2 On-Premises Exchange

Section 6.2 details a typical approach to configuring FreeBusy in an on-premises Exchange environment.

The following prerequisites are required to configure FreeBusy in on-premises Exchange:

- The account used for the configuration:
    - Has access to the Exchange Admin Center and the Exchange Management Shell
    - Was granted the Organizational Management role in the Exchange Admin Center
- Unless specifically described in this document, the default configuration values will be used

6.2.1 Creation of the FreeBusy Proxy Account

Create a mail account that will be used to make Availability Service requests from the Domino environment

PowerShell

```
New-MsolUser -UserPrincipalName btFreeBusy@YourExchangeDomain.com –DisplayName
“FreeBusy Proxy Account” –Firstname “FreeBusy” –LastName “Proxy” –ForceChangePassword
$false –Password “{enter complex password}” -PasswordNeverExpires $true
```

6.2.2 Configure the Availability Address Space

During installation (covered in Section 7. Install FreeBusy for Domino), an additional setup step to run a provided command in the Exchange Management Shell is presented. This command sets the Availability Address Space in Exchange for the Domino user so Free/Busy requests are sent to Domino.

If this setup step has not already been performed, run the command below (the same command

presented during installation) in the Exchange Management Shell:

PowerShell

```
$a = get-credential "btFreeBusy@YourSMTPDomain.com"

Add-AvailabilityAddressSpace -AccessMethod OrgWideFB -ForestName
Domino.YourSMTPDomain.com -TargetAutodiscoverEpr
'https://autodiscover.domino.YourSMTPDomain.com/autodiscover/autodiscover.xml' -
Credentials:$a
```

The value domino.<YourSMTPDomain> matches the Targetaddress domain value of the Domino users in Active Directory. The btFreeBusy@YourSMTPDomain.com matches the Exchange Mail Namespace/SMTP Domain from the Administrator Pre-Install Checklist.

Section 7. Install FreeBusy On the Domino Coex Server

The Integration for Notes | CMT FreeBusy.exe installation package must be installed on the Domino Coexistence server and Windows Coexistence server.

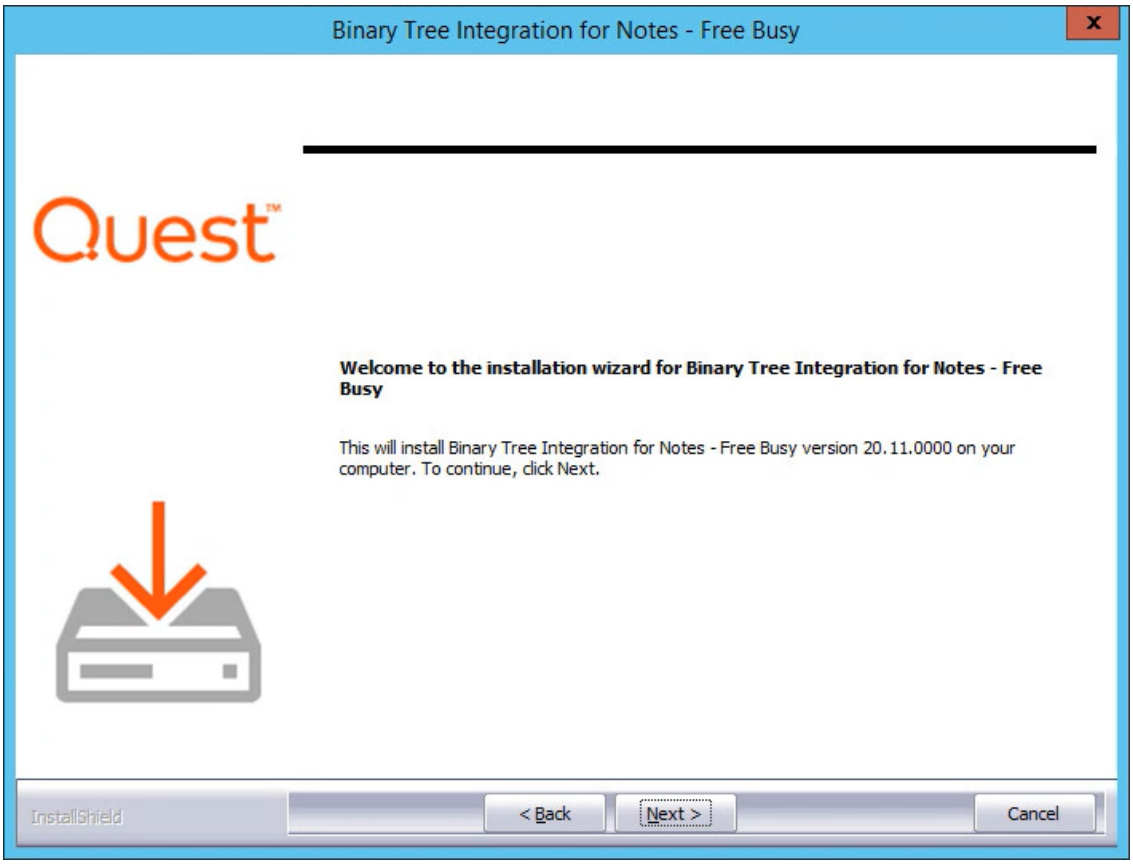
For a list of known limitations, please refer to the Integration for Notes FreeBusy Known Limitations document.

For the Domino and Exchange install requirements refer to the Integration for Notes BTCal FreeBusy Requirements document.

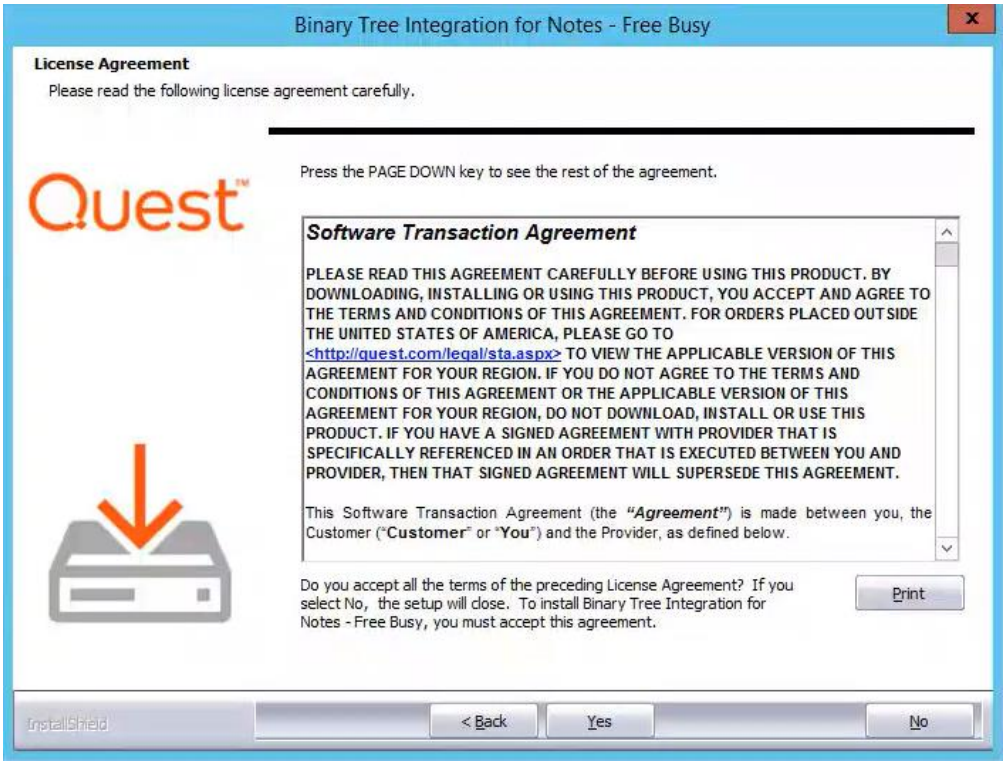
7.1 Installing Integration for Notes FreeBusy on the Domino Coexistence Server

The FreeBusy components for the Domino Coexistence server are installed separately from the BTCal components. Follow the steps below to install Integration for Notes FreeBusy:

1. Confirm the Domino Coex server has been stopped
2. Run the **Notes Integration FreeBusy.exe** as Administrator
3. On the installation wizard screen, click **Next**:

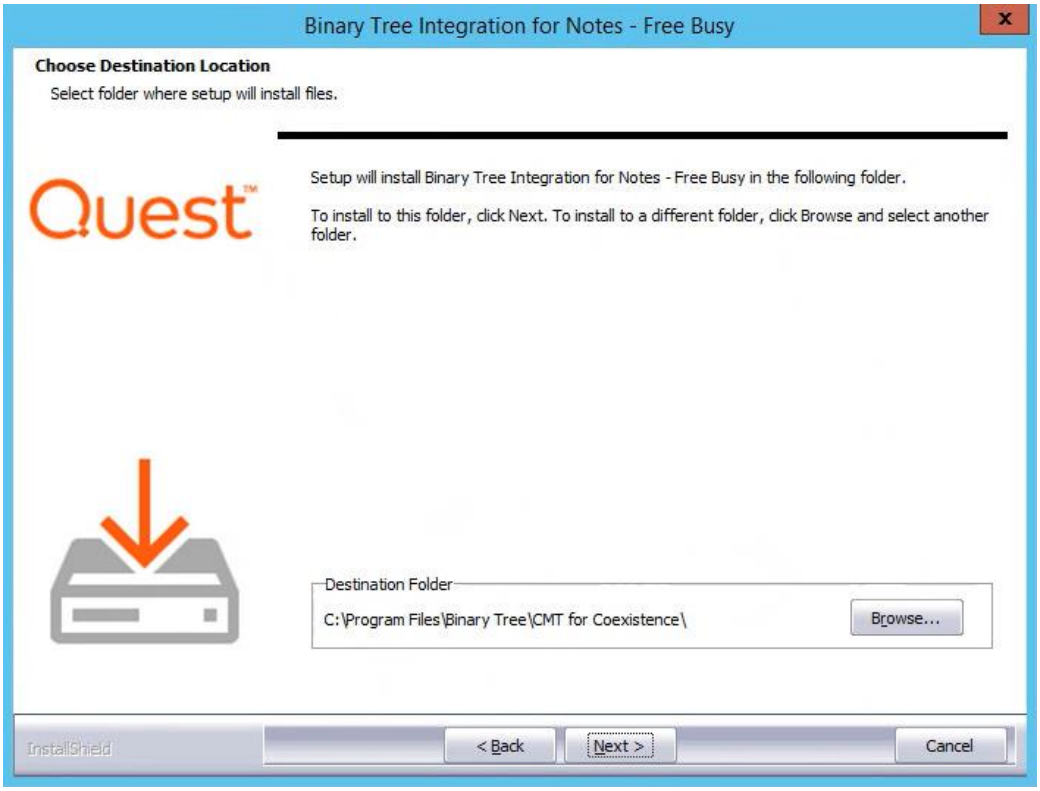


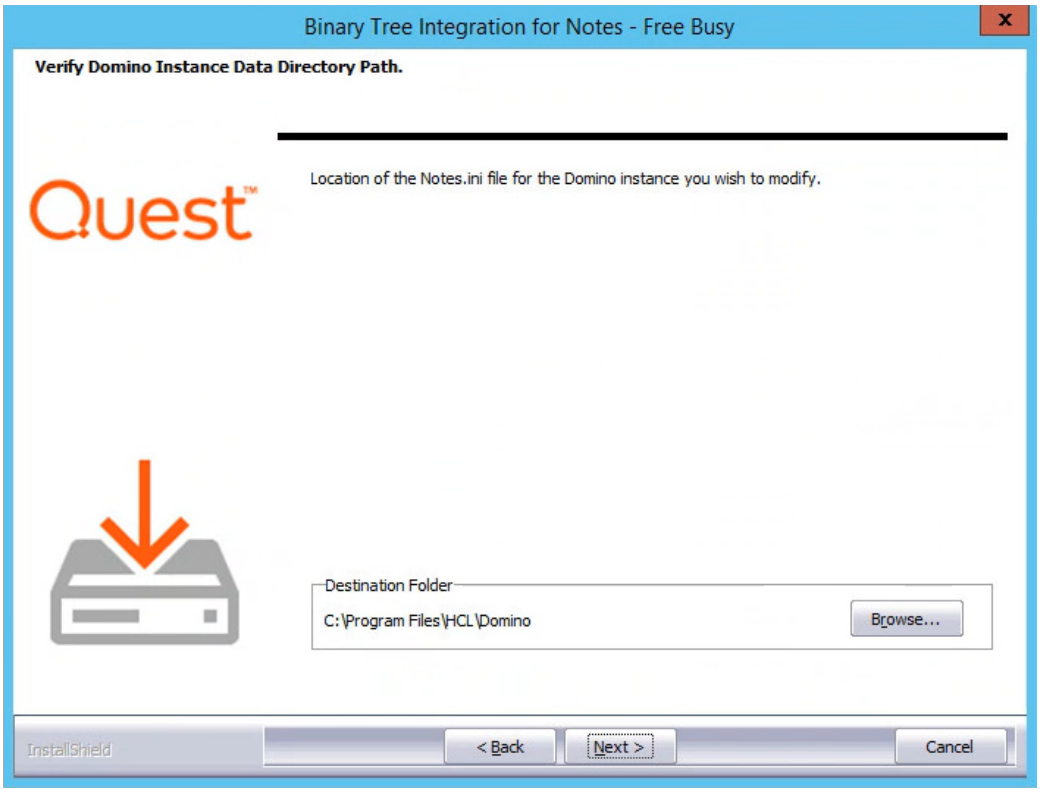
4. Review the Software License Agreement and if you agree click **Yes** to continue:



5. On the **Verify notes.ini path for the FreeBusy Domino server** screen, browse to the location of the Notes.ini file that will be modified for the Domino instance and click **Next**

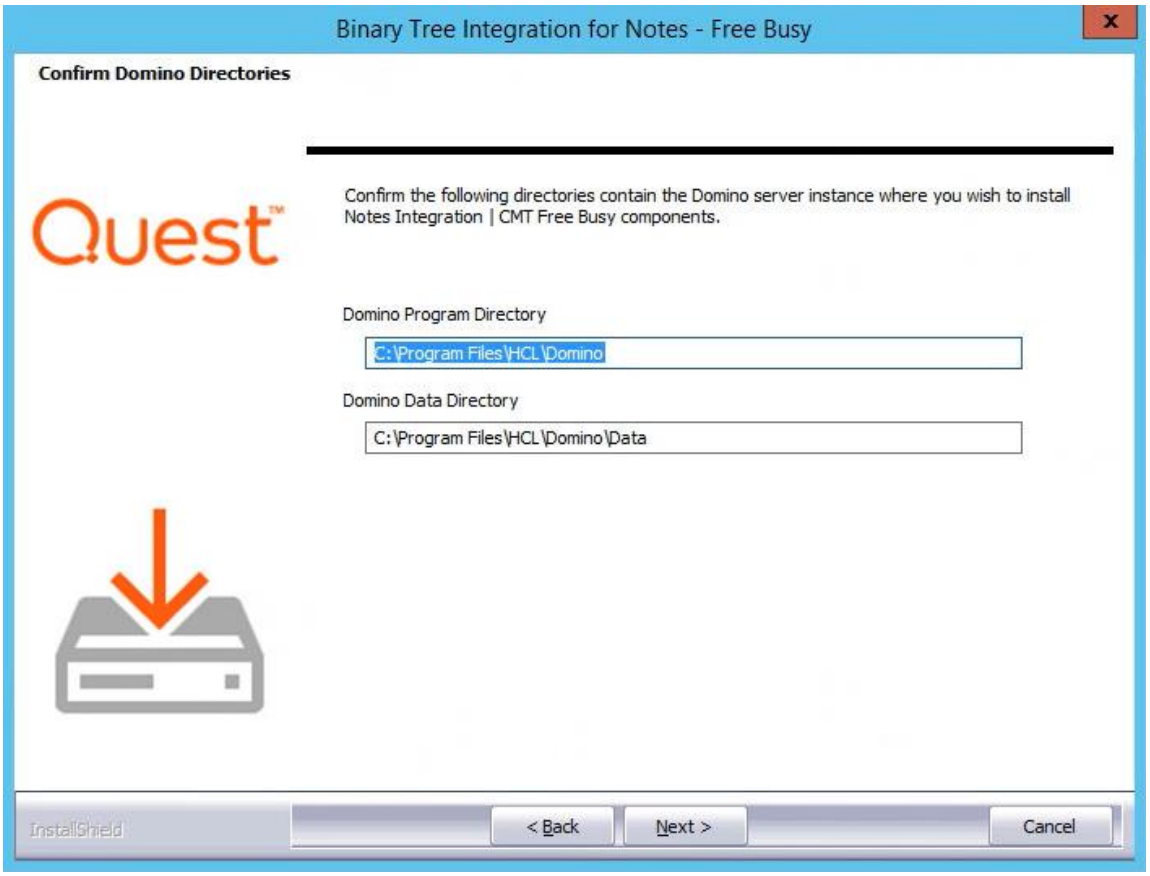
NOTE ! The default paths in steps 5 and 6 in the installer may not match your environment. Confirm they are pointing to the correct location and modify if necessary.


Binary Tree Integration for Notes - Free Busy
Choose Destination Location
Select folder where setup will install files.
Quest
Setup will install Binary Tree Integration for Notes - Free Busy in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\Binary Tree\CMT for Coexistence\
Browse...
InstallShield
< Back
Next >
Cancel

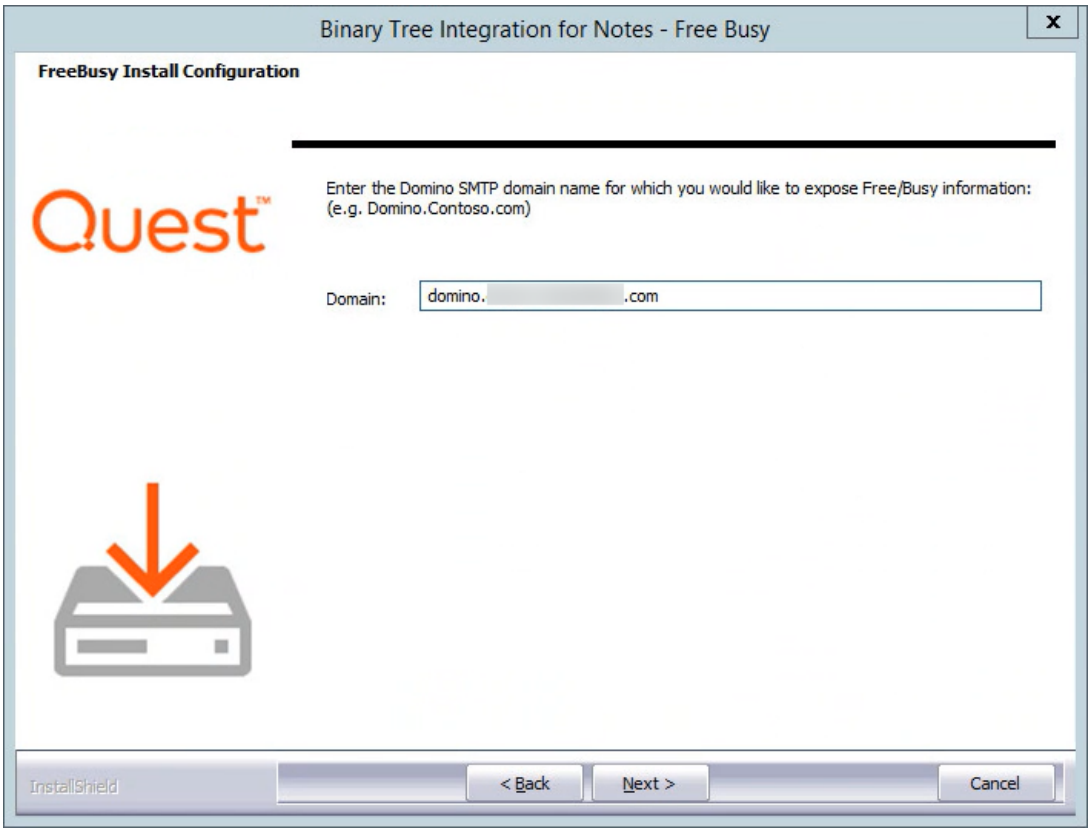

Binary Tree Integration for Notes - Free Busy
Verify Domino Instance Data Directory Path.
Quest
Location of the Notes.ini file for the Domino instance you wish to modify.
Destination Folder
C:\Program Files\HCL\Domino
Browse...
InstallShield
< Back
Next >
Cancel

6. On the **Confirm Domino Directories** screen, confirm the **Domino Program Directory** and **Domino Data Directory** paths for the Domino Server instance you are using to install Free/Busy; modify, if necessary; and click **Next**:

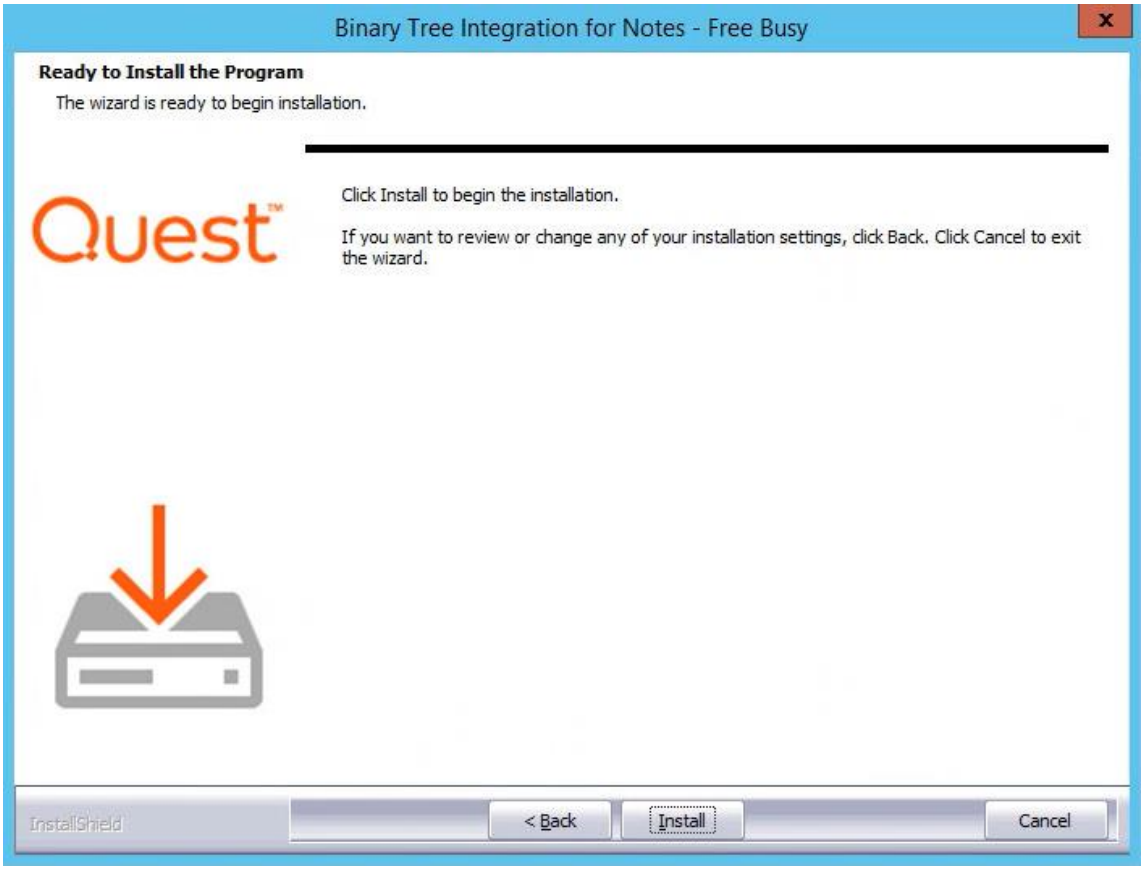
NOTE ! The installer assumes that the Notes.ini file is located in the Domino Program Directory and Domino Data Directory



7. On the **FreeBusy Install Configuration** screen, enter the Domino SMTP domain name you would like to expose Free/Busy information for; click **Next**:



8. On the **Ready to Install the Program** screen, click **Install** to begin the installation:

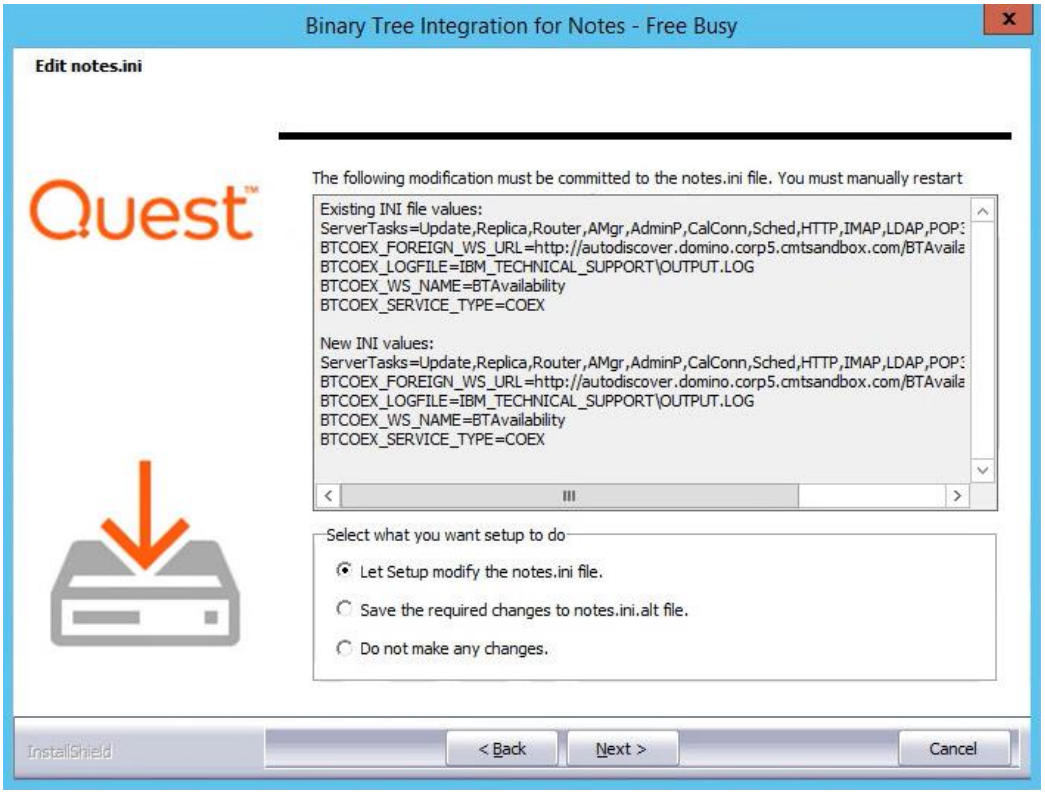


9. The progress of the installation will be displayed on the **Setup Status** screen

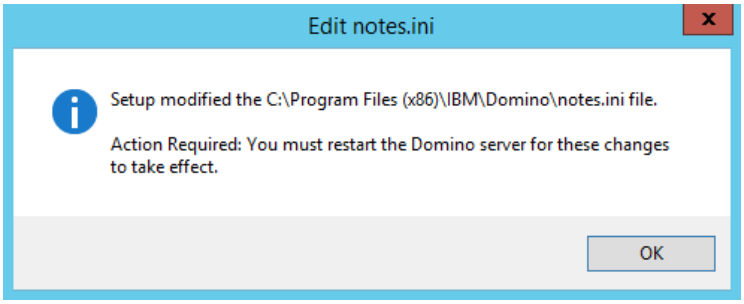
10. On the **Edit notes.ini** screen, select one of the following options:

    - **Let Setup modify the notes.ini file** – (Default) Recommended for first time installing Integration for Notes FreeBusy
    - **Save the required changes to a notes.ini alt file** – Select if you want to manually update an existing Notes.ini file from a previous installation; this is recommended if you are reinstalling or repairing FreeBusy, and wish to manually update the existing entries
    - **Do not make any changes** – Selecting this option is not recommended

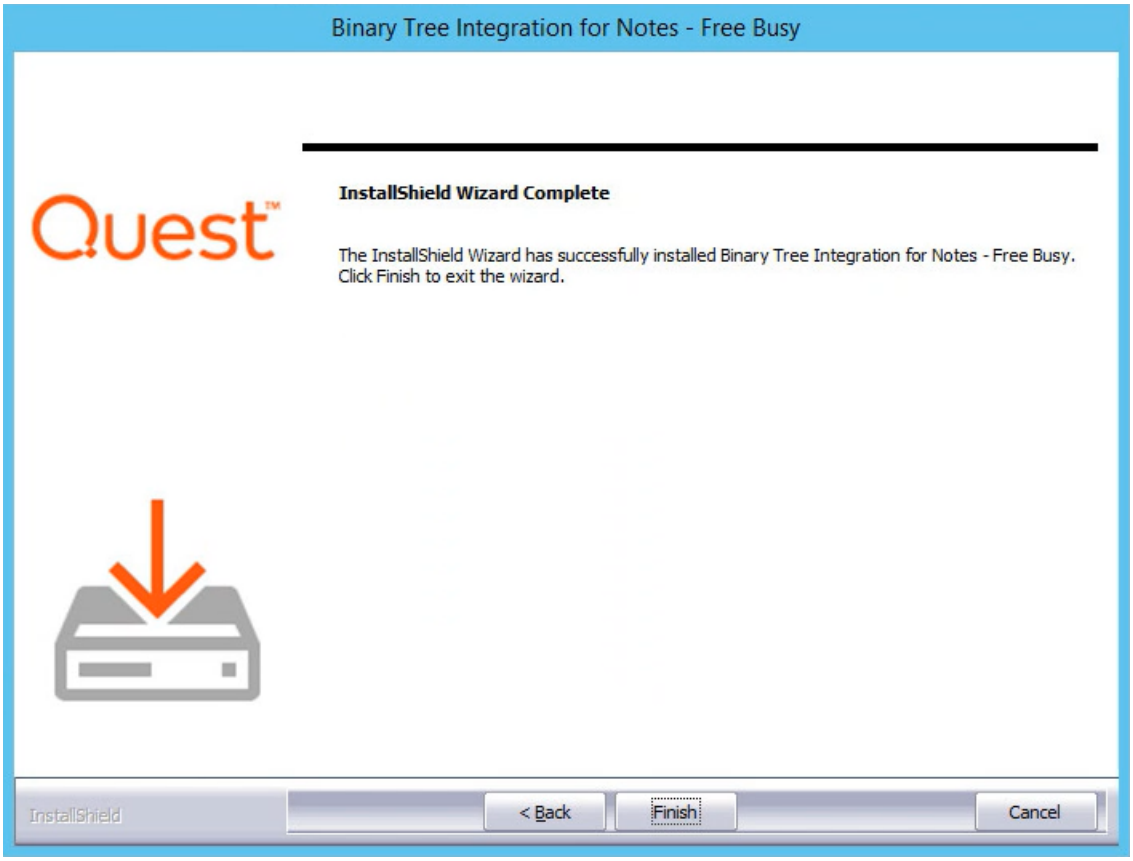
Click **Next**:



11. If you selected **Let Setup modify the notes.ini**, click **OK** in the resulting dialog box; changes to the Notes.ini file will take effect when the Domino server is restarted:



12. When installation is complete, the **Installation Wizard Complete** screen appears; click **Finish**:



Section 8. Create and Configure the Domino Databases

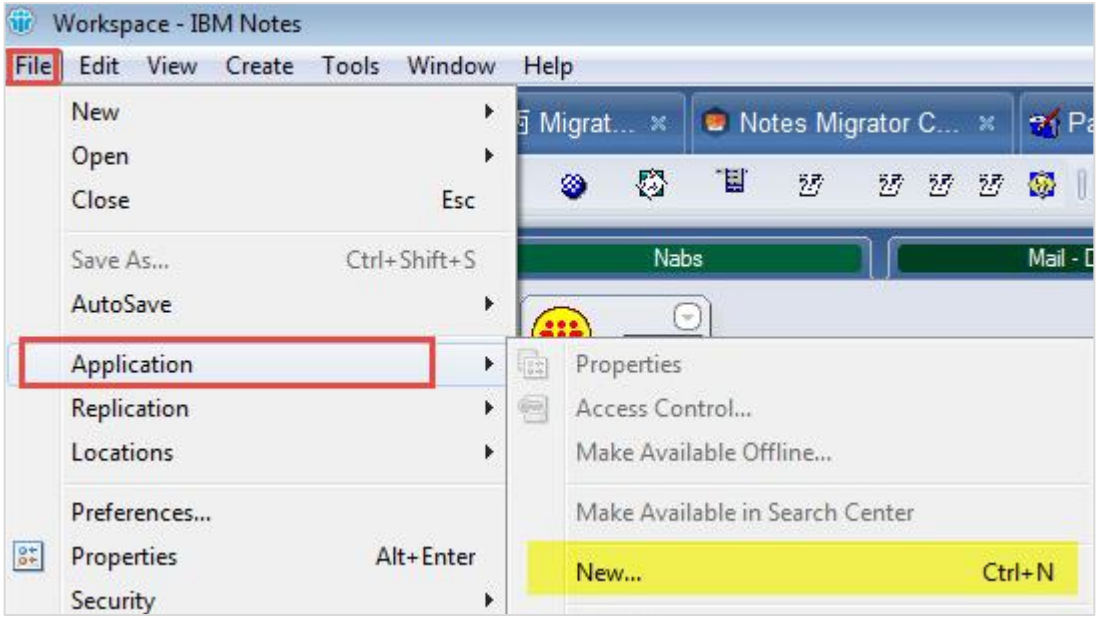
8.1 Sign the btws.nsf Database

Locate the btws.nsf database in the Domino Coex server's Data Directory and sign it with either the server's ID or an ECL signing ID.

8.2 Create Mail Router Mailbox

If the mail router mailbox (**btexchange.box**) does not already exist, create it on the server using the mail router **Mail Router Mailbox mailbox.ntf** template also found in the Domino Coex server's Data Directory server:

1. Launch IBM Notes
2. Click **File** | **Application** | **New**



3. In the **New Application** dialog box:

   a. Select the Domino Coex server in the **Server** field

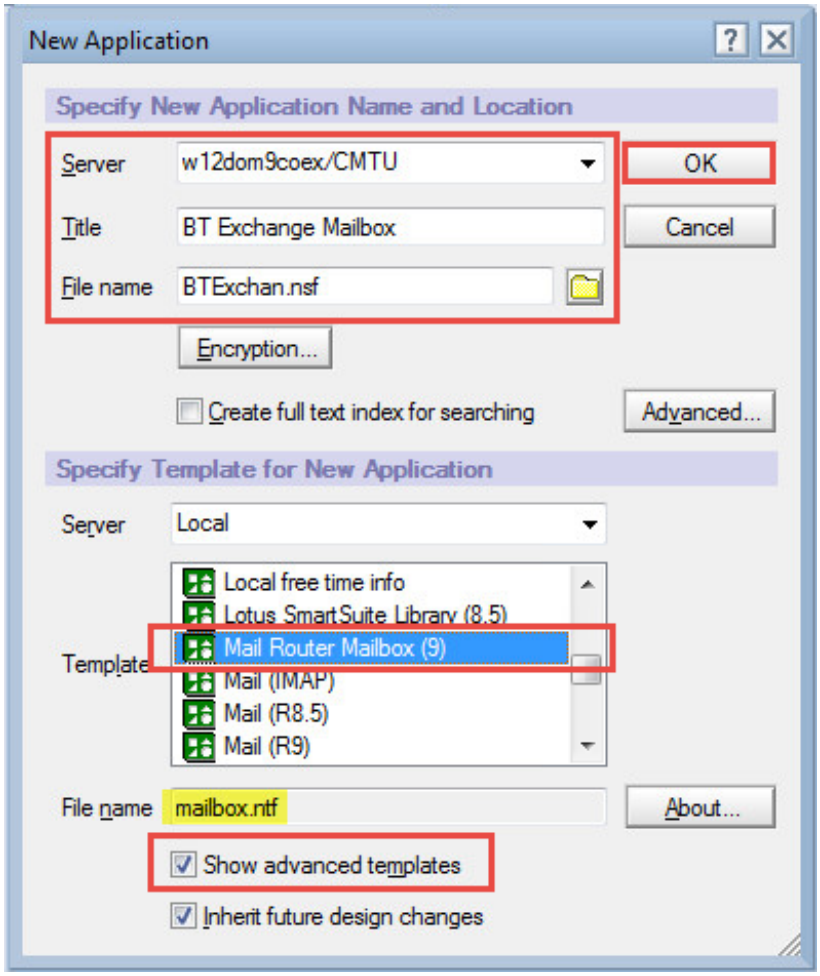
   b. Enter **BT Exchange Mailbox** in the **Title** field

   c. The **File Name** is auto-populated based on the **Title** name; we recommend keeping it as is

   d. Click **Show advanced templates**

   e. Select the **Mail Router Mailbox (mailbox.ntf)** template to create a new mail router mailbox

   f. Click **OK**



Section 9. Modify the Notes.ini File

The Notes.ini file can be updated either by editing it manually or by issuing an appropriate **set config** command on the Domino Server's Console. When editing Notes.ini parameters, the total length of the **Keyword=Value** string cannot exceed 256 characters.

9.1 Sample Notes.ini FreeBusy Parameters

A sample of required Notes.ini FreeBusy values is shown below. Some variables need to be configured to match your environment.

Copy the variables below into your existing Domino Coex Notes.ini file. For all of the highlighted lines, enter the value that corresponds with the Domino settings defined on the table on the next page.

```
;**************************  Begin CMTc Section  ****************************
;                                                  \\\\\\\\\/////////
;*************************  Start FreeBusy Section  ***************************
BTCOEX_APPROVED_CALLERS=____________________
BTCOEX_BYPASS_REQUESTOR=1
BTCOEX_DEFAULT_FB_ACCESS_ACCOUNT=____________________
BTCOEX_WS_NAME=BTAvailability
BTCOEX_DOMINO_DOMAINS=____________________
BTCOEX_EXCHANGE_DOMAINS=____________________
BTCOEX_NSF=btws.nsf
BTCOEX_FOREIGN_WS_URL=____________________
BTCOEX_SERVICE_TYPE=COEX
```

The chart below lists each parameter from the Notes.ini sample above. The administrator should use the chart to determine the values to enter to update in the Notes.ini sample. More information on these parameters can be found in the **INI File Parameters** appendix.

Trailing spaces are not allowed in the Notes.ini; be sure there are no spaces at the ends of lines in the Notes.ini.

INI Variable Name	Description	Required Value or Ex
BTCOEX_APPROVED_CALLERS	Specifies the IP addresses that need to connect to the Domino Coexistence server; this field is optional	*<comma-separated IP addresses>*
BTCOEX_BYPASS_REQUESTOR	If set to "1", Exchange requests will use the credentials supplied by the BTCOEX_DEFAULT_FB_ACCESS_ACCOUNT parameter. This is useful when Exchange is not supplying the user ID because it is set to OrgWideFB.	*1*
BTCOEX_DEFAULT_FB_ACCESS_ACCOUNT	This is the SMTP Address of the FreeBusy Proxy Account (see section 5.5 FreeBusy Person Document)	*<bt.freebusy@contoso.com>*
BTCOEX_WS_NAME	Should match the virtual directory used by btrouter on the Windows coexistence server; BTAvailability is the default value	*BTAvailability*
BTCOEX_DOMINO_DOMAINS	Comma-separated list of Domino domains	<comma-separated IP addresses>
BTCOEX_EXCHANGE_DOMAINS	These are the domains used in the Foreign Domain document	<"BTEx" (for on-prem Exchange) "MSO365" (for Office365)>
BTCOEX_NSF	This is the name of BT FreeBusy webservices database	*btws.nsf*
BTCOEX_FOREIGN_WS_URL	Address used to contact the Windows coexistence server	<http://autodiscover.domino.contoso.com/btavailability/availability.asmx>
BTCOEX_SERVICE_TYPE	The BTCOEX_SERVICE_TYPE parameter specifies the Web Service format used by the Binary Tree IIS apps to translate to the correct version of the EWS format.	*COEX*

9.2 How to update the Notes.ini file

To make changes to the Notes.ini file, follow these steps:

1. Shutdown BTFreebusy by issuing the following command at the Domino Coex server console:

Domino Coex Server Console
tell btfreebusy quit

2. Shut down the Domino Coex server by issuing the following command:

Domino Coex Server Console
quit

3. When the Domino server has completed its shutdown:
    a. Open the INI file in a basic text editor (e.g. Notepad)
    b. Make the modifications and save the text file

If using 64-bit Domino and/or a language with double-byte characters, the text file must be saved as UTF-8 without a BOM.

4. Restart the Domino Coex server

Section 10. Start FreeBusy on Domino Coex Server

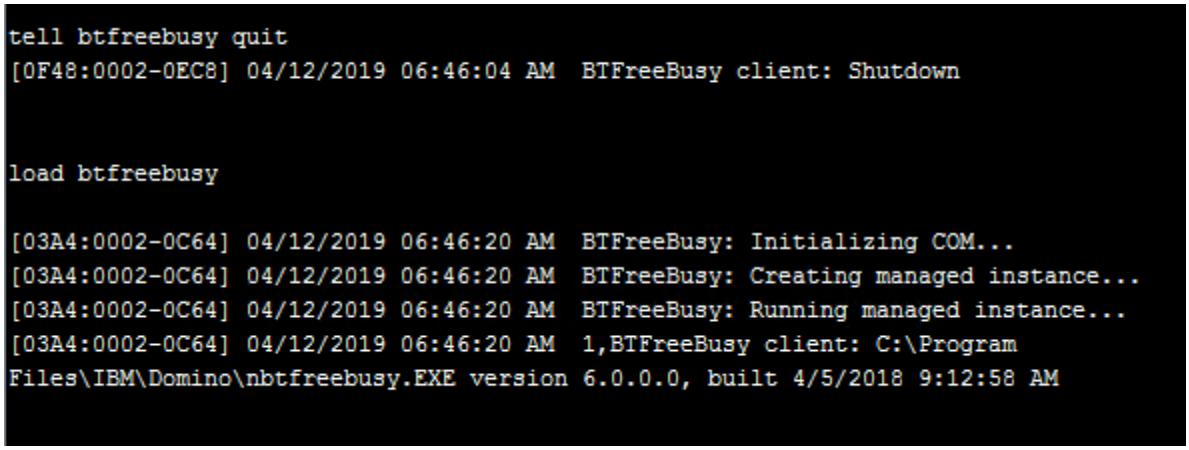
After installing the FreeBusy software and updating the Notes.ini file, the Domino Coex server needs to be restarted.

Refer to the **Ongoing Administration** section for more information on FreeBusy Domino server commands.

If the Domino server was not shutdown when the Notes.ini was updated, restart FreeBusy. To do this, issue the following commands at the Domino Coex server console to start and stop the FreeBusy task:

Domino Coex Server Console
tell btfreebusy quit load btfreebusy

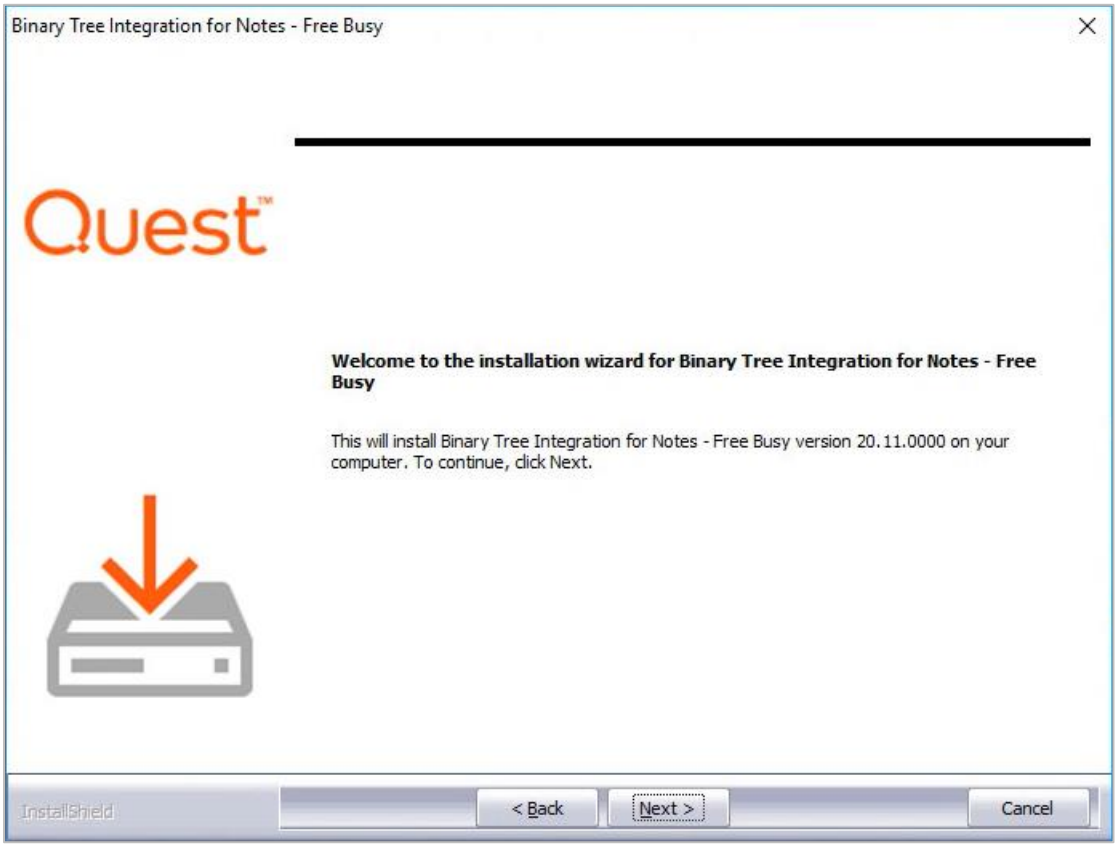
The example below, shows a *quit* followed by a successful BTFreeBusy *load*.



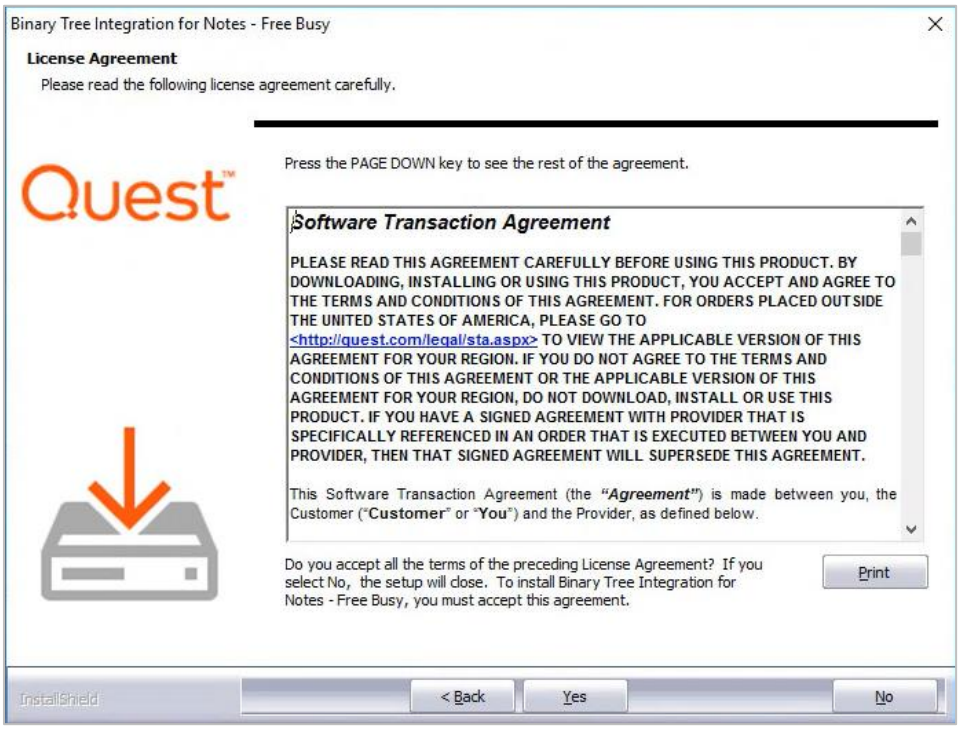
Section 11. Install FreeBusy for Windows

To install Integration for Notes Free/Busy on the Windows Coex server, follow the instructions below:

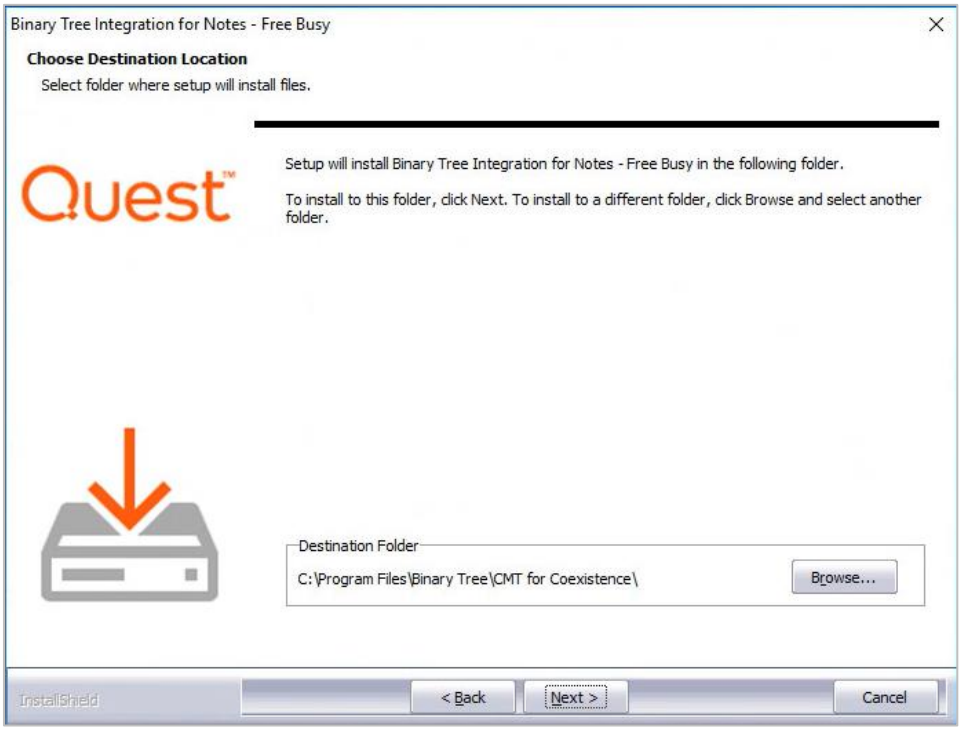
1. Run the **Notes Integration FreeBusy.exe** as Administrator
2. On the installation wizard screen, click **Next**:



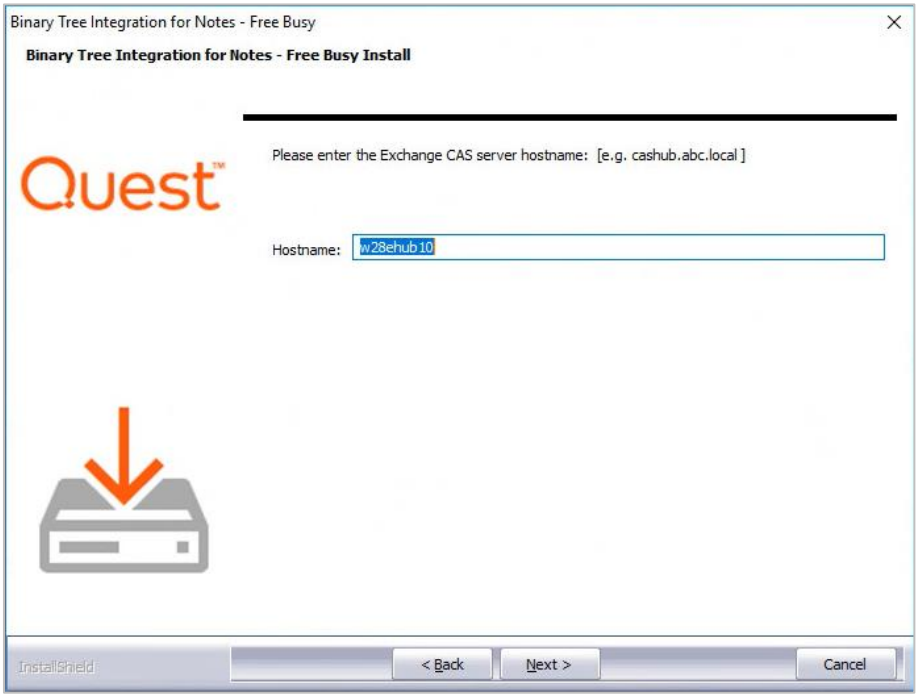
3. Review the Software License Agreement and if you agree, click **Yes** to continue:



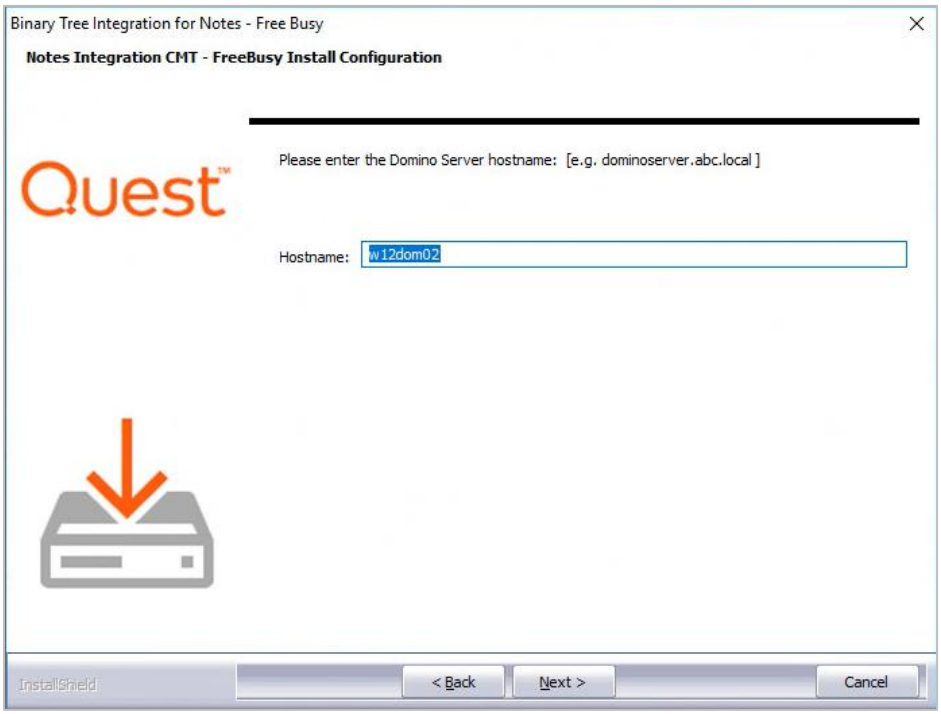
4. On the **Choose Destination Location** screen, accept the default destination location or browse to the desired location; click **Next**:



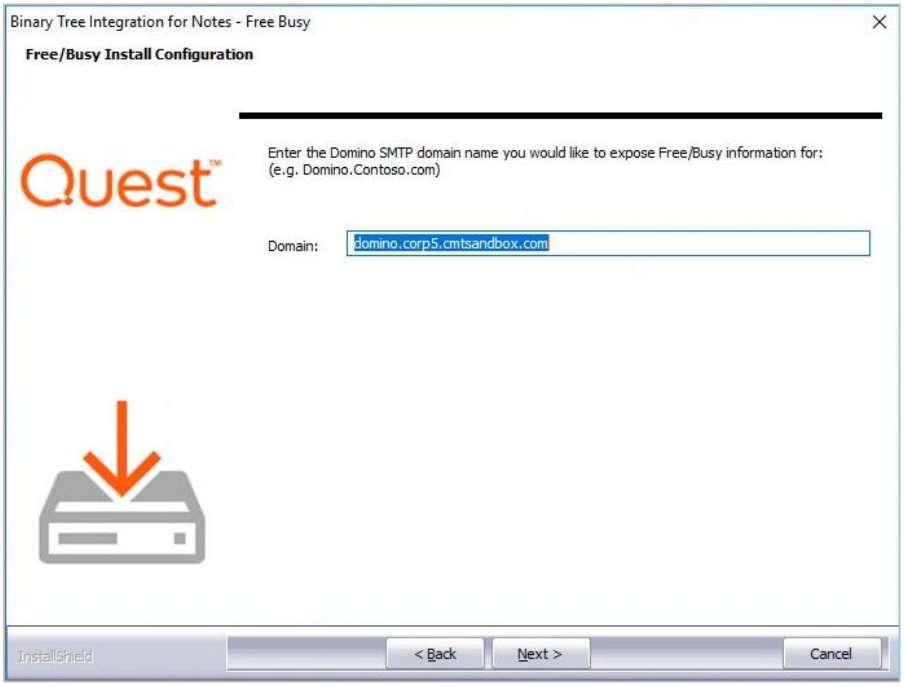
5. On the first screen, enter the Fully Qualified Domain Name (FDQN) of the Exchange CAS server hostname and click **Next**:



6. Enter the DNS name of the Domino Server and click **Next**:

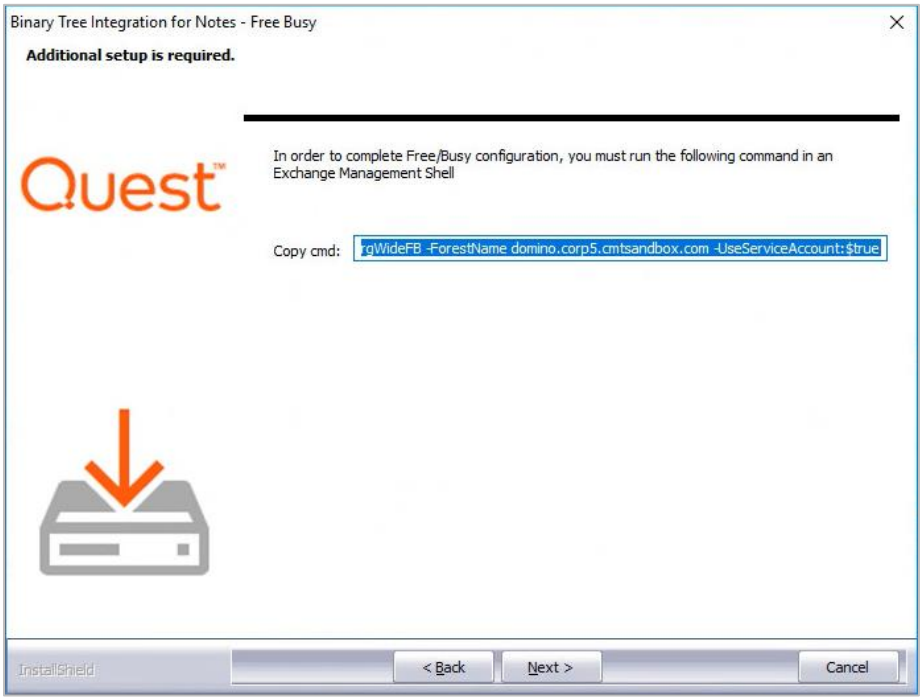


7. On the third **Free/Busy Install Configuration** screen, enter the Domino SMTP domain name you want to expose Free/Busy information for and click **Next**:

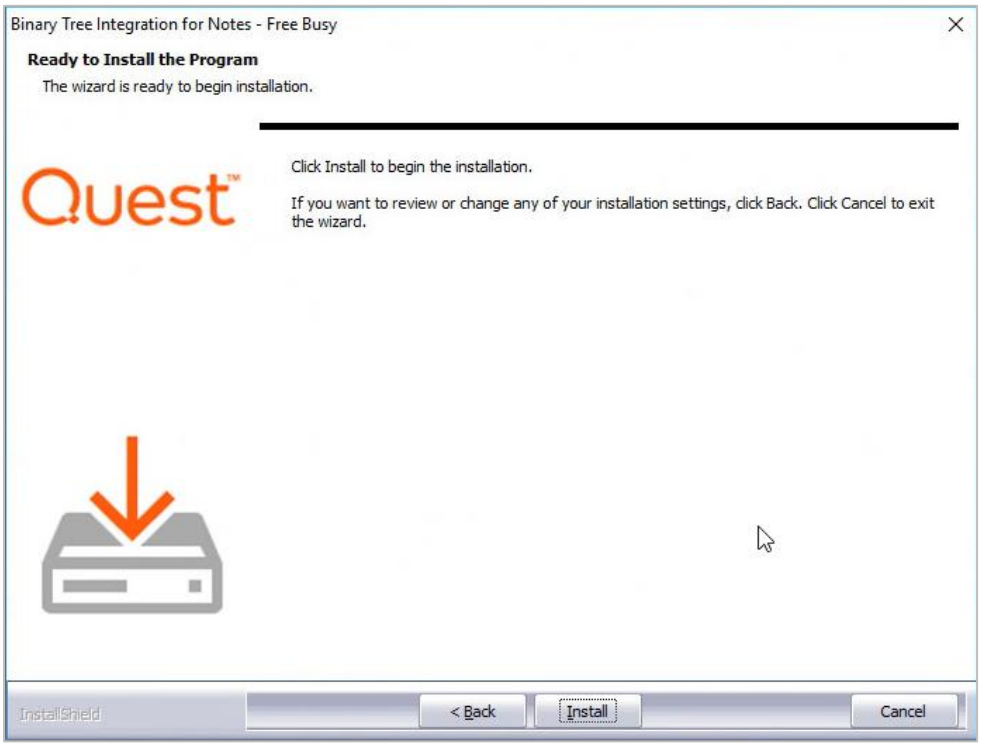


8. On the **Additional setup is required** screen, copy the command and run it in an Exchange Management Shell then click **Next**.

   This command sets the Availability Address Space in Exchange so Free/Busy requests are sent to Domino:



9. On the **Ready to Install the Program** screen, click **Install** to begin the installation:



10. When installation is complete, the **Wizard Complete** screen appears; click **Finish** to exit the wizard:

11. Open a command prompt and run the following command: **iisreset**

Section 12. Verification

Proper verification of the FreeBusy installation, can prevent future issues from occurring during coexistence. Verify Autodiscover, BTAvailability and BTRouter and then complete the validation matrix at the end of this section.

12.1 Verify Autodiscover, BTAvailability and BTRouter on the Windows Coex Server

All verification sequences in section 12.1 are run on the Windows Coex server.

12.1.1 Autodiscover

1. Open a command prompt and navigate to the following path: *%Program Files%\BinaryTree\CMT for Coexistence\Autodiscover*

If web.2010.config exists, rename it to web.config.

   a. Verify that **web.config** and **connections.config** are not set to Read-Only

2. Open the IIS Administrator application

   a. Navigate to the **Default Web Site**

   b. Refresh IIS (press <*F5*>) and be sure that the **Autodiscover** virtual application has been added:

3. In the left pane, select the **Autodiscover** application

    a. In the right pane, in the IIS section, double-click **Authentication**

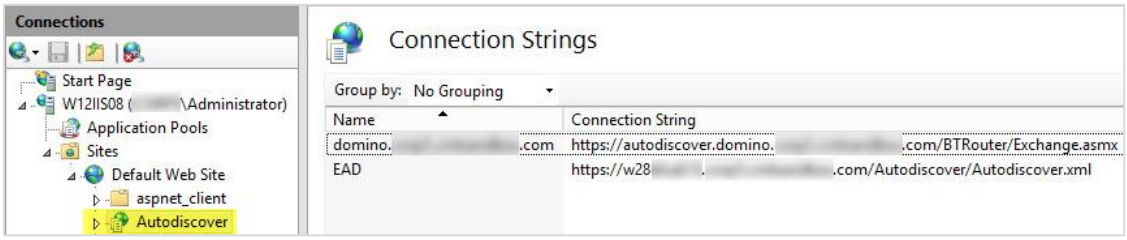
        i. Be sure that **Basic Authentication** and **Windows Authentication** are enabled; if they are not, enable them:

        ii. Click the **Back** button

4. In the right pane, in the **ASP.net** section, double-click **Connection Strings**

    a. Verify that the **EAD** is: *https://<Your Exchange CAS Server FQDN>/Autodiscover/Autodiscover.xml*

        i. If the **EAD** (Exchange CAS Server) value is incorrect, modify it with the correct name:



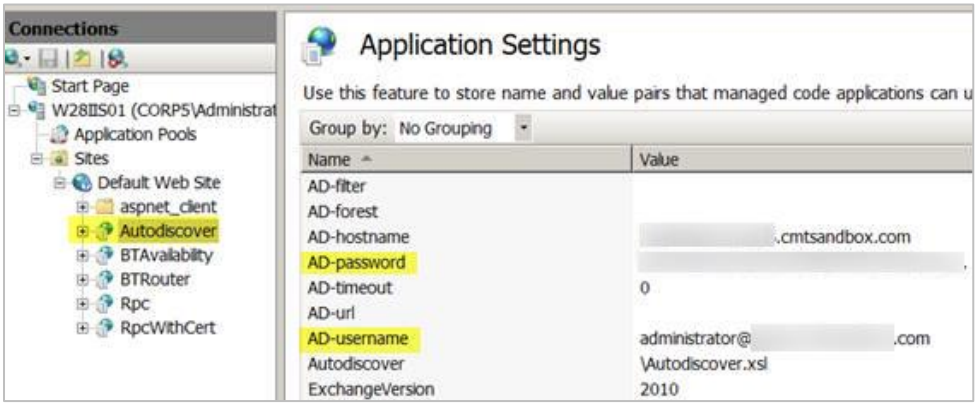
        ii. Click the **Back** button

5. In the right pane, in the **ASP.net** section, double-click **Application Settings**

    a. Verify that **ExchangeVersion** is set to *2010* for all supported versions of Exchange

    b. If you require credentials to access the Active Directory environment and you do not see the following fields:

    AD-Username and **AD-Password**



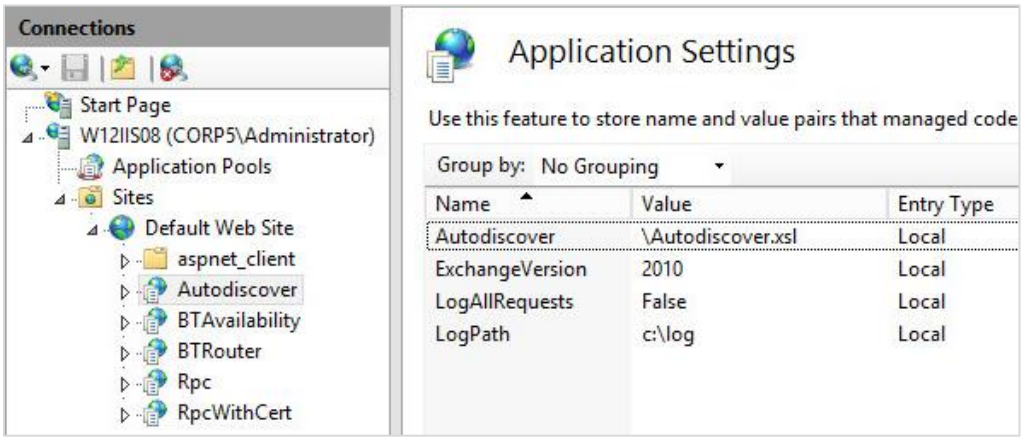
    use the SetFBCred Utility to set the AD-Username and AD-Password (see Appendix B: SetFBCred Utility)

    c. Be sure that **Autodiscover** is set to *.\Autodiscover.xsl*

    d. The following log settings are optional:

        i. **LogAllRequests** = False

ii. **Log path** = c:\log\autodiscover (must be an existing directory, create if needed)



6. Close the IIS Manager
7. If any changes were made in steps 1-5, open a command prompt and run **iisreset**
8. Open Internet Explorer and navigate to the following virtual directory:
   https://autodiscover.domino.<contoso.com>/Autodiscover/Autodiscover.asmx

   NOTE ! Be sure that you use the same name listed in the SAN SSL certificate applied to the system and that it matches the Autodiscover.<dominoSMTPdomain> specified above.

9. The **BT Autodiscovery Service for Exchange 2010** page should appear:

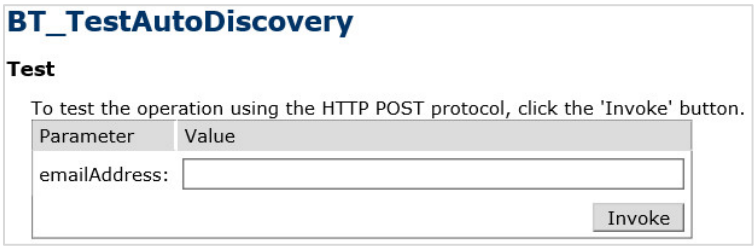
10. Click **BT_GetConfiguration**
11. On the page that loads, Click **Invoke***;* an XML response with the correct endpoint for this machine should display in the browser:

```
<?xml version="1.0"?>
- <ServiceConfiguration>
    <settings logAllRequests="False" logpath="c:\log"/>
  - <EADConfiguration>
      <Guid>{824CDDA8-899D-4515-B930-5FFE377AFA2E}</Guid>
      <Name>BTAutodiscover Service for Exchange</Name>
      <Technology>Microsoft Exchange Web Services 2010</Technology>
      <Machine>W12IIS08</Machine>
      <Endpoint type="EAD">https://[redacted].com/Autodiscover/Autodiscover.xml</Endpoint>
    </EADConfiguration>
    <Endpoint domain="domino.[redacted].com">https://autodiscover.domino.[redacted].com/BTRoute
</ServiceConfiguration>
```

12. Return to the original **AutoDiscovery** screen

13. Click **BT_TestAutoDiscovery**

14. Enter the e-mail address of a valid Domino user; for example, *user1@domino.contoso.com and click **Invoke**:*



15. A properly formatted Autodiscover XML document should appear showing the correct URL to the BTRouter application

To successfully install the FreeBusy web services, the web server must accept connections via HTTP (Port 80) and can be later switched to HTTPS (Port 443).

12.1.2 BTAvailability

1. Open a command prompt and navigate to the following path: *%Program Files%\BinaryTree\CMT for Coexistence\AvailabilityService*

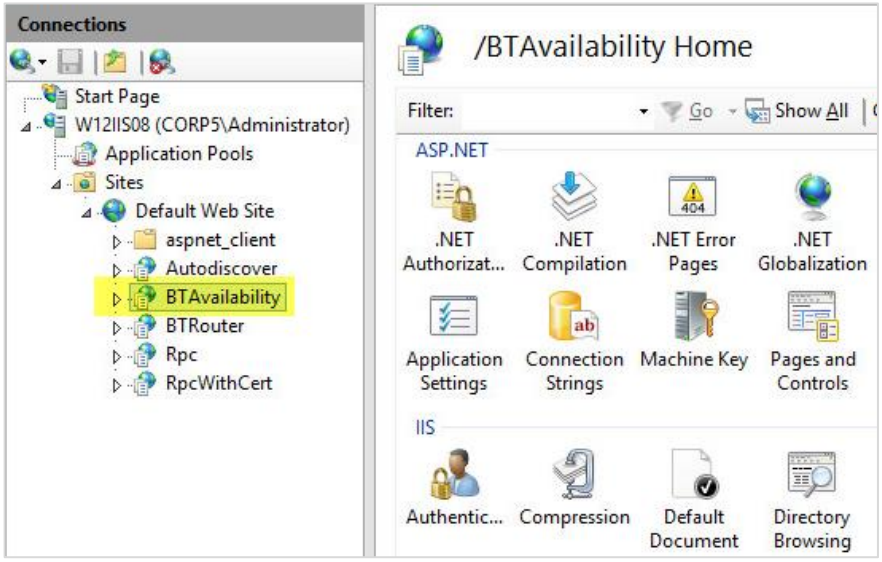
   NOTE ! If web.2010.config exists, rename it to web.config.

   a. Verify that **web.config** and **connections.config** are not set to Read-Only

2. Open the IIS Administrator application

   a. Navigate to the **Default Web Site**

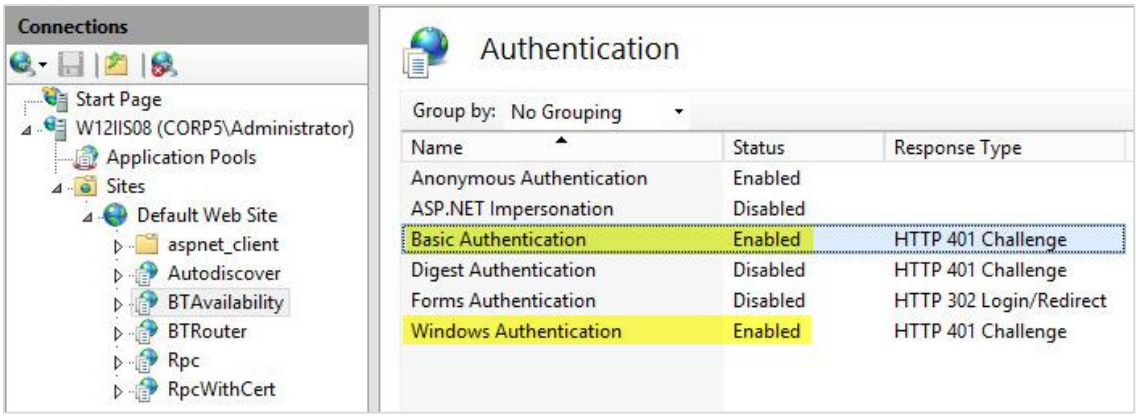
   b. Refresh IIS (press <*F5*>) and be sure that the **BTAvailability** virtual application has been added:



3. In the left pane, select the **BTAvailability** application in the left pane

   a. In the right pane, in the **IIS** section, double-click **Authentication**

      i. Be sure that **Basic Authentication** and **Windows Authentication** are enabled; if they are not, enable them:

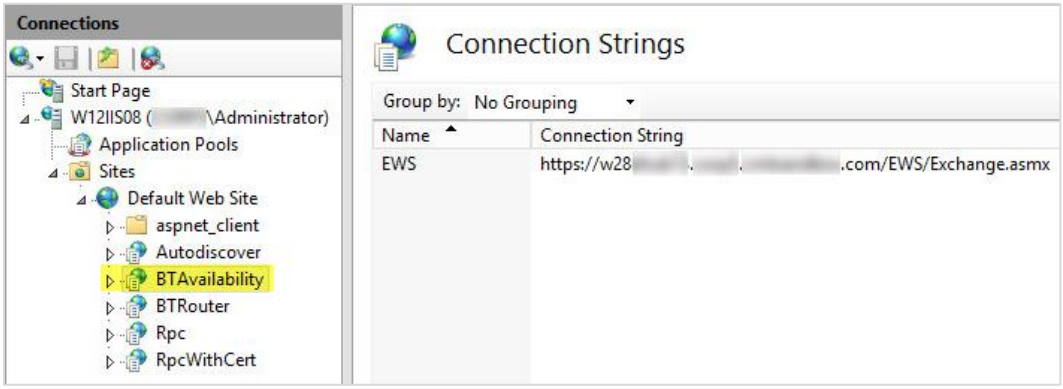


ii. Click the **Back** button

4. In the right pane, double-click **Connection Strings**

   a. Verify that the **EWS** is: *https://<Exchange CAS Server FQDN>/EWS/Exchange.asmx*

      i. If the **EWS** value is incorrect, modify it with the correct name:



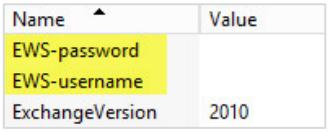
      ii. Click the **Back** button

5. In the right pane, in the **ASP.net** section, double-click **Application Settings**

   a. Verify that **ExchangeVersion** is set to *2010* for all supported versions of Exchange

   b. If you require credentials to access the Active Directory environment and you do not see the following fields…

   - **EWS-username**
   - **EWS-password**

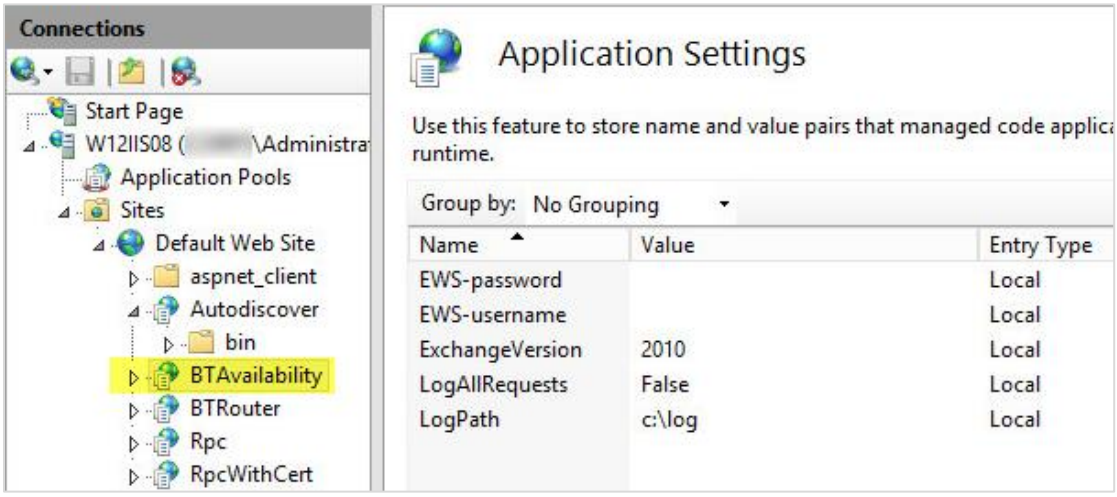


   …use the SetFBCred Utility to set the EWS **AD-username** and EWS **AD-password** (see Appendix B: SetFBCred Utility)

   c. If using these optional log settings, verify the following:

      i. **LogAllRequests** = False

      ii. **LogPath** = c:\log\availability (must be an existing directory, create if needed)



6. Close the IIS Manager

7. If any changes were made in steps 1-5, open a command prompt and run **iisreset**
8. Verify that the application is up and running
9. Open Internet Explorer and navigate to the following virtual directory:
   https:// autodiscover.domino.contoso.com/BTAvailability/Availability.asmx

   NOTE ! Be sure that you use the same name listed in the SAN SSL certificate applied to the system and that it matches the Autodiscover.<dominoSMTPdomain> specified above.

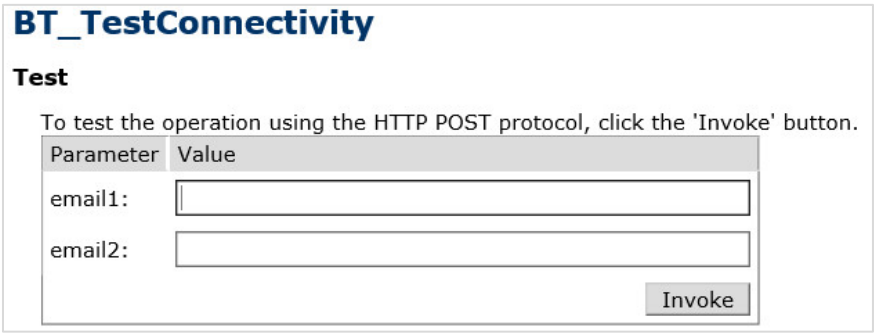
10. The **BT Availability Router for Exchange 2010 Web Services** page should appear:

11. Click **BT_GetConfiguration**
12. On the page that loads, click **Invoke**; an XML response with the correct endpoint for this machine should display in the browser:

```
<?xml version="1.0"?>
- <RouterConfiguration>
    <settings broadcast="True" logging="False" logpath="c:\log"/>
  - <Configuration Version="2010">
      <Guid>{BAE9A9AA-46BA-4ff9-9FE0-0A7FE661EDAE}</Guid>
      <Name>BTAvailability Router for Exchange</Name>
      <Technology>Microsoft Exchange Web Services 2010</Technology>
      <Machine>W12IIS08</Machine>
      <Endpoint Version="[redacted].21" type="EWS"/>
      <AccessMethod>OrgWideFB</AccessMethod>
    </Configuration>
  - <Configuration type="">
      <Domain/>
      <Provider>NOTES</Provider>
      <Connection>https://[redacted].com/BTAvailability</Connection>
      <Guid>{B03CFFCF-01A0-42BF-97BE-D070B592478E}</Guid>
      <Name>BTAvailability Service for Domino</Name>
      <Technology>Lotus Domino 8.5+</Technology>
      <MaxDaysQueryable>180</MaxDaysQueryable>
      <Machine>W12DOMX64-901</Machine>
      <Endpoint type="ALT">https://W12DOMX64-901/btws.nsf</Endpoint>
    </Configuration>
</RouterConfiguration>
```

13. Return to the original **BT Availability Router** screen
14. Click **BT_TestConnectivity**

15. Add two e-mail addresses of valid Exchange mailbox users (e.g. *michael@contoso.com* and *david@contoso.com*)
16. Click **Invoke**:



17. Two string representations of the Free/Busy stream should appear for each user for the current date

12.1.3 BTRouter

1. Open a command prompt and navigate to the following path:
   %Program Files%\BinaryTree\CMT for Coexistence\AvailabilityRouter

   NOTE ! If web.2010.config exists, rename it to web.config.

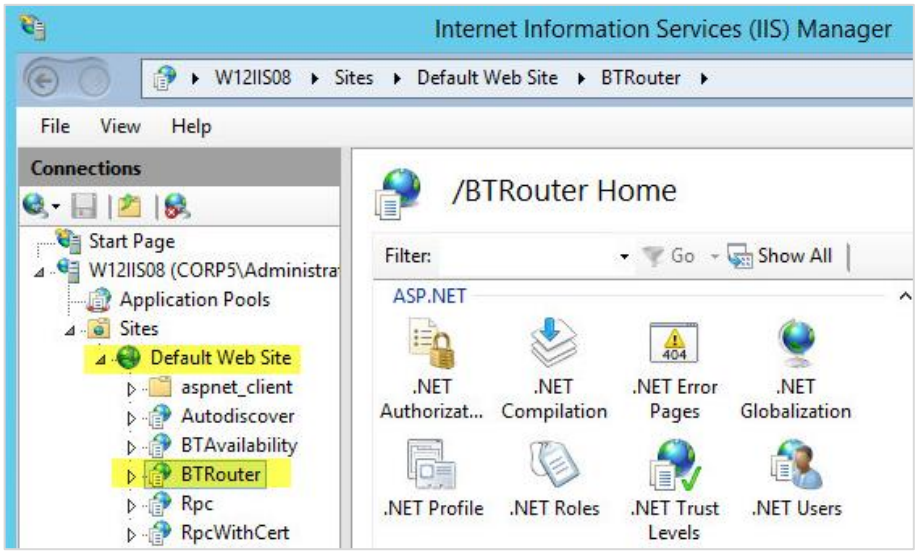
   a. If Exchange.2010.asmx exists, rename it to Exchange.asmx

   b. Verify that **web.config** and **connections.config** are not set to Read-Only

2. Open the IIS Administrator application

   a. Navigate to the **Default Web Site**

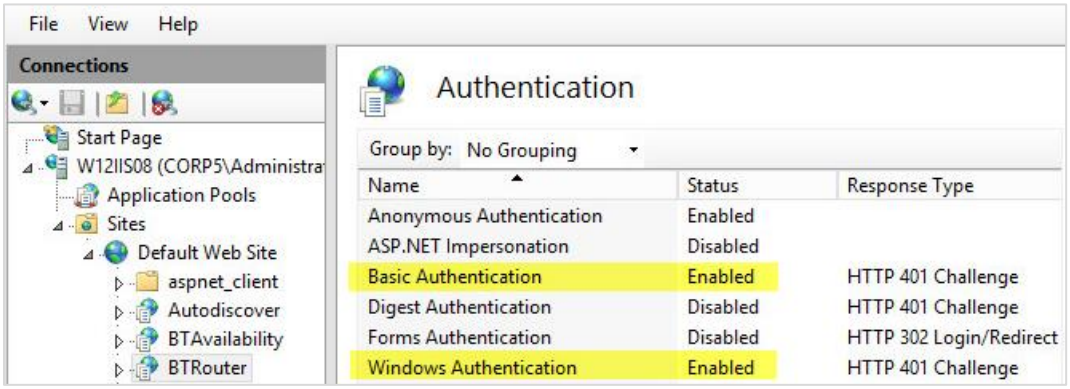
   b. Refresh IIS (press <F5>) and verify that the **BTRouter** virtual application has been added:



3. In the left pane, select the **BTRouter** application

a. In the right pane, in the IIS section, double-click **Authentication**

i. Be sure that Basic Authentication and Windows Authentication are enabled; if they are not, enable them:



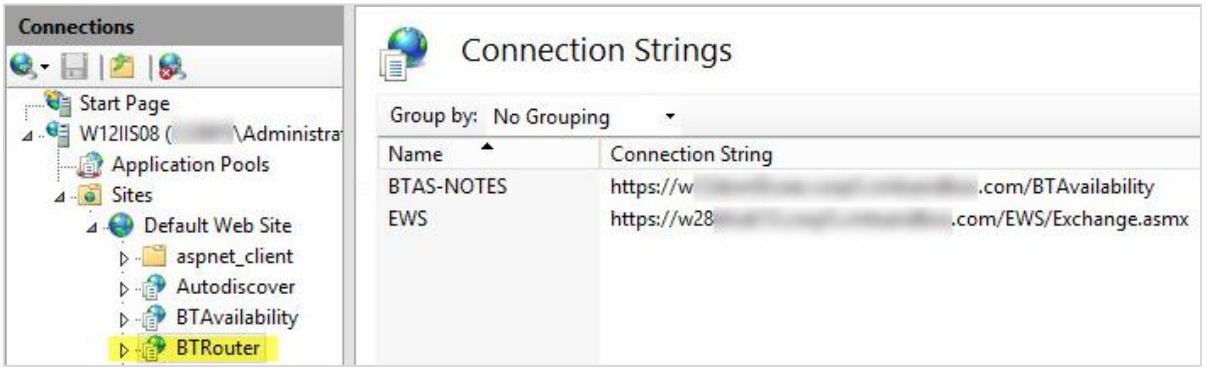
i. Click the **Back** button

4. In the right pane, in the **ASP.net** section, double-click **Connection Strings**

a. Verify that the **BTAS-NOTES** URL is pointing to the BT Domino Availability Service URL (e.g. *https://<FQDN of the Domino Web service>/BTAvailability)*

b. Verify that the **EWS** URL is: *https://<Your Exchange CAS Server FQDN>/EWS/Exchange.asmx*

c. If the URLs in **Connection Strings** are incorrect, modify them with the correct values:



d. Click the **Back** button

5. In the right pane, in the **ASP.**net section, double-click **Application Settings**

a. Verify that **ExchangeVersion** is set to *2010* for all supported versions of Exchange

b. If you require credentials to access the Active Directory environment and you do not see the following fields…

- **BTAS-password**
- **BTAS-username**

…use the SetFBCred Utility to set the **BTAS-username** and **BTAS-password** (see

the SetFBCred Utility appendix for more information).

c. To ensure all requests that route through Domino, use the SMTP domain contoso.com rather than domino.contoso.com, map each of your Domino domains to the SMTP domain by creating one “map” entry per Domino domain as listed below:

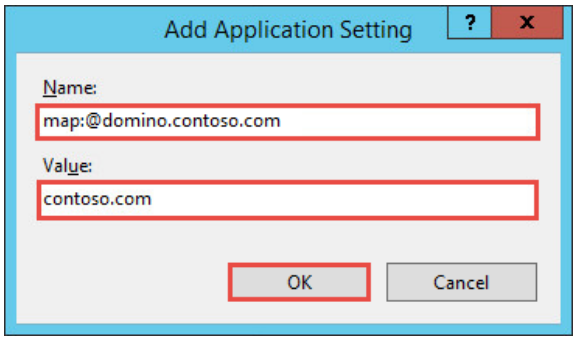
d. In the right-hand **Actions** pane, click **Add**

i. In the **Name** field, enter:

- *MAP:@domino.<contoso.com>*

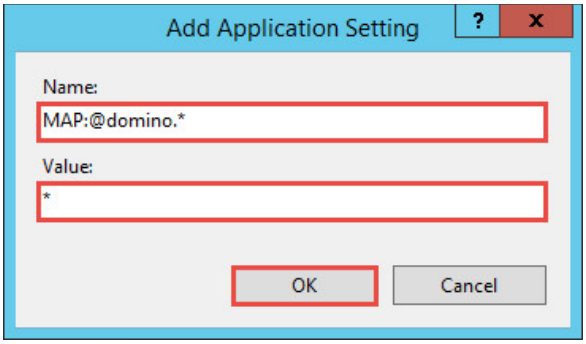
ii. In the **Value** field, enter:

- *<contoso.com>*

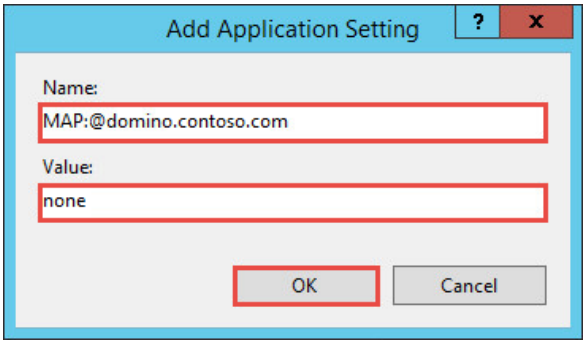


iii. Multiple FQDN’s can be supported by a single map entry using a wildcard (*) in the **Name** and **Value** fields as follows:

- MAP:@domino.*



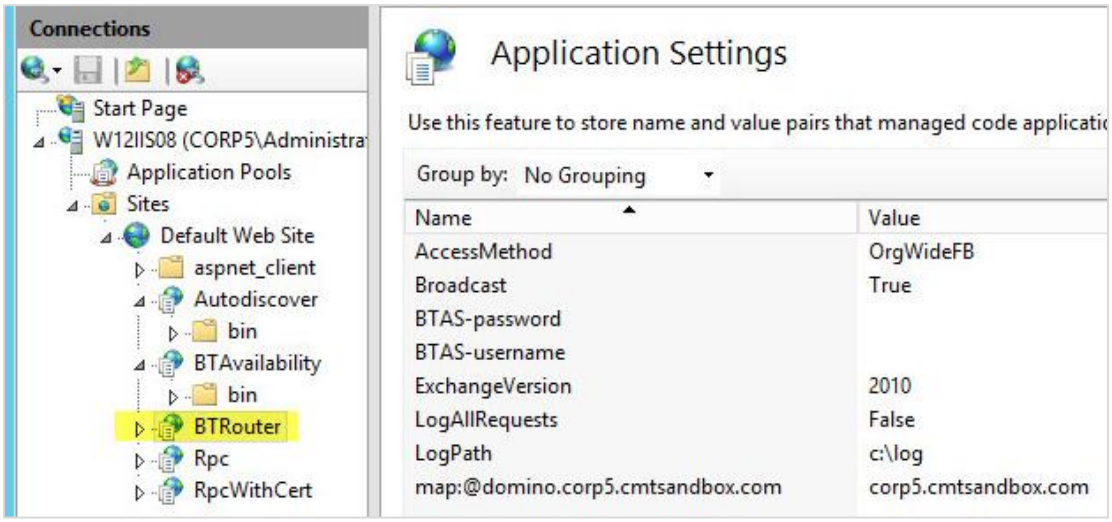
iv. A less common map entry is illustrated below and is not recommended to be installed without Binary Tree assistance; these settings are used in environments that wish to use Free/Busy lookups based on Domino **shortname** only:



NOTE ! Domino shortname-only lookups are also supported but for this type of installation it is recommended that you contact a Quest consultant.

v. If using these optional log settings, verify the following:

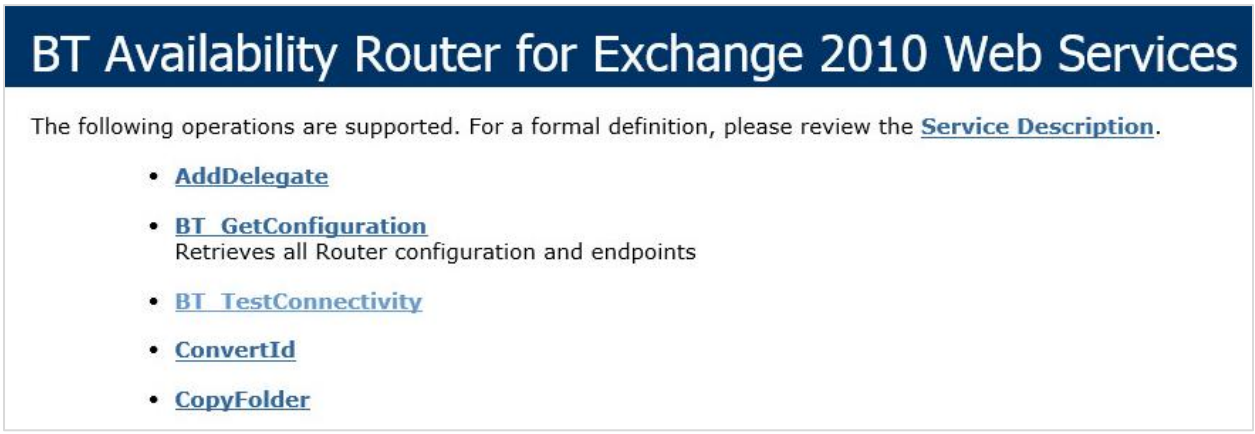
- LogAllRequests = False
- Log path = c:\log\btrouter (must be an existing directory, create if needed)



6. Close the IIS Manager
7. If any changes were made in steps 1-5, open a command prompt and run **iisreset**
8. Open Internet Explorer and navigate to the following virtual directory:
   https:// autodiscover.domino.contoso.com/BTRouter/Exchange.asmx

   NOTE ! Ensure that the host name is listed as part of the SAN of the SSL certificate.

9. The **BT Availability Router for Exchange 2010 Web Services** page should appear:



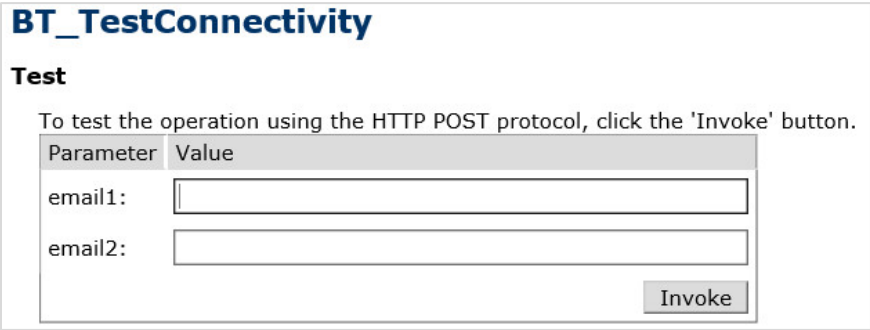
10. Click **BT_GetConfiguration**
11. On the page that loads, click **Invoke;** an XML response with the correct endpoint for this machine should display in the browser:

    a. If UNREACHABLE appears under the Domino endpoint URL, verify the Domino Availability Service endpoint. You should be able to reach the Domino service endpoint using the browser.

    b. Return to **Application Settings** in IIS and update the endpoint with the proper URL

```
<?xml version="1.0"?>
- <RouterConfiguration>
    <settings broadcast="True" logging="False" logpath="c:\log"/>
  - <Configuration Version="2010">
      <Guid>{BAE9A9AA-46BA-4ff9-9FE0-0A7FE661EDAE}</Guid>
      <Name>BTAvailability Router for Exchange</Name>
      <Technology>Microsoft Exchange Web Services 2010</Technology>
      <Machine>W12IIS08</Machine>
      <Endpoint Version="[redacted].21" type="EWS"/>
      <AccessMethod>OrgWideFB</AccessMethod>
    </Configuration>
  - <Configuration type="">
      <Domain/>
      <Provider>NOTES</Provider>
      <Connection>https://[redacted].com/BTAvailability</Connection>
      <Guid>{B03CFFCF-01A0-42BF-97BE-D070B592478E}</Guid>
      <Name>BTAvailability Service for Domino</Name>
      <Technology>Lotus Domino 8.5+</Technology>
      <MaxDaysQueryable>180</MaxDaysQueryable>
      <Machine>W12DOMX64-901</Machine>
      <Endpoint type="ALT">https://W12DOMX64-901/btws.nsf</Endpoint>
    </Configuration>
</RouterConfiguration>
```

12. Return to the original **BT Availability Router** screen
13. Click **BT_TestConnectivity**
14. Enter email addresses for two valid Domino users (e.g. *james@domino.contoso.com* and *daniel@contoso.com*)



15. Click **Invoke**; you should see a string representation the Free/Busy stream for each user for the current day

12.2 FreeBusy Client Validation Matrix

12.2.1 Create Test Accounts

Prior to performing the validation in the attached Excel spreadsheet, first create two Notes and two Outlook test accounts (or use existing accounts):

- The Notes users should reflect a typical end user with a similar client, mail template and mail server
- The Outlook client should match that of a typical end user

Section 13. Ongoing Administration

Operations

Basic Operational Information

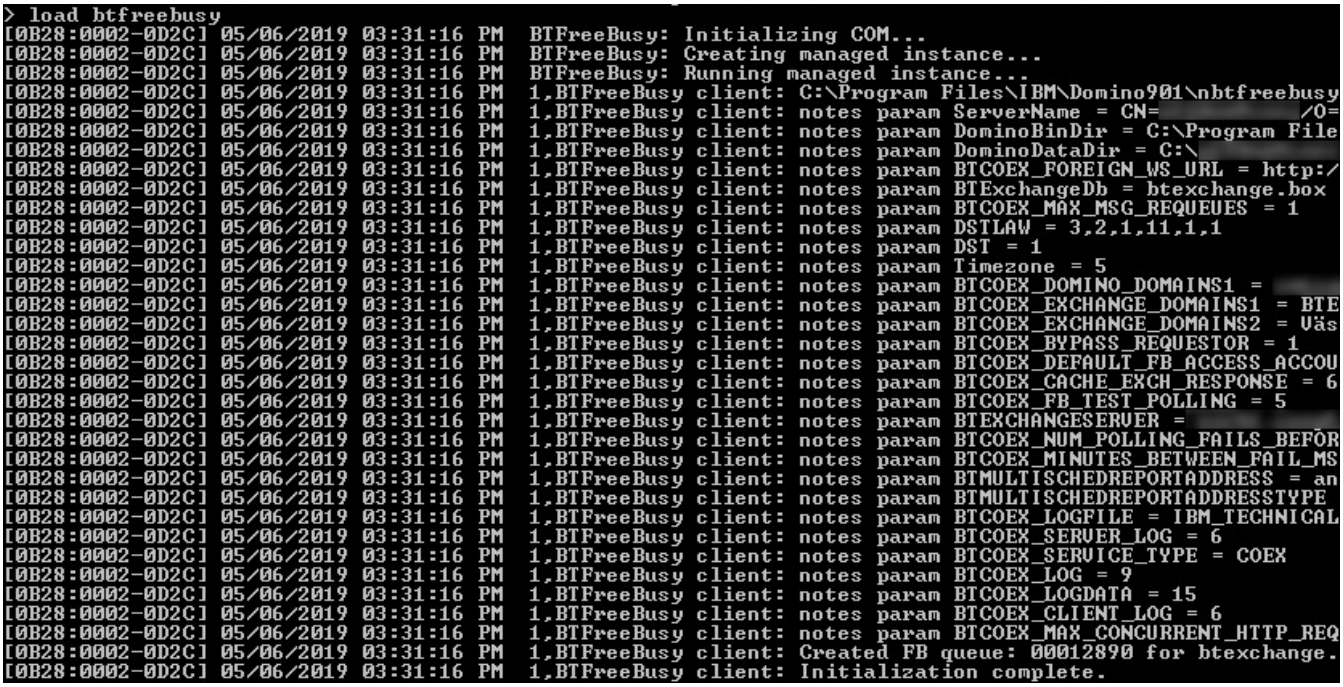
This section covers some common commands that can be run on the Domino Coex server console to determine FreeBusy's status.

The BTFreebusy server task is invoked by a simple load command or by its inclusion in the list of the ServerTasks parameter values in the Domino Coexistence Server's NOTES.INI file.

Start the server task manually by using the following command:

Domino Coex Server Console
load BTFreeBusy

After the BTFreeBusy server task is loaded, your console should return something like this:



The BTFreebusy server task accepts the following Domino console commands:

Command	Description
tell BTFreebusy quit	Quits the BTFreebusy task
load BTFreebusy	Starts the BTFreebusy task

Maintenance items

The articles below are Binary Tree's recommended maintenance procedures for your Integration for Notes environment. If you click one of the links below but do not have access to the Binary Tree Zendesk portal, click **Sign up** on the *Sign in to Binary Tree Knowledge Base* web page.

A list of maintenance Knowledgebase articles

https://binarytree.zendesk.com/hc/en-us/articles/360026910512-FB-A-list-of-maintenance-KB-articles-

Recreation of the Domino free time database

https://binarytree.zendesk.com/hc/en-us/articles/360026909732-FB-Recreation-of-the-Domino-free-time-database

Backing up your FreeBusy setup before an upgrade

https://binarytree.zendesk.com/hc/en-us/articles/360027193971-FB-Backing-up-your-Freebusy-setup-before-an-upgrade

Troubleshooting issues

Account Expiration

If the BTAvailability test page fails, this is likely due to the BTFreeBusy account's Active Directory password expiring. To resolve this issue, after the AD password has been reset, go to the SetFBCred tool and update the password within FreeBusy. See the SetFBCred Utility appendix for more information.

Troubleshooting FreeBusy on the Domino Coex Server

To enable logging:

1. Change the following values in the Notes.ini file on the Domino Coexistence server:
   - BTCOEX_LOG=8
   - BTCOEX_LOGDATA=15
   - BTCOEX_SERVER_LOG=6
   - BTCOEX_CLIENT_LOG=6
2. To start logging, save the Notes.ini file and restart the Domino Coex server:
   - FreeBusy logs are stored in the <*Domino program directory*>*logs* folder
     - BTServer.log contains information about FreeBusy requests from Exchange to Domino
     - BTClient.log contains information about FreeBusy requests from Domino to Exchange
3. To test Domino to Exchange FreeBusy connectivity:
   - At the Domino Coex server console, enter the following command:

     PowerShell

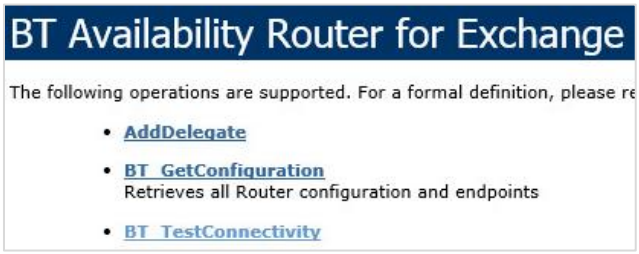
     ```
     tell btfreebusy test <any valid Exchange user's SMTP address>
     ```

   - When the FreeBusy lookup completes, search the BTClient.log for "error"

4. To test Exchange to Domino FreeBusy connectivity:

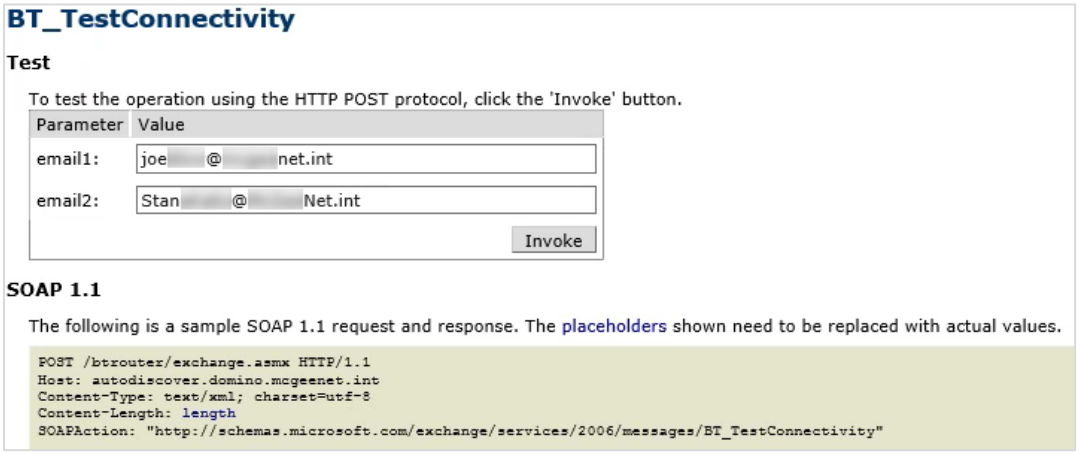
   - On the Windows Coex server, open a web browser and go to the **BT Availability Router** test page to request any valid Domino user's Free/Busy time:

     "http://autodiscover.domino.<your Domino Domain>/btrouter/exchange.asmx"



   - From the list of options, click on **BT_TestConnectivity**

     - Enter valid Domino users in the **email1** and **email2** textboxes and click **Invoke:**



   - When the FreeBusy lookup completes, search the BTServer.log for "error". (If the problem is connectivity related, there will not be any request logged in BTServer.log.)

Network Connectivity

Free/Busy and Scheduling processing is time sensitive for both Notes and Outlook. Network connectivity delays can cause intermittent performance of FreeBusy and Schedule look ups in Outlook and Notes.

The FreeBusy logs can be checked for requests being made and returned to either Domino or Exchange / Office 365.

In the event that there are network delays causing intermittent failures the network connections between the Domino Integration server, Windows IIS Integration Server and the target Exchange Server or Office 365 tenant should be verified. Binary Tree support does not cover networking validation or network device checks, these should be completed by the customer networking team with the relevant network device vendor support for routers, firewalls and load balancers if used.

Useful Knowledgebase Articles

Troubleshooting Knowledgebase Articles:

https://binarytree.zendesk.com/hc/en-us/articles/360026910632-FB-A-list-of-troubleshooting-KB-articles

BT FreeBusy end to end check:

https://binarytree.zendesk.com/hc/en-us/articles/360027192331-BT-FreeBusy-end-to-end-check

FB: BT FreeBusy troubleshooting steps

https://binarytree.zendesk.com/hc/en-us/articles/360026909172-BT-Freebusy-troubleshooting-steps

FB: Debug and Logging

https://binarytree.zendesk.com/hc/en-us/articles/360027193211-FB-Debug-and-Logging

FB: How to view FreeBusy for a restricted Domino Room/Resource

https://binarytree.zendesk.com/hc/en-us/articles/360025302631-FB-How-to-view-Freebusy-for-a-restricted-Domino-Room-Resource

Appendix A. Adding a Root Trusted Signed Certificate to the FreeBusy Operating System(s)

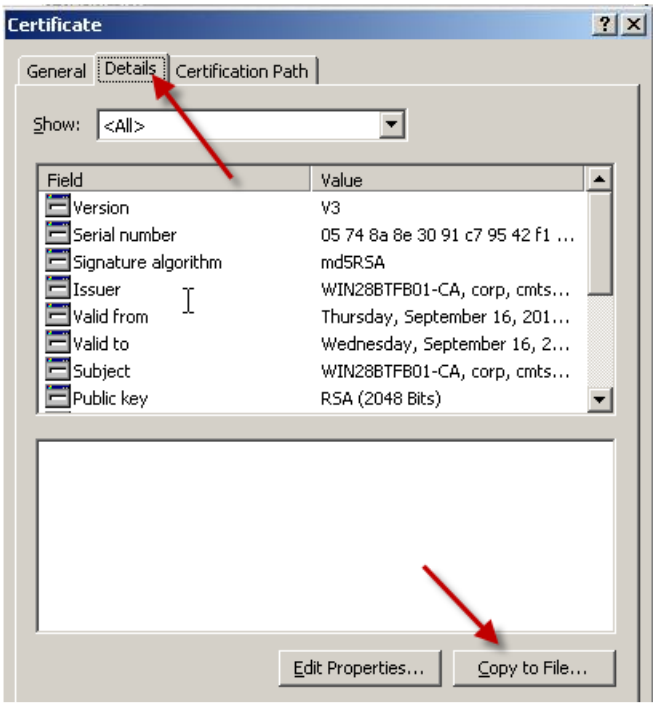
Free/Busy requests that are coming from Exchange go through Domino's HTTP task, which fully supports SSL when properly configured. You can refer to the Domino Administrator help or HCL support for configuration steps.

Free/Busy requests going to Exchange cannot be made using Domino's HTTP task, so the BTFreeBusy task is used. If, on the Domino Coex server, you are able to open Internet Explorer and access the Windows Coex server root site without any SSL error, BT FreeBusy is configured correctly.

1. From the server, open Internet Explorer and browse to the Windows Coexistence Server via the HTTPS protocol:
    - *https://autodiscover.domino.<YourSMTPDomain.com>/*
2. Click on the lock icc https:// on the browser bar, and then select **View certificates**:

3. Next, click on the **Certification Path** tab, the root certificate signer, and then click **View Certificate**:

4. When the root certificate is open, click on the **Details** tab, and then click **Copy to File**:



NOTE !

It is assumed that the installer knows how to install the SSL certificate on the Domino and Windows Coex servers.

The Domino SSL certificate will need to be added to the Certificate Store on the Windows Coexistence server.

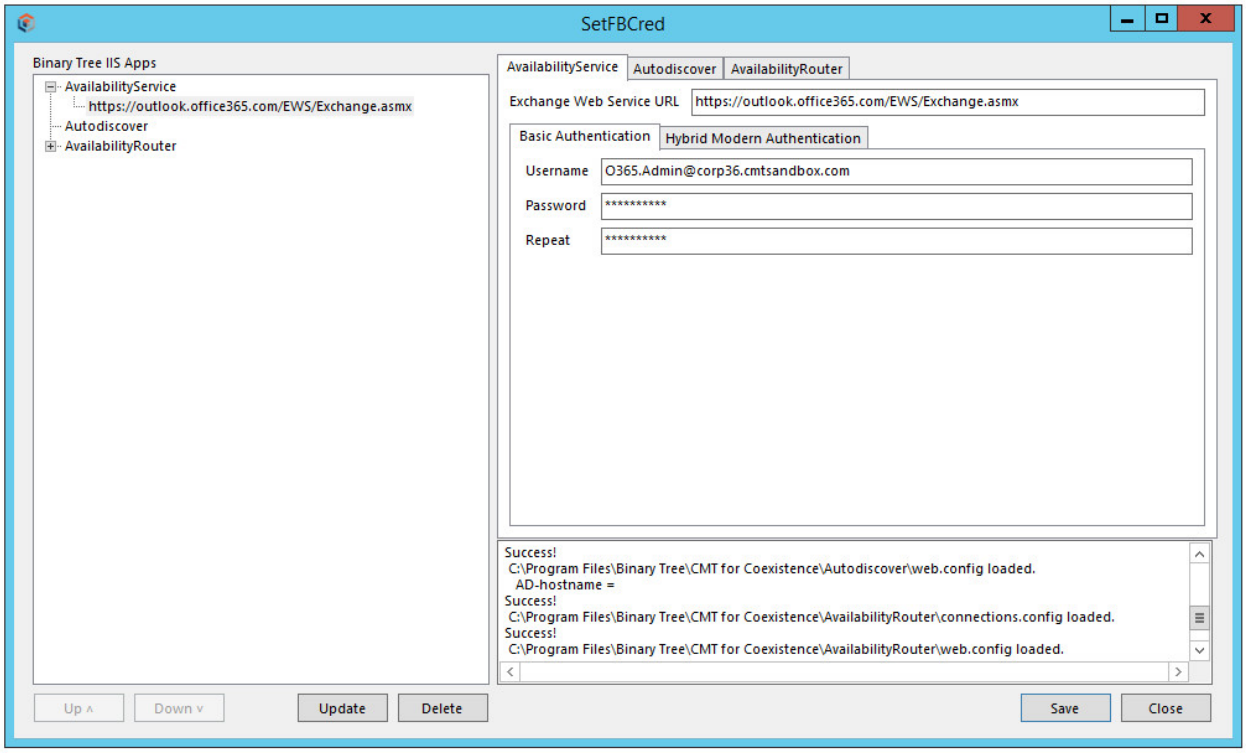
Appendix B. SetFBCred Utility

The SetFBCred utility is used to configure the credentials for the three FreeBusy IIS components: AvailabilityService and AvailabilityRouter.

The SetFBCred utility should be run from the *C:\Program Files\BinaryTree\CMT for Coexistence\AvailabilityService\bin* directory.

AvailabilityService

If Exchange Web Services are configured to require a username and password to access FreeBusy information, the AvailabilityService must supply those credentials on each request. Select the entry under AvailabilityService in the pane on the left to populate the BTAvailability tab:

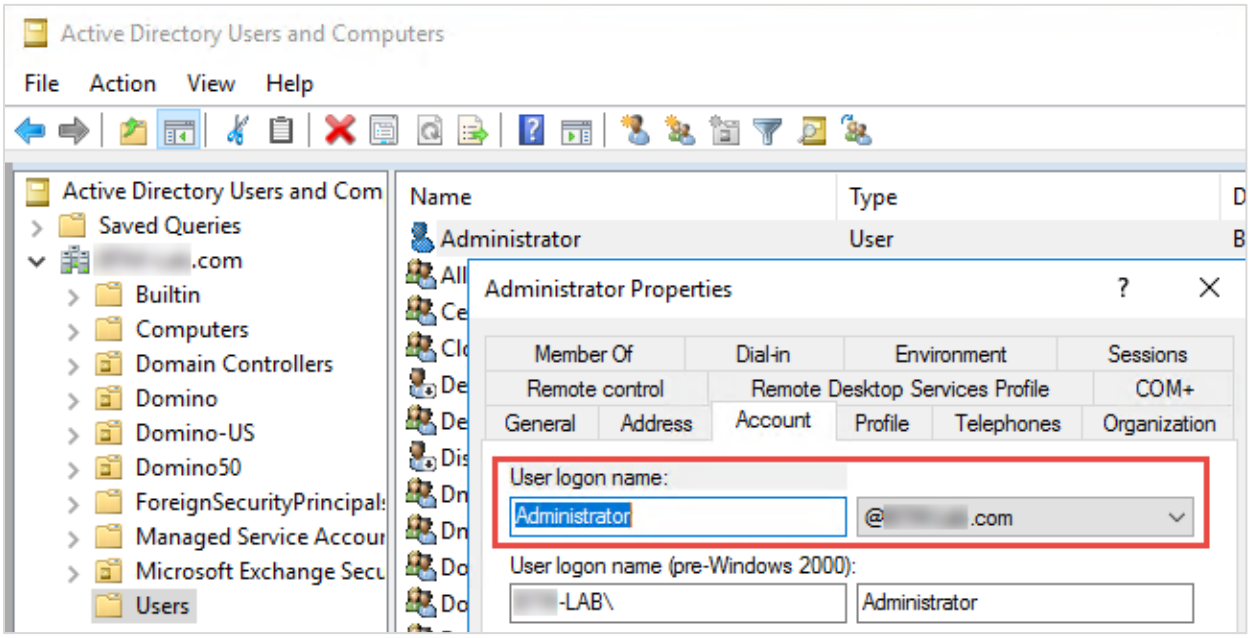


After making changes, click **Update;** the config files will only be updated when you click **Save**

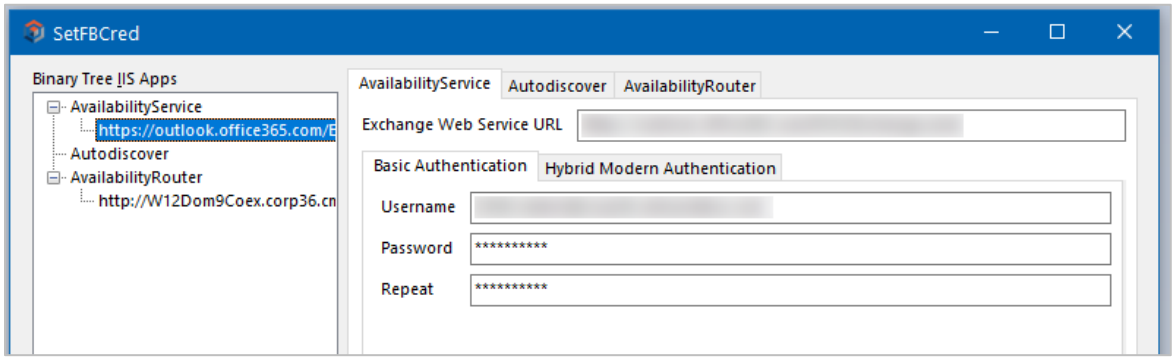
The user name is the FreeBusy user's AD login (not necessarily the actual email address) as seen below:

- FreeBusyAdmin@myADDomain.com

The pre-Windows 2000 format may also work, but the user@domain format is recommended.



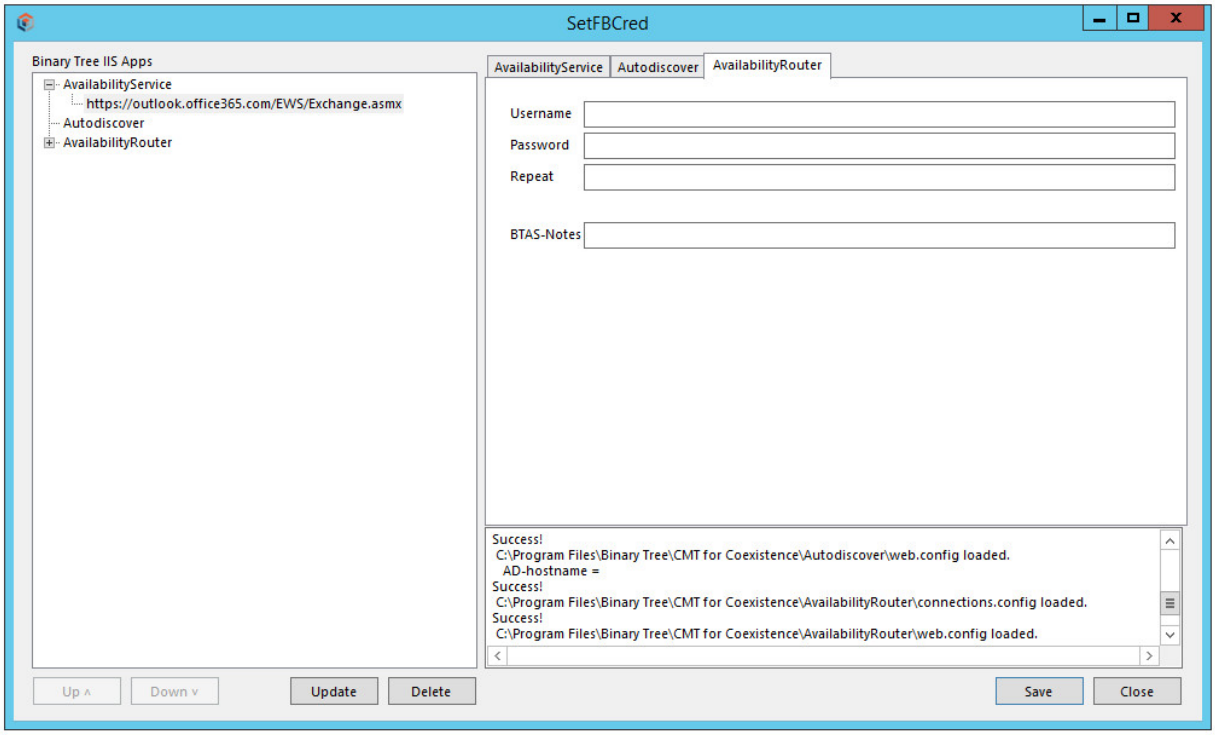
To confirm that you have the right password, start a new instance of Internet Explorer on the Windows Coex server and go to the EWS URL listed in the AvailabilityService connection settings. This will produce a login challenge where you can try out the password.



AvailabilityRouter

If the Domino requires a username/password for FreeBusy queries, the AvailabilityRouter must supply those credentials on each request. Select the entry under AvailabilityRouter in the tree on the left to populate the BTRouter tab.

NOTE ! The Username must belong to a Notes user who is listed in the ACLs of the btws.nsf.



Appendix C: Enable Modern Authentication

Hybrid Modern Authentication is distinct from Basic Authentication (username and password in Section 6.1.3)

Enabling the use of Modern authentication will replace the configuration in Section 6.1.3 for Basic Authentication. If the Hybrid Modern Authentication tab is populated this will override the Basic Authentication and FreeBusy will always use the Hybrid Modern Authentication details.

Basic Authentication is typically used on-premises, and Hybrid Modern Authentication is typically used with Office 365/Microsoft 365.

Both authentication schemes require the Exchange Web Services URL.

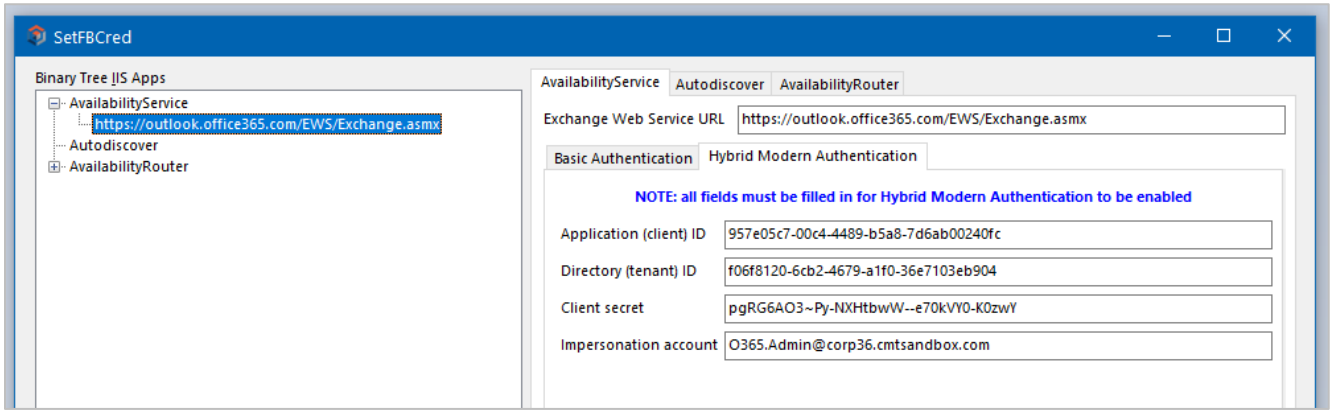
Configuring Availability Service:

Hybrid Modern Authentication requires an App registration to connect to Exchange Web Services.

Four items are required for configuration and can be taken from the App registration process which is explained below.

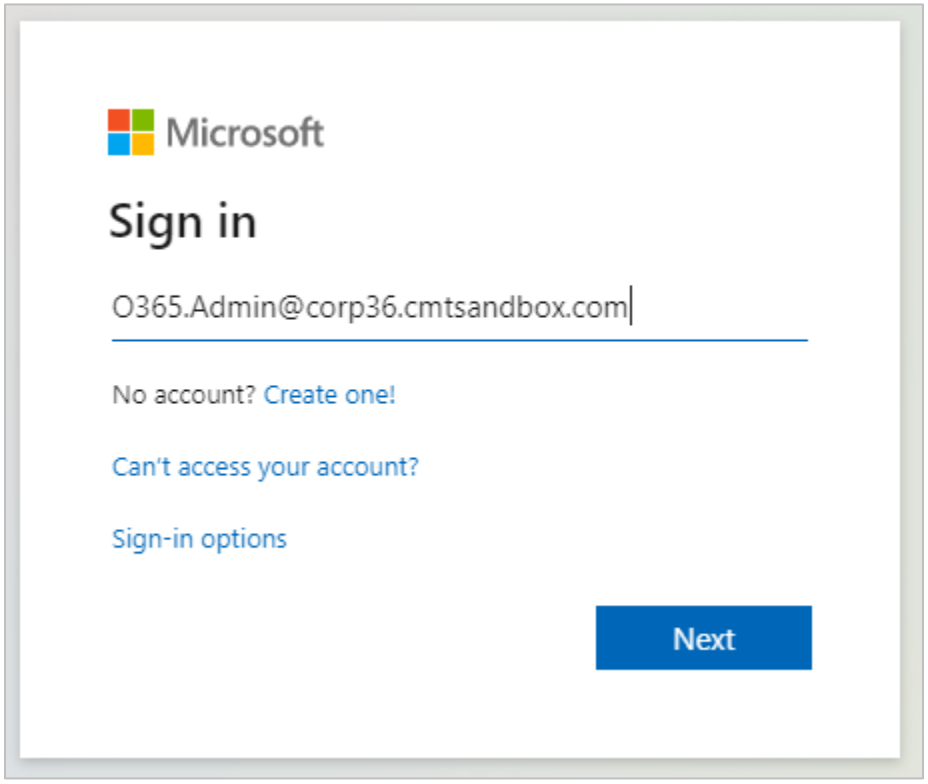
These four items are:

- Application (client) ID – this is the App registration that will be created
- Directory (tenant) ID – this is the tenant ID that FreeBusy will access for migrated accounts
- Client secret – this is the secure access secret created for the App registration
- Impersonation account – this is the tenant account that will be used for accessing scheduling information (eg BtFreeBusy@tenant.onmicrosoft.com). This account will require a mailbox.

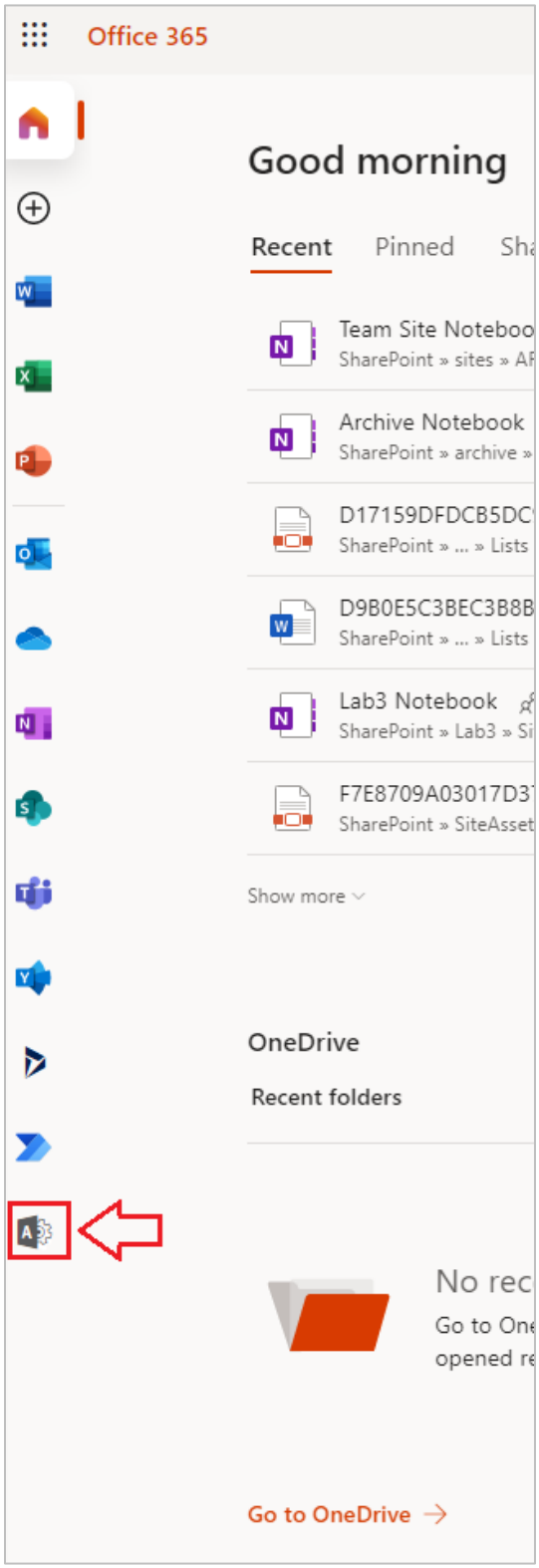


Configuring an Azure AD App Registration:

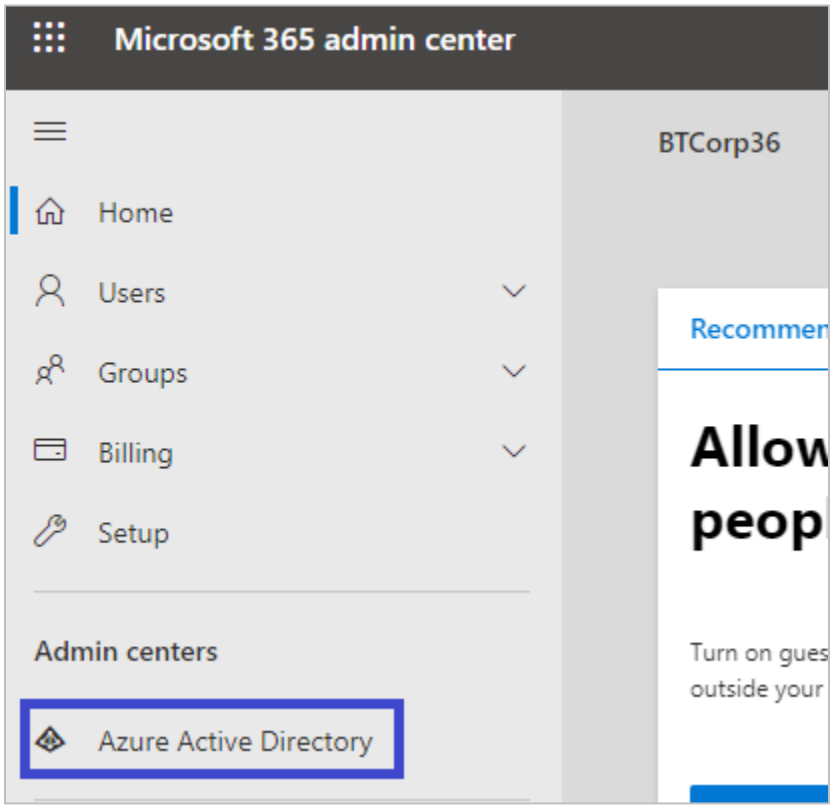
First, navigate to the Office administration portal at https://portal.office.com and sign in with an admin account:



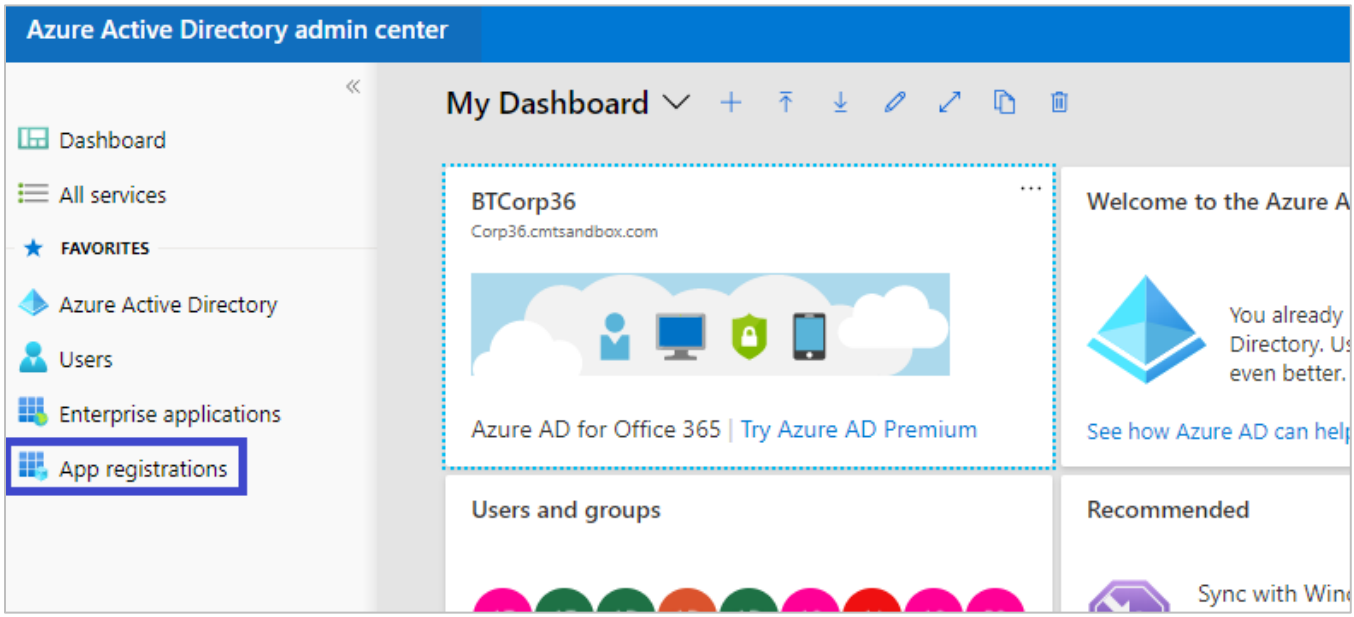
After signing in, click on the **Admin** button:



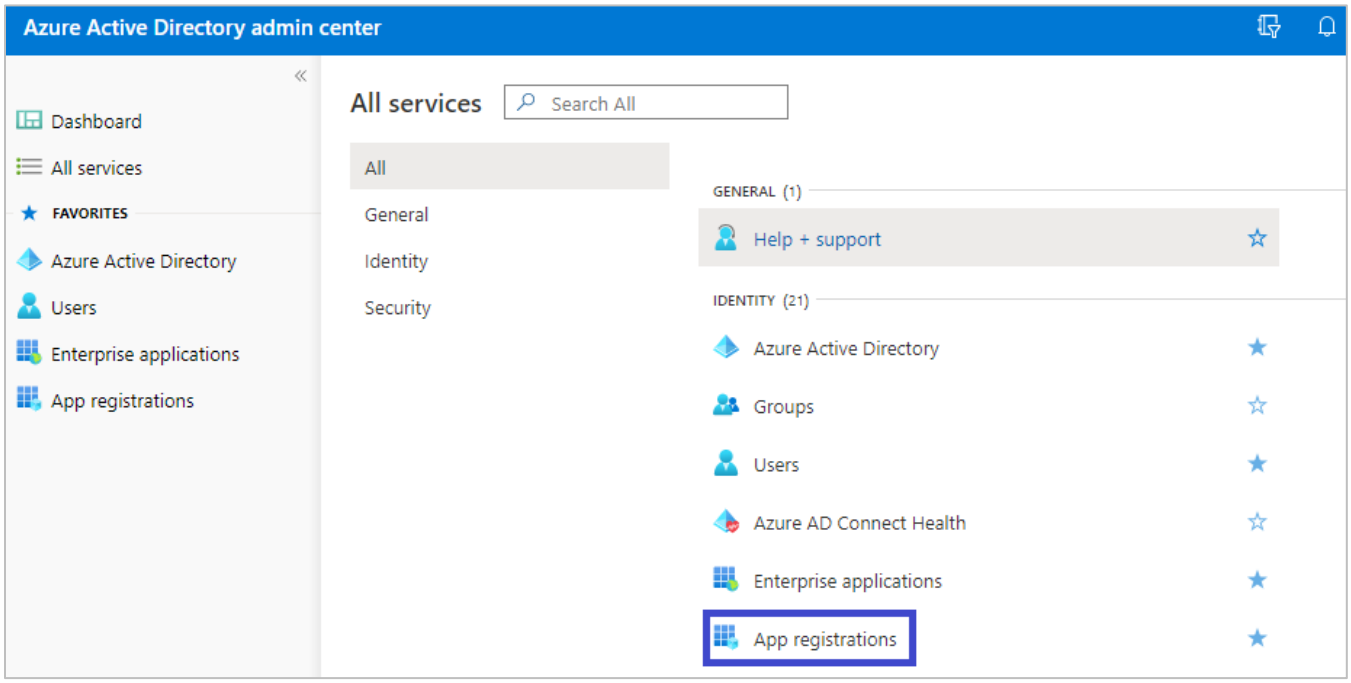
This takes you to the admin center for your Office 365 instance (already rebranded for Microsoft 365):



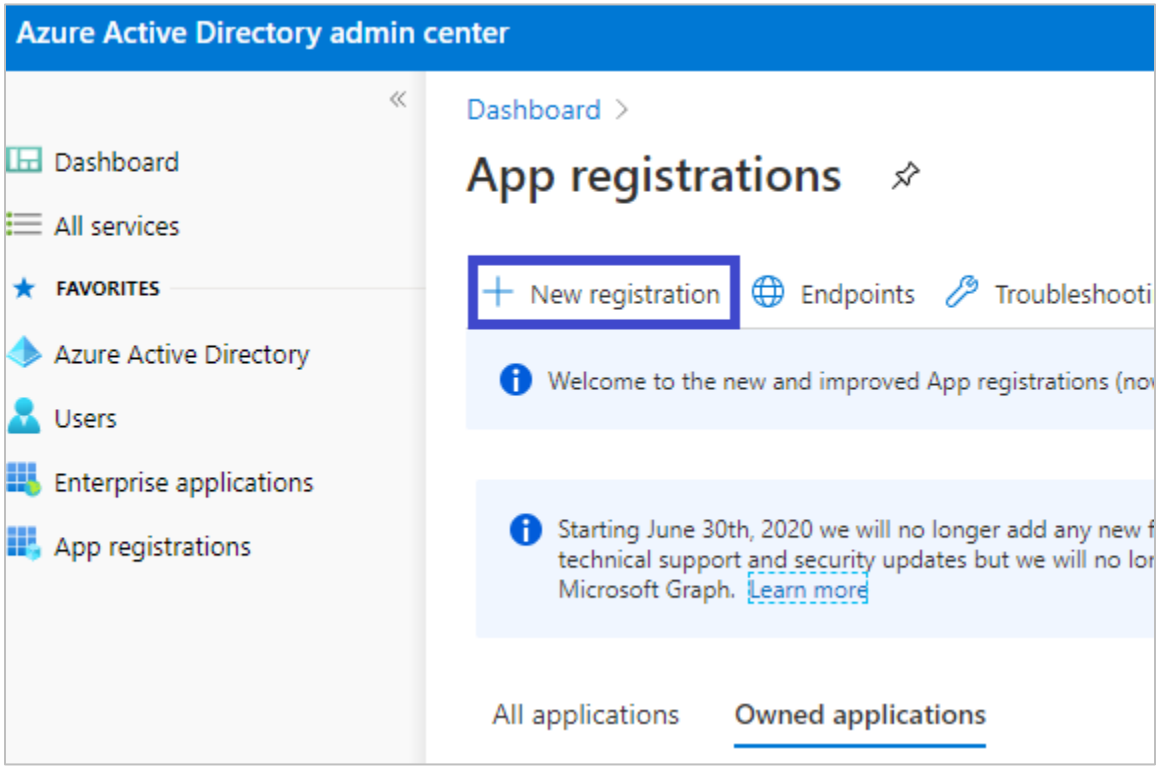
Click on the **Azure Active Directory** button to go to yet another admin page, this time for Azure AD for the instance:



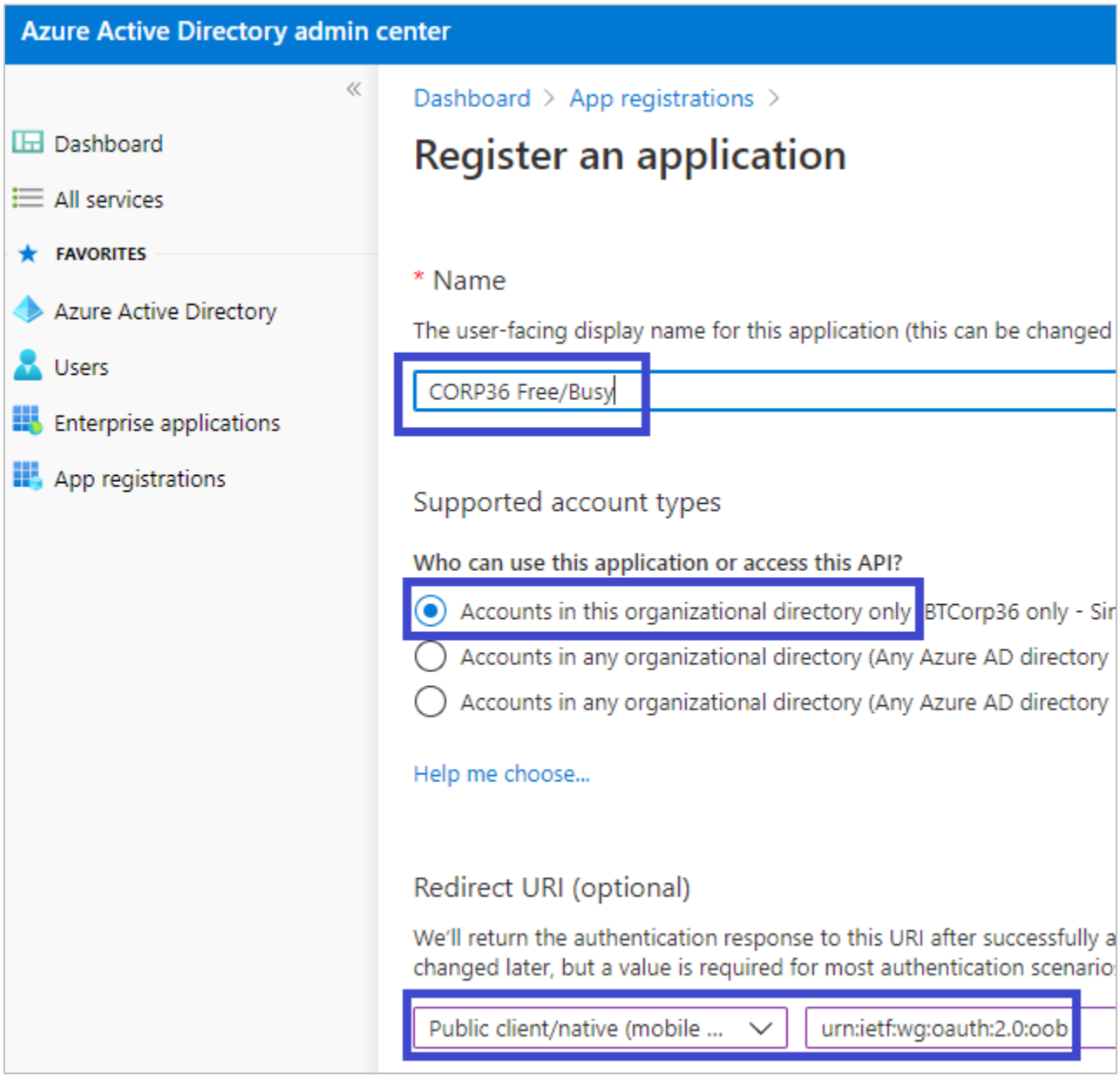
Click on the **All services** button to list the services, one of which is **App registrations**:



Click on the **App registrations** button and you get here:



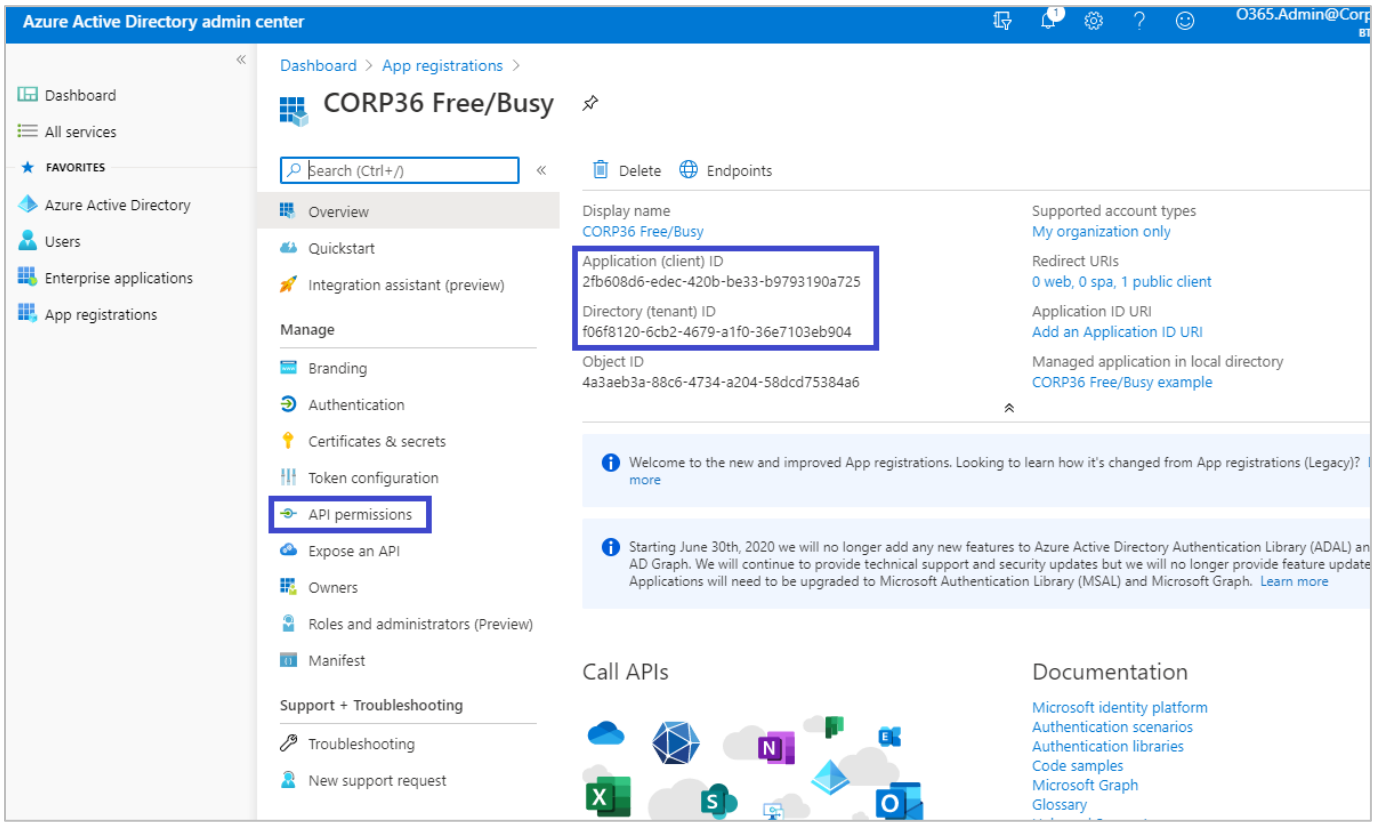
Click on the **New registration** button to load the following interface:



Set an appropriate **Name** (e.g. **BTIntegration**) and **Supported account types**. In the **Redirect URI** section, select **Public client/native (mobile & desktop)** and set the URI to:

urn:ietf:wg:oauth:2.0:oob

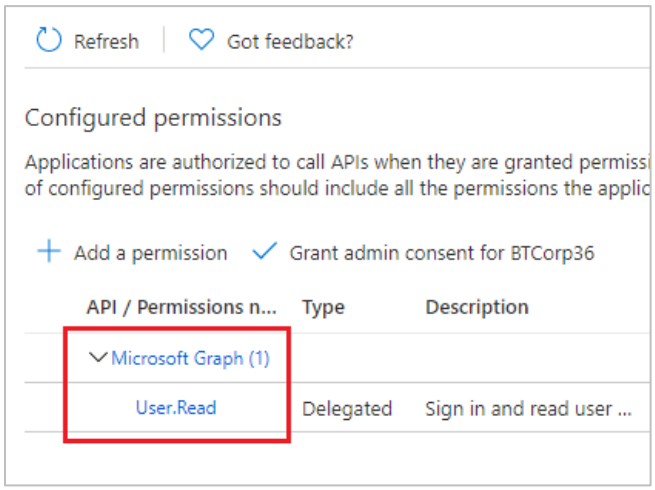
Next, click the **Register** button. Notice two of the four items needed for configuration, the **Application (client) ID** and the **Directory (tenant) ID**:



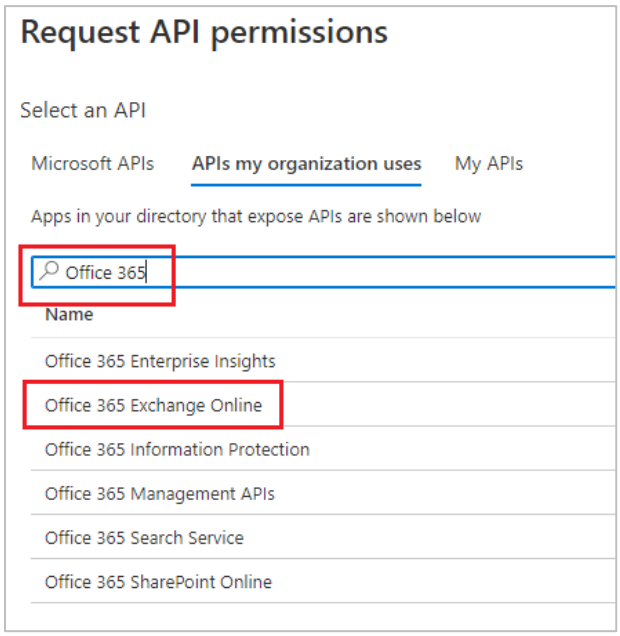
Notice when hovering over these two values, a copy icon will appear to copy the values with a single click:

Click this icon to copy the values before continuing.

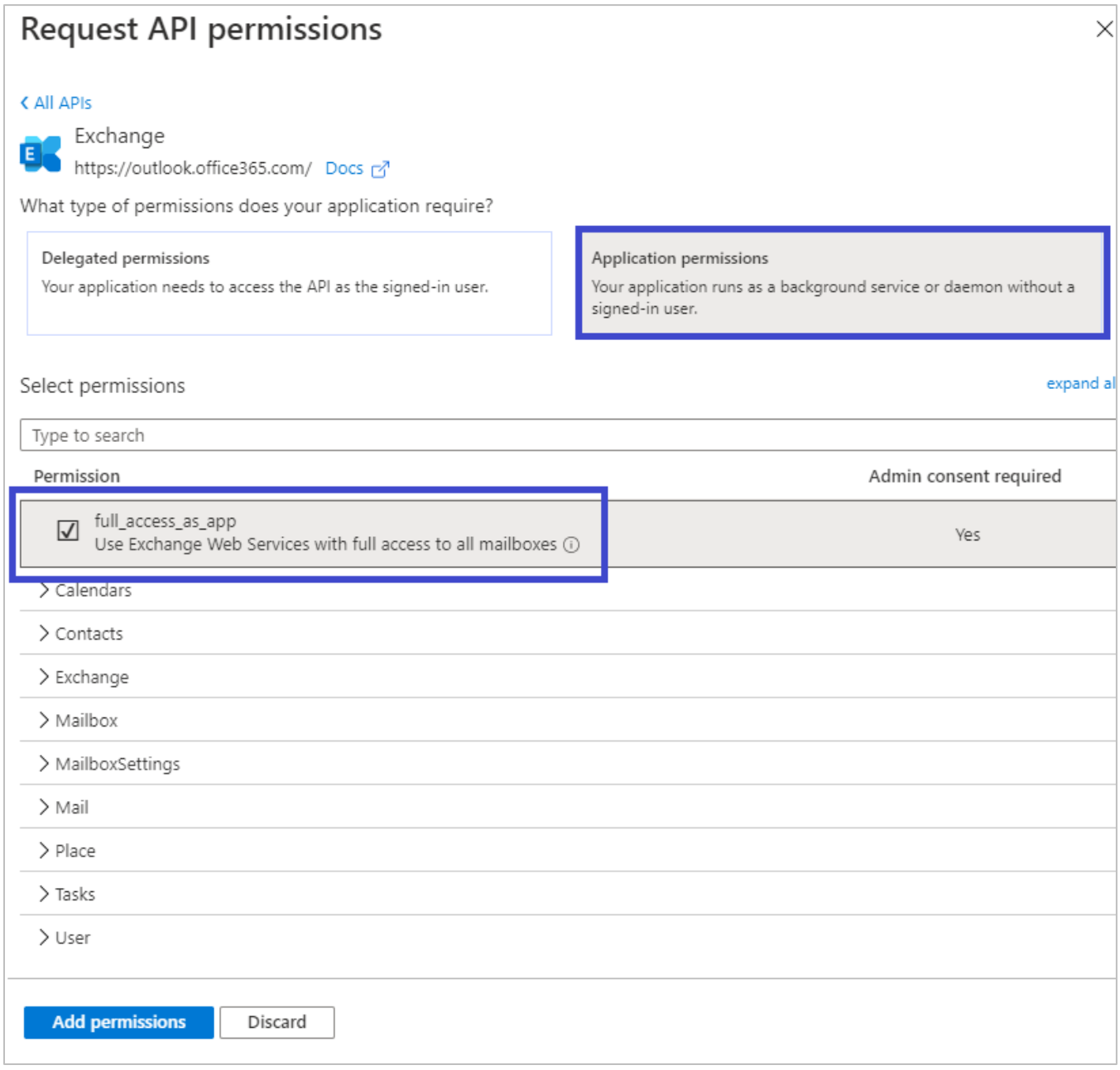
Click on the **API permissions** button and click on **Add a permission.** Microsoft's default permission for the Microsoft Graph API will appear.



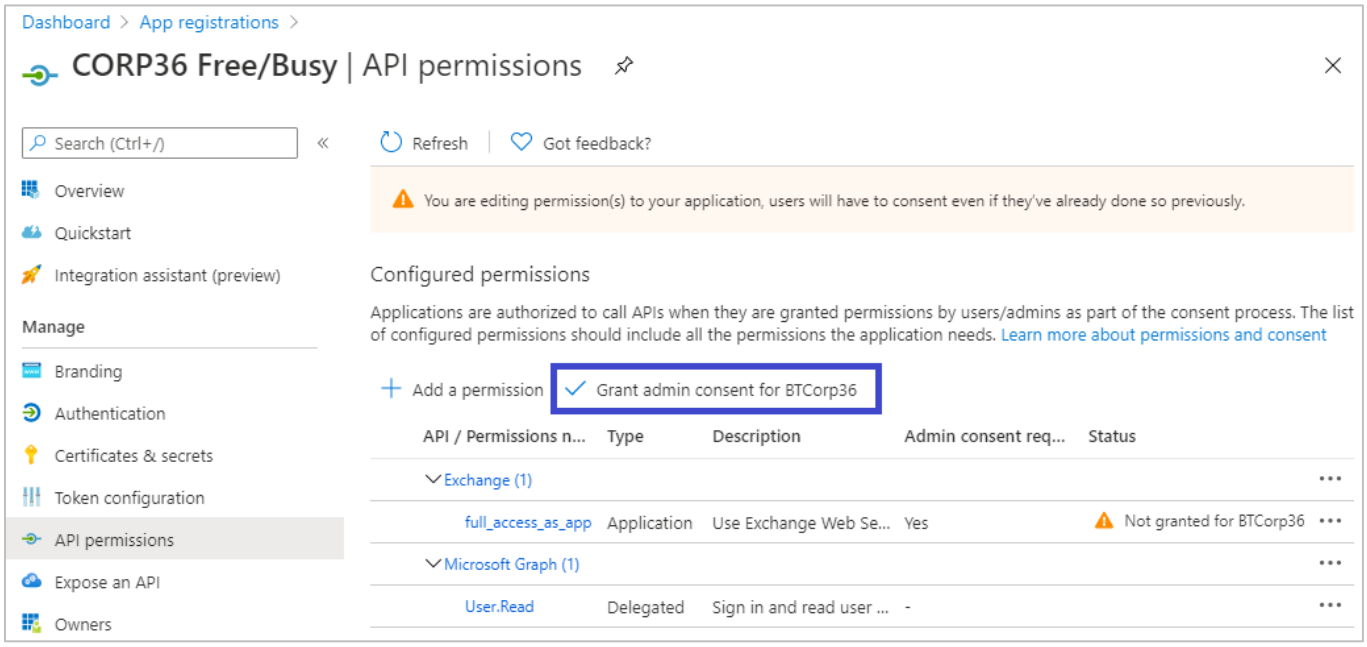
After adding an API permission, click APIs my organization uses, type in Office 365, and select Office 365 Exchange Online:



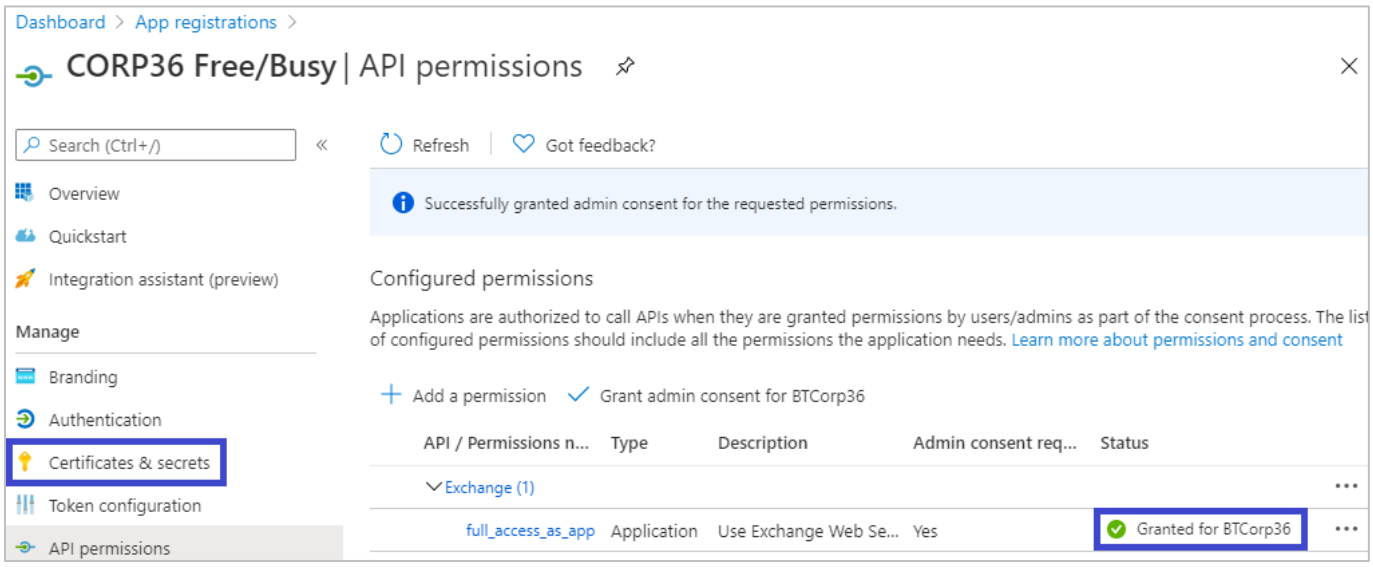
In the next screen, select **Application permissions**; check the **full_access_as_app** box, and click **Add Permissions**:



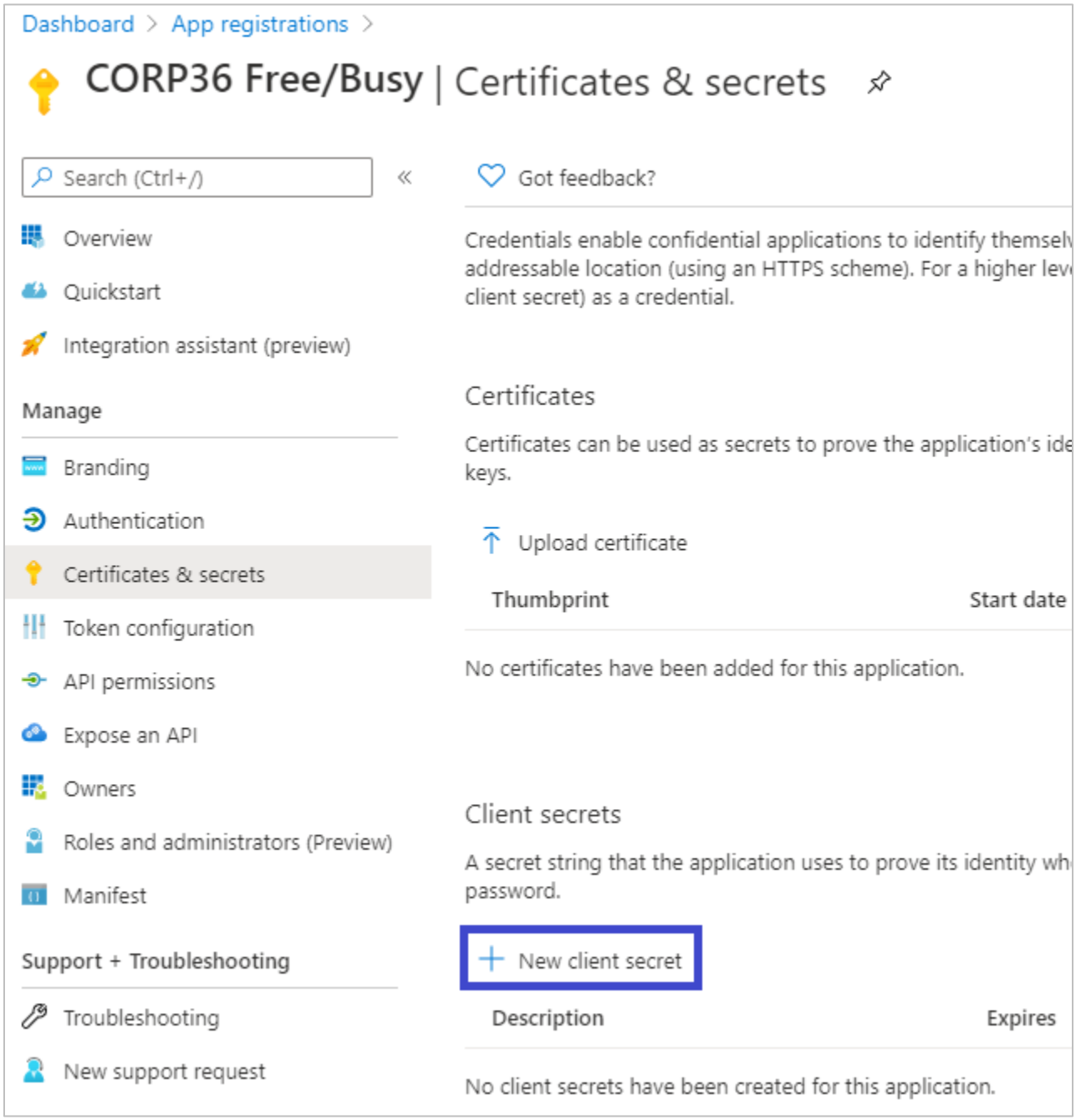
Back in the API permissions screen, click the **Grant admin consent for BTCorp36** checkmark button:



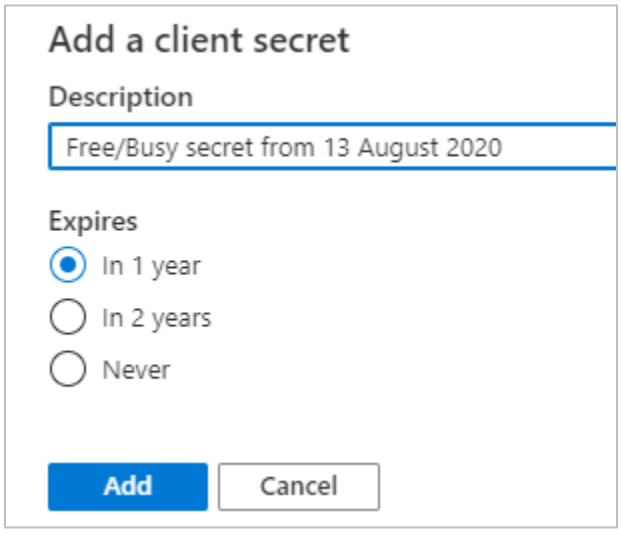
When the admin consent is granted, a green checkmark for the API permissions will appear. Now, click on **Certificates & secrets** in the **Manage** menu on the left:



In the **Certificates & secrets** screen, click on the **New client secret** button:

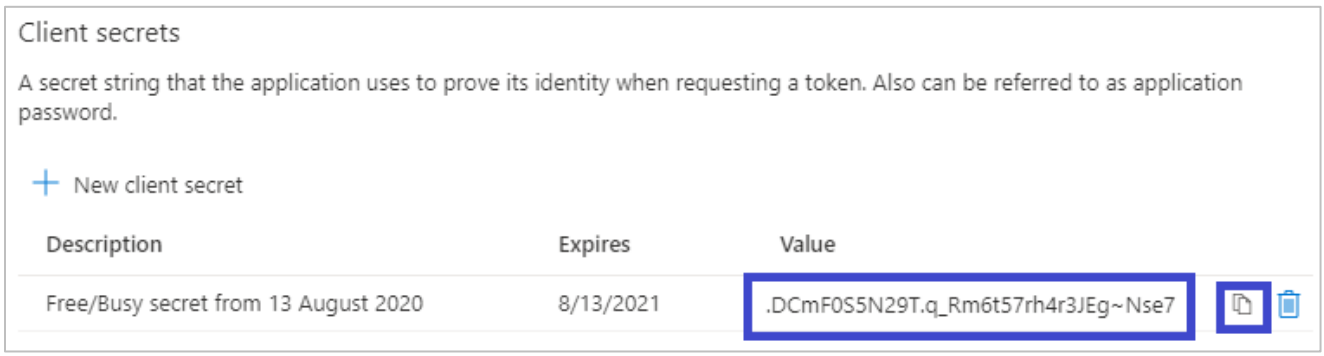


Give the secret a description and an expiration and click the **Add** button:



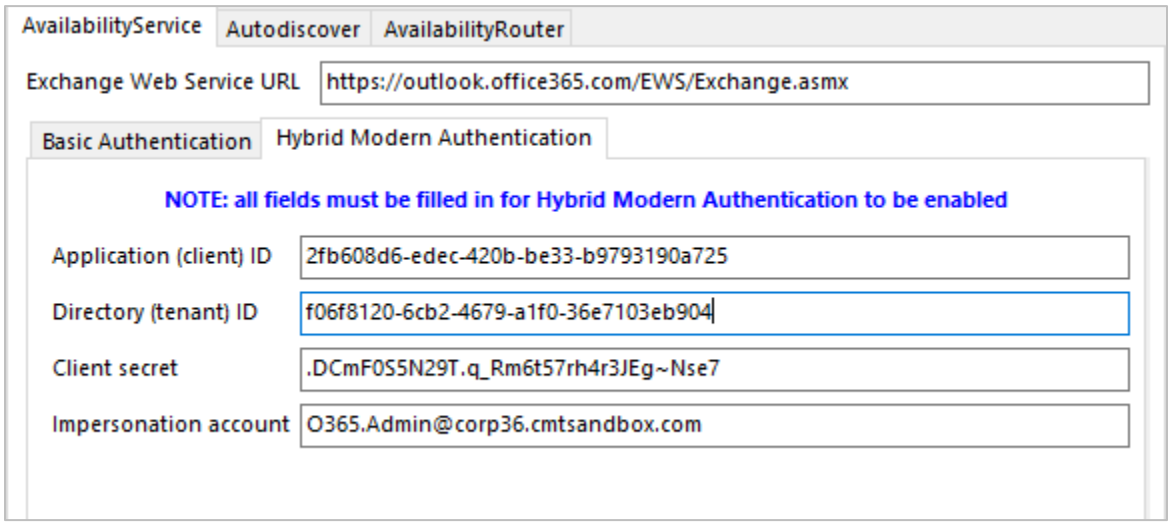
NOTE ! If the option to use 'Never' is used, then the secret will not expire. If either of the other options are chosen, then FreeBusy will stop working once the expiration time is reached and a new secret will need to be created and entered in *Set FB Cred*.

Now you have the third item, the client secret. Click the copy icon and save the client secret wherever you saved the application ID and directory ID:



NOTE ! The Client Secret must be copied when it is created. This cannot be accessed after creation. If the secret is not copied then it would need to be deleted and recreated.

Now you should be able to plug all these values into **SetFBCred** for the **AvailabilityService**, save the configuration, restart Free/Busy, and you should be using modern authentication:



Enable TLS 1.2 Connectivity

The Integration for Notes Free Busy process does support TLS 1.2. This requires the Windows Operating System to have recent patch updates and TLS 1.2 enabled on the Windows Server that hosts IIS along with Windows Server that hosts the Domino server for the FreeBusy deployment.

Valid Internet Certificates are required for the target system, self-signed certificates are not supported.

The target system should also support TLS 1.2 connections. If TLS 1.2 is enabled for FreeBusy but the target system does not have this enabled then the FreeBusy processing will fail. For support to configure TLS for IIS or Exchange a case should be raised with Microsoft, for Domino a case should be raised with HCL.

Exchange On Premis may not have TLS 1.2 enabled by default. This does require a recent Cumulative Update for Exchange (CU9 for 2016, CU19 for 2013). For assistance validating Exchange configuration please contact Microsoft Support.

Windows Operating System Registry Updates:

[HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion\Internet Settings\WinHttp]

“DefaultSecureProtocols”=Set the DWORD value to 800 for TLS 1.2.

[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\.NETFramework\v4.0.30319]

"SchUseStrongCrypto"=dword:00000001

[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\.NETFramework\v4.0.30319]

"SystemDefaultTlsVersions"=dword:00000001

[HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\.NETFramework\v4.0.30319]

"SchUseStrongCrypto"=dword:00000001

[HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\.NETFramework\v4.0.30319]

"SystemDefaultTlsVersions"=dword:00000001

Appendix D. Notes.ini File Parameters

The Notes.ini parameters required to configure FreeBusy are listed **in blue**, below:

BTCOEX_BYPASS_REQUESTOR

Accepted value = 0/1

Default = 0

This setting must be set to 1.

When set to 1, Exchange requests will use the credentials supplied by the BTCOEX_DEFAULT_FB_ACCESS_ACCOUNT parameter (described below). This is useful when Exchange is not supplying the user ID because it is set to OrgWideFB.

BTCOEX_DEFAULT_FB_ACCESS_ACCOUNT=<SMTP address>

The account specified will provide the access used by the entire Exchange organization for querying the Domino Availability Service. This account must be a Domino user with the Domain value set to the Foreign Domain in the Administrator Pre-install Checklist. This account must be allowed to see FreeBusy information for all users in the Domino environment.

BTCOEX_APPROVED_CALLERS=<IP addresses>

This comma separated list of IP addresses restricts the source of Free/Busy requests that will be processed by Domino FreeBusy. Legitimate requests would only come from servers known to the BT Coexistence install and trusted to have performed all necessary authentications prior to allowing OrgWideFB requests (e.g., 127.0.0.1,192.168.0.1).

Not providing a list of IP addresses for this setting is a potential security risk as the server would allow requests to come from any source.

BTCOEX_CACHE_EXCH_RESPONSE

Accepted value = *<number of seconds to cache the response>*

Default = 60

This command should be set in the Notes.ini; you can, however, manually set the FreeBusy caching, on-the-fly, using the following Domino console command:

tell btfreebusy cache n

n is the number of seconds to cache the response; 0 is also a valid value.

To turn the Exchange FreeBusy caching feature off, set the BTCOEX_CACHE_EXCH_RESPONSE parameter to a value of zero.

In addition, you may use the BTCOEX_DONT_CACHE_EXCH_RESPONSE parameter to turn the Exchange FreeBusy caching feature off. Specify 1 to indicate that the default value of 60 seconds should not be used.

BTCOEX_EXCHANGE_DOMAINS and BTCOEX_DOMINO _DOMAINS

Invitees in a Free/Busy request going to Exchange must be in a domain listed in the Notes.ini BTCOEX_EXCHANGE_DOMAINS variable.

Invitees in a Free/Busy request going to Domino must be in a domain listed in the Notes.ini BTCOEX_DOMINO_DOMAINS variable.

The following two Notes.ini variables are required (the below values are examples only):

- BTCOEX_DOMINO_DOMAINS=BinaryTree,BTCMT,Domino
- BTCOEX_EXCHANGE_DOMAINS=BinTreeEX,BTExchange,Exchange

FreeBusy checks requests coming from Exchange to make sure they are asking about users in the BTCOEX_DOMINO_DOMAINS.

FreeBusy checks requests going to Exchange to make sure they are asking about users in the BTCOEX_EXCHANGE_DOMAINS.

This is done to prevent an infinite loop of Free/Busy requests between the Exchange and Domino servers, which can happen when Exchange assumes that a particular SMTP address belongs to a Domino user, while Domino assumes that SMTP address belongs to an Exchange user.

If a list of domains is longer than 255 characters, the Notes.ini variables are contained in a series by appending a sequence number to the end of the variable name.

For example, if the original variable BTCOEX_DOMINO_DOMAINS contains more than 255 characters, the variables BTCOEX_DOMINO_DOMAINS1, BTCOEX_DOMINO_DOMAINS2, and so on, where each one provides up to a 255 character portion of the list of domains, will be used.

BTCOEX_SERVICE_TYPE

Accepted Value: COEX

Default Value: COEX

The BTCOEX_SERVICE_TYPE parameter specifies the Web Service format used by the FreeBusy IIS apps on the Windows Coex server to translate to the correct version of the EWS format.

The BTCOEX_SERVICE_TYPE parameter is set to COEX by default and should not be changed.

BTCOEX_LOG

Accepted Values: 0 or 8 (0=no logging to 8=all areas logging)

Default Value: 0

This controls which areas of FreeBusy should log information.

BTCOEX_SERVER_LOG

Accepted Values: 0-6 (0=no logging to 6=debug logging)

Default Value: 0

This logs incoming message processing done by the Domino Listener DSAPI filter to the <Domino Coex server>\logs\btserver.log file.

BTCOEX_CLIENT _LOG

Accepted Values: 0-6 (0=no logging to 6=debug logging)

Default Value: 0

This logs outgoing processing messages from the Domino Coex FreeBusy task to the <Domino Coex server>\logs\btclient.log file.

BTCOEX_STOP_AFTER_EXCEPTION

Accepted Values: 0, 1

Default Value: 0

This parameter controls whether FreeBusy will automatically restart if it encounters a fatal exception (error) that causes it to terminate.

If BTCOEX_STOP_AFTER_EXCEPTION is set to 1, FreeBusy will not restart after an error causes it to exit and it would need to be manually restarted.

If BTCOEX_STOP_AFTER_EXCEPTION = 0 (default), FreeBusy will restart after exiting due to an error.

BTCOEX_LOGDATA=15

This is a bit mask which controls both which data is log and where the data is logged. The value is the sum of the information you want to log and its location from the list below. Any combination of the values below can be used; the lowest value of this parameter can be “1”, the highest “15”.

1 = request

2 = response

4 = to console

8 = to file

BTCOEX_FB_TEST_POLLING

Accepted value = *<number of minutes between heartbeat messages>*

Default = 5

BTCOEX_FB_TEST_ACCOUNT

Accepted value = *<SMTP address>*

This is a recommended setting.

The SMTP address should be a valid Exchange account. It is passed from the Domino Coex server to IIS BTAvailability on the Windows Coex server.

If it is a valid Exchange account, IIS will send the request to Exchange, ensuring all servers are checked.

BTEXCHANGESERVER

Accepted value = *<ExchangeSMTPDomain>*

If a value for BTCOEX_FB_TEST_ACCOUNT is not provided, "fbtestaccount@" is prepended to this Exchange server name to create an SMTP address.

BTCOEX_NUM_POLLING_FAILS_BEFORE_MSG

Accepted value = *<number of successive failures before sending a failure notification>*

Default = 3

This parameter determines the number of successive FreeBusy failures before a notification is sent to the email account specified in BTMULTISCHEDREPORTADDRESS.

BTCOEX_MINUTES_BETWEEN_FAIL_MSGS

Accepted value = <number of minutes between failure notifications>

Default = 30

FreeBusy will send alerts to the account previously specified account until a successful test occurs. This parameter determines the interval between failure notifications, i.e. 30 minutes.

BTMULTISCHEDREPORTADDRESS

Accepted Value = <SMTP address>

Default = None

FreeBusy sends alerts to the address specified in this parameter.

The SMTP address should be a valid email address for a user or a group.

BTMULTISCHEDREPORTADDRESSTYPE

Accepted Value = 0/1/2

Default = 0

This parameter allows the user to specify whether the configured BTMULTISCHEDREPORTADDRESS should be placed in the To, CC, or BCC field when sending a mail notification. Acceptable values are as follows:

0 = To

1 = CC

2 = BCC

If the parameter is not included in the Notes.ini file or contains an unacceptable value then the address will appear in the To field as that is the default behavior.