

# Quest® Unified Communications Analytics 8.5.1

## Release Notes

February 2019

These release notes provide information about this Quest® Unified Communications Analytics release.

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## About Unified Communications Analytics 8.5.1

UC Analytics was rebranded to Quest and the installation path became Quest as of release 8.4.1. If you are upgrading from a version prior to 8.4.1, the UC Analytics program files and binaries are installed in the Quest directory but your storage folder is not changed from its previous location.

Before you install or upgrade UC Analytics, disable any anti-virus software that is running against your storage folder. The anti-virus software locks files in the storage folder, causing issues when the installer attempts to upgrade your stored data or during normal operation, when your configured data collections attempt to update the stored data. You should exclude the storage folder from anti-virus scans.

Unified Communications Analytics (UC Analytics) 8.5.1 is a maintenance release, with enhanced features and functionality.

See [Enhancements](#) and [Resolved issues](#).

**i** **NOTE:** Previously, if you had customized a data collection by modifying a .config file, when you upgraded to a new version, you had to manually reapply all the changes to that .config file.

As 8.5, If you have a configuration file with custom settings, (such as job status interval time in the UC.Analytics.Insights.DataEngine.DataCollector.dll.config file), the existing configuration files are copied to a backup folder located at Quest\UC Analytics\Backup Config Files. You can copy backed up files back into the installation after upgrade. For the changes in the config file to take effect, you must manually restart the Data Service Engine.

## Upgrading from versions 8.1 or later

If you are upgrading from versions 8.1 or later, perform an in-place upgrade to ensure you maintain your collected data. Do **not** uninstall the previous version. If you uninstall the previous version, you will lose all the collected data.

During upgrade, program files and other binaries are moved to a Quest\UC Analytics folder. However, the storage directory is not moved and remains in the same directory as before upgrade.

## Upgrading from 8.0 or 8.0.1

Unified Communications Analytics 8.5.1 does not support a direct upgrade from versions before 8.1. To upgrade from 8.0 or 8.0.1, the upgrade is a two-step process. First, you must upgrade to 8.2. At this point, you can upgrade from 8.2 to 8.5.1.

## Verifying backup and restore script configuration after upgrade

If you previously configured the backup and restore scripts provided in UC Analytics, you should review the script configuration after upgrade to ensure that the correct paths are specified. As of version 8.4.1, UC Analytics was rebranded to Quest. During upgrade from a version earlier than 8.4.1, the UC Analytics program files and binaries are moved to the Quest installation path but the storage directory is still at the same location as before upgrade.

If you have created a Windows scheduled task to automatically back up the storage directory, verify the following parameters:

- In the backup.bat script, verify that the -storageDirectoryPath parameter contains the path to the correct storage location.
- In the scheduled Windows task that runs the backup, ensure the path to the backup.bat file points to the correct location.

For more information about configuring the backup and restore batch files, see Appendix E in the *UC Analytics Deployment Guide*.

## New Features

The following new features are available in this release:

- **Performance improvements for key data source collections.** Significant improvements in performance have been made for the following data sources ([107675](#), [782782](#)):
  - Active Directory Domain Controller
  - Exchange Tracking Log
  - Exchange Mailbox Contents
  - Exchange Online Mailbox Contents
- **A new option allows you to set an explicit schedule for a data source.** You can schedule a data source collection job to run at a specific time every *X* days and set the start date when the collection should start to run. By setting some data source collections to run at explicit times every *X* number of days, you can stagger the job runs so multiple jobs do not start at the same time when you are upgrading or when the Data Engine must be restarted. ([787310](#))
- **Global setting for time zones used by insights for all users.** You can now set a global time zone setting for all users (Admin Settings | Queries). Settings allow you to ignore daylight saving time or to set an

explicit time zone for all users. (108911)

- **New insight for Skype for Business / Lync.** A new insight named Skype for Business / Lync Peer-to-Peer Sessions & Conferences - User Activity, provides additional user activity details such as total duration in minutes for different types of sessions and calls. (778683)
- **New insight for Exchange mailbox activity.** A new insight named Mailboxes - Mailbox Activity by Active Directory Group, shows the Active Directory (AD) groups whose members send and receive the most emails in the specified date range. (781336)
- **New Exchange Online PowerShell connection methods.** Under PowerShell Connection Parameters (Advanced Settings), new options are added to allow you to configure the method used by PowerShell in collecting data. You can specify either a *paging* method which uses less memory but takes longer, or *streaming* which uses much more memory but can be faster. 777737 (780187, 780188, 780189)

# Enhancements

The following is a list of enhancements implemented in UC Analytics 8.5.1.

**Table 1. Configuration and data collection enhancements.**

Enhancement	Issue ID
<p>New Admin Settings options, under Queries, allow you to set the time zone for all users instead of each user setting the time zone individually in the user profile. You can set the time zone for all users to</p> <ul style="list-style-type: none"><li>• use the time zone of the user's computer.</li><li>• use the time zone of the user's computer without daylight saving time adjustment.</li><li>• use a specific time zone such as UTC -5.</li></ul>	108911
<p>In the Exchange Online Hybrid User Configuration data source, a new option allows you to collect and write values of the Azure AD attributes for hybrid users and to overwrite the on-premises AD attributes that were collected by the Domain Controller data source. The on-premises AD attributes that are overwritten include address, city, and OU.</p> <p><b>NOTE:</b> This option replaces the syncedUserOverwrite setting that was found in the UC.Analytics.Insights.DataEngine.DataCollector.dll.config file. Select the check box to retain the original behavior. If you had configured the syncedUserOverwrite setting to be false, edit the data source and clear the check box after you upgrade.</p>	766506
<p>Job status logging has been changed to create separate log files for each data source job run. On the Data Collection Status page, you can download the individual log file for each job by clicking the icon (page with down arrow) at the end of the collection job status line for that job run: This feature is useful for troubleshooting a specific data source collection job run.</p>	778697
<p>New options are added in the Exchange Online data sources (under Advanced Settings for PowerShell Connection Parameters) to allow you to configure the method used by PowerShell in collecting data. You can specify either a paging method which uses less memory but takes longer, or streaming which uses much more memory but can be faster.</p> <p>Specifically, the new options are added for the Exchange Online Native/Hybrid User Configuration data sources (780187), the Exchange Online Native/Hybrid Mailbox Configuration data sources (780188), and the Exchange Online Mailbox Contents data source (780189).</p>	777737
<p>In addition to scheduling a data source collection to run at a regular interval (aligned to midnight UTC), a new option allows you to set an explicit schedule for a data source. You can schedule a data source collection job to run at a specific time every X days and set the start date when the collection should start to run. Currently, if you have a large number of configured data source collections, when you upgrade or have to restart services, many jobs will start at the same time. By setting some data source collections to run at explicit times every X number of days, you can stagger the job runs so multiple jobs do not start the at same time when you are upgrading or when the Data Engine must be restarted.</p>	787310

**Table 1. Configuration and data collection enhancements.**

Enhancement	Issue ID
<p>Two changes have been implemented to improve data collection performance for the following data sources:</p> <ul style="list-style-type: none"> <li>• Exchange Tracking Logs</li> <li>• Exchange Mailbox Contents</li> <li>• Exchange Online Mailbox Contents</li> </ul> <p>By default, the Data Engine Service is configured to allow 500 initial threads. In addition, the Data Engine Collection is configured to not explicitly force the .Net garbage collection for these data sources:</p>	107675

**Table 2. Insight, export, and subscription enhancements.**

Enhancement	Issue ID
<p>A new insight, Mailboxes - Mailbox Activity by Active Directory Group, shows the Active Directory (AD) groups whose members send and receive the most emails in the specified date range. Provides information the maximum size and average size of the emails. Using filters, you can see how many messages members of a particular group sent to members of other AD groups.</p>	781336
<p>The option to display the canonical name of an OU (organizational unit) has been added to several insights. A new field called OU Canonical Name is available to insert in insights such as in the Users - Inventory insight.</p>	706121
<p>A new insight, Skype for Business / Lync Peer-to-Peer Sessions &amp; Conferences - User Activity, provides additional user activity details such as:</p> <ul style="list-style-type: none"> <li>• Total Peer-to-Peer Video Calls (Minutes)</li> <li>• Total Peer-to-Peer Outgoing Audio Calls (Minutes)</li> <li>• Total Peer-to-Peer Incoming Desktop Sharing Sessions (Minutes)</li> <li>• Total Peer-to-Peer Outgoing Desktop Sharing Sessions (Minutes)</li> <li>• Audio/Video Conferences Attended (Minutes)</li> <li>• Audio/Video Conferences Organized (Minutes)</li> </ul>	778683
<p>You can now insert the Line URI column in the Skype for Business / Lync insights such as the Skype for Business / Lync Conferences - Details insight. The Line URI appears by default in the Skype for Business / Lync Configuration / Lync Enabled Users insight.</p>	670056
<p>The INFO section at the top of each insight now displays the insight original name. This information is useful when troubleshooting an insight that has been renamed.</p>	770819
<p>Two new advanced fields are added to allow you to filter email messages to include or exclude unrouted messages in insights such as Email - Activity. Messages that are “unrouted” are not routed through an Exchange server and are not found in the Exchange message tracking logs. The new filters are:</p> <ul style="list-style-type: none"> <li>• Is Processed by Tracking Logs</li> <li>• Is Processed by Mailbox Contents</li> </ul>	756319
<p>Previously the Exchange - Summary insight showed the number of inbound messages, outbound messages, and all messages. However, the total for all messages is not the sum of inbound and outbound messages which was confusing. Total messages also includes internal messages and messages where the message direction was unknown which were not shown. New totals are added to the table for internal messages and for messages with an unknown direction.</p>	788916
<p>Currently, when you enter multiple values in the Admin Settings data source configuration pages, such as specifying domain controllers for LDAP connections, you can enter the several values in a single field, with each entry separated by a semi-colon (;) as the delimiter. Now, when specifying filters for insights, you can also enter multiple values in a single field using a semi-colon (;) delimiter to separate the entries.</p>	788915

**Table 2. Insight, export, and subscription enhancements.**

Enhancement	Issue ID
The date range selector on insights has been enhanced to show the date range times (for the UTC day) in addition to the dates. The specific user time zone offset setting is displayed beside the date and time range in parentheses.	87778

## Resolved issues

The following is a list of issues addressed in this release.

**Table 3. Installation, resource kit, and utilities resolved issues**

Resolved issue	Issue ID
PreEmptive components, used for the customer feedback program, were removed from the Deployment Manager. The customer feedback program no longer exists.	774450
Previously, if you were deploying an additional Collector role (Data Engine, Query Engine) In an existing installation, the installation could hang on the following step: "Waiting for product initialization to complete on <MachineName>." The following error appeared in the Doradus.log file (located in the Query Engine directory under the UCA installation directory): "Failed to start Jetty [1] java.io.IOException: Keystore was tampered with, or password was incorrect." The workaround was to use the Deployment Manager (DeploymentManager.exe) to manually regenerate the certificates. The certificate authentication code has been modified to use the correct password when validating the certificate for SSL protocol.	774248 766917
Adding a new collector role to a new computer in an existing deployment could result in the installation appearing to be hung. The installer did not add "LogonAsAServiceRight" to local security for Data Engine service account on the new Collector role computer when it added a new collector role to an existing installation	775027
The monthly Windows Update installation and computer reboot would cause a corrupted Commit log (size is 0 kilobytes) which stopped the Storage Engine service from correctly restarting. The Storage engine service would restart and quickly shut down. The issue can occur when the Storage Engine is shut down too quickly, either by Windows Update or by an administrator. Windows allows services a certain amount of time to clean up and save data before closing. A registry value controls how many milliseconds Windows will wait. The default value is 5000 milliseconds (5 seconds) which is not much time if the computer is loaded The installer now will update the WaitToKillServiceTimeout registry setting to allow the UC Analytics Storage Engine enough time to properly shutdown. The registry key is at the following location: HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control > WaitToKillServiceTimeout The default value to key was 5000 (milliseconds). After installation, the new value is 900000 (milliseconds).	787639 (86554)

**Table 4. Configuration and data collection resolved issues**

Resolved issue	Issue ID
The Office 365 User Subscriptions Configuration data source collection job did not retry when the PowerShell session expired.	773437
The IIS Logs data source collection did not correctly handle partial lines encountered in the IIS log files and did not resume after reading a partial line.	773150

**Table 4. Configuration and data collection resolved issues**

Resolved issue	Issue ID
<p>In the IIS Logs data source collection, the following error appeared: Error condition: Failed to match mobile device user. In a hybrid environment, the IIS Logs data source collection was unable to match some mobile devices to the user. An improvement is made to the UC Analytics algorithm that is used to match the results from the Office 365 cmdlet Get-MobileDeviceStatistics to the mailbox associated with mobile device information.</p>	753450
<p>In the Exchange Online Mailbox Content data collection, the following error occurred multiple times "host program or the command type does not support user interaction" The PowerShell portion of Exchange Online job has been updated with smart retry code that is Exchange Online throttling aware to limit Office 365 throttling penalties.</p>	770168
<p>The Exchange Mailbox Content Summary and Exchange Online Mailbox Content Summary data source collections were unable to collect any folders in a mailbox if the path of a folder exceeded 255 characters. The collection would complete with errors similar to the following:            Status: Failed Job Type: Exchange Mailbox Content Summary Data Source: Exchange Mailbox Content Summary Start Date: 8/24/2018 10:33:22 PM Target: john.doe@sitraka.com Details: Error: Unable to process folders. Details: StartIndex cannot be less than zero. Parameter name: startIndex.</p>	784013
<p>The Exchange Mailbox Content Summary and Exchange Online Mailbox Content Summary data source collections could not collect folders in a mailbox if a folder name contained a special character such as a non-breaking space. The collection would complete with warnings similar to the following:            Status: Warning Job Type: Exchange Mailbox Content Summary Data Source: Exchange Mailbox Content Summary Start Date: 8/26/2018 9:12:59 PM Target: joan.doe@sitraka.com Details: Warning: Unable to query folder statistics from the mailbox. Details: Failed to create Exchange web services connection: Failed to create Exchange web services connection: Precondition failed: IsValidFolderDisplayName(i_folderDisplayName) Invalid value for i_folderDisplayName.</p>	784014
<p>After the user upgraded from 8.4.2 to 8.5, the Domain Controller (Active Directory) data source collection took more than five times longer to complete. Instrumentation was added to collect performance statistics to identify specific bottlenecks.</p>	781863
<p>Domain Controller data source collection took much longer after user upgraded to version 8.5. When the option to collect OWA logons was selected in the IIS Logs data source, the Domain Controller data source collection would prepare OWA logon formats on each Active Directory (AD) user object to allow the OWA user field to bind to the Active Directory user object. This activity could cause significant performance issues for the Domain Controller data source. Now all OWA collection activity to determine the OWA logon name mapping to the AD user object is done in the IIS Logs data source collection.</p>	782782
<p>New options were added to the Data Engine configuration file (UC.Analytics.Insights.DataEngine.DataCollector.dll.config) to allow the user to configure specific options in Domain Controller data source collections. The options are as follows:</p> <ul style="list-style-type: none"> <li>• <b>collectBuiltInSecurityGroupMembership</b> - A switch to disable collecting membership of the built-in security groups.</li> <li>• <b>NumberOfInsertionThreads</b> - An option to enable multiple threads for database insertion.</li> </ul>	785498
<p>An Exchange Online data collections performance issue, resulting in PowerShell timeouts, was caused by incorrect handling of NullReferenceException by the Data Engine service.</p>	788674
<p>For the Exchange Hybrid Mailbox Configuration data source, the data collection would fail with the following error for duplicate key exceptions ("An item with the same key has already been added"). This error would occur when the collection was caching two batches of mailboxes in which one of the mailbox identities was duplicated with one of the mailbox delegates. Since mailbox identity keys should be unique, an exception would occur.</p>	784102
<p>The Exchange Tracking Logs, Exchange Mailbox Contents, and Exchange Online Mailbox Contents data sources induce garbage collections that are in addition to the garbage collections that are automatically performed by .NET runtime. A configuration file setting has been added to allow these induced garbage collections to be switched off.</p>	787087

**Table 4. Configuration and data collection resolved issues**

<b>Resolved issue</b>	<b>Issue ID</b>
<p>The Exchange Tracking Logs data source collection was taking a long time to complete in some environments. Initial optimizations have been implemented as follows:</p> <p>The first optimization (788791) improved the Exchange Tracking Logs collection performance by speeding up testing the message participant SMTP addresses for SMTP system addresses, particularly in Exchange deployments with a significant number of Exchange servers and/or public folder databases.</p> <p>The second optimization (786710) accelerated skipping of Exchange message tracking log files that were previously gathered or that were for activity that occurred before the Data Collection Start Date.</p>	782803
<p>If you had multiple domains added as Internal Domains in the Domain Classifications Admin Settings, if you clicked a Direction column heading in a table view (such as in the Email Details insight) to sort the entries by direction, an internal error message would be displayed.</p>	764313
<p>In the Admin Settings   Subscriptions page, the indicator arrows were missing that show which fields are required (yellow arrow) and when invalid information has been entered (red arrow).</p>	87775
<p>When the IIS Logs data source was processing OWA logons, if a user name was encountered with an incorrect backslash (DOMAIN/USERNAME instead of DOMAIN\USERNAME), an error was logged and the user logon was ignored even if, in the OWA web interface, the user was logged in correctly.</p>	790331
<p>The Exchange Online Hybrid Mailbox Configuration data source has been updated to collect the archive mailboxes located in the cloud that are associated with on-premises Exchange mailboxes. The Exchange Configuration data source no longer logs an error if an on-premises mailbox has an archive mailbox that is located in the cloud.</p>	784731
<p>Changes have been made to the Exchange Mailbox Contents data source collection to improve performance when the data source is collecting data from mailboxes that contain a large number of folders.</p>	791790
<p>Performance improvements have been made to the Exchange Tracking Logs data source collection to reduce the processor resources used and the memory that is consumed in producing data records for email message participants.</p>	788792
<p>For the Exchange Online Hybrid User Configuration and Exchange Online Hybrid Mailbox Configuration data sources, multiple threads running cmdlets concurrently are now supported for Azure AD PowerShell. The following synchronization methods use Azure AD PowerShell:</p> <ul style="list-style-type: none"> <li>• Azure AD Connect</li> <li>• Azure AD Sync</li> <li>• DirSync</li> </ul> <p>Previously, two errors were caused by unsupported concurrent invokes of the Azure AD PowerShell cmdlets:</p> <pre>[MicrosoftOnlineException] An unexpected error occurred</pre> <pre>[MicrosoftOnlineException] You must call the Connect-MsolService cmdlet before calling any other cmdlets.</pre>	108902

**Table 5. Web site, insights, exports, and subscriptions resolved issues**

<b>Resolved issue</b>	<b>Issue ID</b>
<p>When the subscription type was disabled in the Admin Settings   Subscriptions for all users (email or file share), if an individual user clicked Run Now for an existing subscription, the subscription would still run.</p>	775540
<p>In Admin Settings   Subscriptions, if you configured the Subscription Retry Settings to a specified number of retries, the retries would occur perpetually. The number set for retries would not decrease below 1 so there would always be one more retry.</p>	775737

**Table 5. Web site, insights, exports, and subscriptions resolved issues**

<b>Resolved issue</b>	<b>Issue ID</b>
After a user inserted the Mailbox Folders   Item Count column in an insight, such as the Mailboxes - Activity Summary insight, and sorted the newly inserted column, the information appeared in the insight. However, when the insight was exported to PDF, information did not appear and the following error text was shown in the exported PDF "Internal error occurred during the query request execution in export".	775418
If you customized an insight such as Users - Inventory or Groups - Inventory to insert the Container Name column, the container name that displayed for Exchange Online users was incorrect. The object common name would be displayed instead of the actual container name.	779420
After upgrading to version 8.5, an insight that had been customized using the "Save As" option in a version previous to 8.4 could not be displayed. When you tried to open the insight, the error "Insight could not be found" would appear. Now the previously customized insight will display. <b>Known Issue:</b> In the INFO section, the Original Insight Name field might display as <Unknown>. To have the Original Insight Name show the correct information, you would have to delete the customized insight, retrieve the base insight from the library, and reapply the customizations.	780710
When you are selecting an insight from the library to add to your home page or to a company home page, the list of insights maintains the current cursor position and no longer scrolls to the top of the list each time you make a selection.	107604
In a generated report, if an email contained quotation marks (") in its subject, the quotation marks were duplicated when the information was exported to either CSV or TSV format. In an export to either PDF or DOCX format, the problem did not exist. For customers who cross-check UC Analytics data with other tools, the fact that UC Analytic extracted the subject with double quotes made mail-matching activities more complicated.	108864

## Known issues

The following is a list of issues, including those attributed to third-party products, known to exist at the time of release.

**Table 6. Installation known issues**

<b>Known issues</b>	<b>Issue ID</b>
It is not recommended that you use the built-in domain Administrator account for installing or for accessing UC Analytics. If you have a child domain in your environment, or if you have two root level domains, you will be unable to install the product.	NA
After installing the Storage Engine on a separate computer with multiple network cards, the customer is unable to access the web site ("Application failed to start.") and nothing seems to work. In this case, an incorrect IP address may have been registered for the Storage Engine. <b>NOTE:</b> If you are installing multiple Storage Engines on a separate computers that have multiple network cards, the installation may not complete. <b>Cause</b> On servers that have more than one IPv4 address, the UC Analytics installer selects one of the IPv4 addresses and registers that as the IP address for the UC Analytics component on that computer. The selected IP address may not be the IP address you want for the UC Analytics Storage Engine. <b>Workaround</b> Disable the network cards that have undesired IP addresses, run the UC Analytics installer for the Storage Engine, and re-enable the disabled network cards. If you need to disable a network card that is used for Remote Desktop access to the server, you must install UC Analytics using the physical console instead of Remote Desktop.	654123

**Table 6. Installation known issues**

<b>Known issues</b>	<b>Issue ID</b>
Typically, when you uninstall the product, the Storage directory is removed. If the specified directory cannot be removed (for example, if the directory is on a network drive) an error message appears. You can work around the error by clicking "Ignore". You can manually remove the directory after the uninstallation process is complete.	504453
In the Autorun.exe, the Download buttons for the software prerequisites may appear to be not working. An error is displayed about a script error on the page. <b>Cause</b> On some computers, an iexplore.exe process lingers for about 30 seconds after Internet Explorer is closed. Until the iexplore.exe process exits, the Javascript window.open() call for the Download buttons fails to launch a new Internet Explorer window. <b>Workaround</b> Launch the Task Manager and wait until the iexplore.exe process has exited. The Download buttons work correctly.	NA
In a deployment with multiple Data Engine collector roles installed, if you modify your deployment configuration properties using the Deployment Manager, and you clear the Data Engine configuration and reset it, an issue can occur in which the Primary Data Collector cannot be identified. The following error is displayed "You must have one collector role for the Data Engine designated as the primary collector." <b>Workaround</b> <ol style="list-style-type: none"> <li>1 In the Deployment Manager, select <b>Manage Deployment   Modify Deployment</b>.</li> <li>2 Click <b>Edit Deployment</b> and click <b>Data Engine Advanced</b>.</li> <li>3 Select the <b>Primary Data Collector</b> check box for the server that hosts collector that should be the primary collector.</li> </ol>	774682
If an Office 365 account is added as a product administrator in the Deployment Manager, the account is not granted full access to the Admin Settings. <b>Workaround</b> In the UC Analytics web site, in Admin Settings   Security, add the Office 365 user account under the Access to Tenant Configuration heading to grant full access to Admin Settings. You must have already added an Office 365 target environment.	774770

**Table 7. Configuration known issues**

<b>Known issue</b>	<b>Issue ID</b>
In the Classifications   Threshold Classification page, you can set thresholds for Skype for Business and Lync QoE quality metrics. The page has the recommended thresholds set for Skype for Business 2015 and Lync 2013 by default. Most of these thresholds also apply to Lync 2010. However, if you add a threshold classification that is specific to Lync 2010 only, and you have a mixed environment, the threshold will also be applied to Lync 2013 and Skype for Business 2015 even though the threshold may not be applicable to those versions.	NA
On the Admin Settings - Data Collection page, under Data Sources, you cannot remove data sources if you are viewing the page using iPad or other mobile platforms.	NA

**Table 8. Data collection and resource kit known issues**

Known issue	Issue ID
<p>In the bulk data exporter, when you use the /ShowDataModel option to list the available fields, the resulting list incorrectly includes the following non-exportable, non-displayable LinkPair fields:</p> <p>CiscoPeerToPeerSession  name: CalleeOrCaller, data type: LinkPair  name: CallerOrCallee, data type: LinkPair</p> <p>EmailMessage  name: RecipientOrSender, data type: LinkPair  name: SenderOrRecipient, data type: LinkPair</p> <p>LyncPeerToPeerSession  name: CalleeOrCaller, data type: LinkPair  name: CallerOrCallee, data type: LinkPair</p> <p>If you include the fields in the /Fields parameter to export them, the export fails with the following error: "Operation not supported: Unsupported query property".</p>	121654
<p>In the Exchange Online (hybrid and native) data source collections, if the same PowerShell credentials are used for more than one data source, there can be overlapping Azure AD plug-in credential incompatibility. You might notice authentication errors with Azure AD PowerShell cmdlets such as the following:</p> <pre> AdalException: multiple_matching_tokens_detected: The cache contains multiple tokens satisfying the requirements. Call AcquireToken again providing more requirements (e.g. UserId) Microsoft.IdentityModel.Clients.ActiveDirectory.AuthenticationCont ext (IL Offset 0x31): T RunAsyncTask [T] (System.Threading.Tasks.Task`1 [T] ) Microsoft.Online.Administration.Automation.CommonFiles.AuthManager (IL Offset 0x11): System.String GetAuthorizationHeader (Microsoft.Online.Administration.Automation. EndPointAlias) </pre> <p>Though UC Analytics recovers from these errors, it is recommended that each Exchange Online data source be configured with its own set of PowerShell credentials.</p>	701364
<p>Previously, UC Analytics might collect incorrect data for mobile devices if a mailbox display name contained a / (forward slash) or a \ (backslash). For example, if there were two mailboxes, /AB and AB, and if mobile device #1 connected to mailbox /AB, and mobile device #2 connected to mailbox AB, UC Analytics would incorrectly match both mobile devices #1 and #2 to mailbox AB. This issue existed only for mailboxes that were migrated from on-premise Exchange to Exchange Online. Though this issue was corrected in version 8.4.2, incorrect mobile device data that was collected previously and stored in the database is not changed. All new collected data will be correct.</p>	700497
<p>UC Analytics does not distinguish between discovery mailboxes and system mailboxes. Discovery mailboxes are collected and recorded as system mailboxes. In insights, there is no indication that a mailbox is a discovery mailbox. You cannot filter on discovery mailboxes.</p>	701077
<p>There can be partial ActiveSync data on the day that a user first starts using a mobile device. For example, ActiveSync activity is shown but not associated with a user in the Exchange ActiveSync / Users / Email Activity / Summary insight. This situation occurred when a user started using an ActiveSync device for the first time after the Exchange Configuration collection had successfully run for that day. ActiveSync activity for subsequent days will be correctly associated with the user.</p>	612851
<p>If you have configured the Exchange Configuration data source for a resource forest implementation, if you later add an LDAP connection for more account forests, the data collection does not automatically run to update the data. You must wait until the next day's data collection run to see the new information from the account forest.</p>	644161

**Table 8. Data collection and resource kit known issues**

Known issue	Issue ID
<p>In a hybrid environment (Exchange Online and Exchange on-premise), Azure AD Connect (formerly Azure AD Sync) synchronizes on-premises users with Office 365 cloud services for single identities. If the synchronization process is stopped, UC Analytics can double-count users. When the Azure AD Connect synchronization resumes, all new data collections will show the correct user count.</p>	NA
<p>In the Exchange DLP Matches - Details insight, the text in the Justification for Override (insertable) column will appear incomplete if the justification text that was entered by the user contained a semicolon (;) or a single instance of single (') or double (") quotation marks.</p>	605889 605908
<p>The Exchange IIS Logs data collection cannot associate ActiveSync events to a user for some ActiveSync clients with users that have spaces in their Windows logon name (such as MYDOMAIN\N Wong). This issue affects ActiveSync events from the ActiveSync client in Windows Mail. It does not affect the ActiveSync clients in iOS or in Android.</p>	456921
<p>When collecting Exchange data from an Exchange resource forest deployment, there are certain limitations when an active (master) user account has more than one Exchange mailbox, or has more than one archive mailbox, in more than one forest.</p> <p>The master account of the linked mailboxes and of the linked archive mailboxes is correctly recorded. However, only one of the mailboxes that belong to the master account will be reported as its mailbox. Similarly, only one archive mailbox that belongs to the master account will be reported as its archive mailbox.</p>	NA
<p>For any back-end ActiveSync events that have an Exchange server as the authenticated user, the Exchange IIS data collector cannot associate the event to a device and user. The ActiveSync events are gathered but are shown in the insights without a device or a user.</p>	456614
<p>To collect data for personal archive mailboxes (using the Exchange Configuration, Exchange Online Hybrid Mailbox Configuration, or Exchange Online Native Configuration data sources), you select the following two options:</p> <ul style="list-style-type: none"> <li>• Personal Archive Mailboxes (Configuration)</li> <li>• Personal Archive Mailboxes (Statistics)</li> </ul> <p>If you do not select both options for the same data source collection, the Storage Limit Status column is not populated in the Personal Archive Mailboxes - Inventory and Personal Archive Mailboxes - Summary insights.</p>	775039
<p>In the Exchange Online data sources, during target expansion, batch size configuration is implemented to improve gathering performance. To ensure that the complete membership of dynamic distribution groups is collected, the batch size values set in the Data Engine collector configuration cannot be less than 1000, and must be greater than or equal to 1000.</p> <p>The batch size settings for the Exchange Online data source configuration are located in the UC.Analytics.Insights.DataEngine.DataCollector.dll.config file, on the computer that hosts the Data Engine (Collector):</p> <pre data-bbox="199 1480 794 1865"> &lt;exchangeOnlineMailboxContentsJobSettings powerShellBatchSize="1000" /&gt; &lt;exchangeOnlineMailboxJobSettings resolvingBatchSize="1000" /&gt; &lt;exchangeOnlineUserJobSettings powerShellBatchSize="2000" /&gt; </pre> <p>Do not change these values except under guidance from Quest Support. If you reduce these values to a number less than 1000, some members of the target dynamic distribution groups will not be included in the Exchange Online data collections.</p>	775273

**Table 8. Data collection and resource kit known issues**

Known issue	Issue ID
<p>When entering an organizational unit (OU) when configuring certain data sources, if the user enters an OU in the correct format but with an invalid value, the data collection jobs do not issue a warning or error, but resolve 0 targets for the invalid OU. Data will be missing from the insights. Data sources in which you can specify an OU as a target are as follows:</p> <ul style="list-style-type: none"> <li>• Domain Controller</li> <li>• Exchange Mailbox Contents</li> <li>• Exchange Mailbox Content Summary</li> <li>• Exchange Tracking Logs</li> <li>• Exchange Configuration</li> <li>• Exchange IIS Logs</li> </ul>	773630

**Table 9. Insights and export known issues**

Known issue	Issue ID
When you export an insight that shows a date range for the displayed data at the top of the insight, the date range time zone does not appear in the exported file.	121562
In Exchange 2010, if the Microsoft OWA light version is used, the Outlook on the Web (OWA) insights will display the browser as "Unknown" for Internet Explorer 11, Edge, FireFox, Chrome, and Opera. The issue does not exist in other versions of Exchange or if Safari is the browser.	NA
If the time zone offset is negative (such as -5), and you apply smoothing to a graph, and the beginning of your date range is before the date when data collection initially started, the total for the smoothed graph is less than the total for the unsmoothed graph.	694810
<b>Workaround</b>	
Ensure that the date range does not include the days before data was collected.	
In the Mobile Device insights, the Device IMEI column shows <none> for iOS devices. UC Analytics uses the cmdlet Get-MobileDeviceStatistics (for Exchange 2013/2016) and Get-ActiveSyncDeviceStatistics (for Exchange 2010) to get the device IMEI. Due to how the iOS device built-in mail app works, the information is not stored in the internal mobile device logs and is not available to PowerShell, and by extension, to UC Analytics.	704642
In the insight view, If the date range is set to a single day, any trend graph will change to a vertical bar chart but if you export the same insight, the trend graph does not display a bar chart but displays a trend line with a single point.	718893
On the home page, you cannot enlarge or shrink the insight tiles on iPad and other mobile platforms.	NA
After installing Quest UC Analytics and attempting to open the Analytics web site ( <a href="http://&lt;server&gt;/Analytics">http://&lt;server&gt;/Analytics</a> ), the user sees the following error: "The application failed to initialize." This issue may be caused by a bug in IIS 7.0 in handling extensionless URLs. See the following link for details: <a href="http://support.microsoft.com/kb/980368">http://support.microsoft.com/kb/980368</a> Install the Microsoft patch to fix this issue.	NA
If the Date format that is set in your UC Analytics user profile is in a different order than the Date and time format that is set in regional settings on your local computer, and you export an insight to .csv or .tsv format, when you open the exported file in Excel, Excel will incorrectly convert the date.	654748
<b>Workaround</b>	
Set the order for day/month/year for the user profile Date format to be the same as in the local Date and time format that is set in your computer's regional settings.	
For example, if the Data and time format on your computer is set to be mm/dd/yyyy, set the Date format in the user profile to also be mm/dd/yyyy.	
For more information about setting the date format in UC Analytics, see the <i>Unified Communications Analytics User Guide</i> .	

**Table 9. Insights and export known issues**

Known issue	Issue ID
<p>When you export an insight to either .pdf or to Word (.docx) format, there might be discrepancies in how information is displayed:</p> <ul style="list-style-type: none"> <li>Layout of Insights that contain two side-by-side tables can be different from what you see on the screen.</li> <li>Numbers might sometimes overlap horizontal bars.</li> </ul>	NA
<p>In the details browser, the Exchange server details are not shown in the Exchange ActiveSync / Servers / Server Sync Times insight.</p> <p>This scenario can occur if you collect ActiveSync data for a time period from before you installed the product. The insight is populated with the historical ActiveSync data collected from the IIS logs (Exchange IIS Logs data source). However, the server detailed data is populated from the once-a-day “snapshots” collected from Active Directory (Exchange Configuration data source).</p> <p>Since you had not run the Exchange Configuration data collection during that time period, there is no Exchange server detailed information in the database. This issue decreases over time as the server data is accumulated through daily Exchange Configuration data collections.</p>	591123
<p>In the Mailboxes - Folders Inventory insight, if there is a mailbox owner with many folders that span more than one displayed insight page, when you click a heading (such as Size) to sort the fields, sorting does not work.</p>	773936

**Table 10. Subscriptions known issues**

Known issue	Issue ID
<p>When configuring UC Analytics for subscriptions (Admin Settings   Subscriptions) you have the option to require authentication to the SMTP server that is used for email subscriptions.</p> <p>UC Analytics cannot send subscription emails through Exchange receive connectors that meet <b>all</b> the following conditions:</p> <ul style="list-style-type: none"> <li>require authentication and do not allow anonymous access</li> <li>only allow Integrated Windows Authentication (basic authentication is disabled)</li> <li>have EnableAuthGSSAPI property set to true</li> </ul>	605072
<p>Subscriptions might not send long emails, such as insights with large tables, in MHTML or HTML format. Depending on message size limit set on the specified SMTP server for email subscriptions, a subscription in MHTML or HTML format with a long body might be blocked.</p> <p><b>Workaround</b></p> <p>If a user does not receive an email subscription in MHTML or HTML format, switch the subscription format to either .pdf or .docx format in which the size of the message is much smaller.</p>	606221
<p>For Insight Visibility and Security (data access settings), UC Analytics does not support a configuration in which specified users are in a separate forest from the forest in which UC Analytics is installed. For on-premise target environments that are configured for Authentication-enabled, all users that are entered for Insight Visibility and Security must be in the same target environment as UC Analytics.</p>	775501

**Table 10. Subscriptions known issues**

Known issue	Issue ID
<p>Time Zone Offsets: When you create a subscription, the current time zone offset (such as UTC - 04:00) is captured and is used for the future subscription schedule. This captured time zone offset does not change with Daylight Saving Time (DST). You must manually change the existing subscription schedule when DST begins and ends.</p> <p><b>Using a time zone offset override</b></p> <p>Each time you log in, your user profile's time zone offset is updated to the time zone of the client computer. The offset is used for executing queries and affects the display of data, including scheduled insights.</p> <p>If you want your data queries to always run using a particular time zone offset regardless of your current location or whether DST is active, you can set an override in your user profile page. To access your user profile, click your user name in the top right corner of the Analytics web site and select <b>Edit Profile</b>.</p> <p>If you travel to a different time zone, or when the time changes due to daylight saving, the scheduled subscription emails still use the old time settings until you log in to UC Analytics in the new time zone or after the time switch.</p>	NA

**Table 11. Storage Engine and Data Engine known issues**

Known issue	Issue ID
<p>The UC Analytics Storage Engine service cannot start due to a failure to read a file descriptor in one of the commit logs. The Storage Engine tries to restart and fails because of a commit log replay issue, resulting in an error in the Cassandra.log file such as the following:</p> <pre data-bbox="199 994 1241 1167">org.apache.cassandra.db.commitlog.CommitLogReplayer\$CommitLogReplayException: Could not read commit log descriptor in file /data/commitlog/CommitLog-6-1460632496764.log at org.apache.cassandra.db.commitlog.CommitLogReplayer.handleReplayError(CommitLogReplayer.java:644) [apache-cassandra-3.0.5.jar:3.0.5]</pre> <p>By default the log file is located in the following path: C:\Program Files\Quest\UC Analytics\Storage Engine\bin\Cassandra.log</p> <p><b>Workaround</b></p> <p>Delete the corrupted commitlog file that is specified in the error message and restart the Storage Engine service.</p>	642319
<p>All the files in the Storage Engine directories must be available for reading and writing at all times. If you have any automated processes running on the Storage Engine directories that lock files, you might encounter problems. The Storage Engine, when it encounters one of its files that cannot be written to or deleted, stops running. You must restart the service to get the Storage Engine working again.</p>	NA
<p>The Data Engine does not communicate with the Query Engine when a proxy is enabled on the Data Engine server.</p> <p><b>Workaround</b></p> <p>Disable the proxy or ensure that the proxy allows direct communication to the Query Engine server (which can be the same server as the Data Engine).</p>	NA

# System requirements

Before installing UC Analytics 8.5.1, ensure that your system meets the following minimum hardware and software requirements.

## Hardware requirements

If you are installing UC Analytics, the computer must meet the following minimum requirements:

**Table 12. Minimum requirements for hardware.**

Type	Minimum
Processor	Minimum: Quad core 64-bit computer.
RAM	Minimum: 24 GB.
Disk	<ul style="list-style-type: none"><li>• 5 GB for the application</li><li>• X GB where X is the required disk space for collected data</li></ul> <p>For estimates regarding the required disk space for the collected data for different numbers of users for all the platforms, see the <i>UC Analytics Deployment Sizing.xlsx</i> spreadsheet which can be found under Documentation in the autorun.exe.</p>
Operating system	<p>One of the following:</p> <ul style="list-style-type: none"><li>• Windows 7 (64 bit version) or later</li><li>• Windows Server 2008 R2 (Service Pack 1) or later</li><li>• Windows Server 2012 and later</li><li>• Windows Server 2016</li></ul> <p>Any server on which a UC Analytics service or service role is installed must have a static IP address defined.</p> <p>For a distributed deployment, the Remote Registry Service must be running.</p>

## About NAS/SAN support

Generally, using a NAS/SAN device for the Storage Engine is not supported. UC Analytics might support specific NAS/SAN devices but Quest would require full testing with the devices, or device simulators, to support them. Since each NAS/SAN device, depending on manufacturer, is unique, Quest will work with NAS/SAN vendors to certify or qualify a device but the NAS/SAN vendor must be willing to assist. To engage a NAS/SAN vendor and initiate the qualification process, you would send an email to your NAS/SAN vendor and contact Quest Support.

## Software requirements

To install and run UC Analytics, the following software requirements must be met on the computers that host these specific UC Analytic services:

**Table 13. Software requirements**

Hosted service	Requirement
Web site	IIS (Internet Information Services) 7.0 or later  For the required configuration for IIS logging, see Appendix C in the <i>Quest UC Analytics Deployment Guide</i> .

**Table 13. Software requirements**

Hosted service	Requirement
Data Engine service	<ul style="list-style-type: none"> <li>• Microsoft .NET Framework 4.6 (full version) or later</li> <li>• PowerShell 3.0 or later</li> <li>• TLS (Transport Layer Security) 1.2 protocol must be enabled.</li> <li>• To collect Office 365 user subscription data, the following software prerequisites must be met:                             <ul style="list-style-type: none"> <li>▪ Microsoft Online Services Sign-in Assistant must be installed.</li> <li>▪ Windows Azure Active Directory Module for Windows PowerShell 1.x must be installed. (Version 2.x has different PowerShell cmdlets and will not work.)</li> </ul> </li> </ul> <p>Also, since the Microsoft Azure AD cmdlets use the proxy settings for Internet Explorer, ensure that the Internet Explorer proxy settings for the service account are set correctly.</p>
Query Engine service	64-bit Java Runtime Environment (JRE) 1.8
Storage Engine service	64-bit Java Runtime Environment (JRE) 1.8

For information about the rights and permissions needed to configure UC Analytics and by the credentials used to gather information, see the *Quest UC Analytics Deployment Guide*.

**Table 14. Supported environments**

Requirement	Details
Gathering environment	<p>The following is a list of the minimum environments that are supported for data collection:</p> <ul style="list-style-type: none"> <li>• Exchange 2010 (SP1 or later)</li> <li>• Exchange 2013</li> <li>• Exchange 2016</li> <li>• Exchange Online (Office 365 hybrid deployment with on-premise Exchange)</li> <li>• Exchange Online (native Office 365 deployment)</li> <li>• Lync 2010</li> <li>• Lync 2013</li> <li>• Skype for Business 2015</li> <li>• Cisco Unified Communications Manager (CUCM) 9.x to 11.0 and 11.5.</li> </ul>
Supported browsers	<p>To access the UC Analytics web site, use one of the following browsers:</p> <ul style="list-style-type: none"> <li>• Microsoft Edge</li> <li>• Internet Explorer 10 or later</li> <li>• Google Chrome</li> <li>• Mozilla Firefox</li> <li>• Apple Safari</li> </ul>

# Product licensing

In release 8.1, UC Analytics switched to a new license type (.dlv) and emailed the new license file to existing customers.

## Existing customers on 8.1 or later

If you are an existing customer with 8.1 or later installed, you will have a .dlv license file installed. When you upgrade, your dlv license will continue to work if it is not expired.

To install a new license, use the following procedure to activate it.

### **To activate a license**

- 1 Copy the license file (xxx-xxxx.dlv) to any single computer on which the UC Analytics Data Engine service is installed.

You do not need to copy a license file to all computers on which the Data Engine service is installed. When the license is copied to one computer that hosts the Data Engine service, it is updated automatically on all the computers that host the Data Engine service.

- 2 Start Quest UC Analytics | Quest UC Analytics from the Start menu or run the DeploymentManager.exe file from the product installation directory.
- 3 Click the **Manage Licenses** button.
- 4 Click **Add License** and browse to the location where license file (xxx-xxxx.dlv) is copied and install it.

## New customers

After you download a trial version or purchase UC Analytics, you will receive a license file (.dlv) through email that is used to activate UC Analytics. After you install UC Analytics but before you can use UC Analytics, you must activate the license.

### **To activate a license**

- 1 Copy the license file (xxx-xxxx.dlv) to a computer on which the UC Analytics Data Engine service is installed.
- 2 Start Quest UC Analytics | Quest UC Analytics from the Start menu or run the DeploymentManager.exe file from the product installation directory.
- 3 Click the **Manage Licenses** button.
- 4 Click **Add License** and browse to the location where license file (xxx-xxxx.dlv) is copied and install it.

## Globalization

This section contains information about installing and operating this product in non-English configurations, such as those needed by customers outside of North America. This section does not replace the materials about supported platforms and configurations found elsewhere in the product documentation.

This release is Unicode-enabled and supports any character set. In this release, all product components should be configured to use the same or compatible character encodings and should be installed to use the same locale and regional options. This release is targeted to support operations in the following regions: North America, Western Europe and Latin America, Central and Eastern Europe, Far-East Asia, Japan.

# About us

Quest provides software solutions for the rapidly-changing world of enterprise IT. We help simplify the challenges caused by data explosion, cloud expansion, hybrid datacenters, security threats, and regulatory requirements. We are a global provider to 130,000 companies across 100 countries, including 95% of the Fortune 500 and 90% of the Global 1000. Since 1987, we have built a portfolio of solutions that now includes database management, data protection, identity and access management, Microsoft platform management, and unified endpoint management. With Quest, organizations spend less time on IT administration and more time on business innovation. For more information, visit [www.quest.com](http://www.quest.com).

## Technical support resources

Technical support is available to Quest customers with a valid maintenance contract and customers who have trial versions. You can access the Quest Support Portal at <https://support.quest.com>.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. The Support Portal enables you to:

- Submit and manage a Service Request.
- View Knowledge Base articles.
- Sign up for product notifications.
- Download software and technical documentation.
- View how-to-videos.
- Engage in community discussions.
- Chat with support engineers online.
- View services to assist you with your product.

## Third-party contributions

This product contains the following third-party components. For third-party license information, go to <http://www.quest.com/legal/license-agreements.aspx>. Source code for components marked with an asterisk (\*) is available at <http://opensource.quest.com>.

Table 15. List of third-party contributions

Component	License or acknowledgement
BouncyCastle 1.8.1	MIT N/A
Hopscotch 0.1.2	Apache License, Version 2.0
HTML5 Sortable 1.0.0	MIT N/A
Infuse JS 1.0.1	Infuse JS License Copyright 2013 infuse.js Romuald Quantin <a href="http://www.soundstep.com">www.soundstep.com</a>
jquery.fileDownload 1.4.2	MIT N/A
Json.NET 6.0	MIT N/A
JQuery 1.8.2	MIT
MailKit 1.18	MIT N/A
MimeKIT 1.18.1	MIT N/A
Moment.js 2.6.0	MIT N/A

**Table 15. List of third-party contributions**

<b>Component</b>	<b>License or acknowledgement</b>
OpenSSL 1.0.2l (25-May-2017)	OpenSSL 1.0 Copyright (c) 1998-2017 The OpenSSL Project. All rights reserved. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit ( <a href="http://www.openssl.org/">http://www.openssl.org/</a> ).
SharpZipLib 0.86	SharpZipLib License The library is released under the GPL with the following exception: Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License cover the whole combination. As a special exception, the copyright holders of this library give you permission to link this library with independent modules to produce an executable, regardless of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module. An independent module is a module which is not derived from or based on this library. If you modify this library, you may extend this exception to your version of the library, but you are not obligated to do so. If you do not wish to do so, delete this exception statement from your version. Note The exception is changed to reflect the latest GNU Classpath exception. Older versions of #ziplib did have another exception, but the new one is clearer and it doesn't break compatibility with the old one. Bottom line In plain English this means you can use this library in commercial closed-source applications.
Simple.OData.Client 4	MIT
spin.js 1.2.2	MIT
typeahead.js 0.10.2	Copyright 2013-2014 Twitter, Inc. and other contributors; Licensed MIT
Web Toolkit Javascript SHA-256 1.0*	© 2013 webtoolkit.info Inc. All rights reserved. Creative Commons Attribution England and Wales 2.0
ua-parser 0.7.10	Copyright 2012-2015 Faisal Salman
7-ZIP 9.20	7-ZIP 9.20

**Table 16. List of third party components (for Doradus and QUI)**

<b>Doradus 3.0 Components &amp; QUI (Quest UI Library) 1.8 Components</b>	<b>License or acknowledgement</b>
Cassandra 3.0.14	Copyright © 2017 The Apache Software Foundation. Licensed under the Apache License, Version 2.0. Apache and the Apache feather logo are trademarks of The Apache Software Foundation.
Cassandra Java Driver 2.1	Copyright 2012-2015, DataStax Licensed under the Apache License, Version 2.0
Google Open Sans 1.0	Apache 2.0
Guava 18.0	Copyright (C) 2011 The Guava Authors Licensed under the Apache License, Version 2.0
Javax Servlet API 3.0.1	Copyright © 2014, Oracle Corporation and/or its affiliates. All rights reserved. Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners. License CDDL + GPLv2 with classpath exception 1.0

**Table 16. List of third party components (for Doradus and QUI)**

<b>Doradus 3.0 Components &amp; QUI (Quest UI Library) 1.8 Components</b>	<b>License or acknowledgement</b>
Jetty 9.2	Copyright © 2015 The Eclipse Foundation. All Rights Reserved. Licensed under the Apache License, Version 2.0
log4j 1.2	This product includes software developed by the Apache Software Foundation ( <a href="http://www.apache.org">http://www.apache.org</a> ) Licensed under the Apache License, Version 1.1
Lz4 Java 1.3	Licensed under the Apache License, Version 2.0
Netty 4.0.44.Final	Copyright © 2018 The Netty project Licensed under the Apache License, Version 2.0
slf4j - Simple Logging Facade for Java 1.7	Copyright (c) 2004-2008 QOS.ch All rights reserved.
snakeyaml 1.11	Licensed under the Apache License, Version 2.0
Snappy Compression Library 1.1	Copyright 2011, Google Inc. All rights reserved.
Twitter Bootstrap 2.1.1	Licensed under the Apache License, Version 2.0
Twitter Bootstrap 2.3.1	
Underscore.js 1.5.1	© 2009-2013 Jeremy Ashkenas, DocumentCloud and Investigative Reporters & Editors MIT N/A
Underscore.string 2.3.0	MIT N/A

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