ADOBE® CONNECT™ ENTERPRISE

SERVER ADMINISTRATOR'S GUIDE

Adobe® Connect™ Enterprise Server Administrator's Guide for Windows®

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Contents

Chapter 1: Getting started

Before you begin working with your software, take a few moments to read an overview of the many resources available to users. You have access to user communities, tutorials, RSS feeds, and much more.

Resources

Adobe Developer Center

Adobe Developer Center provides samples, tutorials, articles, and community resources for developers who build rich Internet applications, websites, mobile content, and other projects using Adobe products. The Developer Center also contains resources for developers who develop plug-ins for Adobe products.

In addition to sample code and tutorials, you'll find RSS feeds, online seminars, SDKs, scripting guides, and other technical resources.

Visit Adobe Developer Center at www.adobe.com/go/developer.

Customer support

Visit the Connect Enterprise Server support website, at www.adobe.com/go/connect_licensed_programs_en, to find troubleshooting information for your product and to learn about free and paid technical support options. Follow the Training link for access to Adobe Press books, a variety of training resources, Adobe software certification programs, and more.

Downloads

Visit www.adobe.com/go/downloads to find free updates, tryouts, and other useful software. In addition, the Adobe Store (at www.adobe.com/go/store) provides access to thousands of plug-ins from third-party developers, helping you to automate tasks, customize workflows, create specialized professional effects, and more.

Adobe Labs

Adobe Labs gives you the opportunity to experience and evaluate new and emerging technologies and products from Adobe.

At Adobe Labs, you have access to resources such as these:

- Prerelease software and technologies
- Code samples and best practices to accelerate your learning
- Early versions of product and technical documentation
- Forums, wiki-based content, and other collaborative resources to help you interact with like-minded developers

Adobe Labs fosters a collaborative software development process. In this environment, customers quickly become productive with new products and technologies. Adobe Labs is also a forum for early feedback, which the Adobe development teams use to create software that meets the needs and expectations of the community.

Visit Adobe Labs at www.adobe.com/go/labs.

User communities

User communities feature forums, blogs, and other avenues for users to share technologies, tools, and information. Users can ask questions and find out how others are getting the most out of their software. User-to-user forums are available in English, French, German, and Japanese; blogs are posted in a wide range of languages.

To participate in forums or blogs, visit www.adobe.com/communities.

What's new

New features

The following new features in Adobe Connect Enterprise Server 6 affect administrators:

Logging framework Two new log files, access.log and error.log, contain information about access and system errors. The log files follow W3C formatting and can be read by any text editor. For more information, see Viewing and managing log files.

Shared storage Content can be stored on one or more dedicated network-attached storage and storage area network (NAS or SAN) shared storage devices. For more information, see Maintaining disk space.

Custom fields in user reports You can include up to eight custom fields for individual users in the user reports that you can output from Adobe® Acrobat® Connect™ Enterprise Manager. This feature lets you track information about users that is important to your organization. For more information, see the *Adobe Connect Enterprise User Guide*. Enterprise Server documentation is available online at www.adobe.com/go/connect_documentation_en.

Turning Adobe Connect Events 6 guests into users If you invite guests to Adobe Connect Events, you can easily turn those guests into full users. When guests are full users, they can have custom field values in reports and they can access administration pages. For more information, see the *Adobe Connect Enterprise User Guide*. Enterprise Server documentation is available online at www.adobe.com/go/connect_documentation_en.

LDAP query paging Specify a page size for Lightweight Directory Access Protocol (LDAP) query results so you can import all the users in your directory. For more information, see the *Adobe Connect Enterprise Installation and Configuration Guide*. Enterprise Server documentation is available online at www.adobe.com/go/connect_documentation_en.

Secure LDAP Synchronize Enterprise Server with an LDAP directory server over the secure Lightweight Directory Access Protocol (LDAPS) protocol. For more information, see the *Adobe Connect Enterprise Installation and Configuration Guide*. Enterprise Server documentation is available online at www.adobe.com/go/connect_documentation_en.

Chapter 2: Administrator basics

Before you begin, review the roles and tasks of a Connect Enterprise Server administrator and learn how to connect to the server.

Administrating Connect Enterprise Server

Administrator roles

A Connect Enterprise administrator might be responsible for administering the Adobe Connect Enterprise system, an Adobe Connect Enterprise account, or both.

A system administrator must have access to the computer or computers on which Connect Enterprise is installed. The system administrator monitors and troubleshoots Connect Enterprise, and might install and deploy the system. A system administrator can run custom reports on the Connect Enterprise database.

An account administrator uses Enterprise Manager to manage accounts, users, and groups, customize the look and feel of the account, and run built-in reports on the Connect Enterprise database.

Administrator tasks

Currently, not all administrator tasks are documented in the *Adobe Connect Enterprise Server Administrator's Guide* so some of the following tasks include links to other documents.

Install and deploy Adobe Connect Enterprise Server For information about installing and deploying Enterprise Server and Adobe® Connect™ Edge Server 6, see the *Adobe Connect Enterprise Server 6 Installation and Configuration Guide*. Enterprise Server documentation is available online at www.adobe.com/go/connect_documentation_en.

Create and manage accounts, users, and groups For information about creating accounts, users, and groups, see "Managing the Adobe Connect Enterprise Account" in the *Adobe Connect Enterprise User Guide*. Enterprise Server documentation is available online at www.adobe.com/go/connect_documentation_en.

Customize the look and feel of the account For information about customizing an account's appearance, see "Managing the Adobe Connect Enterprise Account" in the *Adobe Connect Enterprise User Guide*. Enterprise Server documentation is available online at www.adobe.com/go/connect_documentation_en.

Monitor and maintain Connect Enterprise Server The administrator must monitor and maintain the system's performance, availability, and data. See Maintaining a Connect Enterprise system.

Run reports Design and run custom reports from the Connect Enterprise Server database to find and analyze data about meetings, presentations, and courses. See Generating custom reports.

Troubleshoot issues Administrators can use log files to troubleshoot system and access errors. Log files contain information about the type of event that generated an error, the location and severity of the error, the date and time of the error, and other data. See Viewing and managing log files.

Communicating with the server

Configure the server

Application Management Console is a web interface that lets you configure the server.

When you install Connect Enterprise Server, the Application Management Console wizard opens and guides you through a basic configuration. The last step of the wizard lets you create an account administrator to perform administrative duties in Connect Enterprise Manager. That account administrator can log in to Enterprise Manager to create more account administrators.

You can also start Application Management Console manually.

❖ Choose Start > All Programs > Adobe Connect Enterprise Server > Configure Adobe Connect Enterprise Server.

***Note:** You can also use Connect Enterprise web services to communicate with Enterprise Server. For more information, see Using Adobe Connect Enterprise Web Services available online at www.adobe.com/go/connect_documentation_en.*

Start Enterprise Manager to manage accounts

Enterprise Manager is a web application that lets you access and control all the Connect Enterprise applications. Account administrators can use Enterprise Manager to manage users and groups, customize the appearance of applications, and run reports. The first account administrator is created in Application Management Console when Connect Enterprise Server is installed. That account administrator can log in to Enterprise Manager to create more account startups.

***Note:** You can also use Connect Enterprise web services to communicate with Enterprise Server. For more information, see Using Adobe Connect Enterprise Web Services available online at www.adobe.com/go/connect_documentation_en.*

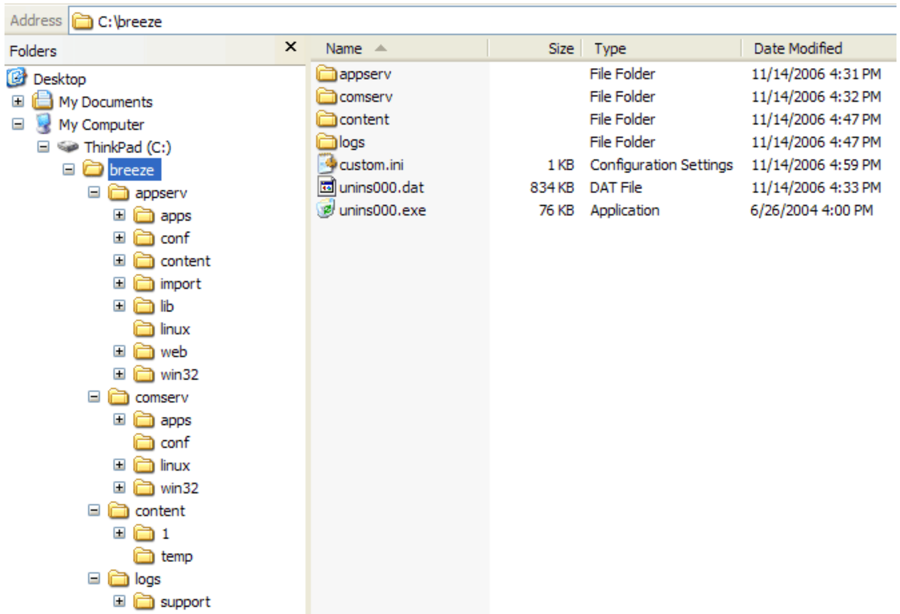
1 In a browser window, enter the fully qualified domain name (FQDN) for the Connect Enterprise Host value in Application Management Console. This is the main URL for your Connect Enterprise system (for example, connect.myexample.com).

2 On the Login page, enter your user name and password, and click Submit.

For more information, see "Managing the Adobe Connect Enterprise Account" in the *Adobe Connect Enterprise User Guide* available online at www.adobe.com/go/connect_documentation_en.

Server directory structure

The default installation location for Connect Enterprise Server is C:\breeze.



The root breeze folder contains four folders:

appserv Contains the application and web server.

comserv Contains the meeting server, which is an embedded instance of Flash Media Server.

content Contains the files uploaded to and generated by your Connect Enterprise account (for example, SWF and PPT files), and archived recordings.

logs Contains the server log files.

Note: *The Application Management Console is a graphical user interface (GUI) that sets parameters in the custom.ini file in the root folder. Occasionally, you’ll need to open the file itself to set a parameter. When you do, it’s a good idea to contact Adobe Support at www.adobe.com/go/connect_licensed_programs_en.*

Chapter 3: Viewing and managing log files

The Adobe® Connect™ Enterprise Server 6 log files provide information on errors that occur during operation. You can use the information in the log files to create monitoring mechanisms and reports, and to troubleshoot problems. Log files provide information about user activities and server performance. For example, log files can indicate the reason a user was denied access when attempting to log in, or the reason that a telephony connection failed.

The log files use the W3C Extended Log File Format and any text editor can read them.

Managing log files

About log files

Enterprise Server includes five log files, located in the \breeze\logs folder. Use the access.log and error.log files to monitor Enterprise Server; the other three log files are internal and you don't need them to operate the system.

access.log Contains information about all attempts to access the server.

breeze.log Contains information about whether the Breeze.exe application started or not.

error.log Contains information about system issues.

service-err.log Contains application and startup errors.

service-out.log Contains STDOUT and STDERR messages that the Java Virtual Machine generates.

Sample log file entry

The following sample entry from the access.log file includes a heading, a list of the fields used in the log entry, and the specific data for this log entry:

```
#Version: 1.0

#Start-Date: 2006-10-30 17:09:24 PDT

#Software: Adobe Connect Enterprise Server 6

#Date: 2006-04-30

#Fields: date time x-comment x-module x-status x-severity x-category x-user x-access-request
time-taken db-logical-io db-transaction-update-count

2006-10-30 18:12:50 Not logged in. PRINCIPAL NO_ACCESS_NO_LOGIN W A PUBLIC
{cookie=breezxnb5pqusyshfgttt, ip=138.1.21.100} GET http://joeuser.macromedia.com&mode=xml
0 20/5 0
```

The following table explains the sample entry:

Field	Data	Description
date	2006-10-30	The date on which the logged event occurred.
time	18:12:50	The time when the logged event occurred.
x-comment	Not logged in.	Indicates that a user was unable to log in to the application server.
x-module	PRINCIPAL	The event occurred in the Principal module in the application server.
x-status	NO_ACCESS_NO_LOGIN	Indicates that the user was unable to log in.
x-severity	`W`	Identifies the event severity as a warning (W).
x-category	`A`	Indicates the event is an access (A) issue (appearing in the access.log file).
x-user	`PUBLIC`	The current user; in this case, an unidentified guest or public user.
x-access-request	`http://joeuser.macromedia.com&mode=xml`	Source of the request.
time-taken	`0`	No time was required to process this request.
db-logical-io	`20/5`	Twenty database reads were required and five rows of data were returned.
db-transaction-update-count	`0`	No database rows were updated in processing this request.

For more information on the log fields, see Log fields in the access.log and error.log files.

Rotating log files

You can rotate the access.log and error.log files. You can modify the default values of the following parameters in the custom.ini file (located at breeze\custom.ini by default) to specify how often the log files are rotated:

```
ACCESS_LOG_ROTATE_DAYS=1.0

ACCESS_LOG_ROTATE_KEEP=7

ERROR_LOG_ROTATE_DAYS=1.0

ERROR_LOG_ROTATE_KEEP=7
```

The `_DAYS` parameters determine how frequently the log files are rotated, in days. Use the value `0.5` for a half day.

The `_KEEP` parameters determine how many days the log files are kept before they are deleted. By default, the log files are kept for one week.

After you modify the custom.ini file, restart the application server. To restart the application server, choose Start > All Programs > Adobe Connect Enterprise Server > Stop Adobe Connect Enterprise Server and let the application server stop. Choose Start > All Programs > Adobe Connect Enterprise Server > Start Adobe Connect Enterprise Server to start the application server.

Log file format

Log fields in the access.log and error.log files

Each log entry contains eleven log fields, which provide information about what type of event occurred, where it occurred, its severity, and other relevant data:

Field	Format	Description
date	M/DD/YYY	Date on which transaction completed.
time	HH:MM:SS	Local computer time at which transaction completed.
x-comment	String	Contains human-readable information about the log entry. This field is always output as the left-most field. See "Comment and status field entries" on page 10.
x-module	String	Indicates where the error occurred. See "Module field entries" on page 9.
x-status	String	Indicates what event occurred. See "Comment and status field entries" on page 10.
x-severity	Text (one character)	Indicates whether the logged event is critical (C), error (E), warning (W), or information (I). See "Comment and status field entries" on page 10.
x-category	Text (one character)	Indicates whether the log entry represents an access (A) or system (S) event. See "Category field entries" on page 14.
x-user	String	Text that represents current user. Applicable only if x-category is access (A); otherwise field is set to a single hyphen (-) to denote an unused field.
x-access-request	String	Text that represents the access request. This can be a URL or an API name with passed parameters. Applicable only if x-category is access (A); otherwise this field is set to a single hyphen (-) to denote an unused field.
time-taken	Number	Time required to process the request (in seconds). Applicable only if x-category is access (A); otherwise this field is set to a single hyphen (-) to denote an unused field.
db-logical-io	String	Number of database reads required to process the request and the number of rows returned in <reads>/<rows> format.
db-transaction-update-count	String	Number of rows updated in transactions while processing the requests. If the request uses more than one transaction, this value is the sum of all updates.

Module field entries

A module is a component of the server that manages some related set of operations. Each module belongs to either the application server or the meeting server. The x-module field indicates where the log event occurred:

Log Entry for x-module Field	Description	Server
ACCESS_KEY	Manages access keys.	Application server
ACCOUNT	Manages account operations.	Application server
ACL	Manages ACL-related operations.	Application server
AICC	Manages all AICC communication between server and content.	Application server
BUILDER	Performs SCO builds.	Application server
Client	Client methods	Meeting server

Log Entry for x-module Field	Description	Server
CLUSTER	Manages all cluster-related operations.	Application server
CONSOLE	Manages all console-related operations.	Application server
Content	Share pod	Meeting server
DB	Represents the database.	Application server
EVENT	Manages all event-related operations.	Application server
HOSTED_MANAGER	Manages system accounts (create, update, delete, settings, and so on).	Application server
MEETING	Manages all meeting-related operations.	Application server
Misc	Miscellaneous module.	Meeting server
NOTIFICATION	Manages all e-mail operations.	Application server
PERMISSION	Manages all permission-related operations.	Application server
Poll	Poll pod	Meeting server
PLATFORM_FRAMEWORK	Represents the platform framework.	Application server
PRINCIPAL	Manages all principal-related operations.	Application server
REPORT	Represents reports.	Application server
Room	Manages meeting room startup and shutdown.	Meeting server
RTMP	Represents RTMPHandler.	Application server
SCO	Manages all SCO-related operations.	Application server
SEARCH	Manages all search-related operations.	Application server
START_UP	Represents the startup component.	Application server
TELEPHONY	Manages all telephony-related operations.	Application server
TRACKING	Manages all transcript-related operations.	Application server
TRAINING	Manages all training-related operations.	Application server

Comment and status field entries

The x-comment field and the x-status field indicate what type of event occurred. The x-status field provides a code for each logged event. The x-comment field provides a human-readable description of each logged event.

The following table lists the status codes, the comment associated with each status code, and an explanation of each logged event:

Log Entry for x-status Field	Log Entry for x-comment Field	Description
ACCESS_DENIED	Client trying to access protected method. Access is denied. {1}	Logged when client attempts to access protected method.
BECAME_MASTER	Server {1} has been designated the master.	Logged when the scheduler quits and this server becomes the scheduler.
CLUSTER_CON_BROKEN	Server {1} unable to reach {2} on port {3} to perform cluster operations.	Logged when Connect Enterprise is unable to reach another server in the cluster.
CLUSTER_FILE_TRANSFER_ERROR	Unable to transfer {1} from server {2}.	Logged when an error is thrown while transferring a file.
CONNECT	New client connecting: {1}	Logged when new client connects.
CONNECT_WHILE_GC	Connecting while the application is shutting down - forcing shutdown.	Logged when client attempts to connect while application is shutting down.
DB_CONNECTION_ERROR	Unable to connect to database {1}.	Logged when Acrobat Connect cannot reach the database.
DB_CONNECTION_TIME_OUT	Timed out waiting for database connection.	Logged when database connection takes too long.
DB_VERSION_ERROR	Database {1} is incompatible with the current version of Connect Enterprise.	Logged when the database is out of date.
DISCONNECT	A client is leaving. Details: {1}	Logged when client disconnects.
EXT_ERROR	External error thrown by 3rd party.	Logged when external code threw an error.
FMS_CON_BROKEN	Health check failed due to broken FMS service connection.	Logged when service connection is severed.
FMS_NOT_FOUND	Unable to connect to FMS at startup.	Logged when Acrobat Connect is unable to establish the service connection at startup.
INTERNAL_ERROR	Internal error occurred.	Logged when internal error is thrown.
INVALID	-	Logged when invalid operation is attempted.
INVALID_DUPLICATE	Value {1} is a duplicate in the system.	Logged when value entered duplicates a value in the system.
INVALID_FORMAT	Field {1} of type {2} is invalid.	Value specified is invalid for this field.
INVALID_ILLEGAL_OPERATION	Illegal operation performed.	Requested operation is not legal.
INVALID_ILLEGAL_PARENT	-	Logged when an ACL has an invalid parent. For example, if folder A is inside folder B, folder B cannot be in folder A.
INVALID_MISSING	Field {1} of type {2} is missing.	Missing required value for this field.
INVALID_NO_SUCH_ITEM	Value {1} is a unknown in the system.	Requested item does not exist.
INVALID_RANGE	The specified value must be between {1} and {2}.	Logged when value entered is out of range.
INVALID_TELEPHONY_FIELD	Telephony authentication values were not validated by the service provider.	Service provider unable to validate telephony account.

Log Entry for x-status Field	Log Entry for x-comment Field	Description
INVALID_VALUE_GTE	The specified value must be greater than or equal to {1}.	Logged when value entered is out of range.
INVALID_VALUE_LTE	The specified value must be less than or equal to {1}.	Logged when value entered is out of range.
KILLING_LONG_CONNECTION	Client has been in the room for 12 hours, disconnecting.	Logged when client connection is terminated after time limit is reached.
LICENSE_EXPIRED	Your license has expired and your account will be disabled on {1}. Please upload a new license file through the console manager to continue using Connect Enterprise.	Logged when customer is using Connect Enterprise during grace period and access is about to be cut off.
LICENSE_EXPIRY_WARNING	Your license will expire on {1}. Please upload a new license file through the console manager to continue using Connect Enterprise.	Logged when license is 15 days or fewer from expiring.
MASTER_THREAD_TIMED_OUT	Master thread has not reported progress in {1} milliseconds.	Scheduler thread not running.
MEETING_BACKUP_END	Server {1} is no longer the backup for room {2}.	Meeting backup has ended.
MEETING_BACKUP_START	Server {1} is now the backup for room {2}.	Meeting backup has started.
MEETING_FAILOVER	Meeting {1} failed over to {2}.	Logged when a meeting fails over to this server.
MEETING_TMP_READ	Meeting template {1} read for room {2}.	Template read from meeting.
MEETING_TMP_WRITTEN	Meeting template {1} written to room {2}.	Template written to meeting.
NO_ACCESS_ACCOUNT_EXPIRED	Your account has expired.	Accessed account has expired.
NO_ACCESS_DENIED	Permission check failed.	Permission check error.
NO_ACCESS_LEARNER	No permission to take courses.	Must be a member of the learner group to take a course.
NO_ACCESS_LEARNING_PATH_BLOCKED	You have not fulfilled a prerequisite or preassessment.	Prerequisite or preassessment error.
NO_ACCESS_NO_EXTERNAL_USER_MODIFICATION	External users cannot be modified.	User is not allowed to modify LDAP users.
NO_ACCESS_NO_LICENSE_FILE	Your license file has not been uploaded.	License file not found.
NO_ACCESS_NO_LOGIN	Not logged in.	Error thrown when user not logged in.
NO_ACCESS_NO_QUOTA	A {1} quota error occurred for account {2} with limit {3}.	Out of quota.
NO_ACCESS_NO_RETRY	You have reached the max limit and may not take the course again.	User has exceeded course retry limit.
NO_ACCESS_NO_SERVER	Server not available	Requested server is not available.
NO_ACCESS_NOT_AVAILABLE	The requested resource is unavailable.	Logged when the requested resource is not available.
NO_ACCESS_NOT_SECURE	SSL request made on a non-SSL server.	Secure request made on non-secure server.
NO_ACCESS_PASSWORD_EXPIRED	Your password has expired.	Logged when user's password has expired.

Log Entry for x-status Field	Log Entry for x-comment Field	Description
NO_ACCESS_PENDING_ACTIVATION	Your account has not been activated yet.	Account is not activated yet.
NO_ACCESS_PENDING_LICENSE	Your account activation is pending a license agreement.	Account not usable until license agreement is read.
NO_ACCESS_SCO_EXPIRED	The course you tried to access is no longer available.	Course end date is passed.
NO_ACCESS_SCO_NOT_STARTED	Course is not open yet.	Course start date is not reached.
NO_ACCESS_WRONG_ZONE	Content accessed from wrong zone.	Thrown when content or user accesses a server in the wrong zone.
NO_DATA	Permission check failed.	Query did not return any data.
NO_DISKSPACE	Health check failed due to lack of disk space.	Logged when the account runs out of disk space.
NOT_AVAILABLE	Requested resource is not available.	Error thrown when resource is not available.
OK	-	Request successfully processed.
OPERATION_SIZE_ERROR	Operation too large to complete.	Logged when operation can't be completed because of size.
REQUEST_RETRY	Unable to process request. Please try again.	The request failed and the caller should try again.
RESPONSE_ABORTED	Client that made request is not available to receive response.	Logged when user closes browser before server can send response back.
RTMP_SVC_BLOCKED	Connect Enterprise service request blocked from {1} because the server has not fully started up yet.	Service connection requested from SCO but the server is still starting.
RTMP_SVC_CLOSED	Connect Enterprise service connection closed for {1}.	Service connection closed for SCO.
RTMP_SVC_REQUEST	Connect Enterprise service request received from {1}.	Service connection requested from SCO.
RTMP_SVC_START	Connect Enterprise service connection established with {1}.	Service connection established with SCO.
SCRIPT_ERROR	Run-Time Script Error. Details: {1}	Logged when script error is detected.
SERVER_EXPIRED	Health check failed due to server expiry (expiry date={1}, current time={2}).	Logged when server does not pass health check before timing out.
SOME_ERRORS_TERMINATED	Some actions terminated with an error.	Logged when an error causes some actions to terminate.
START_UP_ERROR	Startup error: {1}.	Logged when an exception is thrown during startup.
START_UP_ERROR_UNKNOWN	Unable to startup server. Connect Enterprise may already be running.	Logged when an unknown error is thrown during startup. The error is printed by JRUN.
TEL_CONNECTION_BROKEN	Telephony connection {1} was unexpectedly broken.	Logged when the telephony connection breaks.
TEL_CONNECTION_RECOVERY	Telephony connection {1} was reattached to conference {2}.	Logged when Acrobat Connect recovers a connection to the conference again.

Log Entry for x-status Field	Log Entry for x-comment Field	Description
TEL_DOWNLOAD_FAILED	Unable to download {1} for archive {2}.	Logged when time out occurs while downloading telephony audio files.
TOO_MUCH_DATA	Multiple rows unexpectedly returned.	Logged when an operation returns more data than expected.
UNKNOWN_TYPE	{1}	Logged when variable type is unknown.

Note: *In the preceding table, {1} and {2} are variables that are replaced with a value in the log entry.*

Severity field entries

The x-severity field indicates how serious a condition is, which helps you determine the appropriate response level.

Log Entry for x-severity	Meaning	Suggested Action	Example
C	Critical	Configure third- party monitoring tools to alert pagers when a log entry with this severity level occurs.	Can’t reach the database. Can't start or end a process. A failure is affecting the system.
E	Error	Configure third- party monitoring tools to send an e-mail when a log entry with this severity level occurs.	Can't reach Adobe® Premiere®. Conversion failed. A failure is affecting a user or account, but not the whole system.
W	Warning	Generate and review periodic reports to identify possible operational and product improvements.	Disk or memory use has exceeded the specified threshold.
I	Info	Review log entries for auditing or RCA purposes.	Server started, stopped, or restarted.

Category field entries

The x-category field indicates whether the event relates to access issues (A) or general system issues (S). All entries of category A appear in the access.log file, and all entries of category S appear in the error.log file.

Log Entry for x-category field	Meaning	Description
A	access	Status code is related to access issues. Logged in access.log file.
S	system	Status code is related to general system issues. Logged in error.log file.

Chapter 4: Generating custom reports

Adobe® Connect™ Enterprise Server 6 has a collection of read-only database views that you can use to generate custom reports.

About reports

Viewing reports

Enterprise Server uses a database to store information about users, content, courses, and meetings. User activity in the Connect Enterprise system populates the database. You can use tools such as Adobe® ColdFusion® Studio, Business Objects Crystal Reports, or SQL-based tools such as SQL Query Analyzer to query the database views and view the data.

Note: *In addition, you can run reports from the Adobe®Acrobat® Connect™ Enterprise Manager web application and either view or download them in CSV format. For more information, see "Managing the Adobe Connect Enterprise Account" in the Adobe Connect Enterprise User Guide available online at www.adobe.com/go/connect_documentation_en.*

Reportable data

The following applications in the Enterprise Server suite can output data to reports:

Adobe Acrobat Connect Professional Meeting attendance, meeting duration, and meeting content.

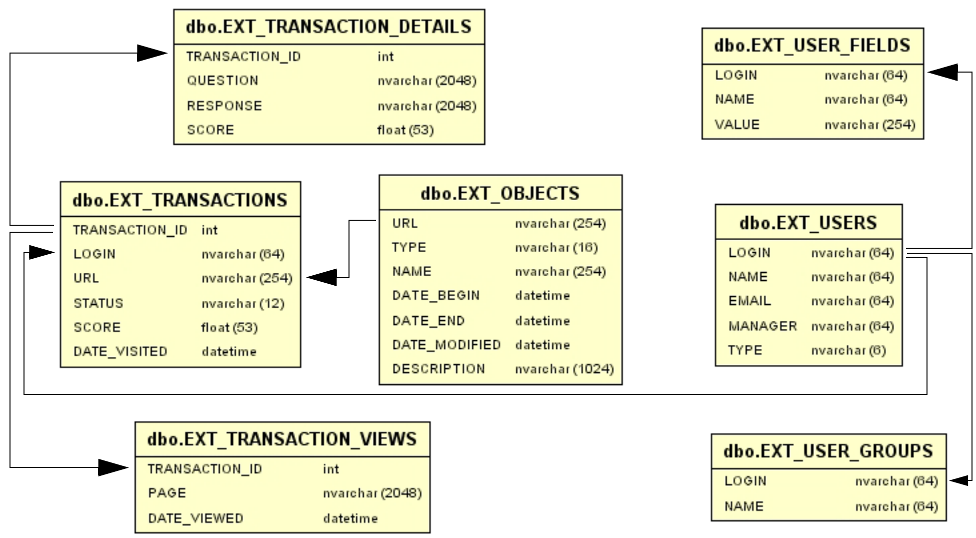
Adobe Presentation Content views, slide views, and presentation views.

Adobe Connect Training Course management information such as course attendee statistics, content viewing statistics, and quiz results.

Database views

Data relationships between views

You can use any diagramming tool that connects to a database to see the relationships between the views. The arrows depict the relationships.



Entity relationships among the seven reporting views

***Note:** The following are not supported: views that are not identified in this document, altering the views that are identified in this document, or direct access to the underlying database schema.*

EXT_TRANSACTIONS

A unique transaction ID is generated each time a user accesses an object. The EXT_TRANSACTIONS view returns the data listed in the following table:

Column	Data type	Description
TRANSACTION_ID	INT	Unique ID for this transaction.
LOGIN	NVARCHAR	Name of user who accessed this transaction.
URL	NVARCHAR	Object that the user accessed.
STATUS	NVARCHAR	Can be passed, failed, complete, or in-progress.
SCORE	FLOAT	How the user scored.
DATE_VISITED	DATETIME	Date this transaction was taken or viewed.

Sample query and data

The following query returns the data in the following table:

```
select * from ext_transactions where url = '/p63725398/' order by login, date_visited asc;
```

TRANSACTION_ID	LOGIN	URL	STATUS	SCORE	DATE_VISITED
10687	test1-lnagaraj@test.enang.com	/p63725398/	in-progress	0.0	2006-12-15 00:56:16.500
10688	test1-lnagaraj@test.enang.com	/p63725398/	in-progress	0.0	2006-12-15 00:56:16.500
10693	test1-lnagaraj@test.enang.com	/p63725398/	in-progress	0.0	2006-12-15 00:58:23.920
10714	test1-lnagaraj@test.enang.com	/p63725398/	in-progress	10.0	2006-12-15 01:09:20.810
10698	test2-lnagaraj@test.enang.com	/p63725398/	in-progress	10.0	2006-12-15 01:00:49.483
10723	test3-lnagaraj@test.enang.com	/p63725398/	in-progress	10.0	2006-12-15 01:11:32.153
10729	test3-lnagaraj@test.enang.com	/p63725398/	completed	20.0	2006-12-15 01:12:09.700

Query notes

The EXT_TRANSACTIONS view returns all existing transactions for a given user and training session. To view the latest transaction, check the maximum DATE_VISITED value.

You can filter on the STATUS and URL fields to get a list of passing users for a specific training session, for example:

```
select * from ext_transactions where url = '/p31102136/' and status = 'user-passed' order
by login, date_visited asc;
```

Generating data

User actions that generate data in this view:

- Attending a meeting
- Viewing a piece of content
- Taking a training session (a course or curriculum)

Excluded data

- Certificate number, which does not exist in the database
- Maximum score, which is often unavailable

EXT_TRANSACTION_DETAILS

The EXT_TRANSACTIONS_DETAILS view manages questions and answers for each user transcript. This view retrieves the following data from meeting polls, user forms, and quizzes:

Column	Data type	Description
TRANSACTION_ID	INT	Unique ID for this transaction.
QUESTION	NVARCHAR	Text of the question.
RESPONSE	NVARCHAR	User's response to the question.
SCORE	FLOAT	Number of points awarded for the response.

Sample query and data

The following query returns the data in the following table:

```
select * from ext_transaction_details where transaction_id = 10741;
```

TRANSACTION_ID	QUESTION	RESPONSE	SCORE
10741	How many current users are there?	A	10.0
10741	What is the RAM requirement?	A	10.0

Query notes

If the transaction ID corresponds to a curriculum, no data is returned. To return information about how the user did on specific curriculum items, specify the IDs corresponding to those curriculum items.

A multiple-answer question is returned as one row for every answer chosen. For example, two separate rows are returned when the user answers 1 and 4. One row contains the value `1` and the other row contains the value `4`.

Generating data

User actions that generate data in this view:

- Answering a question in a quiz within a course
- Answering a poll within a meeting
- Adding a custom form to a meeting or course

Excluded data

- Correct and incorrect, determined by checking for a non-zero score

Note: *Survey questions can have a score of 0 and may have no correct or incorrect answer.*

- Date answered, which does not exist in the schema

Note: *The DATE_VISITED field in the EXT_TRANSACTIONS view provides the date and time when the transcript was created. You can obtain more detailed time stamps for specific slide views from the DATE_VIEWED field in the EXT_TRANSACTION_VIEWS view.*

EXT_TRANSACTIONS_VIEWS

The EXT_TRANSACTIONS_VIEWS view retrieves data about the slides or pages that users view.

Column	Data type	Description
TRANSACTION_ID	INT	Unique ID for this transaction (can be merged with TRANSACTION_DETAILS to summarize by URL).
PAGE	NVARCHAR	Slide or page number that was viewed.
DATE_VIEWED	DATETIME	Date this view occurred.

Sample query and data

The following query returns the data in the following table:

```
select * from ext_transaction_views where transaction_id = 10702 order by page asc;
```

TRANSACTION_ID	PAGE	DATE_VISITED
10702	0	2006-12-15 01:01:13.153
10702	1	2006-12-15 01:01:18.233
10702	2	2006-12-15 01:01:59.840
10702	3	2006-12-15 01:02:20.717

Generating data

Data is generated in this view whenever a user views content or a training session.

EXT_USERS

The EXT_USERS view lists users and associated profile attributes:

Column	Data type	Description
LOGIN	NVARCHAR	Unique user identifier.
NAME	NVARCHAR	Unique user name.
EMAIL	NVARCHAR	User's unique e-mail address.
MANAGER	NVARCHAR	The login of the user's manager. Manager is always set to NULL in Breeze 5.1.
TYPE	NVARCHAR	User or guest. Type is always set to user in version 5.1.

Sample query and data

The following query returns the data in the following table:

```
select * from ext_users;
```

LOGIN	NAME	EMAIL	MANAGER	TYPE
test4-lnagaraj@test.enang.com	test4 laxmi	test4-lnagaraj@test.enang.com	NULL	user
test7-lnagaraj@test.enang.com	TEST7 laxmi	test7-lnagaraj@test.enang.com	NULL	user

Generating data

Data is updated in this view whenever a guest or user is created, updated, or deleted.

Excluded data

- Password, which is not stored in plain text.
- Time zone and language, which are not available in human readable form. For example, PST is 323.
- Last login, which is too resource intensive to calculate. Instead, use a `max(date_visited)` query from the EXT_TRANSACTIONS view to retrieve this data.
- Active session, which is data from the EXT_TRANSACTION view. Instead, use a `STATUS='IN-PROGRESS'` query to retrieve this data.
- Deleted users do not appear in the EXT_USERS view. Deleted users continue to appear in the EXT_TRANSACTION view.
- Data on groups is not included in this view.
- Data on new and pre-defined user custom fields. This information is available for each user in the EXT_USER_FIELDS view.

EXT_USER_FIELDS

The EXT_USER_FIELDS view lists new and predefined custom fields for a specific user. It also lists custom fields for users who are converted to guests.

Column	Data type	Description
LOGIN	NVARCHAR	Unique user identifier.
NAME	NVARCHAR	Field name such as telephone number.
VALUE	NVARCHAR	Field value such as 415.555.1212.

Sample query and data

The following query returns the data in the following table:

```
select * from ext_user_fields where login = 'test4-lnagaraj@test.enang.com';
```

LOGIN	NAME	VALUE
test4-lnagaraj@test.enang.com	{email}	test4-lnagaraj@test.enang.com
test4-lnagaraj@test.enang.com	{first-name}	test4
test4-lnagaraj@test.enang.com	{last-name}	laxmi
test4-lnagaraj@test.enang.com	{x-job-title}	sw engr 4
test4-lnagaraj@test.enang.com	{x-direct-phone}	NULL
test4-lnagaraj@test.enang.com	{x-direct-phone-key}	NULL
test4-lnagaraj@test.enang.com	SSN	777

Generating data

Actions that generate data in this view: adding, creating, or updating new or predefined custom fields for one or more users.

EXT_USER_GROUPS

The EXT_USER_GROUPS view lists data about groups and associated group members. The EXT_USER_GROUPS view uses the data listed in the following table:

Column	Data type	Description
LOGIN	NVARCHAR	Name of user.
NAME	NVARCHAR	Name of group.

Sample query and data

The following query returns the data in the following table:

```
select * from ext_user_groups where login = 'lnagaraj@adobe.com';
```

LOGIN	NAME
lnagaraj@adobe.com	{admins}
lnagaraj@adobe.com	{authors}
lnagaraj@adobe.com	{everyone}
lnagaraj@adobe.com	Laxmi Nagarajan

Query notes

Nesting of multiple groups is supported in version 5.1 and later. For example, if group A contains group B, and you are in group B, you are listed as a member of A.

Built-in groups, like the Administrators group, use code names in the schema, as in the following SQL query: `SELECT * FROM EXT_USER_GROUPS where group='{admins}`. The code name distinguishes built-in groups from user-defined groups.

Generating data

User actions that generate data in this view:

- Creating, updating, or deleting a group
- Changing group membership

EXT_OBJECTS

The EXT_OBJECTS view lists all system objects (such as meetings, content, courses, and so on) and their attributes.

Column	Data type	Description
URL	NVARCHAR	Unique identifier for the object.
TYPE	NVARCHAR	Either a presentation, course, FLV file, SWF file, image, archive, meeting, curriculum, folder, or event.
NAME	NVARCHAR	Object name as it appears in the content listing.
DATE_BEGIN	DATETIME	The date on which the object is scheduled to begin.
DATE_END	DATETIME	The date on which the object is scheduled to end.
DATE_MODIFIED	DATETIME	The date this object was modified.
DESCRIPTION	NVARCHAR	Object summary information entered when creating a new meeting, content, course, or other object type.

Sample query and data

The following SQL query returns the data in the following table:

```
select * from ext_objects order by type asc;
```

URL	TYPE	NAME	DATE_ BEGIN	DATE_ END	DATE_ MODIFIED	DESCRIPTION
/p79616987/	course	test api	2006-12-08 23:30:00.000	NULL	2006-12-08 23:36:55.483	NULL
/p47273753/	curriculum	test review curric	2006-12-14 21:00:00.000	NULL	2006-12-14 21:00:30.060	NULL
/tz1/	meeting	{default-template}	2006-12-12 19:15:00.000	2006-12-12 20:15:00.000	2006-12-12 19:25:07.750	release presentation
/p59795005/	presentation	In-QUIZ-TEST1	NULL	NULL	2006-12-15 00:43:19.797	managers meeting

Query notes

You can get all objects of a specific type by filtering on the TYPE field. For example, the following SQL query filters for courses and curriculums:

```
select * from ext_objects where type in ('course', 'curriculum');
```

Use the following SQL query to return a list of available system types:

```
select DISTINCT (type) from ext_objects;
```

Generating data

User actions that generate data in this view:

- Creating or updating a meeting, course, or curriculum
- Uploading or updating content

Excluded data

- Duration, which can be calculated by `date_end - date_begin`
- Size on disk, which exposes business rules regarding copies versus originals
- Folder ID
- Deleted objects do not appear in the EXT_OBJECTS view. Deleted objects do exist in the EXT_TRANSACTION view.

Chapter 5: Maintaining a Connect Enterprise system

The Adobe® Connect™ Enterprise Server 6 administrator must monitor the system to protect its data and to ensure that it performs efficiently. You can use many third-party monitoring tools to monitor an Enterprise Server system. The tools you choose will depend on your organization's resources and needs.

Maintaining disk space

Acrobat Connect content

Content used in Acrobat Connect meetings and presentations is stored on Enterprise Server. It can also be stored on one or more dedicated NAS or SAN shared storage devices. Use Adobe® Acrobat® Connect™ Enterprise Manager to manage content—do not move, delete, or add content directly on Enterprise Server or on a NAS or SAN storage device. For more information on managing content, see the *Adobe Connect Enterprise User Guide* available online at www.adobe.com/go/connect_documentation_en.

All content in the Content library must be one of the following types:

- A single PDF file
- A single PPT file
- A single SWF file
- A single HTML file
- A single Adobe® Captivate™ SWF file
- Adobe Captivate content published through the Adobe Captivate application
- Adobe® Presenter 6 content published through the Presenter plug-in
- Presenter content packaged as a ZIP file
- A Macromedia Breeze 4.1 presentation packaged as a ZIP file downloaded for a version 4.1 server (Breeze is now Adobe Connect.)
- A ZIP file that contains multiple SWF files and extra files (images, XML files, and so on) and one file called index.swf that is loaded first
- A ZIP file that contains simple Macromedia Authorware from Adobe content (one HTM file, one AAM file, and extra Authorware files)
- A ZIP file that contains multiple HTM or HTML files and extra files (images, SWF, and so on) and one file called index.htm or index.html
- An Adobe® Flash® video file (FLV file)
- A single image (JPEG, GIF, or PNG)
- A single audio file (mp3)

Maintaining disk space on shared storage devices

You can configure Enterprise Server to store content on one or more dedicated NAS or SAN shared storage devices. You can also configure a content cache that purges content from Enterprise Server when the content is no longer in use. For more information about configuring shared storage and a content cache, see the *Adobe Connect Enterprise Server 6 Installation and Configuration Guide* available online at www.adobe.com/go/connect_documentation_en.

Monitor the primary shared storage device for free space and available file system inodes. If either drops below 10%, add more storage to the device or add another shared storage device.

***Note:** 10% is a recommended value—if the free disk space on the server falls below 1 GB, the server won't run. Also, if you're using shared storage, set a maximum cache-size value in Application Management Console or the cache can fill up the disk.*

Maintaining disk space on Enterprise Server

To maintain free disk space on Enterprise Server if you aren't using a shared storage device, you can either use Enterprise Manager to delete unused content, or replace your server disk with a bigger disk.

For information about deleting content in Enterprise Manager, see the *Adobe Connect Enterprise User Guide* available online at www.adobe.com/go/connect_documentation_en.

Backing up data

Back up server files

You must back up and protect system data, just as you protect all the valuable assets of your organization.

It's a good idea to perform this procedure nightly.

1 To stop Enterprise Server, do the following:

- Select Start > All Programs > Adobe > Adobe Connect Enterprise Server > Stop Adobe Connect Enterprise Server.
- Select Start > All Programs > Adobe > Adobe Connect Enterprise Server > Stop Adobe Connect Meeting Server.

2 Make a backup copy of the content directory.

The default location is C:\breeze\content.

3 Make a backup copy of the custom.ini file.

The default location is C:\breeze\.

4 To start Enterprise Server, do the following:

- Select Start > All Programs > Adobe > Adobe Connect Enterprise Server > Start Adobe Connect Meeting Server.
- Select Start > All Programs > Adobe > Adobe Connect Enterprise Server > Start Adobe Connect Enterprise Server.

Back up the database

A database backup creates a duplicate of the data in the database. This is a single operation, usually scheduled at regular intervals. Regularly scheduled database backups can let you recover from many failures, including media failures, user errors, and permanent loss of a server. Back up the database daily.

You can also use backups to copy a database from one server to another. You can re-create the entire database from a backup in one step by restoring the database. The restoration process overwrites the existing database or creates the database if it does not exist. The restored database matches the state of the database at the time the backup was performed, minus any uncommitted transactions.

You create backups on backup devices, such as disk or tape media. You can use a SQL Server utility to configure your backups. For example, you can overwrite outdated backups, or you can append new backups to the backup media.

Follow best practices when backing up the database:

- Schedule a nightly backup.
- Maintain backups in a secure place, preferably at a site different from the site where the data resides.
- Keep older backups for a designated period in case the most recent backup is damaged, destroyed, or lost.
- Establish a system for overwriting backups, reusing the oldest backups first. Use expiration dates on backups to prevent premature overwriting.
- Label backup media to prevent overwriting critical backups. This allows for easy identification of the data stored on the backup media or the specific backup set.

Use SQL Server utilities to back up the database:

- Transact-SQL
- SQL Distributed Management Objects
- Create Database Backup wizard
- SQL Server Enterprise Manager

***Note:** You must configure SQL Server Enterprise Manager to use it with the embedded database engine. See the TechNote "Backing up Breeze Database Engine and Breeze data or content" on Adobe.com: www.adobe.com/go/79895439.*

Back up the Microsoft SQL Server database

If you are using Microsoft SQL Server 2000 or 2005, you can use SQL Server Enterprise Manager to back up your database.

1 In Windows, select Start > All Programs > Microsoft SQL Server > Enterprise Manager.

2 In the Tree pane of the Enterprise Manager window, select the database (named "breeze," by default).

3 Select Tools > Backup Database.

For complete instructions for SQL Server database backup and recovery, see the Microsoft Support site.

Back up the embedded database

If you are using the embedded database, use the following procedure to create a backup of the database.

1 Log on to the server hosting Enterprise Server.

2 Create a folder to store the database backup files.

This example uses the folder C:\Connect_Database.

3 Select Start > Run.

4 In the Run dialog box, type **cmd** in the Open box.

5 At the prompt, change to the directory where you installed the database. By default, the directory is C:\Program Files\Microsoft SQL Server\.

6 At the prompt, type `osql -E -Q "BACKUP DATABASE breeze TO DISK = 'c:\Connect_Database\breeze.bak'"` and press Enter.

A message indicates whether the backup was successful.

When you use the `-E` command, you enter SQL in trusted mode and don't need to enter a password.

To access help information for database commands, type `osql ?` at the DOS prompt and press Enter.

***Note:** This step assumes your database name is "breeze." If you changed the name, use the name found in the Database Settings > Database Name section of Application Management Console.*

7 At the prompt, type `quit` and press Enter.

8 To verify that the backup was successful, confirm that the breeze.bak file exists in the C:\Connect_Database directory.

For more information on backing up the embedded database engine, see the Microsoft article "How to back up a Microsoft Data Engine database by using Transact-SQL".

Restoring the database from a backup

If you backed up the Connect Enterprise database, you can restore the database from a backup.

For instructions, see the following TechNotes on Adobe.com:

www.adobe.com/go/425261d8—Restoring the Breeze database and content folder from a back up

www.adobe.com/go/b8f904f2— How to restore a database using SQL client

Maintaining Adobe Connect Edge Server

Clear the edge server cache

Adobe recommends that you create a weekly scheduled task to clear the edge server cache. It's a good idea to run the task during off-peak hours, such as early Sunday morning.

1 Create a cache.bat file to delete the cache directory. The entry in this file must use the following syntax:

```
del /Q /S [cache directory]\*.*
```

The default cache directory is C:\breeze\edgeserver\win32\cache\http. To delete the cache, use the following command:

```
del /Q /S c:\breeze\edgeserver\win32\cache\http\*.*
```

2 Select Start > All Programs > Adobe Connect Edge Server > Stop Adobe Connect Edge Server.

3 Run the cache.bat file and verify that it deletes files in the cache directory.

***Note:** The directory structure remains, and any files that the edge server locks are not deleted.*

4 Select Start > All Programs > Adobe Connect Edge Server > Start Adobe Connect Edge Server.

5 Select Start > Control Panel > Scheduled Tasks > Add Scheduled Task.

6 Select cache.bat as the new file to run.

7 Repeat this procedure for each edge server.

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