

# Avid<sup>®</sup> Interplay<sup>™</sup> SQL Sync

## Installation and Administration Guide



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# Using This Guide

Congratulations on the purchase of your Avid® Interplay™, a powerful system for managing media in a shared storage environment.




This guide is intended for all Avid Interplay administrators who want to export the contents of their Avid Interplay databases to Microsoft® SQL Server™ databases.



*The documentation describes the features and hardware of all models. Therefore, your system might not contain certain features and hardware that are covered in the documentation.*

## Symbols and Conventions

Avid documentation uses the following symbols and conventions:

Symbol or Convention	Meaning or Action
	A note provides important related information, reminders, recommendations, and strong suggestions.
	A caution means that a specific action you take could cause harm to your computer or cause you to lose data.
	A warning describes an action that could cause you physical harm. Follow the guidelines in this document or on the unit itself when handling electrical equipment.
>	This symbol indicates menu commands (and subcommands) in the order you select them. For example, File > Import means to open the File menu and then select the Import command.
▶	This symbol indicates a single-step procedure. Multiple arrows in a list indicate that you perform one of the actions listed.
(Windows), (Windows only), (Macintosh), or (Macintosh only)	This text indicates that the information applies only to the specified operating system, either Windows or Macintosh OS X.

Symbol or Convention	Meaning or Action
<b>Bold font</b>	Bold font is primarily used in task instructions to identify user interface items and keyboard sequences.
<i>Italic font</i>	Italic font is used to emphasize certain words and to indicate variables.
<b>Courier Bold font</b>	Courier Bold font identifies text that you type.
Ctrl+key or mouse action	Press and hold the first key while you press the last key or perform the mouse action. For example, Command+Option+C or Ctrl+drag.

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2. Check the latest information that might have become available after the documentation was published:

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If the latest information for your Avid product is provided as a ReadMe file, it is supplied on your Avid installation CD or DVD as a PDF document (README\_*product*.pdf) and is also available online.

**You should always check online for the most up-to-date release notes or ReadMe because the online version is updated whenever new information becomes available.** To view these online versions, select ReadMe from the Help menu, or visit the Knowledge Base at [www.avid.com/readme](http://www.avid.com/readme).

3. Check the documentation that came with your Avid application or your hardware for maintenance or hardware-related issues.
4. Visit the online Knowledge Base at [www.avid.com/online-support](http://www.avid.com/online-support). Online services are available 24 hours per day, 7 days per week. Search this online Knowledge Base to find answers, to view error messages, to access troubleshooting tips, to download updates, and to read or join online message-board discussions.

## Viewing User Documentation on the Interplay Portal

You can quickly access the Interplay user documentation from any system in the Interplay environment. Type the following line in your Web browser:

`http://Interplay_Engine_name`

where *Interplay\_Engine\_name* is the name of the computer running the Interplay Engine software. For example, the following line opens the portal Web page on a system named DocWG:

`http://DocWG`

- Click the “Avid Interplay User Documentation” link to access the User Information Center page. On this page, select the *Avid Interplay Framework User’s Guide* from the list of user’s guides.

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Most Avid online libraries also include multimedia content such as feature presentations. This multimedia content is an excellent first resource for learning how to use your application or for helping you understand a particular feature or workflow.



*You need Adobe® Reader® to view the documentation online. You can download the latest version from the Adobe web site.*

### **To access the online library from the Online Library DVD:**

1. Insert the Online Library DVD into the drive.
2. Double-click the Mainmenu file.

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# 1 Overview of the SQL Syncer Tool

The Avid Interplay Engine provides extremely fast storage and access to object hierarchies and meta-information attached to the current version of each object. A fully-integrated fast searching implementation provides efficient access to subsets of the stored data.

What the Avid Interplay Engine does not provide is a standard searching interface that can be used by standard tools like Crystal Reports. Although the Avid Interplay searching implementation is flexible enough to fulfill a lot of requirements, it is not as powerful and flexible as SQL searches on a relational database system, for example.

In order to provide the missing flexibility without implementing a complete SQL query engine inside the Avid Interplay Engine, the data stored in backups of the Avid Interplay Engine can be replicated into another SQL database. The optional SQL Syncer tool can be attached to the Avid Interplay Engine, from which it creates an initial information export and then on a set schedule, exports the entire Avid Interplay database regularly (an efficient update of only the database backup changes can be configured instead). These changes are exported into the SQL database to which the SQL Syncer is connected. The view of the database can then be altered as needed.

This topic provides an overview over the SQL synchronization architecture used in the replication of an Avid Interplay Engine database backup into an external database system.

## Architecture Overview

The SQL Syncer sits between the Avid Interplay Engine and the SQL database server. The setup program installs the SQL Syncer as a service running in the background and automatically connecting to the configured Avid Interplay Engine and SQL database server on startup as specified during installation or in the configuration file.

After successfully establishing a connection, the SQL Syncer waits for a scheduled synchronization with an Interplay Engine backup and then updates the new events in the corresponding SQL database.

### Limitations

The SQL synchronization architecture does not guarantee or imply that the Avid Interplay Engine and the external database are 100 percent in-sync all the time, as the SQL database is updated from the Interplay Engine backup. The SQL Syncer is an optional component which can be used to facilitate complex search queries on the data stored in an Avid Interplay Engine.

In case of network failures, database shutdowns or other problems in the involved components that prevent changes to the Avid Interplay Engine from being propagated to the external database, the implementation does not perform an automatic resynchronization.

## 2 Installing the SQL Syncer Tool

This chapter contains the following topics:

- [SQL Syncer Setup Requirements](#)
- [Installing SQL Syncer](#)
- [Running WorkgroupSQLSetup.exe on the Interplay Server \(Optional\)](#)
- [First Export to SQL](#)

### SQL Syncer Setup Requirements

The following sections describe the hardware and software requirements for a successful installation of the SQL Syncer.

#### Software Requirements

The following versions are supported:

- Microsoft SQL Server 2005



*You must have the same version of the Interplay Engine installer as the SQL Syncer installer or there may be issues with the database2.dll file.*

#### Machine Setup Options

The three elements (Interplay Engine, SQL Syncer, and SQL database) of the SQL synchronization can be distributed successfully in the following ways:

- Two machines: the Interplay Engine on one machine, and the SQL Syncer and SQL database on the other.
- Three machines: Interplay Engine on one machine, the SQL Syncer on another machine, and the SQL database on a third machine.

## 2 Installing the SQL Syncer Tool

### Machine Requirements/Limitations

Due to capacity requirements, Avid strongly recommends purchasing and using an unrestricted SQL Server license rather than use a restricted-size free version. If a restricted-size version suits your needs, you can download the free SQL Server 2005 Express Edition from here: <http://www.microsoft.com/sql/editions/express/default.msp>.

## Installing SQL Syncer

Contact your Avid representative to obtain a copy of the SQL Syncer installation program.

### To install the SQL Syncer:

1. Make sure the Avid Interplay Engine is installed.

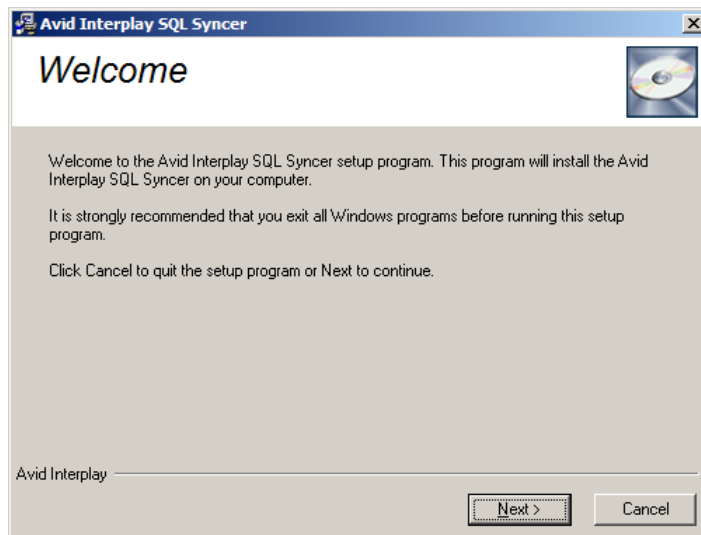
See the *Avid Interplay Software Installation and Configuration Guide* for instructions on how to install the Avid Interplay Engine.

2. Make sure the SQL Server is installed.

The SQL Server must be installed on a machine other than the Avid Interplay Engine.

3. Run the WorkgroupSQLSyncer.exe installation program.

The Welcome dialog box opens.

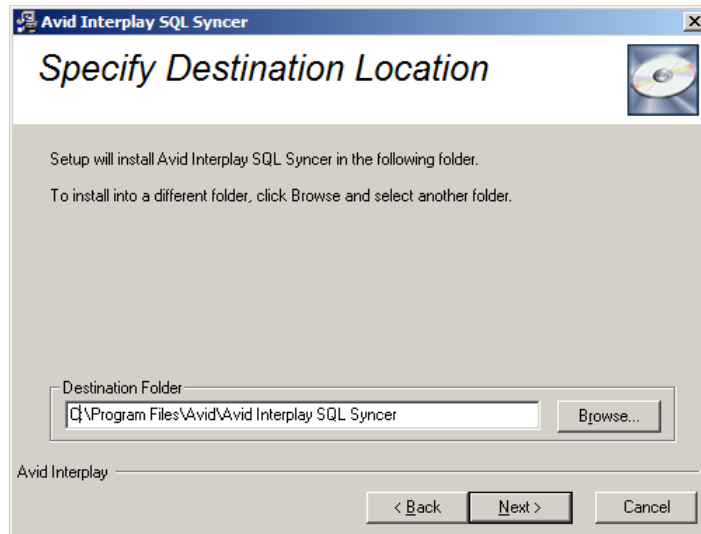


4. Click Next.

The License Agreement dialog box opens.

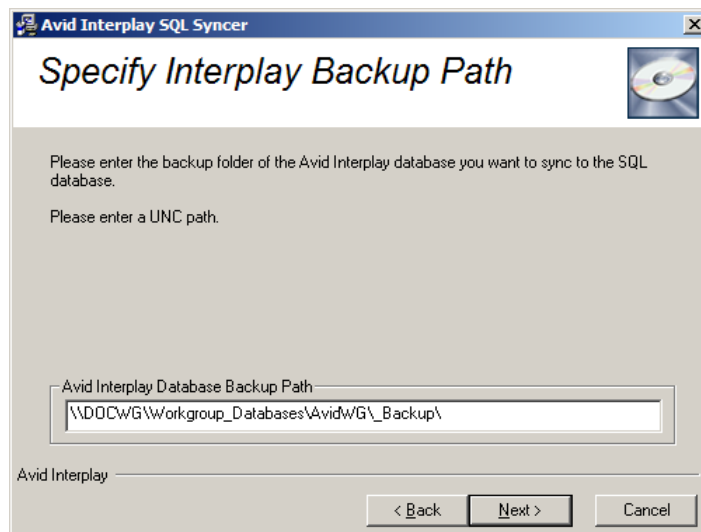
5. Read the text carefully and select “I accept the agreement.”
6. Click Next.

The Specify Destination Location dialog box opens.



7. Enter the folder in which you want to install the SQL Syncer.
8. Click Next.

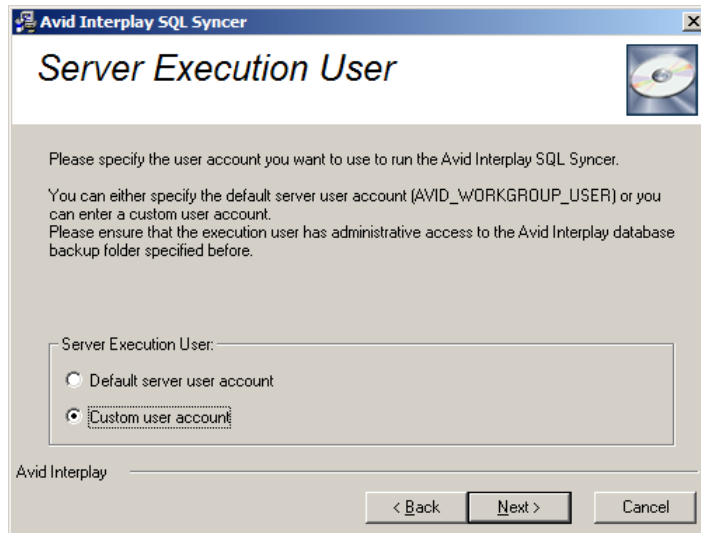
The Specify Interplay Backup Path dialog box opens.



## 2 Installing the SQL Syncer Tool

9. Type the path to the backup of the Avid Interplay database you want to sync to the SQL database.
10. Click Next.

The Server Execution User Dialog Box opens.



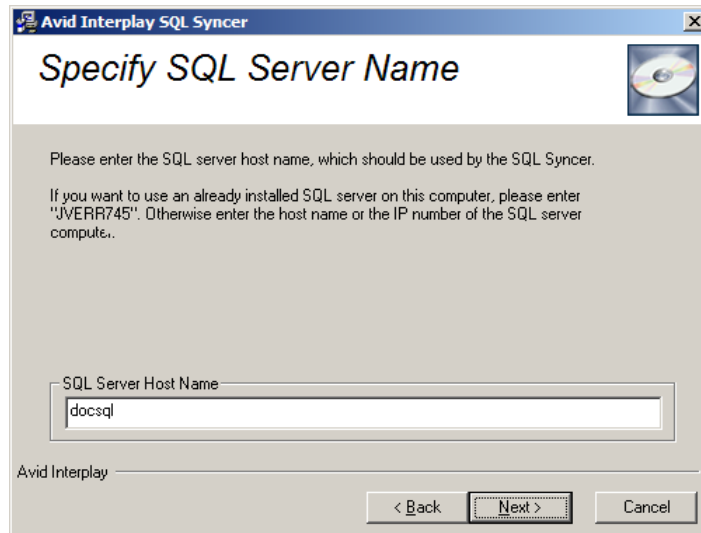
11. Select Custom user account and click Next. You are then be prompted to enter the custom User Name and Password, and to confirm the password.



**Make sure to select Custom user account. This account must be the same account that runs the Avid Interplay Engine (the Server Execution User). For more information, see the *Avid Interplay Software Installation and Configuration Guide*.**

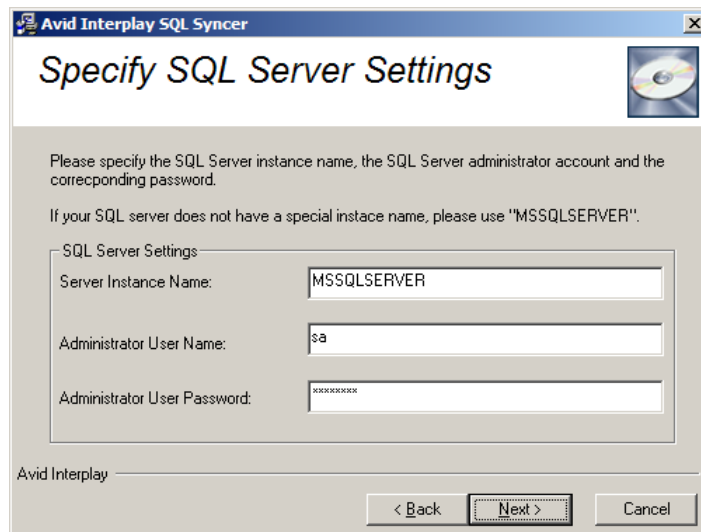
12. Click Next.

The Specify SQL Server Name dialog box opens.



13. Type the name of the SQL server host name that should be used by the SQL Syncer. Do one of the following:
  - ▶ For a two-machine setup: leave the default (the current machine name)
  - ▶ For a three-machine setup: change the SQL server name to the host name or IP address of the SQL server computer.

The Specify SQL Server Settings dialog box opens.



## 2 Installing the SQL Syncer Tool

14. Specify the SQL Server instance name (if applicable), the Administrator user name and the Administrator password.

15. Click Next.

The Ready to Install dialog box opens.

16. Click Finish.

17. A reboot may be required if the database needs to be installed.

After a successful installation, the Installation Completed dialog box opens.

18. Click Finish.

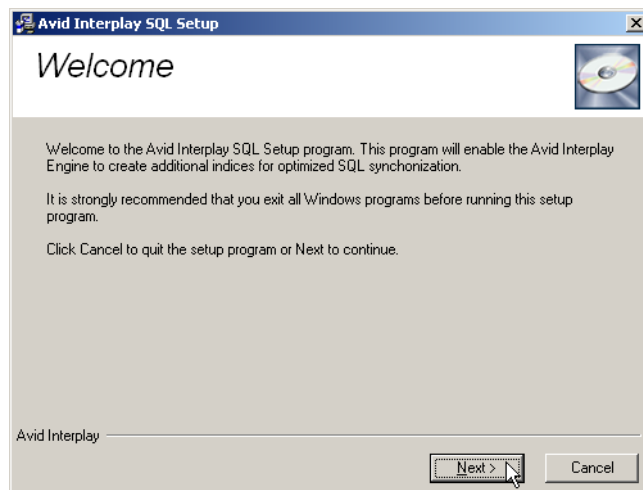
## Running WorkgroupSQLSetup.exe on the Interplay Server (Optional)

The EnableSQLUpdate feature can be turned on (it is off by default) on the Interplay Engine by running WorkgroupSQLSetup.exe. See [“Efficient Update Ability” on page 24](#) for details before installing this feature, because it has a slight impact on server performance.

### To turn on the EnableSQLUpdate feature:

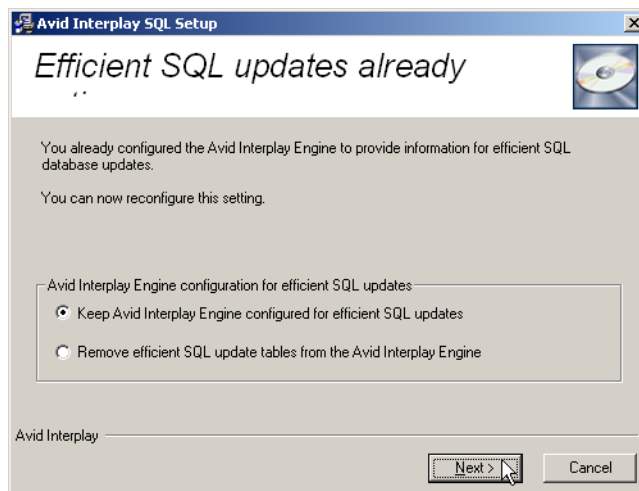
1. Start the WorkgroupSQLSetup.exe.

The Welcome dialog box opens.



2. Click Next.

If the functionality is already configured to be on, the Efficient SQL Updates Already dialog box opens. It allows you to reconfigure this setting.



- a. Do one of the following:
  - Select “Keep Avid Interplay Engine configured for efficient SQL updates” (default)
  - Select “Remove efficient SQL update tables from the Avid Interplay Engine”
- b. Click Next.

The Ready to Install dialog box opens.

3. Click Finish.

The Setup Completed dialog informs you of the successful installation.

## First Export to SQL

At the next scheduled update time, the SQL Syncer (DbToSql.exe) runs, creates the new SQL database, and exports the Interplay data it finds in the Interplay Backup directory. This first update might take a long time because the entire backup database must be exported.

## 2 Installing the SQL Syncer Tool

## 3 Avid Interplay Database Schema, Syncing and Querying

This chapter contains the following explanations:

- [Avid Interplay Database Schema](#)
- [Progress and Success Log](#)
- [Scheduled Synchronization](#)
- [Efficient Update Ability](#)
- [SQL Queries](#)
- [Tutorial on View Creation](#)
- [Reports](#)

### Avid Interplay Database Schema

The Avid Interplay database schema provides a flexible, efficient, and self-contained implementation that mirrors essential data from the Avid Interplay database.

#### Design Objectives

The goal of the data model was to provide a flexible approach that can deal with the highly dynamic character of the Avid Interplay database. In Avid Interplay, an application is not restricted regarding the property space. The creation of a new property in the Avid Interplay Engine is implicitly performed as soon as an application sets a property the first time.

The Avid Interplay Engine is designed to provide such a flexible structure. In contrast, a relational database system with its table-based data structures is more designed to deal with data models which are mainly fixed and don't change over time.

The goal behind the design of the data model for the Avid Interplay Engine synchronization was to provide a flexible, efficient and self-contained implementation. Flexible because the dynamic creation of properties must be properly mapped to corresponding data structures in the database. Efficient means that for updating, adding or getting meta-information, a

### 3 Avid Interplay Database Schema, Syncing and Querying

minimal number of tables and rows in the database are affected. Self-containment means that all information for finding out where the requested data is stored is kept inside the same database.

#### Overview

There is one table which stores basic information about all objects in the Avid Interplay database. The basic information includes the object's handles and information about the position of the object in the hierarchical object tree.

#### Schema

The schema exported to SQL is simple and fixed. Objects and their properties, dependencies between objects, and a few lookup tables are supported. The most important properties live in the WG\_OBJECTS table as a column. For objects in the server, a BIH is stored for each unique version object, and a BDH to refer to the set of versions. For the export, only the current version of the objects is considered, which reduces the output table size and complexity of the schema.

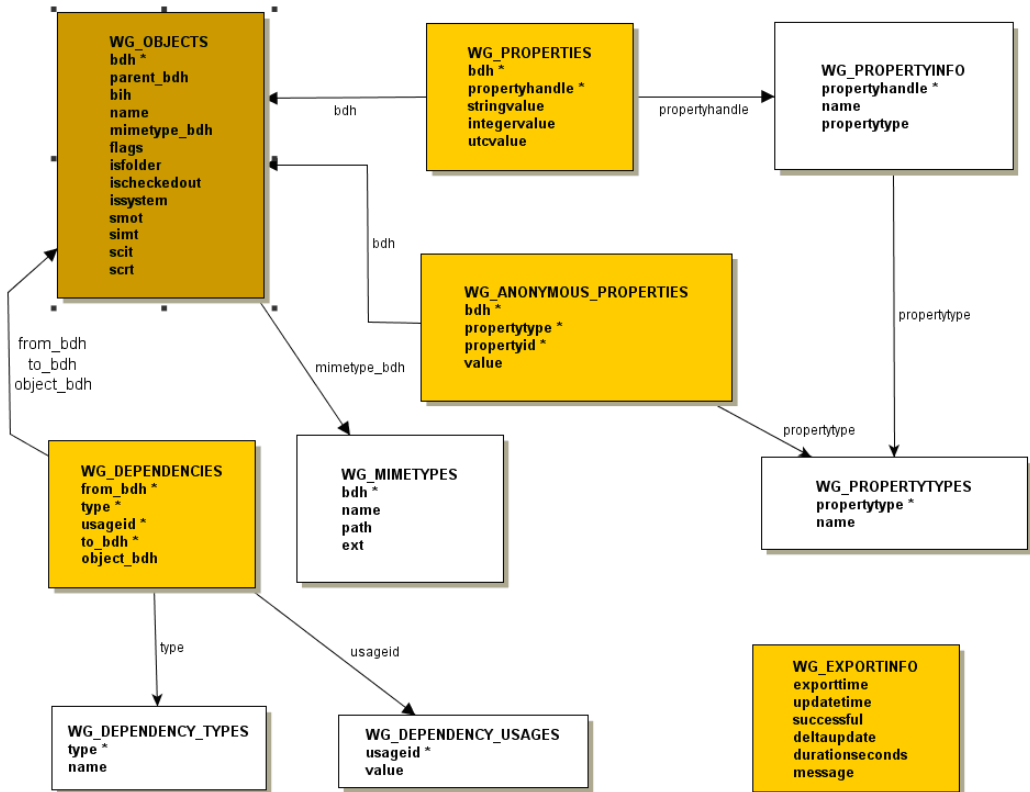


*Do not alter the schema; an alteration leads to an exception at export time. Instead, additional columns can be added onto the schema using views (see “[Tutorial on View Creation](#)” on page 25.)*

The following diagram shows the export schema for the export of the current object snapshot from the Interplay Database.

## SQL Export Schema

For the export of the current snapshot from the Interplay Database



\* Data tables are orange, lookup tables are white.

\* Arrows are labeled with the field which is a foreign key into the table pointed to.

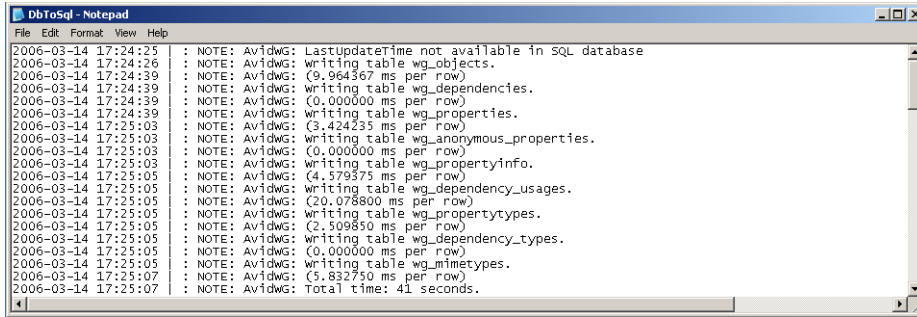
\* EXPORT\_INFO is a history/log table

\* The "\*" represents a key

See ["Schema Table Descriptions" on page 31](#) for complete descriptions of the tables.

## Progress and Success Log

The progress and success of the SQL Syncer is written to the DbToSQL.log file located in C:\Program Files\Avid\Avid Interplay SQL Syncer\Bin.



```
2006-03-14 17:24:25 : NOTE: AvidWG: LastupdateTime not available in SQL database
2006-03-14 17:24:26 : NOTE: AvidWG: writing table wg_objects.
2006-03-14 17:24:39 : NOTE: AvidWG: (9.964367 ms per row)
2006-03-14 17:24:39 : NOTE: AvidWG: writing table wg_dependencies.
2006-03-14 17:24:39 : NOTE: AvidWG: (0.000000 ms per row)
2006-03-14 17:24:39 : NOTE: AvidWG: writing table wg_properties.
2006-03-14 17:25:03 : NOTE: AvidWG: (3.424235 ms per row)
2006-03-14 17:25:03 : NOTE: AvidWG: writing table wg_anonymous_properties.
2006-03-14 17:25:03 : NOTE: AvidWG: (0.000000 ms per row)
2006-03-14 17:25:03 : NOTE: AvidWG: writing table wg_propertyinfo.
2006-03-14 17:25:05 : NOTE: AvidWG: (4.579375 ms per row)
2006-03-14 17:25:05 : NOTE: AvidWG: writing table wg_dependency_usages.
2006-03-14 17:25:05 : NOTE: AvidWG: (20.078800 ms per row)
2006-03-14 17:25:05 : NOTE: AvidWG: writing table wg_propertytypes.
2006-03-14 17:25:05 : NOTE: AvidWG: (2.509850 ms per row)
2006-03-14 17:25:05 : NOTE: AvidWG: writing table wg_dependency_types.
2006-03-14 17:25:05 : NOTE: AvidWG: (0.000000 ms per row)
2006-03-14 17:25:05 : NOTE: AvidWG: writing table wg_mimetypes.
2006-03-14 17:25:07 : NOTE: AvidWG: (3.832750 ms per row)
2006-03-14 17:25:07 : NOTE: AvidWG: Total time: 41 seconds.
```

## Scheduled Synchronization

The installer schedules the SQL Syncer to run daily at 5:00 am. This can be changed in the configuration file found in C:\Program Files\Avid\Avid Interplay SQL Syncer\Bin\DbtoSQL.xml. See [“SQL Syncer Configuration” on page 27](#) for details.

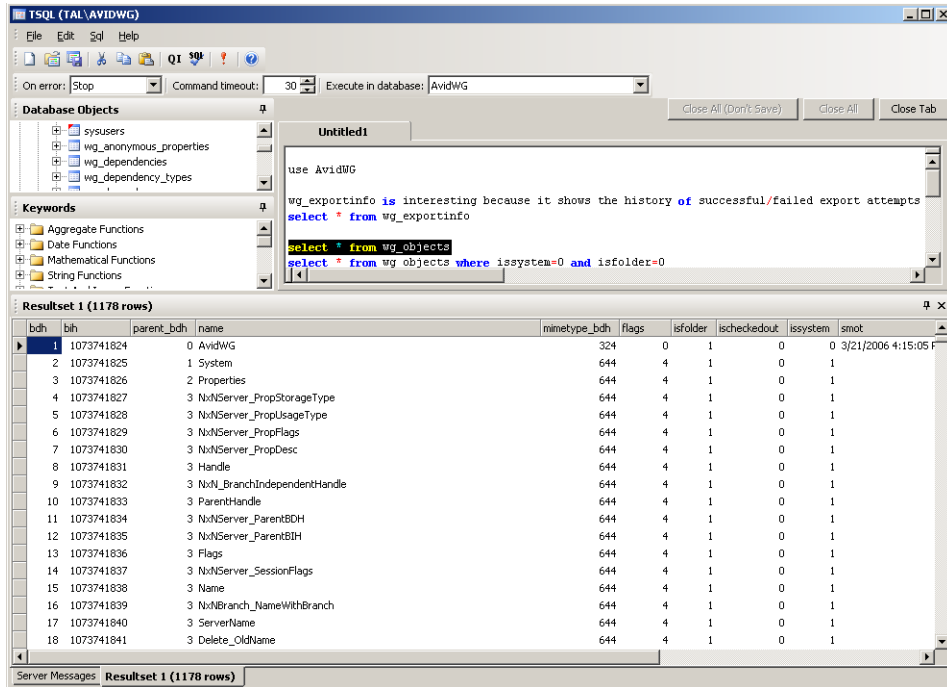
## Efficient Update Ability

If the EnableSQLUpdate feature is turned on, the Avid Interplay Engine keeps a record of (timestamp,object id) pairs, so that on subsequent runs the SQL Syncer only needs to look at objects changed since the last update time instead of exporting the entire database backup. This can drastically reduce the amount of time required to export to SQL. It does have a slight performance impact on the server (2 to 3 percent in a dedicated test constantly updating Interplay objects).

See [“Running WorkgroupSQLSetup.exe on the Interplay Server \(Optional\)” on page 18](#) for information about turning the feature on.

# SQL Queries

After exporting the Interplay Database to the SQL database, you can view the exported contents and run queries.



## Tutorial on View Creation

The following tutorial shows how you can modify the schema by working with views defined on top of the tables provided.

1. Add the property value NxNServer\_AuthOwner as a column on wg\_objects. First determine the propertyhandle for NxNServer\_AuthOwner.

```
select * from wg_propertyinfo where name LIKE 'NxNServer_AuthOwner'
```

Output:

propertyhandle	name	flags	type
238	'NxNServer_AuthOwner'	6145	11

### 3 Avid Interplay Database Schema, Syncing and Querying

2. Test a SQL query that does this:

```
select vo.*,vp.stringvalue AuthOwner from wg_objects vo,  
wg_properties vp where vo.bdh=vp.bdh and vp.propertyhandle=238
```

Output:

bdh	parent_bdh	name	<etc>	AuthOwner
4	3	'NxNServer_PropStorageType'	...	'Administrator'
...				

3. Create that as a view.

```
create view vobjects_wauthowner as select vo.*,vp.stringvalue  
AuthOwner from wg_objects vo, wg_properties vp where vo.bdh=vp.bdh  
and vp.propertyhandle=238
```

4. Run the view.

```
select * from vobjects_wauthowner
```

Output:

bdh	parent_bdh	name	<etc>	AuthOwner
4	3	'NxNServer_PropStorageType'	...	'Administrator'
...				

## Reports

If you have Crystal Reports you can load a sample report to use as a template from  
C:\Program Files\Avid\Avid Interplay SQL Syncer\CrystalReports.

## 4 SQL Syncer Configuration and Troubleshooting

This section contains the following topics:

- [SQL Syncer Configuration](#)
- [SQL Syncer Troubleshooting](#)

### SQL Syncer Configuration

The SQL Syncer is configured through an XML configuration file, DbToSQL.xml, which can be found in the installation directory, for example:

C:\Program Files\Avid\Avid Interplay SQL Syncer\Bin\DbToSQL.xml

The XML file should contain, in an xml configuration format, the following information:

- Type of SQL database you are connecting to
- SQL database location
- Username/password used to connect to the database
- For each Interplay Engine database you want to back up:
  - UNC path to its backup folder
  - Frequency information and time for the export to occur

By default, the SQL Syncer is scheduled to run daily at 5:00 am. You can change that to any time or frequency. One possibility is to estimate or measure how long a nightly backup takes, and then schedule a sync on that new backup some hours later. You can sync with either a full backup or a partial backup.

## 4 SQL Syncer Configuration and Troubleshooting

The following is an example of a configuration file:

```
<config>

  <database server="kabelbinder"

    type="MSSQLServer"

    username="sa"

    password="sa"

    retriesBeforeScan="3"/>

  <exportlist>

    <workgroup backuppath="\\MACHINEA\WG_Database$\AvidWG\_Backup"

      schedule="-05:00"/>

  </exportlist>

</config>
```

The following tables describe the configuration file nodes and their attributes:

### Node Descriptions

Node Name	Parent Node	Description
config	NONE	Top level node of the config file. It must contain a database node and an exportlist node.
database	config	Describes the SQL server you are exporting to.
exportlist	config	Contains a list of Interplay databases you want to export to SQL
workgroup	exportlist	There is one workgroup node for each Interplay Database you want to export. It describes the path to the backup directory and specifies the times backup should be performed.

**Database Node Attribute Descriptions**

Attribute Name	Default Value	Description
server	None, must be set	Specify the SQL Server that you are exporting to here. For SQL Server, if you have a named instance, the syntax is <server>\<named instance>
type	None, must be set	Type must be "MSSQLServer".
username	None, must be set	The username to use in connecting to the SQL database.
password	None, must be set	The password to use in connecting to the SQL database.
retriesBeforeScan	"3"	You can customize the number of times DbToSql retries an Efficient Update before reverting to a full export.

**Workgroup Node Attribute Descriptions**

Attribute Name	Default Value	Description
backuppath	None, must be set	The path to the backup directory for the Interplay database you wish to export. DbToSql chooses the most recent completed backup subdirectory from this location.

Workgroup Node Attribute Descriptions (Continued)

Attribute Name	Default Value	Description
schedule	None, must be set	This is in the format "-HH:MM" where HH:MM is a time in 24-hour time format when the backup should happen. It can also be in the format "*HH:MM" where HH:MM is a time interval describing how often an export should happen. For example, "*01:00" means an export should be performed every hour. Finally, the format "+HH:MM,HH:MM,..." is supported, where each HH:MM entry in the comma-separated list is a time in 24-hour time format when the export should be performed. For example, "+01:00,13:00" means that an export should occur at 1 am and 1 pm daily.
databasename	The default database name is the name of the Interplay database being exported.	By default, DbToSql creates or exports to a SQL database with the same name as that of the Interplay database being exported. You can override this behavior by specifying the SQL database name here.

# SQL Syncer Troubleshooting

## Running the Export Immediately

By running dbtosql.exe kickstart from a command prompt, you initiate an immediate export from the Interplay backup directory to the SQL server, for each project in dbtosql.xml.

Any errors or messages go to the log file. This is a useful diagnostic or test mode because it is less cumbersome than setting a time to export in the dbtosql.xml file, and you get immediate feedback on success or failure of the process.

# A

## Schema Table Descriptions

This chapter contains the following Avid Interplay database schema tables:

- [wg\\_anonymous\\_properties](#)
- [wg\\_dependencies](#)
- [wg\\_dependency\\_types](#)
- [wg\\_dependency\\_usages](#)
- [wg\\_exportinfo](#)
- [wg\\_mimetypes](#)
- [wg\\_objects](#)
- [wg\\_properties](#)
- [wg\\_propertyinfo](#)
- [wg\\_propertytypes](#)

### wg\_anonymous\_properties

One row for each anonymous property assigned to an object.

Column Name	Type	Description
bdh	Bigint	The BDH for the object with the anonymous property.
propertytype	Bigint	Propertytype maps to information about the property.
propertyid	Bigint	A numeric ID used to separate anonymous properties.
value	ntext	The string value of the anonymous property.

## wg\_dependencies

One row for each dependency relationship between two objects (designated "from" and "to" objects).

Column Name	Type	Description
from_bdh	bigint	The BDH for the "from" object.
type	bigint	The type of the dependency, viewable with a lookup in wg_dependency_types.
usageid	bigint	Usageid maps to a string associated with the dependency.
to_bdh	bigint	The BDH for the "to" object.
object_bdh		If an object is associated with the dependency link, it's BDH handle is specified here. (may be NULL).

## wg\_dependency\_types

Column Name	Type	Description
type	bigint	The type ID
name	ntext	The dependency type name.

## wg\_dependency\_usages

Column Name	Type	Description
usageid	bigint	The dependency usageid.
value	ntext	The associated string.

## wg\_exportinfo

There is one row for each attempt to export the Interplay database to SQL. was\_successful indicates success.

Column Name	Type	Description
exporttime	datetime	The time of the last export attempt.
updatetime	datetime	The last time the Interplay Engine database was modified.
was_successful	tinyint	1 if the attempt was successful.
deltaupdate	tinyint	1 if an efficient update could be performed (as opposed to a full export).
durationseconds	int	The time required to complete the export.
message	ntext	In case of an error, this contains text for a diagnosis.

# wg\_mimetypes

Column Name	Type	Description
bdh	bigint	The BDH for the Mime Type object.
name	ntext	The name of the mime type.
path	ntext	The path for the mime type in a tree of mime types organized in broad categories.
ext	ntext	The file extention string for files associated with this mime type.

# wg\_objects

Each row is a Workgroup Object.

Column Name	Type	Description
bdh	bigint	The canonical object identifier.
bih	bigint	The low level ID of the object (often called the BIH)
parent_bdh	bigint	The BDH of the parent object.
name	ntext	The object name.
mimetype_bdh	bigint	The BDH of the mime type for this object. If there is no mime type object associated this field is NULL.
flags	bigint	Low-level object flags (undefined).

Column Name	Type	Description
isfolder	tinyint	True if the object is a folder.
ischeckedout	tinyint	True if the object is checked out.
issystem	issystem	True if the object is a Workgroup System object.
smot	datetime	Server File Modification Time
simt	datetime	Server File Import Time
scit	datetime	Server Check In Time
scrt	datetime	Server File Creation Time

## wg\_properties

Each row represents a property on an object. Exactly one of stringvalue, integervalue or utcvalue is non-NULL for each row. The propertyhandle determines the type.

Column Name	Type	Description
bdh	bigint	The BDH for the containing object.
propertyhandle	bigint	The property handle.
stringvalue	ntext	The string value (may be NULL)
integervalue	bigint	The integer value (may be NULL)
utcvalue	datetime	The datetime value (may be NULL)

## wg\_propertyinfo

For each unique propertyhandle, there is a row giving more details about the property type.

Column Name	Type	Description
propertyhandle	bigint	The unique handle for each property.
name	ntext	The property name.
propertytype	bigint	References the property type (see table wg_propertytypes).

## wg\_propertytypes

A row is given for each unique property type in the system.

Column Name	Type	Description
propertyname	bigint	The ID for the property type.
name	ntext	The property type name.

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