

Reading Sample

In Chapter 13, you'll learn how the new Information Design Tool is different from the Universe Design Tool, and how to perform the conversion from UNV to UNX.



"Comparing the Universe Design Tool and Information Design Tool"



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Universe Design with SAP BusinessObjects BI

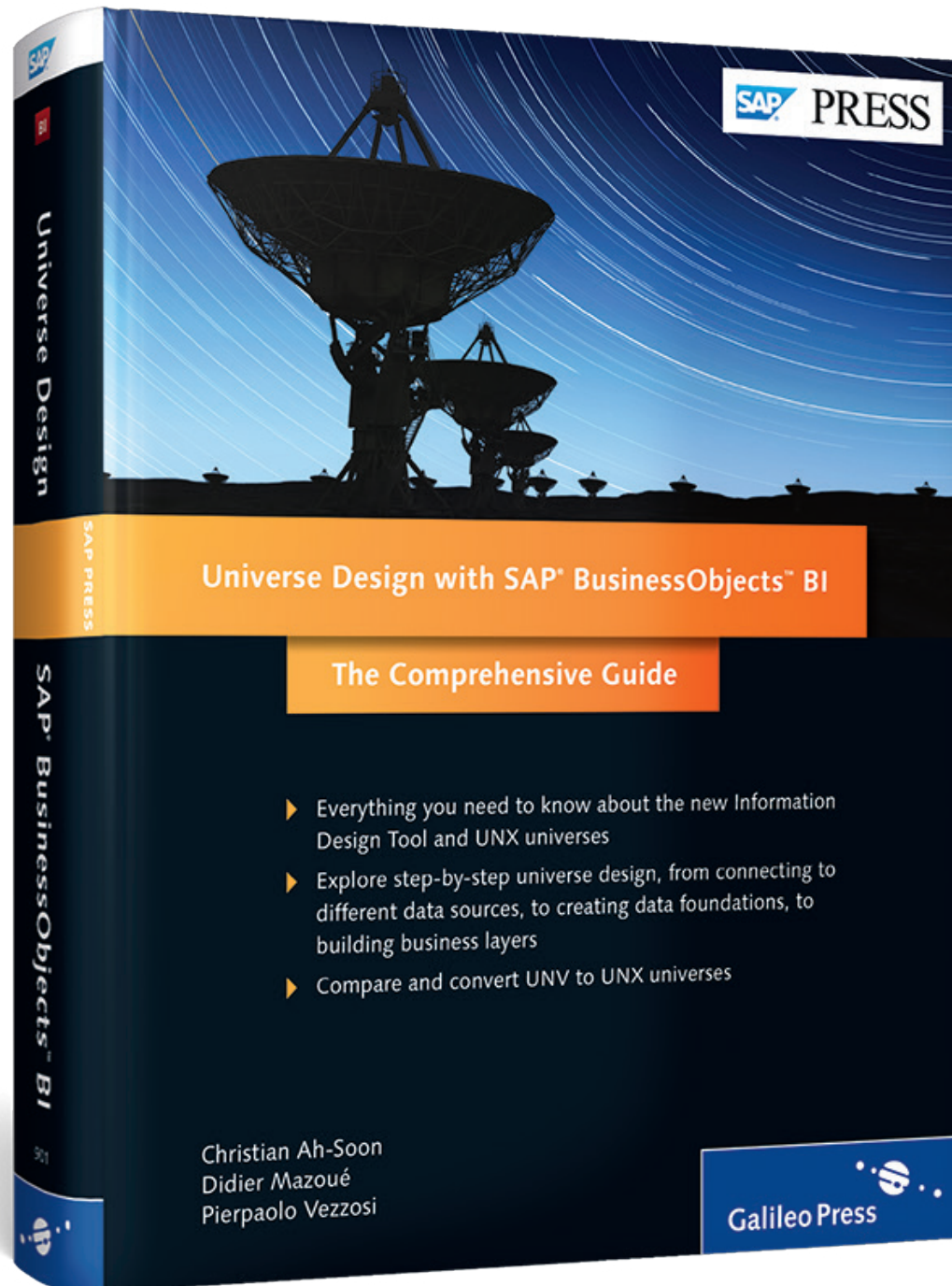
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The Universe Design Tool and Information Design Tool share many concepts. However, you must take some differences into consideration when converting universes.

13 Comparing the Universe Design Tool and Information Design Tool

Previous chapters have described the different capabilities of Information Design Tool (IDT). IDT is the successor of the Universe Design Tool, so most concepts are common to both tools, and IDT can be seen as a superset of the Universe Design Tool. However, there are some slight differences you need to know about when converting a universe created with the Universe Design Tool to the new universe format if you expect the converted universe to behave like the original one. This chapter compares the two tools on different topics:

- ▶ The main workflows and capabilities
- ▶ The connections created by the two tools
- ▶ The data foundation and the database schema made of tables, joins, and so on
- ▶ The business layer and its classes/folders and objects
- ▶ The prompts/parameters and lists of values
- ▶ The security proposed by the two tools
- ▶ Some usability differences

Finally, the chapter describes how a universe is converted and how to perform this conversion in IDT.

13.1 General

Table 13.1 describes the main differences between the Universe Design Tool and IDT.

Universe Design Tool	Information Design Tool
Generates universe (.unv) that can be consumed by the following: <ul style="list-style-type: none">▶ SAP BusinessObjects Web Intelligence▶ SAP Crystal Reports 2013▶ SAP BusinessObjects Explorer▶ Query as a Web Service▶ SAP BusinessObjects Live Office, through SAP BusinessObjects Web Intelligence and Query as a Web Service▶ SAP BusinessObjects Dashboard, through Query as a Web Service▶ SAP Lumira▶ SAP Predictive Analysis	Generates universe (.unx) that can be consumed by the following: <ul style="list-style-type: none">▶ SAP BusinessObjects Web Intelligence▶ SAP Crystal Reports for Enterprise▶ SAP BusinessObjects Explorer (relational only)▶ SAP BusinessObjects Dashboards▶ SAP Lumira (relational only)▶ SAP Predictive Analysis (relational only)
Doesn't differ between authoring and consumption resources; the only supported file is the universe that can be saved locally or exported to the Central Management Server (CMS) repository.	Separates the authoring and consumption workflows. For authoring, the data foundation and business layer are saved in a local project. For consumption, the universe can be published locally or in the CMS repository.
You connect to the CMS repository in the USER AUTHENTICATION dialog box. You can open only one session at a time. Before opening a new session, you must close the previous one.	You can access several CMS repositories simultaneously. All sessions are managed in a single location, the REPOSITORY RESOURCES view, where you can define and save predefined sessions.
Doesn't have collaboration mode.	Supports designers' collaboration and resource synchronization in shared projects.
Supports linked universes.	Doesn't support linked universes.
Doesn't support custom user attributes.	Supports custom user attributes (as of SAP BusinessObjects BI 4.0 SP4).

Table 13.1 Workflow Comparison

Universe Design Tool	Information Design Tool
Can display values for only one table or one column at a time. The values are displayed in columns.	Uses a common SHOW VALUES editor to display data from connections, tables, columns, query results, and so on. This editor can display values for several tables or columns. It proposes an advanced graphical display with a large number of supported charts and filtering capabilities that can be used to profile data.
Supports metadata exchange to automatically create universes from third-party databases models or export universes to these models.	Doesn't support metadata exchange.
Can't convert a universe based on a relational source into a universe based on SAP HANA.	Supports the conversion of a universe based on another database to a universe based on SAP HANA (as of SAP BusinessObjects BI 4.1).
Proposes a Software Development Kit (SDK) that covers all Universe Design Tool capabilities.	As of SAP BusinessObjects BI 4.1, it proposes an SDK that supports only simple workflows. Since its first release in SAP BusinessObjects BI 4.0 SP4, this SDK has been updated with new methods in SAP BusinessObjects BI 4.0 SP5 and SAP BusinessObjects BI 4.1.

Table 13.1 Workflow Comparison (Cont.)

13.2 Connections

Table 13.2 compares the different connections supported by the Universe Design Tool and IDT.

Universe Design Tool	Information Design Tool
Supports two local connection types: <ul style="list-style-type: none">► Personal: Can be used only on the computer on which it was created.► Shared: Created locally on the computer but can be used by all users.	Supports only one local connection, the one you create in a local project.
Supports a secured connection, which is the connection created in the CMS repository.	Supports a secured connection, which is the connection created in the CMS repository. To reference a secured connection, you must use a connection shortcut.
Supports relational connections based on Connection Server and in common with IDT (interoperability).	Supports relational connections based on Connection Server and in common with the Universe Design Tool (interoperability).
Supports SAP NetWeaver BW and SAS relational connections through SAP BusinessObjects Data Federator XI 3.0.	Multisource data foundation supports SAP NetWeaver BW or SAS relational connections based on the Federation Query Server. These connections can only be created in the CMS repository. It isn't possible to create them locally. Supports also OLAP connection to SAP NetWeaver BW.
Supports OLAP connections based on Connection Server created in the Universe Design Tool.	Doesn't support OLAP connections based on Connection Server created in the Universe Design Tool.
Doesn't support OLAP connections created in IDT or CMC.	Supports OLAP connections created in IDT or CMC. These connections can be used for multidimensional universes or direct access (for SAP systems).
Supports connections based on stored procedures and Java beans.	Doesn't support connections based on stored procedures and Java beans.

Table 13.2 Connection Support Comparison

Universe Design Tool	Information Design Tool
Supports connections created in SAP BusinessObjects Data Federator XI 3.0.	Doesn't support connections created in SAP BusinessObjects Data Federator XI 3.0, but supports multisource data foundations (as of SAP BusinessObjects BI 4.0) and federated tables (as of starting from SAP BusinessObjects BI 4.1).
Doesn't support new connectivity supported by Connection Server.	Supports new connectivity types: Hadoop, Web Service, OData, and so on.
Supports the use of @variable in connection parameters.	Doesn't support the use of @variable in connection parameters, except if used in the BEGIN_SQL parameter, which can be set in the data foundation or in the business layer.
Relational connection, for which you have the DOWNLOAD CONNECTION LOCALLY right granted, uses local middleware.	Allows you to choose either local or server middleware to use a relational connection for which you have the DOWNLOAD CONNECTION LOCALLY right granted.
Can't copy a local connection into the CMS repository.	Can publish a local connection into the CMS repository and copy its parameters in this newly created secured connection.
You can navigate in the database structure but not in the database data.	In the connection editor, you can navigate in the database structure and use the SHOW VALUES view to preview, filter, and analyze data, and then display the data using charts.
You can send SQL queries to the database, but they are only validated and no data is returned. You can't send direct MDX queries.	You can run custom SQL queries directly to a relational database or run custom MDX queries directly to an OLAP database.

Table 13.2 Connection Support Comparison (Cont.)

13.3 Data Foundation

In the Universe Design Tool, the data foundation doesn't exist, but it can be seen as the database schema—the set of tables and joins—used in the universe. Table 13.3 compares the concepts supported by the Universe Design Tool for this underlying model and data foundation created for relational universes in IDT.

Universe Design Tool	Information Design Tool
The database schema can only be used in one universe, unless you duplicate it.	A data foundation can be reused by several different business layers and, therefore, by several universes.
Displays the database schema as a whole.	Supports data foundation views.
Doesn't support table grouping and colors.	Supports families to organize tables and assign them a color.
Doesn't support calculated columns.	Supports calculated columns.
Defines context by explicitly adding all joins that may contribute to the context.	Defines contexts by adding only the necessary joins. It's no longer mandatory to explicitly include or exclude all data foundation joins.
Generates only single-source universes. Multisource is supported through a connection created in SAP BusinessObjects Data Federator XI 3.0.	Supports relational multisource data foundations.
Doesn't support tables that query different data sources, unless they are defined in SAP BusinessObjects Data Federator XI 3.0.	Supports federated tables (as of SAP BusinessObjects BI 4.1).
Can show the tables used by an object or the objects depending on a table.	Can show full dependencies between business layers, data foundations, objects, tables, and columns.
Supports strategies.	Doesn't support strategies.

Table 13.3 Data Foundation Comparison

Universe Design Tool	Information Design Tool
Doesn't search text on the tables, joins, and so on.	Proposes an advanced search where you can also select the table and column types, views, and families to search.
N/A	Proposes enhanced capabilities for ease of use: merge tables, highlight related tables, data foundation overview while zooming, comments, and so on.

Table 13.3 Data Foundation Comparison (Cont.)

13.4 Business Layer

In the Universe Design Tool, the business layer doesn't exist, but it can be seen as the set of objects exposed by the universe to client tools. In the business layer, IDT proposes new concepts compared to the classes and objects supported in the Universe Design Tool. Table 13.4 lists these IDT enhancements.

Universe Design Tool	Information Design Tool
Supports relational objects: dimensions, details, and measures organized in classes.	Supports the same relational objects that have been renamed into dimensions, attributes, and measures. These objects are organized in folders.
Supports a flat representation of OLAP universe through the relational objects: dimensions, details, and measures. Supports calculated measures with restrictions.	Supports multidimensional business layer and multidimensional objects: hierarchies, levels, calculated members, calculated measures, analysis dimensions, and named sets. Supports full MDX expressions in these multidimensional objects.
Doesn't take advantage of multidimensionality of hierarchies in OLAP universes	Proposes a MEMBER SELECTOR dialog box to select members in a multidimensional hierarchy and use OLAP operators.

Table 13.4 Business Layer Comparison

Universe Design Tool	Information Design Tool
In an OLAP-generated universe, the objects can be edited.	In a multidimensional business layer created from an OLAP data source, the generated objects, especially the query that defines the object, can't be modified. However, you may add new objects to the business layer.
A WHERE clause can be added to an object in an OLAP universe.	It is not possible to add a WHERE clause to an object in a multidimensional universe.
Only four object types are supported: character, date, long text, and number.	More object types are supported: Boolean, date, date/time, long text, numeric, and string. Binary large objects ("blobs") are also supported, but no client tools can take advantage of them at this time.
A folder name is unique in a universe.	A folder name is unique only under its parent folder.
An object can have the Active or Hidden states.	An object can have the Active, Hidden, or Deprecated states.
Doesn't support measure details.	Supports measure attributes.
Doesn't support custom properties, except through the SDK.	Supports custom properties for the business layer, dimensions, attributes, measures, filters, folders, and parameters.
Classes and objects are exposed as a whole in the universe.	Supports business layer views that may contain subset of folders and objects. Views can be used in the business layer editor and also in the query panel.
Classes and objects depend on the database schema on which they have been created.	It's possible to change the data foundation on which a business layer relies.
Filters in relational universes are defined with an SQL expression.	Supports also business filters, where the condition is expressed based on objects of the business layer.
Filters in OLAP universes are defined with an XML expression.	Business filters are the only filters supported in multidimensional universes.

Table 13.4 Business Layer Comparison (Cont.)

Universe Design Tool	Information Design Tool
Supports user object (also called user defined object), used only by SAP BusinessObjects Desktop Intelligence.	Does not support user object.
Universes are translated directly in the Translation Management Tool.	The data foundation and business layer are translated in the Translation Management Tool before publishing the universe.
Can't save queries.	Supports predefined queries; you can create, save, and run queries in the business layer.
Support OLAP universes created on SAP NetWeaver BW InfoProvider or BEx query.	Doesn't support multidimensional universes created on an SAP NetWeaver BW connection, but supports relational universes created on SAP NetWeaver BW InfoProviders. Client tools can directly query SAP BEx queries.
Relational universes support hierarchies.	Hierarchies have been renamed as navigation paths.
The search is based only on object names.	Also proposes an advanced search based on object types.

Table 13.4 Business Layer Comparison (Cont.)

13.5 List of Values and Parameters

Among IDT changes, the list of values, prompts, and renamed parameters have been completely redesigned to offer new capabilities and easier usability. Table 13.5 lists these enhancements.

Universe Design Tool	Information Design Tool
Lists of values are only defined in an object, which can have only one list of values associated.	Lists of values are defined in a data foundation or a business layer. Their editor contains a dedicated panel to manage these lists of values.

Table 13.5 List of Values and Prompt Comparison

Universe Design Tool	Information Design Tool
A list of values can only be used in the object where it's defined. It isn't possible to use the same list of values for several objects.	The same list of values isn't limited to a single object. It's global to the data foundation or business layer where it's defined. It can be reused by several objects, prompts, or filters.
Supports only lists of values defined from the following: <ul style="list-style-type: none">▶ An object's values (by default)▶ The query panel	Supports list of values defined from the following: <ul style="list-style-type: none">▶ An object values (except if it's defined in a data foundation). Object values can be retrieved from the following:<ul style="list-style-type: none">▶ The query panel▶ A custom hierarchy▶ A static list▶ An SQL expression
Uses an object to attach a list of values to a prompt or a filter.	Can directly attach a list of values to a prompt, a parameter, a filter, or an object.
If the list of values is defined with several columns, only the first column is used to return values.	If the list of values is defined with several columns, you can define which column returns values. Furthermore, if the list of values is re-used in several places, you can select for each case a different column to use.
Supports cascading lists of values.	Supports cascading and hierarchical lists of values.
Can't use lists of values content in an SQL script.	Supports the @execute function to return the list of values content in an SQL script.
Prompts are expressed using the @prompt built-in function.	Supports the same @prompt function but also a new object called parameter. Parameters are also used to prompt values, but are simpler to create, richer, and can be reused.

Table 13.5 List of Values and Prompt Comparison (Cont.)

Universe Design Tool	Information Design Tool
In the @prompt function, the object is identified by its parent name and its name.	In the @prompt function, the object is identified by its full parent path and its name.
Prompts are identified by the question prompted to the user.	Parameters are identified by a name that can be different from the question prompted to the user. They can also have a description.
Prompts can only be answered by the user (prompt to user).	Supports parameters prompted to users and also parameters with preset values.
Proposes a wizard to create @prompt expressions.	The wizard is no longer available to generate @prompt expressions. The editor is available to create parameters only.
Supports cascading prompts.	Supports cascading and hierarchical parameter dependencies.
The @prompt function supports alphanumeric, numeric, and date prompt.	The @prompt function supports alphanumeric, numeric, date types, and K-prompts, which return a not-quoted string to give more flexibility when concatenating strings in an expression.
Using a key to compare values is named the PRIMARY KEY option.	Supports the same option, but it has been renamed as INDEX AWARE PROMPT.
Only OLAP universe supports optional prompts.	Relational and multidimensional universes support optional prompts used in business filters.

Table 13.5 List of Values and Prompt Comparison (Cont.)

13.6 Security

In IDT, security profiles are the equivalent of the Universe Design Tool access restrictions. However, they have been extended. Let's see how they can compare with one another, in terms of their functional behavior and aggregation as well as their user interface.

13.6.1 Access Restrictions and Security Profiles (Relational Universe)

In IDT, access restrictions have been replaced and extended by data security profiles and business security profiles. Table 13.6 points out the differences between the two concepts for a relational universe.

Universe Design Tool	Information Design Tool
Supports access restrictions to secure universes: CONNECTION, SQL, CONTROLS, OBJECTS, ROWS, and TABLE MAPPING.	Supports data and business security profiles: <ul style="list-style-type: none">► CONNECTIONS, SQL, CONTROLS, ROWS, and TABLES data security profiles are the equivalent of CONNECTION, SQL, CONTROLS, ROWS, and TABLE MAPPING access restrictions.► CREATE QUERY and DISPLAY DATA business security profiles are the equivalent of objects access restriction. The first secures objects and views in the query panel, whereas the second secures objects that retrieve data. They have been adapted to also support multisource universes. The FILTERS business security profile can also be used to filter data but through conditions expressed on business layer objects. Such a filter is always applied to the query, while a Rows data security profile is added only if its conditional table is used in the query.
Supports the LIMIT SIZE OF LONG TEXT OBJECTS TO parameter in controls access restriction.	Doesn't support this parameter anymore in the CONTROLS data security profile. Other parameters are equivalent.
Supports the WARN CARTESIAN PRODUCT option in the SQL access restriction.	Doesn't support this option anymore in the SQL data security profile.
OBJECTS access restriction is used to deny objects. By default, a user can see all objects and classes in the universe, except the ones denied by the OBJECTS access restriction.	Uses the CREATE QUERY and DISPLAY DATA business security profiles to grant or deny objects. When a data security profile is assigned to a user, all objects and views are, by default, denied to him. CREATE QUERY and DISPLAY DATA business security profiles are used to grant or deny objects or views.

Table 13.6 Relational Universe Security Comparison

Universe Design Tool	Information Design Tool
Rows access restriction doesn't support an alias table or derived table as the conditional table.	Supports an alias table and derived table as the conditional table for the Rows data security profile (as of SAP BusinessObjects BI 4.0 SP4).
Supports an alias table as the source or replacement table in the TABLE MAPPING access restriction.	Supports an alias table as the source table only in the TABLES data security profile (as of SAP BusinessObjects BI 4.0 SP4).
Supports free text for the name of the replacement table in the TABLE MAPPING access restriction.	Supports only the data foundation table as a replacement table in the TABLES data security profile. It's no longer possible to type free text as the replacement table, and thus define the dynamic table (using @prompt or @variable).
Supports @variable use in the Rows access restriction. It can substitute for predefined parameters.	Supports @variable use in the Rows data security profile and FILTERS business security profile. It can substitute for predefined parameters or custom user attributes.

Table 13.6 Relational Universe Security Comparison (Cont.)

13.6.2 Access Restrictions and Security Profiles (OLAP Universe)

In the Universe Design Tool, the access restrictions you can define for an OLAP universe are a limited subset of the access restrictions types supported by relational universes. Indeed, they secure generic database concepts without being specific to relational databases: connection, controls, and objects.

IDT doesn't convert the OLAP universes created with the Universe Design Tool. However, the multidimensional universes created in IDT can be secured by business security profiles. Table 13.7 compares the security concepts enforced by the two tools.

Universe Design Tool	Information Design Tool
Supports the CONNECTION access restriction.	Supports the CONNECTION business security profile for multidimensional universes (as of SAP BusinessObjects BI 4.1).

Table 13.7 OLAP and Multidimensional Universe Security Comparison

Universe Design Tool	Information Design Tool
Supports the CONTROLS access restriction.	Doesn't support the query parameters replacement.
Supports the OBJECTS access restriction to secure universe objects.	Supports business security profiles: <ul style="list-style-type: none">▶ CREATE QUERY, to secure the business layer objects and views▶ DISPLAY DATA, to secure the objects to query data
OBJECTS access restriction is used to deny objects. By default, a user can see all objects and classes in the universe, except the ones denied by the objects access restrictions that apply to him.	CREATE QUERY and DISPLAY DATA business security profiles can be used to grant or deny objects. The first secures objects and views in the query panel, whereas the second secures objects that retrieve data. By default, a user can see all objects and views in the universe. But if a business security profile applies to him, then all objects and views are denied to him. You can then use these business security profiles to grant or deny the user universe objects and views.
Can't filter data returned by an OLAP universe.	The FILTERS business security profile can secure hierarchies members.

Table 13.7 OLAP and Multidimensional Universe Security Comparison (Cont.)

13.6.3 Aggregation

In addition to the differences in the access restriction and security profiles behavior, IDT offers more options to aggregate security profiles. These differences are listed in Table 13.8.

Universe Design Tool	Information Design Tool
Only one access restriction can be assigned to a user or a group.	Several data and business security profiles can be assigned to a user or a group.
Defines access restriction priority through groups.	Defines priority at the security profile level.

Table 13.8 Security Aggregation Comparison

Universe Design Tool	Information Design Tool
For access restriction aggregated by priority, the value defined is the one assigned to the user, if any. Otherwise, the access restriction is applied to the group with the highest priority.	For security profiles aggregated by priority, the value to apply is always the one defined in the data security profile with the highest priority among the ones that apply to the user.
CONTROLS and SQL access restrictions can only be aggregated through the group priority.	CONTROLS and SQL data security profiles can be aggregated through the data security profiles' priority and also through the AND, ANDOR, or OR algorithms.
OBJECTS access restrictions can only be aggregated with the AND operator.	The CREATE QUERY business security profile and DISPLAY DATA business security profile can independently be aggregated through the AND, ANDOR, or OR algorithms.
Rows access restrictions can be aggregated through the AND or ANDOR algorithms.	Rows data security profiles can be aggregated through the AND, ANDOR, or OR algorithms
Doesn't support security filters based on objects.	The FILTERS business security profiles for relational or multidimensional universes can be aggregated through the AND, ANDOR, or OR algorithms. For relational universes, the WHERE clauses are merged using AND or OR operators. For multidimensional universes, the hierarchy members used to query data is computed though the union or intersection operators.

Table 13.8 Security Aggregation Comparison (Cont.)

13.6.4 Security Editor

IDT proposes the SECURITY EDITOR which is dedicated to creating, editing, assigning, and managing security profiles. This editor is more complete and offers more capabilities than the security management dialog box you can use in the Universe Design Tool. The main differences between the two tools are listed in Table 13.9.

Universe Design Tool	Information Design Tool
Must import the universe to edit its access restrictions and the user(s) and/or group(s) they are assigned to.	Can edit a universe security profiles and the user(s) and/or group(s) they are assigned to without importing it.
Can display and manage the access restrictions of only one universe at a time.	Displays in the SECURITY EDITOR an overview of all universes in the CMS repository and all of their security profiles. Furthermore, the SECURITY EDITOR can display all universes that have security profiles explicitly assigned to a user or a group.
Can't run secured queries.	Can run a query from a universe published in the CMS repository. Security assigned to the connected user applies.
Can't display inherited security profiles.	Can display security profiles inherited by a user or a group.

Table 13.9 Security Editor Comparison

13.6.5 Central Management Console Rights

Both applications can benefit from the BI platform framework and define some security rights. These rights slightly differ, as described next.

Application Rights

The authoring workflows in the Universe Design Tool and IDT are different. This affects the specific rights supported by the two tools. Table 13.10 compares and shows the equivalencies between these rights.

Universe Design Tool	Information Design Tool
APPLY UNIVERSE CONSTRAINTS	ADMINISTER SECURITY PROFILES
N/A	PUBLISH UNIVERSES
N/A	RETRIEVE UNIVERSES
CREATE, MODIFY, OR DELETE CONNECTIONS	CREATE, MODIFY, OR DELETE CONNECTIONS

Table 13.10 Application-Specific Rights Comparison

Universe Design Tool	Information Design Tool
CHECK UNIVERSE INTEGRITY	N/A
REFRESH STRUCTURE WINDOW	N/A
USE TABLE BROWSER	N/A
LINK UNIVERSE	N/A
N/A	USE SHARED PROJECTS
N/A	SAVE FOR ALL USERS
N/A	COMPUTE STATISTICS

Table 13.10 Application-Specific Rights Comparison (Cont.)

Universe Rights

The specific design rights for universes created in IDT and the Universe Design Tool differ. Table 13.11 compares and shows the equivalencies between these rights.

Universe Design Tool	Information Design Tool
CREATE AND EDIT QUERIES BASED ON UNIVERSE	CREATE AND EDIT QUERIES BASED ON THE UNIVERSE
EDIT ACCESS RESTRICTIONS	EDIT SECURITY PROFILES
	ASSIGN SECURITY PROFILES
DATA ACCESS	DATA ACCESS
UNLOCK UNIVERSE	N/A
NEW LIST OF VALUES	N/A
PRINT UNIVERSE	N/A
SHOW TABLE OR OBJECT VALUES	N/A
N/A	RETRIEVE UNIVERSE

Table 13.11 Universe-Specific Rights Comparison

13.6.6 Connection Rights

In the Universe Design Tool, relational universes are created on top of relational connections that are also supported by IDT. During conversion in the CMS repository,

these connections aren't converted, and their general and custom rights are similarly enforced in the two tools.

OLAP connections created in the Universe Design Tool aren't supported by IDT, and there is no conversion path between these connections and the OLAP ones supported by IDT.

13.7 Miscellaneous

In addition to the functional changes described previously, IDT also presents some differences in usability and its framework compared to the Universe Design Tool. These main changes are listed in Table 13.12.

Universe Design Tool	Information Design Tool
Has only one menu bar and toolbar.	Displays in the menu bar and toolbar only the main commands. Most commands are contextual and displayed in each editor and view toolbar.
Supports a SCAN AND REPAIR command.	Supports the CHECK INTEGRITY command you can run on different locations to validate the following: <ul style="list-style-type: none">▶ A data foundation or business layer, before saving or publishing them▶ A published universe and its security Each rule result status can be categorized as an error, a warning, or information.
Copying objects between two universes works perfectly.	We don't recommend that you copy objects between two data foundations or business layers because it may lead to erroneous results.
Can create .pdf reports that document the universe.	Can create .pdf, .html, or .txt reports that document the business layer or data foundation.
Supports a split screen for the tables and joins schema.	Doesn't support a split screen, but different editors can be organized and displayed side by side.
Supports only online help.	Supports online help, context help, cheat sheets, and a WELCOME page.

Table 13.12 Additional Differences

Universe Design Tool	Information Design Tool
Supports the options to change the shape of join endpoints.	Doesn't propose to modify the shape of joins endpoints, but the PREFERENCES dialog box proposes several other appearance options, such as the join lines style.
Can automatically save an edited universe.	Doesn't support auto-save for resources.
Supports password changes.	Doesn't support password changes, except if you must change it when you first log in to the CMS repository.
Supports passwords to protect universe read and write.	Doesn't support passwords to read and write the universe in IDT. If retrieved from a CMS repository, the authoring resources can be protected by authenticating against the CMS repository.

Table 13.12 Additional Differences (Cont.)

Even with this list of differences, universes created in both tools remain similar and answer the same objectives and requirements. Universes created with IDT propose more capabilities than universes created with the Universe Design Tool, which brings universe conversion to the table. Conversion of the universes created in the Universe Design Tool to the IDT format is a straightforward process.

13.8 Universe Conversion

IDT can convert a universe created with the Universe Design Tool to save it in the new file format supported by IDT. You may also use the semantic layer Java SDK to run this conversion, especially if you have a large number of universes to convert, because IDT can only convert one universe at a time.

This section first lists the universes that can be converted or not before describing how this conversion differs between local and secured universes, especially for connections. The universe conversion is covered next, including the specific case of linked universes. Finally, the section ends by describing the security conversion: rights, access restrictions, and object access levels.

13.8.1 Universe Conversion Scope

The following universes created in the Universe Design Tool can't be converted because IDT doesn't support them:

- ▶ Relational universes based on a stored procedure or on a Java bean.
- ▶ Relational universes based on an SAP BusinessObjects Data Federator XI 3.0 connection.
- ▶ OLAP universes based on an OLAP connection created with the Universe Design Tool. Only relational universes can be converted, and the remainder of this section focuses only on relational universe.
- ▶ OLAP connections created in the Universe Design Tool aren't converted because OLAP universes aren't converted by IDT.

Oracle OLAP 9i and Oracle OLAP 10g

Relational universes based on a relational connection to Oracle OLAP 9i and Oracle OLAP 10g can be converted by IDT, but they use hints in the joins between tables that are not supported in IDT data foundation, so queries on the converted universe fail.

Universe conversion generates a relational universe that complies with the different layers in IDT. The converted universe contains the three resources described in previous chapters:

- ▶ Connection or connection shortcut in case of a secured universe
- ▶ Data foundation
- ▶ Business layer

If the universe is a secured universe saved in the CMS repository, its security is converted as well. Security in IDT reuses and extends the Universe Design Tool's security, so the conversion is done with respect to the original universe's security.

SAP BusinessObjects Web Intelligence Change Source

Converting a universe doesn't change the reports that use it. For example, SAP BusinessObjects Web Intelligence supports universes created with both tools. After the universe conversion, you need to explicitly change the original universe used by Web Intelligence documents so they can access the converted universe. Otherwise, they keep consuming the universe created with the Universe Design Tool.

13.8.2 Local versus Secured Universe Conversion

IDT can convert both local relational universes and universes saved in the CMS repository. If the universe is local, then the conversion also generates the different resources in a local project. The relational personal or shared connection used by the source universe is converted into the equivalent local connection in IDT. The same parameters are used to recreate the local connection embedded in the converted universe, as shown in Figure 13.1.

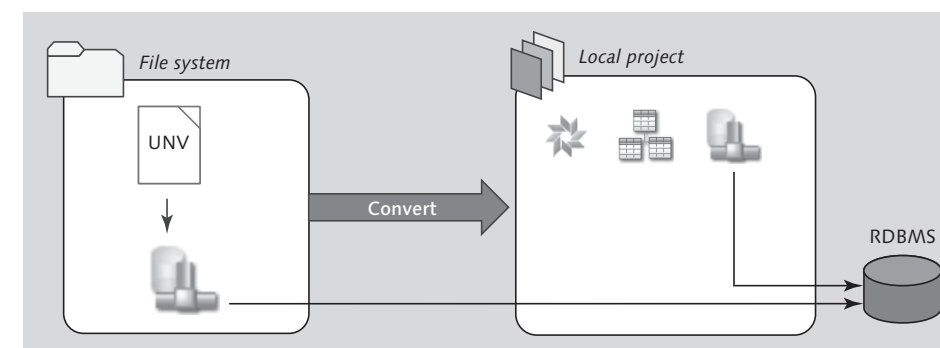


Figure 13.1 Local Universe Conversion

You can republish the generated resources to generate a local `.unx` universe that can be consumed by client tools.

In a local conversion, there are no access restrictions or security rights to convert. A local conversion can convert universes created in previous releases (SAP BusinessObjects XI R2 or SAP BusinessObjects XI 3.x), whereas a secured conversion must have a universe created or upgraded in a CMS repository of a SAP BusinessObjects BI 4.x system.

If the universe is secured, then the conversion generates the converted universe in the same CMS repository. This universe reuses the same secured relational connection used by the source universe, as shown in Figure 13.2. The generated universe contains a connection shortcut to this secured connection.

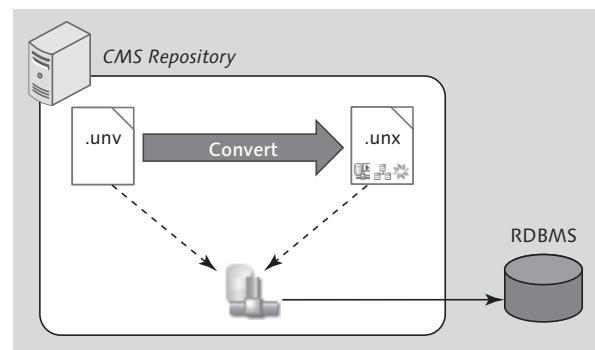


Figure 13.2 Secured Universe Conversion

The conversion of the universe itself is done through the creation of the data foundation and business layer. These resources are converted in the same manner in a local conversion or a conversion in the CMS repository.

13.8.3 Data Foundation and Business Layer

When a universe is converted, the created data foundation and business layer are defined to behave as in the original universe. A single-source data foundation is created for the converted universe. As shown in Chapter 5, Section 5.1, this data foundation can't be enabled for multisource. The database schema used in the universe is recreated in this data foundation. The tables, including alias and derived tables, their columns, the joins that link them, and the contexts are recreated in this data foundation with the same properties. This data foundation contains only one view—the master view. The conversion also creates a business layer that relies on this data foundation.

The converted business layer is created with only one business layer view. The objects (dimensions, measures, details, filters) and classes from source universe are converted in the converted business layer as objects (dimensions, measures, attributes, filters) and folders with the same properties: name, description, `SELECT` and `WHERE` clauses, extra tables, translations, and so on. These objects are organized in the same folders in which the corresponding objects are organized in the source universe.

Prompts can be either converted as `@prompt` or as parameter objects. You select this option in the conversion wizard (see Section 13.9).

Lists of values associated with objects are converted as explicit lists of values based on business layer objects in the business layer. These new lists of values are based on the query panel and are attached to their corresponding objects. But lists of values using custom SQL are converted into list of values based on business layer objects with custom SQL.

Universe parameters are converted and set either in the data foundation or in the business layer, depending on the place where they were defined in the original universe.

13.8.4 Linked Universe

Linked universes used in the Universe Design Tool to reference a *core universe* in a *derived universe* are no longer supported in IDT, but they can be converted by IDT. During the conversion, the core universe is explicitly copied in the converted derived universe, as shown in Figure 13.3.

The converted universes are still working and expose the same list of objects as the source universe. The dynamic link provided by the core universe is no longer provided in the converted universes, so you can't make changes in the core that are inherited by all derived universes. Such changes must be explicitly made in every converted universe.

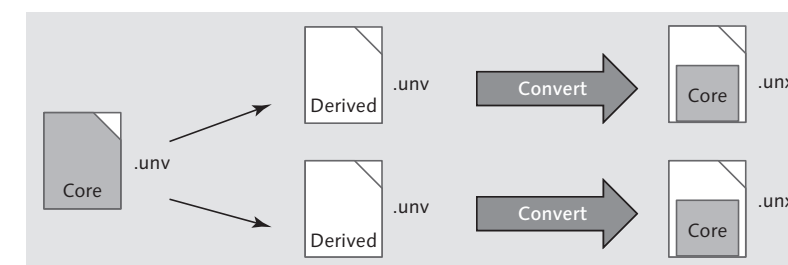


Figure 13.3 Linked Universes Conversion

Although their behaviors are different, reusability can also be achieved in IDT by doing the following:

- ▶ Sharing a data foundation with several business layers
- ▶ Creating one single universe with the following:

- ▶ The folders and objects of the core universe and its derived universes
- ▶ Several business layer views, one for each derived universe, each view containing the objects and folders of this derived universe before the conversion

13.8.5 Universe Rights Conversion

When a secured universe is converted, its security rights settings are also converted to secure as identically as possible the converted universe. Its rights access levels and advanced security rights settings are recreated and assigned to the converted universe for the same groups and users.

Because the rights differ between the two universe types, a mapping is done between them during conversion:

- ▶ The value for all general CREATE AND EDIT QUERIES BASED ON THIS UNIVERSE and DATA ACCESS rights are identically set.
- ▶ The EDIT ACCESS RESTRICTIONS right is no longer supported by IDT, but its value is set to EDIT SECURITY PROFILES and ASSIGN SECURITY PROFILES rights.
- ▶ The following rights are no longer supported by IDT, thus their values aren't kept during conversion: UNLOCK UNIVERSE, NEW LIST OF VALUES, PRINT UNIVERSE, and SHOW TABLE OR OBJECT VALUES.

13.8.6 Access Restriction Conversion

The security defined in IDT is a super-set of the security set in the Universe Design Tool and the access restriction conversion is done by mapping its parameters to equivalent security profiles. However, the slight differences between access restrictions and security profiles require some adaptation during the conversion phase to get the same behavior applied to the converted universe as in the original universe.

For each universe to convert, each access restriction generates one or several data security profiles and/or a business security profile. By default, a Universe Design Tool access restriction is converted into a data security profile and assigned to the same user and group. The name of this data security profile is the name of the access restriction. The definition of this data security profile is directly retrieved from the access restriction definition (connection, controls, SQL, rows, and table mapping security).

In IDT, however, priority is no longer defined at the group level but at the data security profile level. If the access restriction is assigned to more than one user or group, and if this conversion doesn't allow the converted security to properly reflect the same security as in the source universe, then the access restriction is converted into several data security profiles, one for each user or group.

The names of these data security profiles are the names of the access restriction followed by the user or group names: *<Access Restriction Name>_<user or group name>*. The definitions of these data security profiles are all identical and are directly retrieved from the access restriction definitions (connection, controls, SQL, rows, and table mapping security). These data security profiles are assigned to the same users and groups as their corresponding access restrictions and are prioritized using the group priority in the Universe Design Tool.

If the access restriction defines the objects access restriction, then a business security profile is created and attached to the converted universe. This business security profile has the same name as the access restriction, and it defines both CREATE QUERY and DISPLAY DATA business security profiles to deny the same objects denied in the objects access restriction:

- ▶ In CREATE QUERY, the master view is granted and all objects and classes denied in the access restriction are denied in the security profile.
- ▶ In DISPLAY DATA, the ALL OBJECTS shortcut is granted to grant all objects by default. Furthermore, all objects and classes denied in the access restriction are also denied in the security profile.

This business security profile is assigned to the same users and groups as the access restriction.

13.8.7 Access Restriction Aggregation Option Conversion

When the universe is converted, its aggregation options are converted with these rules:

- ▶ The CONTROLS and SQL data security profile aggregation option is set to PRIORITY because it's the only one available for controls and SQL access restriction.
- ▶ The Rows data security profile aggregation option is defined from the value of the original universe rows access restriction aggregation option:

- ▶ VERY RESTRICTIVE (AND) if it's AND
- ▶ MODERATELY RESTRICTIVE (ANDOR) if it's ANDOR
- ▶ The CREATE QUERY and DISPLAY DATA business security profile aggregation option is set to VERY RESTRICTIVE (AND) because it's the only one available for the objects access restriction aggregation option in the Universe Design Tool.
- ▶ The FILTERS business security profile aggregation mode is set to VERY RESTRICTIVE (AND).

13.8.8 Object Access Level

The Universe Design Tool supports object access level for any business objects defined in a universe (measure, dimension, and detail). IDT also supports them for any business objects defined in a business layer of a universe (measure, dimension, attribute, etc.).

The different access levels are identical for both tools: public, controlled, restricted, confidential, and private. The user access level you define in the CMC can be identically defined for a universe defined with the Universe Design Tool or a universe defined with IDT. User access levels inherited by a user from the groups the user belongs to are also aggregated identically in the Universe Design Tool and IDT.

When a universe is converted, object access levels that are object properties are converted as well. The user access levels defined for this universe are also recreated for the converted universe, for the same user(s) and group(s).

13.9 Converting Universes in Information Design Tool

Universe conversion can be run from IDT. This process converts both local universes and universes saved in the CMS repository. We describe both workflows in the next sections.

13.9.1 Converting a Local Universe

To convert a local universe, follow these steps:

1. In the menu bar, select FILE • CONVERT UNIVERSE to open the CONVERT .UNV UNIVERSE dialog box.

2. Click the SELECT .UNV UNIVERSE FROM THE LOCAL FILE SYSTEM button (📁) to select the universe to convert:
 - ▶ In the OPEN dialog box, navigate in the file system to select the universe to convert, and then click OK.
 - ▶ The dialog box closes and the universe name to convert is displayed in the SELECT THE .UNV UNIVERSE TO CONVERT text field. As shown in Figure 13.4, the dialog box is updated. Enter the destination folder for the converted resources.

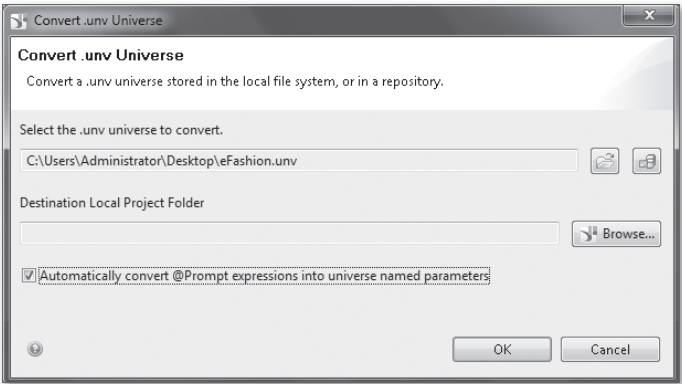


Figure 13.4 Convert a .UNV Universe Dialog Box for a Local Conversion

3. Click the BROWSE button (📁) located near the DESTINATION LOCAL PROJECT FOLDER text field to select the destination folder:
 - ▶ In the SELECT LOCAL PROJECT dialog box, select a project or a folder in a local project, and then click OK.
 - ▶ The SELECT LOCAL PROJECT dialog box closes, and the selected project or folder is displayed in the DESTINATION LOCAL PROJECT FOLDER text field.
4. To convert the @prompt expressions as parameter objects, select the AUTOMATICALLY CONVERT @PROMPT EXPRESSIONS INTO UNIVERSE NAMED PARAMETERS checkbox.
5. Click OK to start the conversion. The converted connection, data foundation, and business layer are generated in the selected folder or project.

13.9.2 Converting a Secured Universe

The conversion of a secured universe is quite similar to a local universe; except the security that is converted with the universe. Before starting the conversion, make sure you have the ADD OBJECTS TO FOLDER right for the destination folder so you can create the converted universe. Then, to convert a secured universe, follow these steps:

1. In the menu bar, select FILE • CONVERT UNIVERSE to open the CONVERT .UNV UNIVERSE dialog box.
2. Click the SELECT .UNV UNIVERSE FROM A REPOSITORY button (📁) to select the universe to convert:
 - ▶ In the OPEN SESSION dialog box, create a new session or open a predefined one (see Chapter 3, Section 3.4), and then click OK.
 - ▶ In the universe browser dialog box, navigate in the *Universes* folder in the CMS repository, select the universe to convert, and click OK.
 - ▶ The dialog box closes, and the universe name to convert is displayed in the SELECT .UNV UNIVERSE TO CONVERT text field.
3. Click the BROWSE button (📁) located near the DESTINATION REPOSITORY FOLDER text field to enter the destination folder:
 - ▶ In the universe browser dialog box, navigate in the *Universes* folder in the CMS repository, select the destination folder, and then click OK.
 - ▶ The dialog box closes, and the folder name is displayed in the DESTINATION REPOSITORY FOLDER text field.
4. You may optionally choose to retrieve the converted universe after the conversion is done:
 - ▶ Click the BROWSE button (📁) near the DESTINATION LOCAL PROJECT FOLDER text field to open the SELECT LOCAL PROJECT dialog box.
 - ▶ Select the project or a folder in a local project, and then click OK.
 - ▶ The SELECT LOCAL PROJECT dialog box closes, and the selected project and folder are displayed in the DESTINATION LOCAL PROJECT FOLDER text field, as shown in Figure 13.5.
 - ▶ To remove security from the extracted resources (see Chapter 9, Section 9.4), select the SAVE FOR ALL USERS checkbox.

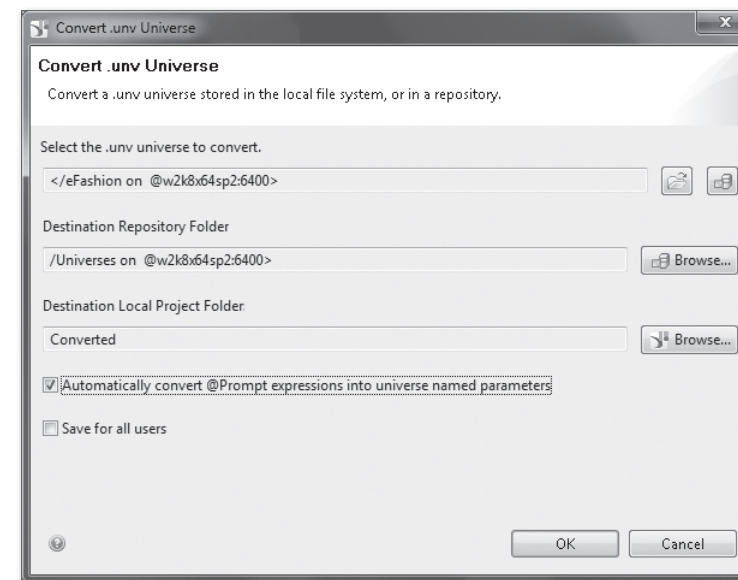


Figure 13.5 Convert a .UNV Universe Dialog Box for a Conversion in the Repository

5. To convert @prompt expressions as parameter objects, select the AUTOMATICALLY CONVERT @PROMPT EXPRESSIONS INTO UNIVERSE NAMED PARAMETERS checkbox.
6. Click OK to start the conversion. The converted universe is generated in the selected folder in the CMS repository. It has the same name as the original, except for its .unv extension that is replaced by .unx. If you've opted to retrieve the converted universe at the same time, its resources are also generated in the local project folder you've selected.

To convert a secured universe, you can also directly right-click the universe in the REPOSITORY RESOURCES view. The CONVERT .UNV UNIVERSE dialog box opens, where you can define the same options previously described.

13.10 Summary

Information Design Tool is the Universe Design Tool successor, and it proposes several major changes and enhancements: in the workflows, in the authoring resources, and in their capabilities. Some features, however, aren't identically supported, and some are not supported at all. For this reason, assessing the features

you use is important if you plan to move your existing universes created with the Universe Design Tool to universes compatible with IDT.

When you're ready to convert, you can use IDT to run this conversion. IDT can convert both local and secured universe. In the latter case, security is converted as well.

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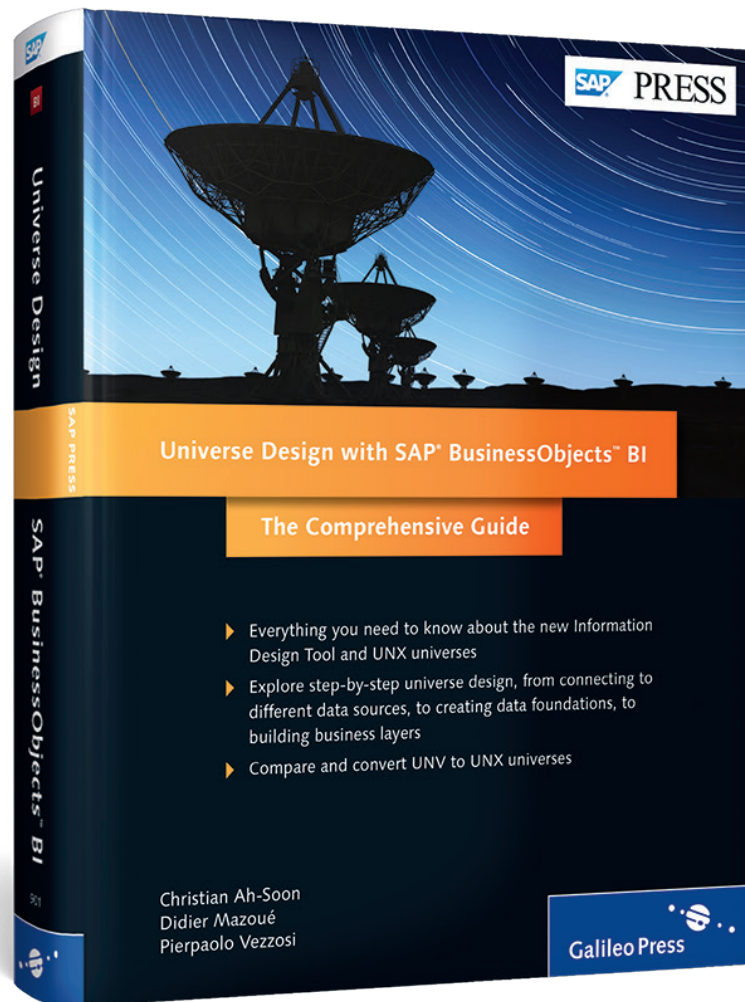
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