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BI360 for Financial Consolidations

A Solver White Paper

- Multi-company Consolidations
- Intercompany Eliminations
- Minority Handling
- Currency Conversion
- IFRS to GAAP and Other Adjustments
- Sarbanes Oxley
- Reconciliation
- Allocations
- Workflow
- Modeling Organizational Changes

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Introduction

BI360 is the first full Corporate Performance Management (CPM) suite available for cloud and on-premise deployment. It is powered by Microsoft Excel for report design and deployed and managed in modern web portal. Another unique and important component of BI360 is that it sits on top of a highly flexible, configurable business data warehouse. It has robust financial consolidations, eliminations and multi-currency capabilities and the purpose of the white paper is to describe this specific functionality available for BI360 Cloud and BI360 4.0 and later.

Consolidation Topics

Depending on organizational complexity and business requirements, companies look to consolidation software to provide one more of the following features (all of these areas are covered in the rest of this white paper):

- Mapping different Chart of Accounts
- Consolidation process (Workflow)
- Data loading
- Reconciliation
- Currency conversions
- IFRS to GAAP adjustments
- Other Consolidation adjustments
- Eliminations of intercompany transactions
- Minority calculations
- Allocations
- Consolidate financial statements
- Consolidate sub-ledger or statistical data
- Sarbanes Oxley (SOX) compliance

BI360 Financial Consolidations Overview

Companies look for modern, automated consolidations solutions for many reasons, such as:

- Improve consolidation process and utilize workflow with automated alerts and controls.
- Eliminate manual spreadsheet consolidations.
- Get away from older, legacy reporting & consolidation tools (such as Hyperion, TM1 and other IBM Cognos applications, FRx, etc.) that either are too complex and expensive to maintain, or they don't perform all the tasks expected from modern tools in this area.
- Implement a Sarbanes-Oxley compliant solution.

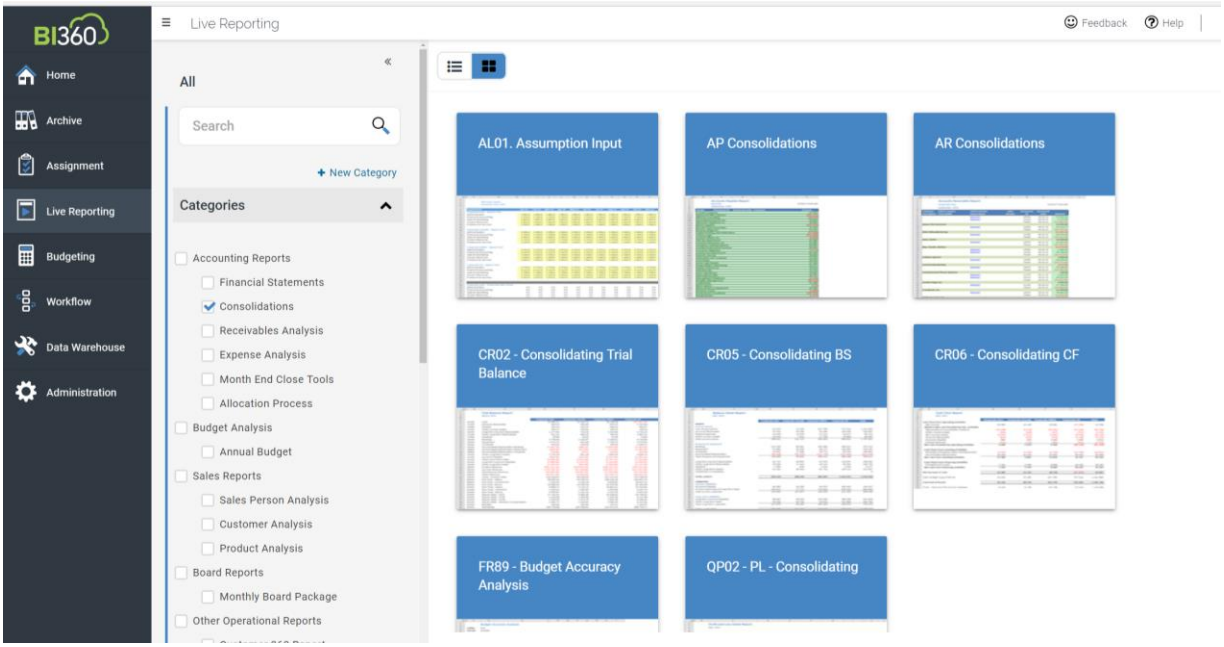
- Implement a solution that can handle multi-national requirements such as GAAP to IFRS adjustments and currency conversions.
- Implement a modern, user-friendly solution that can be fully managed by the finance team.
- Implement a solution that is more scalable and versatile than traditional consolidation solutions, so that is also can be used for all kinds of other reporting such as operational reporting, statistical reporting, etc.
- Implement a reporting and consolidation solution that is an integral part of a Corporate Performance Management (CPM) suite that also include budgeting, forecasting, modeling, ad-hoc reporting, dashboards (including integration to 3rd party dashboards like Power BI, Tableau, Qlik, etc.) and data warehousing.

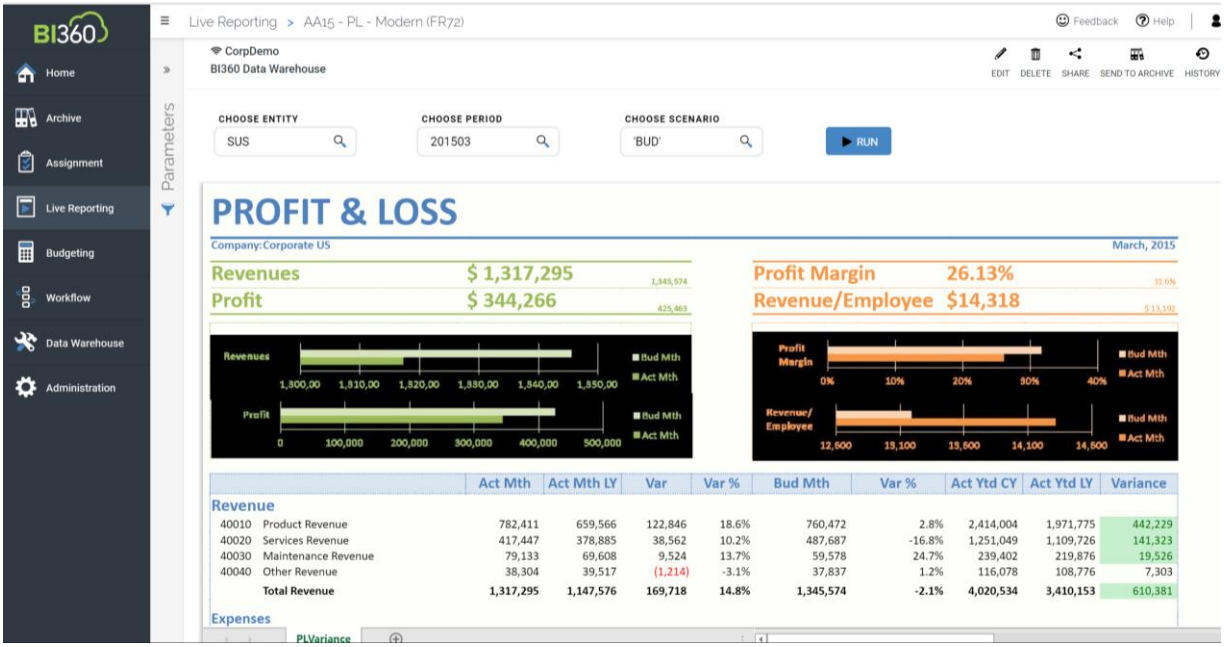
Launched in the Fall of 2009, and in the years that have passed since then, BI360 has become one of the most complete and modern Corporate Performance Managment (CPM) suites on the market. It allows the finance team to regain control of all aspects of the reporting and consolidation process. Below is a sample architecture slide that shows all four main components of the BI360 suite.

On the following pages you can read about BI360 and how it deals with the various areas that often are part of a company's consolidations needs. In some cases there are referrals to additional white papers that cover specific topics in much more detail. If you are interested in any of these white papers, please log into the Solver Support portal or send an e-mail to info@solverglobal.com. See Appendix 7 for more resources.

Alternative Architectures for Consolidations

BI360 can consolidate within the ERP system (available for ERPs where live BI360 integrations exist) or by populating the BI360 Data Warehouse (DW) with data from the ERP system(s). The latter is the way almost all consolidations software work. Below, both of these options are described. With either method, BI360's report writer will let you design dynamic, highly formatted consolidated reports:





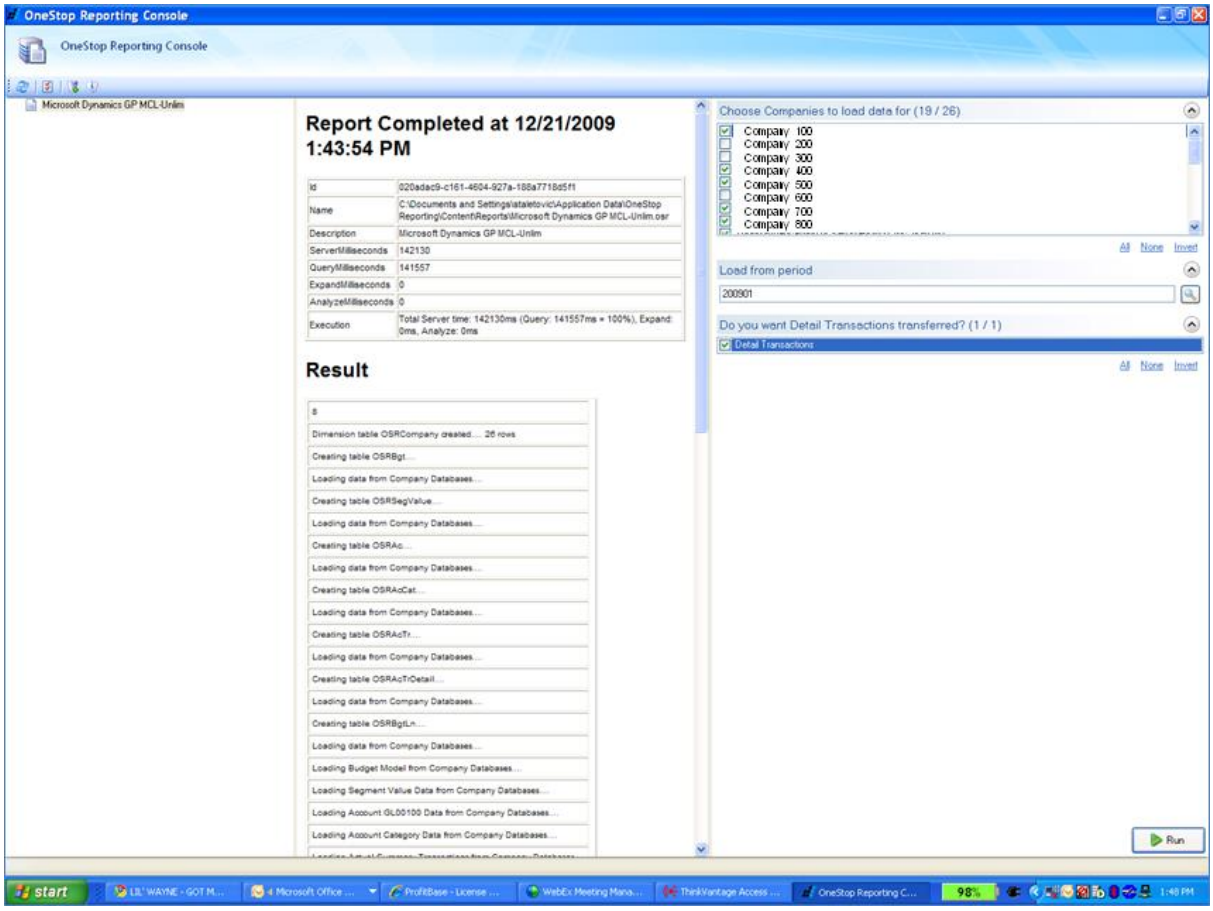
Consolidations within the ERP system

Using the BI360 Multi-Company (MC) module, you can perform basic consolidated reporting directly from your ERP database. The BI360 MC module takes trial balances and/or journal entry

level detail from each company in the ERP system and automatically updates them into a special BI360 MC table within the ERP database.

Then you can design cross-company reports with the BI360 report writer that accesses the MC table.

Below is a screenshot from the BI360 MC module's simple, administrative interface where you can select individual companies and when to update their data into the MC table in the ERP database:



Consolidating within the ERP system is usually a good choice under one or more of the following conditions:

- No- or very basic currency conversion needed (beyond what is done by the ERP system itself or as calculations in the BI360 report writer)
- Low to medium number of companies to consolidate
- No concerns around ERP system performance when heavy reports are being executed
- No interest in reports that bring in data from other data sources

- ERP chart of accounts that has a uniform, non-conflicting chart of accounts structure across companies
- No need to post elimination entries or other consolidation adjustments other than what can be performed with the ERP system itself

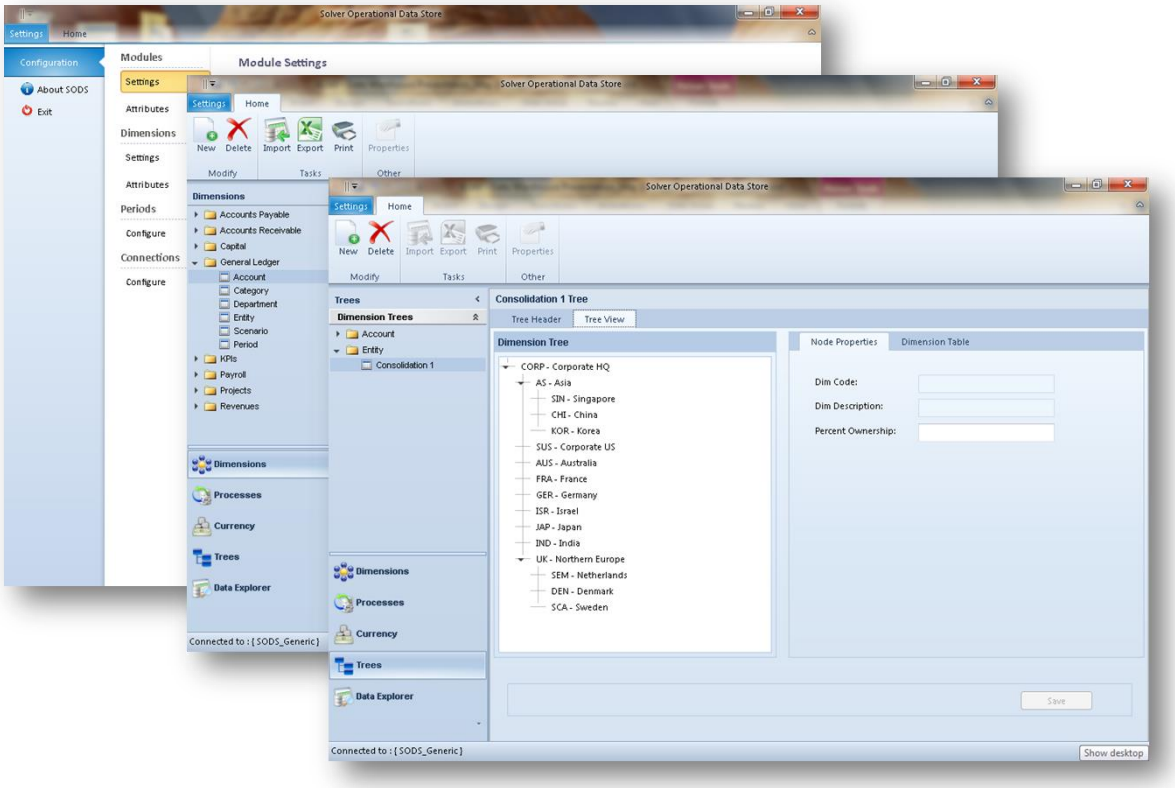
Note: Some ERP systems, like Microsoft Dynamics AX, also offers their own consolidation modules with tables separate from their individual company general ledger tables. BI360 can also connect to these as an alternative to BI360's own MC module or the BI360 Data Warehouse.

Consolidations using the BI360 Data Warehouse

Using the BI360 Data Warehouse (DW), you get a best-of-breed consolidation architecture. You can upload data from an unlimited number of ERPs and/or companies and use the BI360 Reporting module to report across and consolidate the companies that were uploaded in the data warehouse.

The concept of moving data out of the ERP system(s) and into an external database where the consolidated reporting will take place is also used by most other well-known consolidations and reporting tools such as Hyperion (Oracle), TM1 (Cognos), Host Analytics, Prophix, BPC (SAP), and so on.

Typically using automated data loading tools like the BI360 Connectors, Microsoft SQL Server Integration Services (SSIS) or file imports, data can be loaded from the ERP companies and into the DW on a daily (or more frequently) basis, either on a schedule or by a person triggering the upload (e.g. after last minute adjustments in the GLs).



Using company attributes (e.g. specifying a roll-up to divisions and HQ) or trees (see screenshot above), an administrator can set up desired roll-up structures within the BI360 DW interface.

Consolidating with the BI360 Data Warehouse (DW) is usually a good choice under one or more of the following conditions:

- Moderate to advanced currency requirements (beyond what is done in the ERP system).
- Medium to large number of companies to consolidate.
- Concerns around slower ERP system performance when heavy reports are being executed.
- Need to enter elimination entries or other consolidation adjustments beyond what can be performed within the ERP system itself.
- Interest in also consolidating certain operational data (payables, sales, etc.).
- Interest in creating a platform (the BI360 DW) for future/additional reports and dashboards that also bring in data from other data sources than the ERP system.
- Different chart of accounts structure across companies.

Consolidations with Multiple, Different ERP Systems

Some multi-entity companies have different accounting systems in their subsidiaries and this tend to add some complexity to a consolidations process compared to a situation where all subsidiaries reside within the same ERP system,

There are a couple of ways to enable consolidated reporting when there are multiple ERP systems:

1. Upload data from a subsidiary ERP system into a corporate ERP system

This methodology is typical when there is a dominant ERP system within the organization and frequently when there is a long term strategy to put all subsidiaries on the same ERP system. In this case, there is not much work for BI360, as ultimately all the subsidiaries will reside within a single ERP system and thus either of the two consolidation architectures described earlier in this white paper can be utilized.

2. Upload data from each subsidiary ERP system into the BI360 Data Warehouse (DW)

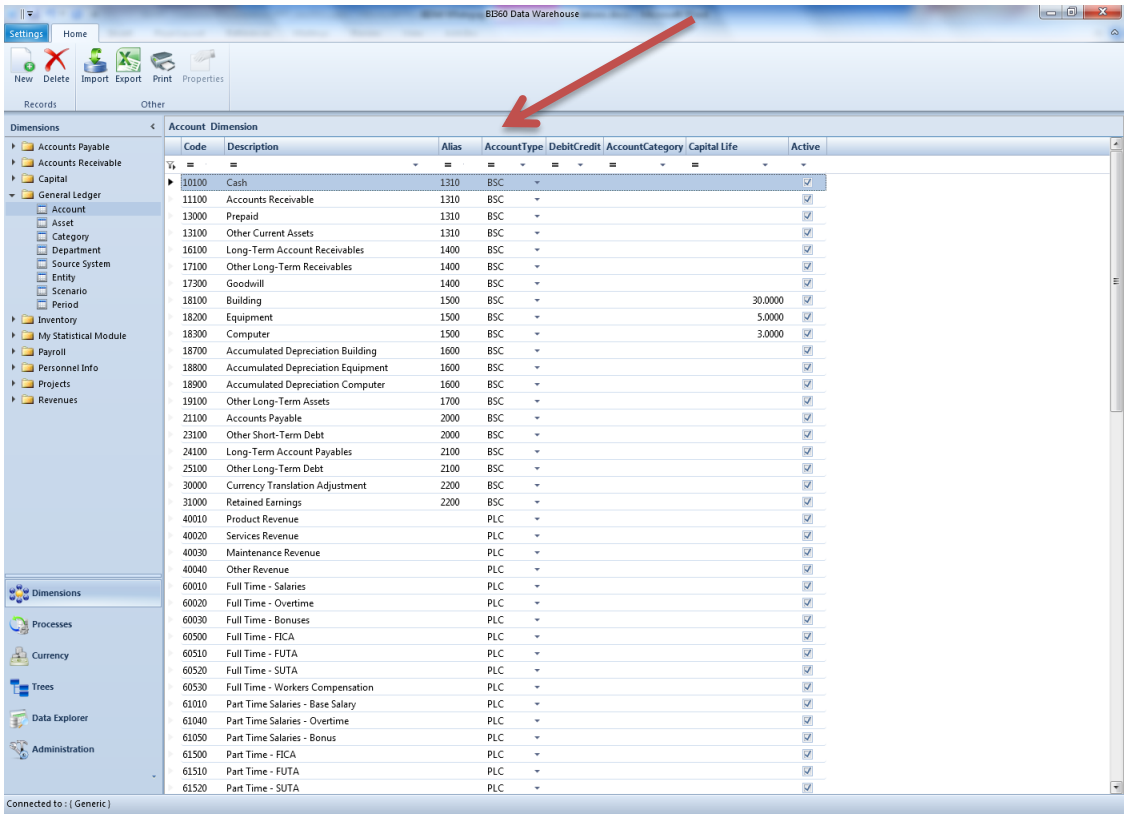
This methodology leaves each ERP system as is and account mapping and loading is taken care of as part of the transfer of data and dimensions into the BI360 DW. This is typical when subsidiaries are autonomous; there are frequent acquisitions or other good reasons not to import data from one ERP to another prior to consolidated reporting taking place. This consolidation architecture is described in section #3, paragraph #2 above ("Consolidations using the BI360 Data Warehouse").

Consolidations with Multiple, Different Chart of Accounts

In situations where there are different Chart of Accounts across various subsidiaries, using the BI360 Data Warehouse (DW) is typically the best way to go. The process could look like this:

1. Extract data and GL dimensions (account, division, etc.) from each ERP, for example using an automated SQL Server Integration Services (SSIS) job.
2. Transform/Map the local ERP chart of accounts into a corporate/consolidated chart of accounts.
3. Load the converted data (now mapped to the corporate chart of accounts) into the BI360 DW.
4. Run consolidation reports.

Alternatively, step#2 above ("Transform/Map…") can be performed within the BI360 DW using attributes in the DW account table to map individual account number so to a corporate chart of accounts. See screenshot below. Another methodology is to do the account mapping within an account tree in the DW and use the mapped summary nodes when writing reports.

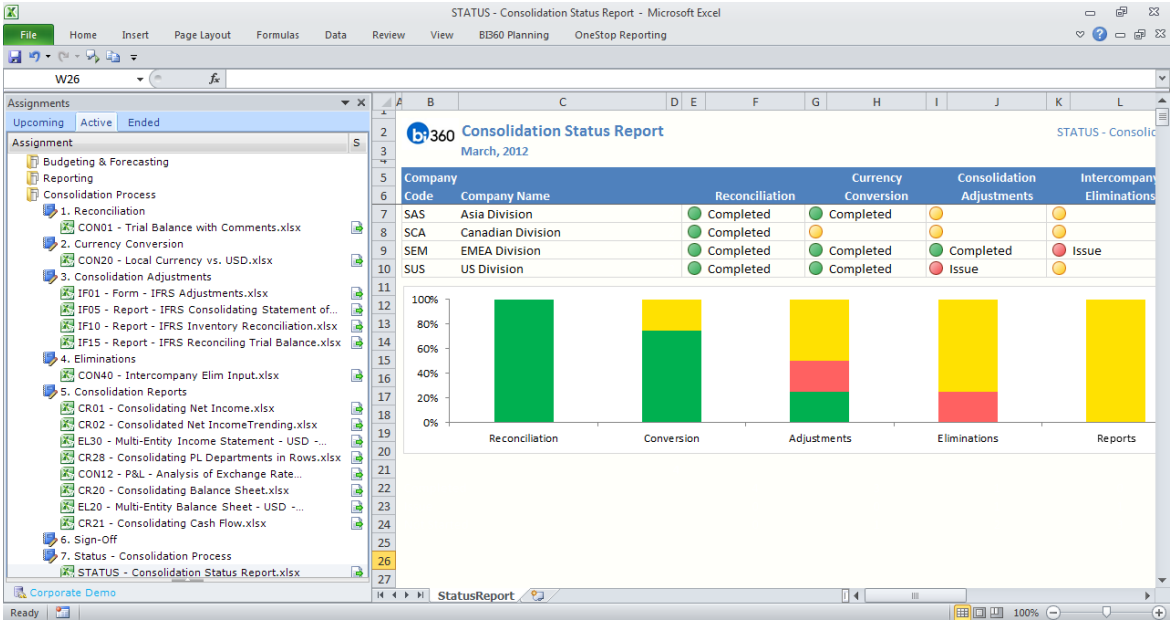


Code	Description	Alias	AccountType	DebitCredit	AccountCategory	Capital Life	Active
10100	Cash	1310	BSC				☑
11100	Accounts Receivable	1310	BSC				☑
13000	Prepaid	1310	BSC				☑
13100	Other Current Assets	1310	BSC				☑
16100	Long-Term Account Receivables	1400	BSC				☑
17100	Other Long-Term Receivables	1400	BSC				☑
17300	Goodwill	1400	BSC				☑
18100	Building	1500	BSC			30.0000	☑
18200	Equipment	1500	BSC			5.0000	☑
18300	Computer	1500	BSC			3.0000	☑
18700	Accumulated Depreciation Building	1600	BSC				☑
18800	Accumulated Depreciation Equipment	1600	BSC				☑
18900	Accumulated Depreciation Computer	1600	BSC				☑
19100	Other Long-Term Assets	1700	BSC				☑
21100	Accounts Payable	2000	BSC				☑
23100	Other Short-Term Debt	2000	BSC				☑
24100	Long-Term Account Payables	2100	BSC				☑
25100	Other Long-Term Debt	2100	BSC				☑
30000	Currency Translation Adjustment	2200	BSC				☑
31000	Retained Earnings	2200	BSC				☑
40010	Product Revenue		PLC				☑
40020	Services Revenue		PLC				☑
40030	Maintenance Revenue		PLC				☑
40040	Other Revenue		PLC				☑
60010	Full Time - Salaries		PLC				☑
60020	Full Time - Overtime		PLC				☑
60030	Full Time - Bonuses		PLC				☑
60500	Full Time - FICA		PLC				☑
60510	Full Time - FUTA		PLC				☑
60520	Full Time - SUTA		PLC				☑
60530	Full Time - Workers Compensation		PLC				☑
61010	Part Time Salaries - Base Salary		PLC				☑
61040	Part Time Salaries - Overtime		PLC				☑
61050	Part Time Salaries - Bonus		PLC				☑
61500	Part Time - FICA		PLC				☑
61510	Part Time - FUTA		PLC				☑
61520	Part Time - SUTA		PLC				☑

Consolidation Process and Workflow

Depending on how complex your consolidation process is, you have several options for how to organize it.

1. Manage it yourself without any BI360 workflow functionality. This should be fine if you have a fairly simple consolidation process.
2. Use the Assignment concept in BI360 Planning with its basic built-in workflow. You can then also create/use status reports like the one you see below. Also not how the different steps in the consolidation process has been configured in the menu on the left.

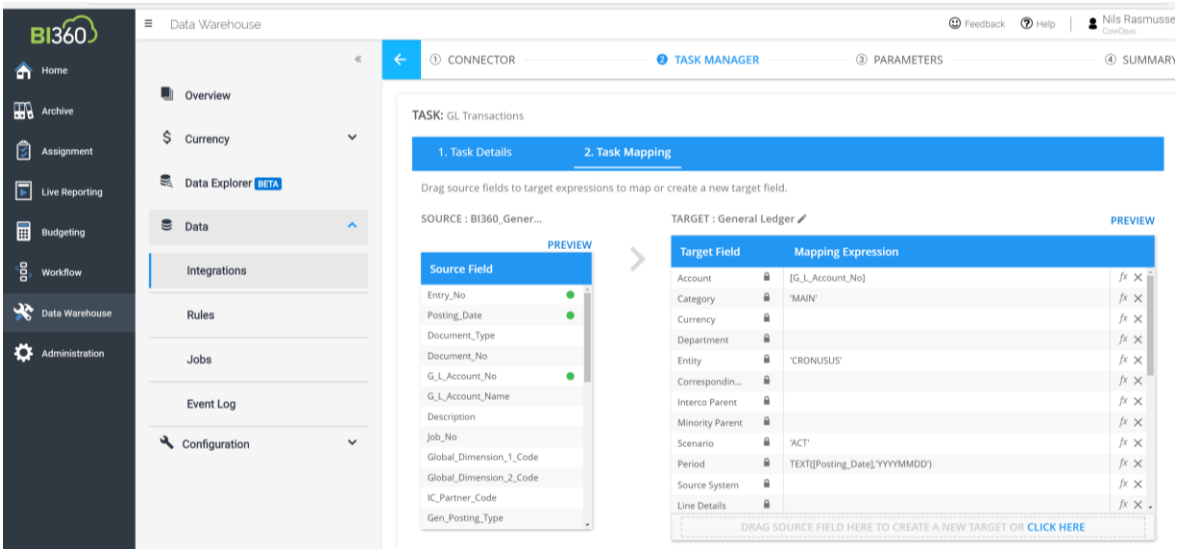


3. Use the Workflow module in BI360 (available in BI360 Cloud and BI360 version 5.0 and later). This requires the BI360 Workflow Module. Now, you will have e-mail alerts, full discussion functionality, status tracking of each person and form/report in the consolidation process during your month-end close.

Data Loading and Reconciliation

Whenever the BI360 Data Warehouse (DW) is used in the consolidations process, data need to be loaded from the ERP system(s) and into the DW first. There are several ways to load data:

1. Use the BI360 Integration Tool (available in BI360 Cloud and BI360 Version 5.0 and later).

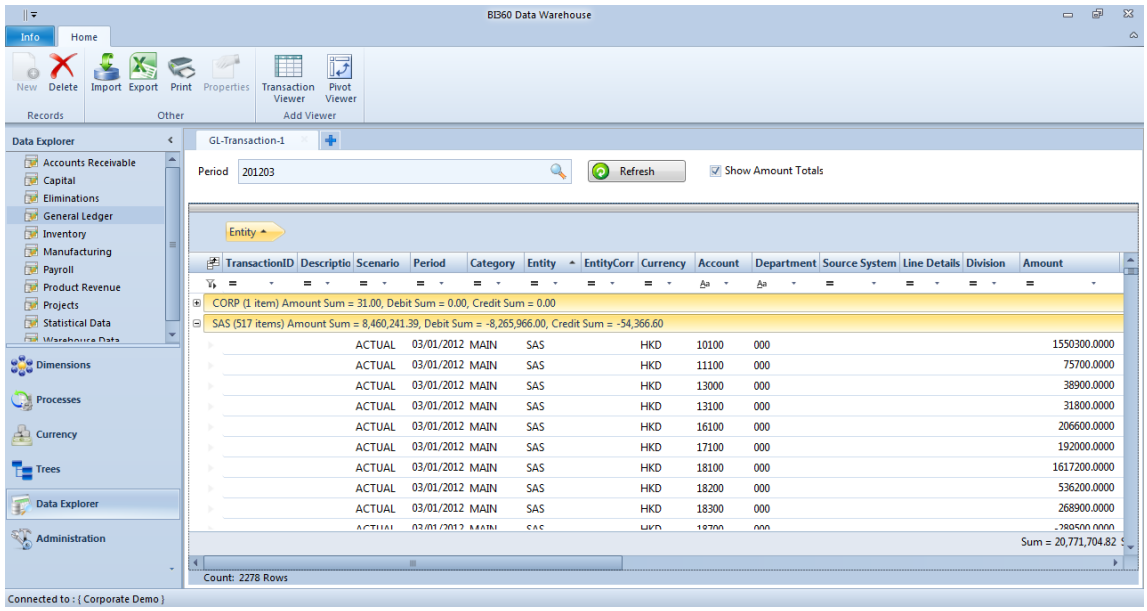


2. Use an Extraction, Transformation and Loading (ETL) tool, like Microsoft SQL Server Integration Services (SSIS) to extract data from the ERP system and load it into the DW.

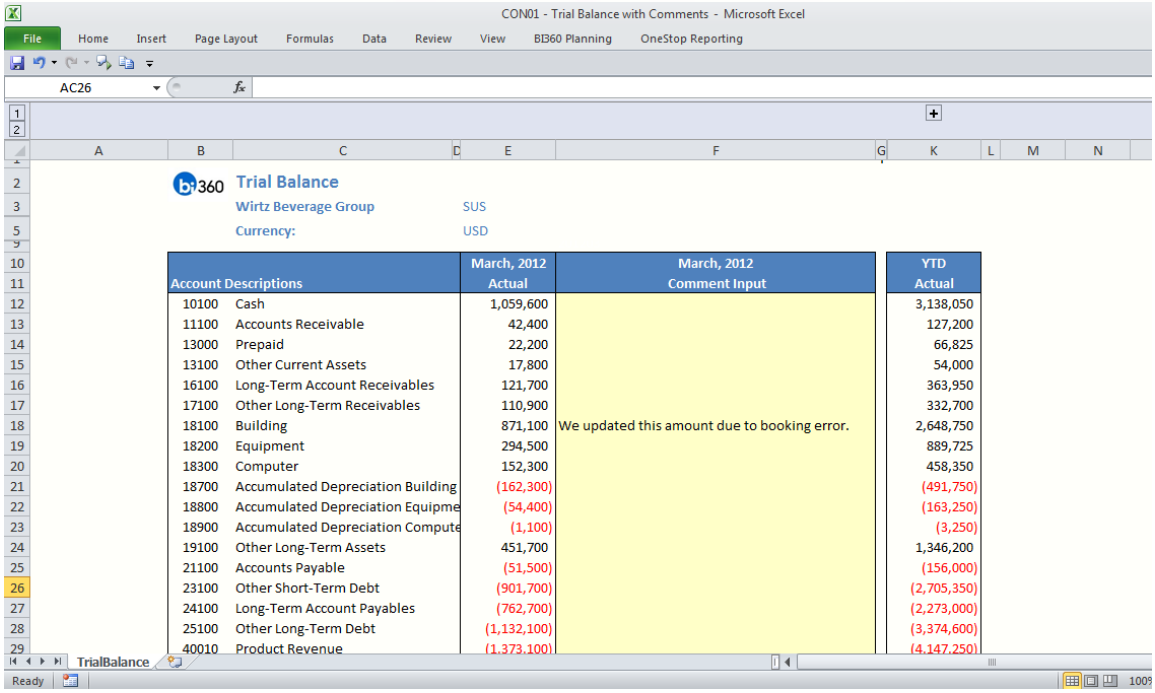
3. Use the BI360 Integration Manager (embedded within the BI360 Data Warehouse Manager from version 4.0 and later). This tool use pre-built integrations to load data into the DW. Solver and development partners provide these integrations.
4. Import data from files using the file import wizards embedded within the BI360 Data Warehouse Manager.
5. A more unconventional, but fully configurable method to load data into the DW is to use the BI360 Planning module and design an input form. You can then either copy and paste or enter data there and save it directly to the DW.

Once data has been loaded to the DW, many organizations like to either have subidiary staff or headquarter staff reconcile the imported data to ensure everything is correct. There are several ways to perform this reconciliation, including:

1. Use the Data Explorer in the BI360 Data Warehouse Manager:



2. Design a report with the BI360 Report Designer. The advantage with this approach is that you can create any layout you want, including with comment input (requires BI360 Planning). You can also auto-distribute it with the Publisher.



CON01 - Trial Balance with Comments - Microsoft Excel

Trial Balance

Wirtz Beverage Group SUS

Currency: USD

Account Descriptions		March, 2012 Actual	March, 2012 Comment Input	YTD Actual
10100	Cash	1,059,600		3,138,050
11100	Accounts Receivable	42,400		127,200
13000	Prepaid	22,200		66,825
13100	Other Current Assets	17,800		54,000
16100	Long-Term Account Receivables	121,700		363,950
17100	Other Long-Term Receivables	110,900		332,700
18100	Building	871,100	We updated this amount due to booking error.	2,648,750
18200	Equipment	294,500		889,725
18300	Computer	152,300		458,350
18700	Accumulated Depreciation Building	(162,300)		(491,750)
18800	Accumulated Depreciation Equipme	(54,400)		(163,250)
18900	Accumulated Depreciation Compute	(1,100)		(3,250)
19100	Other Long-Term Assets	451,700		1,346,200
21100	Accounts Payable	(51,500)		(156,000)
23100	Other Short-Term Debt	(901,700)		(2,705,350)
24100	Long-Term Account Payables	(762,700)		(2,273,000)
25100	Other Long-Term Debt	(1,132,100)		(3,374,600)
40010	Product Revenue	(1,373,100)		(4,147,250)

Currency Conversion

As mentioned other places in this document, BI360 can perform currency conversion while reporting directly on the ERP database or you can perform the currency conversion within the BI360 Data Warehouse (DW). There is also a third scenario, which is that the ERP system itself performs the currency conversion and the BI360 report writer simply pulls the converted data into reports. Let's briefly cover these methods below:

1. ERP system converts, BI360 reports

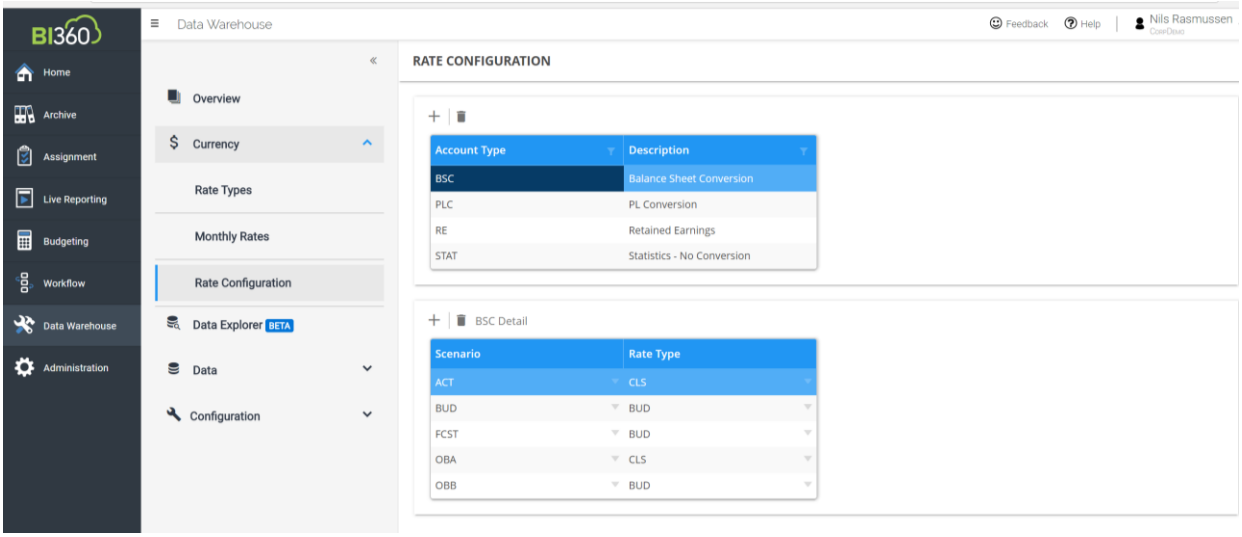
This methodology is typical when the ERP system has solid currency conversion capabilities and can store data in both local and parent/reporting currencies. In this case, BI360 simply reports directly on the converted data tables and no currency conversion functions need to be performed in BI360 prior to producing reports.

2. ERP system is the data source, BI360 Report Writer converts

This methodology is popular when the ERP system doesn't have the required currency conversion functionality and there are only one or a few foreign currencies to convert. BI360 can then access the local amounts in each subsidiary and the related exchange rates from their exchange rate tables, and then BI360 can perform the currency calculation right within the Excel report template. If the required rates are not available in the ERP system, they can be entered elsewhere (e.g. in a rate sheet maintained separately) and accessed from the BI360 meta data (integration tool) or the Excel report definition.

3. BI360 Data Warehouse converts, BI360 reports

This methodology is recommended when more advanced currency conversion is required and there are quite a few currencies to convert. The BI360 Data Warehouse (DW) has both rate tables, rate types and a currency conversion engine, and it can perform advanced currency conversion on a scheduled basis, e.g. right after scheduled data loads have taken place from the ERP databases (s). Once currency conversion has taken place, the BI360 report writer simply reports on the local currency and/or converted data.



You can read more about currency conversion in Appendix 2.

Consolidation Adjustments

IFRS to GAAP Adjustments

Multinational companies are increasingly in need of a safe, easy way to enter/create IFRS to GAAP (or the other way around) adjustments in order to comply with domestic and international accounting rules. Sometimes this role is performed by the corporate ERP system and BI360 simply reports on the adjusted data, while other times companies are seeking the consolidation and reporting tool to handle the IFRS/GAAP adjustments. In the latter case, the BI360 Data Warehouse (DW) is an excellent option. Using simple Excel-based input forms built with the BI360 Planning module, users can enter Inventory adjustments and other required entries, and store them directly to the DW. The DW will store entries with user ID and date stamps for audit purposes. Once this is done, it is s simple task for the BI360 report writer to access the imported GL data as well as the entered adjustments to produce consolidated reports as well as any required audit trail reports.

You can read more about IFRS to GAAP Adjustments in Appendix 1.

Other Adjustments

Depending on the company and requirements, there can be several other situations where a corporate controller needs to post consolidation-related adjustment entries. Including currency-related adjustments, temporary correction of erroneous data from a subsidiary, etc. This can be done rather elegantly by using BI360 Planning to design a user-friendly input form(s) where such transactions can be entered and stored in the BI360 Data Warehouse. By default, entered transactions will be tracked with user id and time/data stamps. You can also enter comments to explain the reason for the adjustment entries.

Eliminations

There are several ways to perform eliminations of intercompany transactions:

1. ERP system offers elimination functionality

Many ERP systems either provide the facilities to enter elimination entries into elimination companies and/or they provide functionality to perform auto-eliminations. In either case, the BI360 report writer can report on this data and does not need any special intercompany elimination functions beyond that.

2. Eliminations done by the BI360 Reports/Forms running on the BI360 Data Warehouse

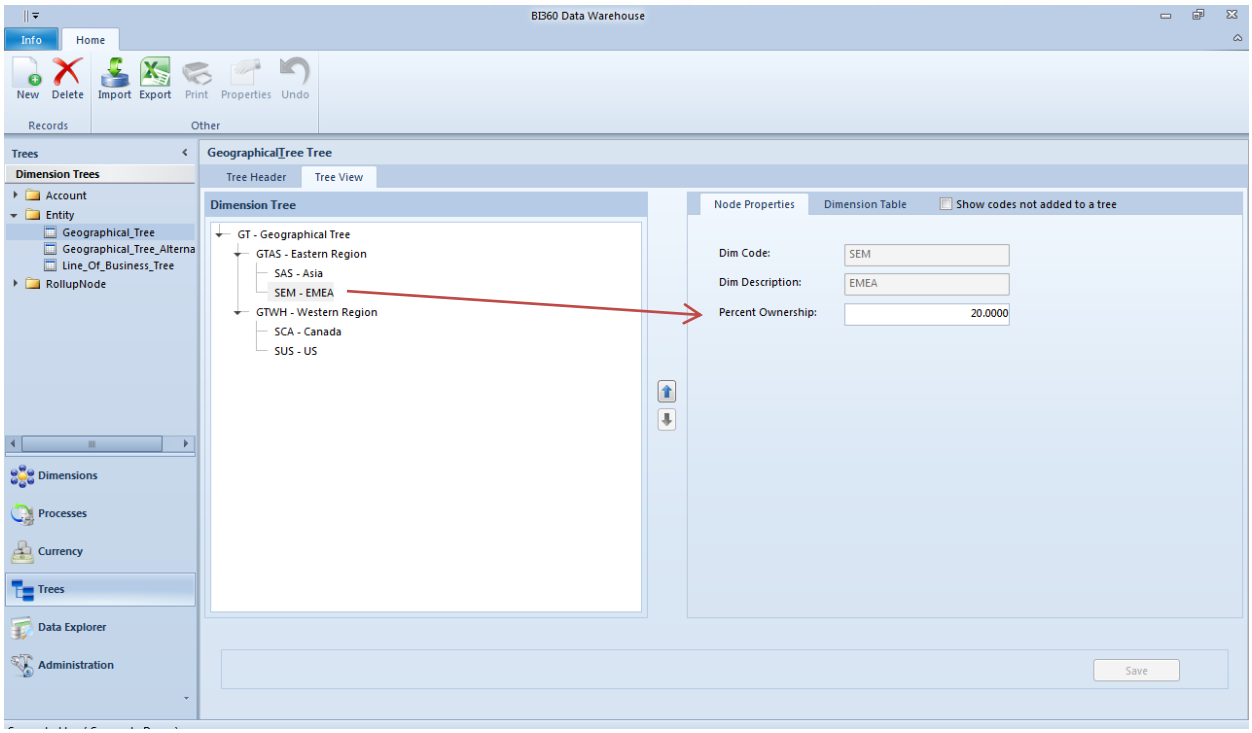
The BI360 Planning module offers fully customizable Excel input forms that can be used for manual elimination entries. Furthermore, BI360's reporting module in combination with the Planning module's write-back functionality can perform automatic elimination calculations and store these to the BI360 DW for use in consolidation reports.

3. Eliminations done within the BI360 Data Warehouse (DW)

The BI360 DW also offers an elimination process that can be run automatically after data has been loaded from the ERP systems and into the DW. This functionality will automatically create and post elimination entries in the DW based on inter-company transactions and roll-up trees (hierarchies). These elimination transactions are then available for the BI360 report writer to be used in consolidation reports, inter-company matching reports, etc.

Minority Interest Calculations

BI360 manages the consolidation entries necessary for organizations that have direct and indirect interests in multiple organizations and complex cross-ownership situations through organization hierarchies and predefined business rules. In addition, the process of determining effective ownership, ultimate percent control, and proper consolidation method is done automatically based on hierachies and business rules in the BI360 Data Warehouse.



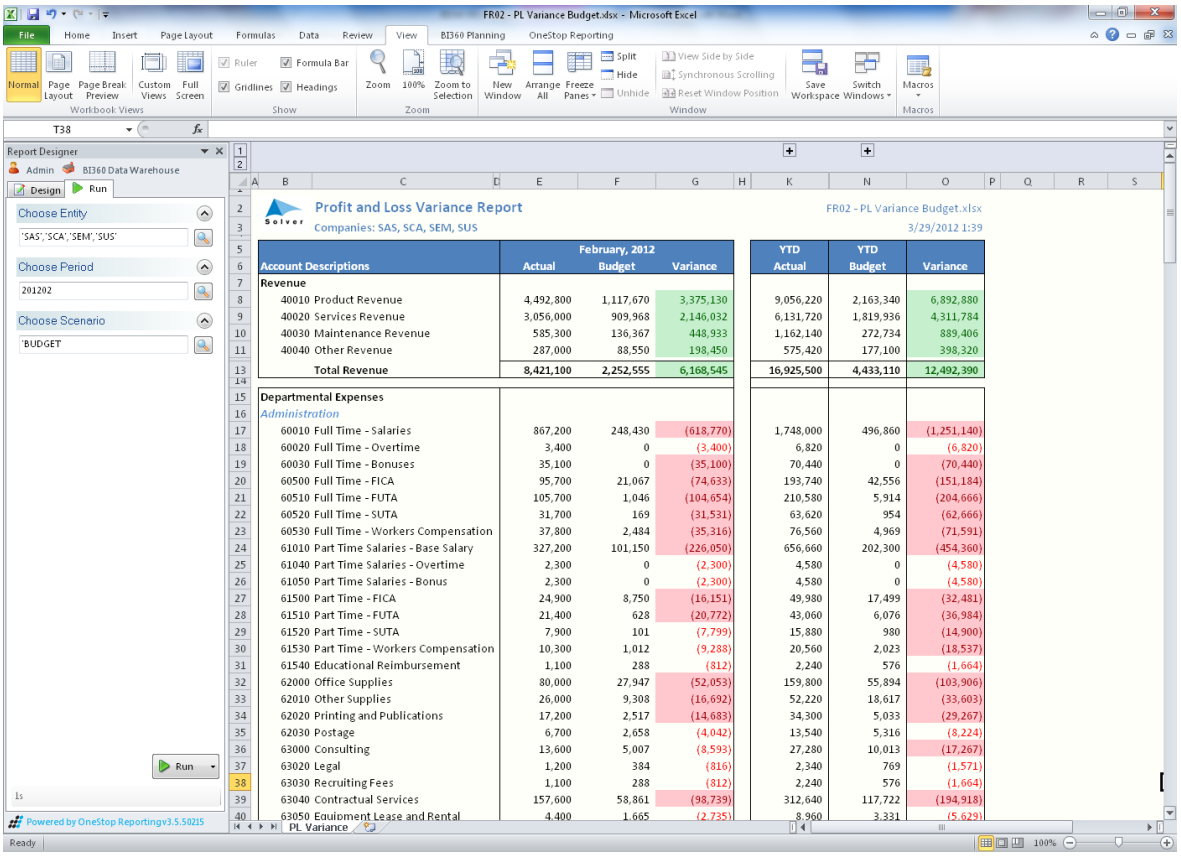
Allocations

Some corporations also need to perform allocations as part of their monthly consolidation process. For example, allocating corporate overhead expenses down to divisions and/or subsidiaries. Unless these allocations are already performed within the ERP system and is just part of the ordinary data loading to BI360, you can design simple or highly sophisticated allocation reports that calculates and saves allocations into the BI360 Data Warehouse (DW). This requires BI360 Planning for the write-back of the allocations. Because the resulting allocations become real transactions in the BI360 DW, if desirable, you can later export these back to the ERP system as well. In essence, using BI360 as your allocation engine.

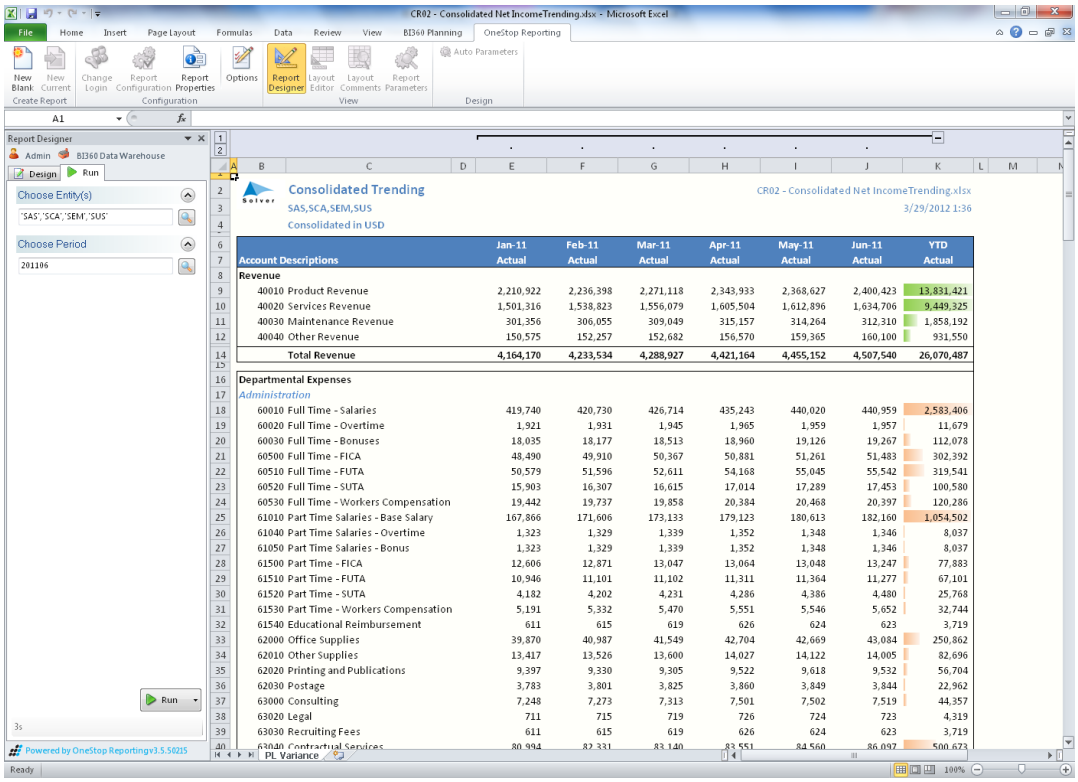
Consolidated Financial Reports

At the point when data loading, account mapping, reconciliation, currency conversion, adjustments, and elimination processes have been completed (maybe you require only a few of the above processes) you are ready to produce your consolidated reports with BI360's report writer. Reports can roll-up companies and display them in an almost unlimited number of report layouts, such as:

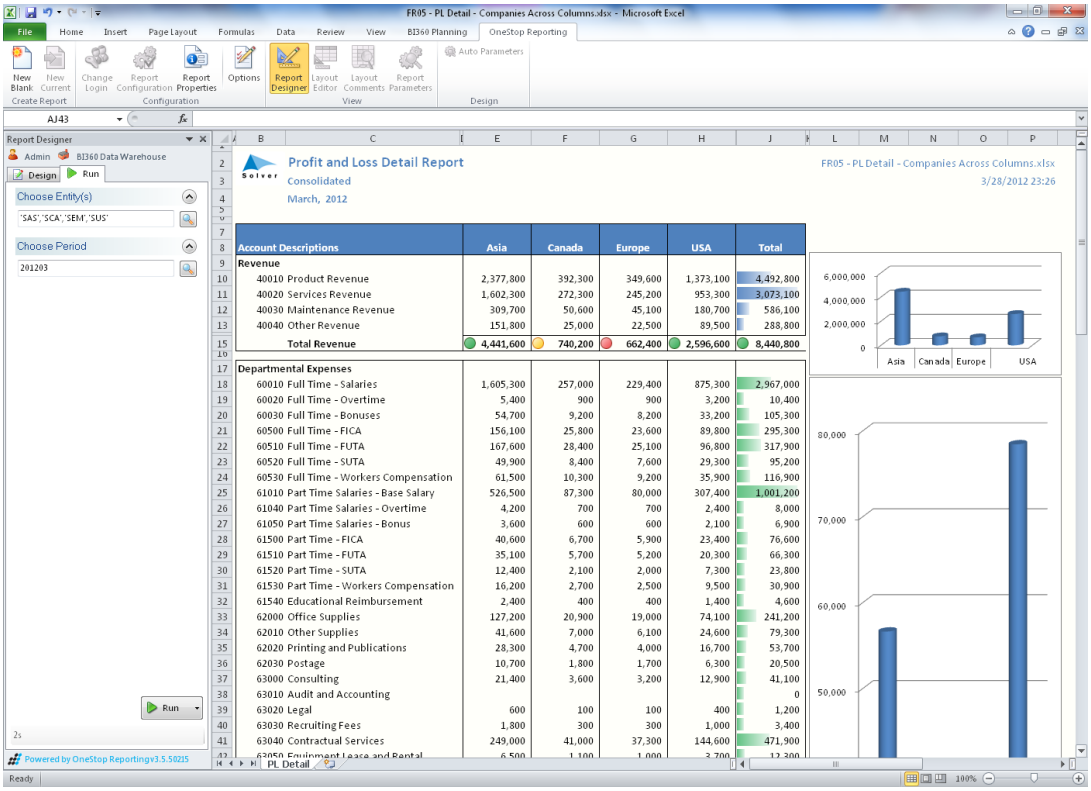
- Consolidated reports (companies are consolidated into single columns of e.g. actual, budget and variance figures):



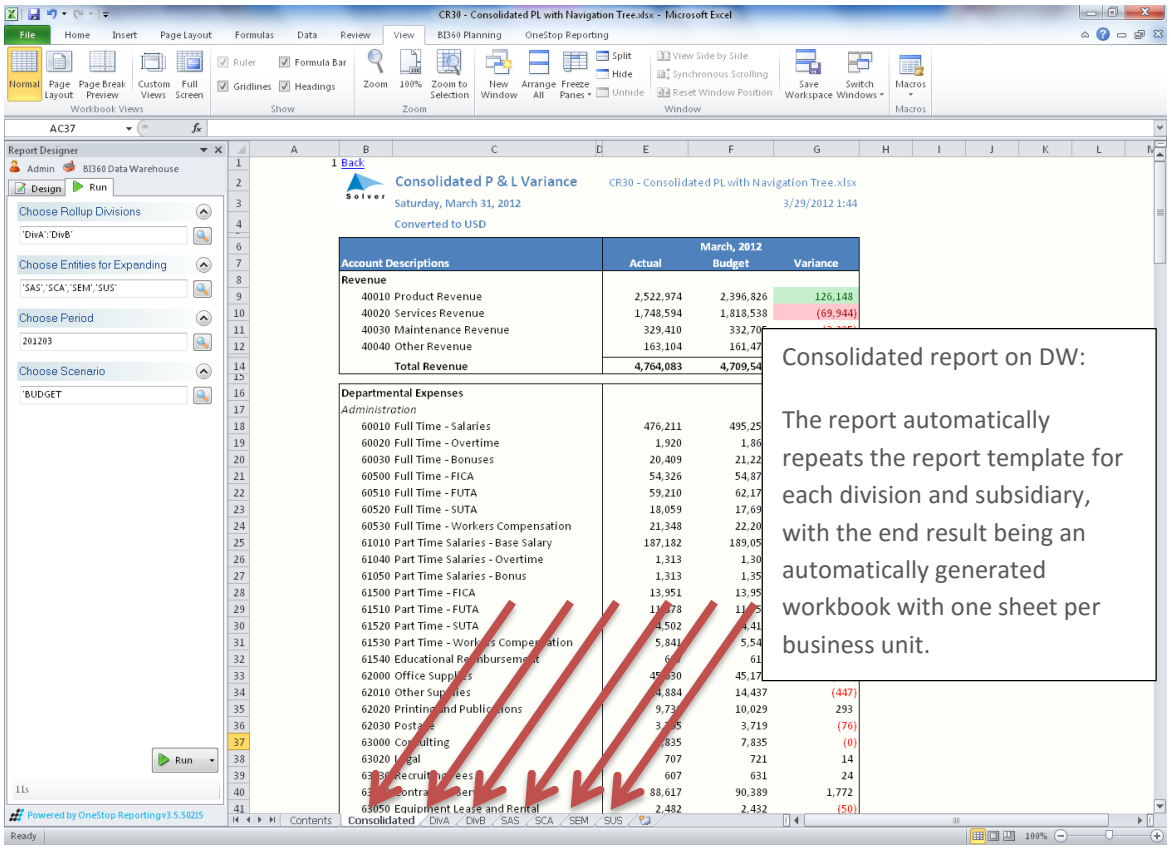
Account Descriptions	February, 2012 Actual	February, 2012 Budget	February, 2012 Variance	YTD Actual	YTD Budget	YTD Variance
Revenue						
40010 Product Revenue	4,492,800	1,117,670	3,375,130	9,056,220	2,163,340	6,892,880
40020 Services Revenue	3,056,000	909,968	2,146,032	6,131,720	1,819,936	4,311,784
40030 Maintenance Revenue	585,300	136,367	448,933	1,162,140	272,734	889,406
40040 Other Revenue	287,000	88,550	198,450	575,420	177,100	398,320
Total Revenue	**8,421,100**	**2,252,555**	**6,168,545**	**16,925,500**	**4,433,110**	**12,492,390**
Departmental Expenses						
Administration						
60010 Full Time - Salaries	867,200	248,430	(618,770)	1,748,000	496,860	(1,251,140)
60020 Full Time - Overtime	3,400	0	(3,400)	6,820	0	(6,820)
60030 Full Time - Bonuses	35,100	0	(35,100)	70,440	0	(70,440)
60500 Full Time - FICA	95,700	21,067	(74,633)	193,740	42,556	(151,184)
60510 Full Time - FUTA	105,700	1,046	(104,654)	210,580	5,914	(204,666)
60520 Full Time - SUTA	31,700	169	(31,531)	63,620	954	(62,666)
60530 Full Time - Workers Compensation	37,800	2,484	(35,316)	76,560	4,969	(71,591)
61010 Part Time Salaries - Base Salary	327,200	101,150	(226,050)	656,660	202,300	(454,360)
61040 Part Time Salaries - Overtime	2,300	0	(2,300)	4,580	0	(4,580)
61050 Part Time Salaries - Bonus	2,300	0	(2,300)	4,580	0	(4,580)
61500 Part Time - FICA	24,900	8,750	(16,151)	49,980	17,499	(32,481)
61510 Part Time - FUTA	21,400	628	(20,772)	43,060	6,076	(36,984)
61520 Part Time - SUTA	7,900	101	(7,799)	15,880	980	(14,900)
61530 Part Time - Workers Compensation	10,300	1,012	(9,288)	20,560	2,023	(18,537)
61540 Educational Reimbursement	1,100	288	(812)	2,240	576	(1,664)
62000 Office Supplies	80,000	27,947	(52,053)	159,800	55,894	(103,906)
62010 Other Supplies	26,000	9,308	(16,692)	52,220	18,617	(33,603)
62020 Printing and Publications	17,200	2,517	(14,683)	34,300	5,033	(29,267)
62030 Postage	6,700	2,658	(4,042)	13,540	5,316	(8,224)
63000 Consulting	13,600	5,007	(8,593)	27,280	10,013	(17,267)
63020 Legal	1,200	384	(816)	2,340	769	(1,571)
63030 Recruiting Fees	1,100	288	(812)	2,240	576	(1,664)
63040 Contractual Services	157,600	58,861	(98,739)	312,640	117,722	(194,918)
63050 Equipment Lease and Rental	4,400	1,665	(2,735)	8,960	3,331	(5,629)



- Consolidating reports (companies are listed side by side with a consolidated column on the right or left side of the report):



- Multi-sheet reports (a report is displayed first as a consolidated report and then the same report is produced on separate Excel sheets for each division/subsidiary) :



Modeling Organizational Changes

If you need to see the impact of acquisitions, divestitures, or internal reorganizations, using the BI360 Data Warehouse you can easily copy and change an unlimited number of corporate hierarchies ('trees") to help you model the to-be roll-up. You can then use the BI360 Reporting module to consolidate based on the before-and after hierarchies to evaluate alternatives. With BI360 it is easy to model organizational changes to answer questions like "What will the net tax impact be of changes in my legal structure?" or "What will trends be on my profitability with and without acquired or discontinued operations?".

Appendix 1 - IFRS to GAAP Adjustments

Introduction

After reading this appendix, readers should:

- Understand the basis for International Financial Reporting Standards (IFRS).
- Have a basic acquaintance with the differences between IFRS and U.S. Generally Accepted Accounting Principles (US GAAP), as well as with some of the challenges resulting from multiple financial rule sets.
- Appreciate how the *BI360* corporate performance management suite can be employed to manage the presentation of simultaneous financial statements and supporting reports under IFRS and U.S. GAAP.

Overview of International Financial Reporting Standards

International Financial Reporting Standards (IFRS) are an integrated set of authoritative accounting pronouncements promulgated by the International Accounting Standards Board (IASB). The IASB is an independent standard-setting body organized to "develop a single set of high quality, understandable, enforceable and globally accepted International Financial Reporting Standards (IFRS)."[1]

Among the advantages of a globally-applied set of high-quality accounting standards are the following:

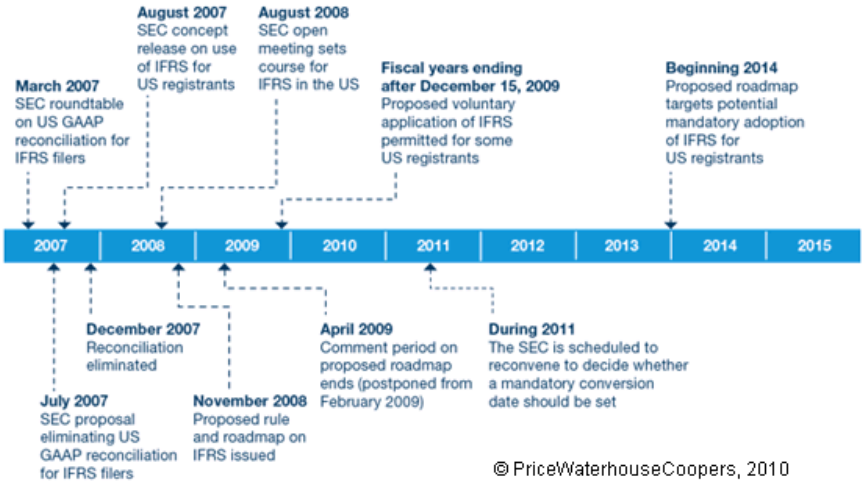
- Increased comparability of company results and transparency in financial reporting.
- Improved access to capital, as investors are not required to be well-versed in varying local Generally Accepted Accounting Principles (GAAP) to evaluate investment candidates. Also financial statements will be acceptable to different national exchanges without restatement.
- Simplified financial reporting for multinational organizations since subsidiary statements will no longer require restatement from local GAAP prior to consolidation.
- Lowered cost of financial reporting as a worldwide accounting staff may be flexibly assigned.

IFRS has substantial global momentum. Since 2001, almost 120 countries have required or permitted the use of IFRS. In the figure below, blue areas indicate countries that require or permit reporting under IFRS as of 2010; grey areas indicate countries seeking convergence with or pursuing adoption of IFRS.[2]

IFRS represents an integrated body of accounting rules. The impact of moving from local GAAP to IFRS will vary by jurisdiction. Further, different business organizations within the same jurisdiction will be variously affected as their business operations expose them to different IFRS pronouncements. IFRS adoption can materially affect reported results. A study by the Institute of Chartered Accountants in England and Wales (ICAEW) determined 52% of United Kingdom companies reported materially different profits as a result of IFRS reporting. Of those, 32% reported profits higher than those that would have been reported under UK GAAP.[3]

Some Major Differences Between U.S. GAAP and IFRS Standards

In 2002 the U.S. Financial Accounting Standards Board (FASB) signed a memorandum of understanding with the IASB, establishing U.S. GAAP/IFRS convergence as a goal. IFRS adoption in the U.S. is being driven as well by the Securities and Exchange Commission (SEC). In 2008 the SEC published a "roadmap" to IFRS adoption with phased implementation culminating in registered companies reporting under IFRS by 2014:



The SEC is currently reviewing letters received from interested parties during the public comment period. Further SEC action is anticipated in early 2010.[4] Deloitte and Touche surveyed 150 Chief

Financial Officers and other finance professionals in October 2009 and found that 70% supported the adoption of IFRS based on the roadmap.[5]

A detailed discussion of the differences between U.S. GAAP and IFRS is well beyond the scope of this paper. However, two general theoretical distinctions can be stated. First, IFRS tends to be *principle-based* while U.S. GAAP is more *rule-based*. U.S. GAAP guidance most often relies on precise definitions and thresholds, with deviations discouraged. IFRS pronouncements are more frequently based on suggested standards with various optional presentations based on context. Under IFRS, choices of presentation based on the preparers informed judgment should be supported by documentation of the reasoning behind the judgment. This type of referential documentation is less important under U.S. GAAP so long as the rules are followed.

Second, while U.S. GAAP favors historical valuations when available, IFRS supports fair-value carriage. This can introduce added volatility into reported profitability since the fluctuations in fair-values are generally reflected in the income statement. Debt covenants drafted under the auspices of U.S. GAAP could be breeched as a direct result, or as a consequence of debt-equity ratio effects.

Determining the specific requirements for an individual firm for presentation under IFRS will be a major effort, requiring the attention of the finance and accounting function, auditors, specialist advisors and tax preparers. Some major areas which will affect many firms include the following:

- *Revenue Recognition*: For multi-period revenue contracts, U.S. GAAP is generally more conservative in allowing revenue to be recognized in prior periods compared to IFRS.
- *Inventory*: Under U.S. GAAP, either the *Last In, First Out (LIFO)* or *First In, First Out (FIFO)* computation may be elected. IFRS does not allow LIFO, which will create additional reported income (and cash tax payments) for most U.S. firms that hold inventory. This is a significant area of controversy.[6] In addition, inventory write-downs under U.S. GAAP are permanent; while IFRS inventory write-downs are reversible.
- *Leases*: U.S. GAAP provides detailed technical guidance for classification of leases. These rules in turn allow the possibility of "synthetic" leases, which critics claim can create misleading balance sheets by inappropriately excluding liabilities. IFRS takes a more conceptual approach by classifying leases based on the substance of the agreement.
- *Consolidation*: U.S. GAAP uses an *economic benefit* test to determine whether an entity should be consolidated. IFRS favors a control model to determine consolidation status.[7] Therefore, *Variable Interest Entities (VIE's)* and other units consolidated under U.S. GAAP may be presented separately under IFRS or vice versa.
- *Owner's Equity*: Various differences exist, for example U.S. GAAP allows shares with the *put option* feature to be carried in equity, while IFRS suggests a liability classification.

Most jurisdictions adopting IFRS have dictated a period of reconciled parallel presentation, including both local GAAP and IFRS financial statements. A similar requirement will probably be a part of any U.S. transition.

IFRS Presentation as a Reporting Task

Generally speaking, IFRS presentation – or GAAP presentation for an entity whose books of original entry are maintained in IFRS – is primarily a financial reporting challenge. Typically, the books of original entry are maintained persistently using the local GAAP methods with adjustments performed to produce IFRS statements. Eventually, when the requirements for IFRS presentation have been completely digested and the necessity for comparative books has passed, then the books of original entry are converted to IFRS and the adjustments are discontinued. During the "dual book" period, reconciling reports are often a crucial requirement.

Three predominant methods are used to maintain parallel books:

1. Spreadsheet-based models,
2. Enterprise Resource Planning (ERP) systems with support for multiple financial ledgers
3. Dedicated financial reporting systems.

The first method, spreadsheet-based solutions, will tend to rapidly break down under the number of adjustments needed. At a recent conference panel a consultant recalled a client who discovered over 500 spreadsheets were required each period to produce IFRS financial statements. Auditing and maintaining links between that many worksheets was quickly deemed impractical for a critical function.[8]

The second method, multiple ledgers in the firm's ERP systems, is a more viable option since all entries are maintained within the system database; however, not all ERP systems include this feature. An ERP system's ability to produce complex rules-based entries in a secondary ledger based on data from the primary ledger is an important consideration when evaluating this method. Also, the capacity of the ERP's reporting module to flexibly address both ledgers simultaneously is important for reconciliation and comparative reports. This method may also be impractical if not all business entities use the same ERP system.

The final method, the use of dedicated financial reporting software, will often provide the best results. These systems are generally designed to provide flexible presentations based on an optimized financial database. Thus these systems have the ability to maintain and address the various adjustments required to present financial results based on multiple accounting standards. Additionally, these products typically allow creation of forms which include data from the base accounting methodology as well as input from users. This capability can both streamline and standardize the adjustments required for the presentation of financial statements under the alternative policies. However, the cost for this added functionality is that transactions in the ERP system must be loaded into the reporting package's database.

Although they are beyond the scope of this paper, other business functions in addition to accounting and financial reporting will be affected by any transition between accounting methodologies. For example, compliance systems based on superseded rules will require

adjustment or complete replacement. For example, consider compliance testing for leases. If a system is based on definite specifications used with U.S. GAAP "bright line" rules, and these rules are replaced by conceptual principles under IFRS, significant revisions will be needed.[9] Many business function revisions will require support from information technology staff, so always consider the potential impact these revisions will have on other IT projects as well.

Examples of IFRS Presentation Using BI360

BI360 is a corporate performance management suite well suited to producing financial statements in multiple accounting standards.[9] BI360's relevant features include:

- Choice between cloud and on-premise deployment based on what fits the corporate consolidation process the best.
- An Excel-based form and report writer which allows flexible implementation of required business logic.
- Web portal for easy access and management of the overall BI360 application.
- A dedicated relational Data Warehouse hosted on Microsoft's SQL Server database. The Data Warehouse is preconfigured with separate modules including the general ledger.
- A dimensional storage model for entries to the Data Warehouse fact table, including an unlimited number of transaction *categories*, which allows for different ways of classifying data. In addition to the preconfigured dimensions, the Data Warehouse supports up to 40 user-defined dimensions as well.
- Automated currency and consolidation technology.

In the following example, a hypothetical organization requires two types of recurring adjustments each period to restate U.S. GAAP results to IFRS. First, revenue recognition must be adjusted to reflect the different principles under IFRS. This adjustment will affect a *sales revenue account*, with an automated offsetting entry affecting *accounts receivable*. Second, inventory must be adjusted to reflect differences between the two standards. This adjustment will affect a specific *inventory account*, with the offsetting entry affecting *cost of goods sold*. Each adjustment must include a supporting note to explain the reason for the adjustment. Here is an example of a form which accomplishes these requirements, as it would appear to the user:

IFRS Adjustments Form

Entity:	Corporate US
Department:	Administration
Period:	January, 2011
Scenario:	Actual Data
Currency:	US Dollar

Revenue Recognition Adjustments

Entry No.	Amount	Description
01	(20,000)	Reversal of % of completion adjustment - Cust. AARON0001
02	25,000	Recognition of revenues previously reversed - Cust. CENTR0001
Total:	5,000	

Inventory Valuation Adjustments

Entry No.	Amount	Description
01	35,000	Reversal of previous inventory writedown
02	25,000	Adjustment of inventory sales from LIFO to FIFO
Total:	60,000	

This form has been designed using a *category* dimension code "IFRS" for these adjustments. In the example above, the form has been executed for company "Corporate US" for January 2011. The adjustments entered will be consistently booked across the firm and across periods since the same form definition is executed for any combination of entity and period. For the example above the effective journal entries are:

Debit Entry		Credit Entry	
Accounts Receivable	**5,000**	**Sales**	**5,000**
Inventory	**60,000**	**Cost of Sales**	**60,000**

It is straightforward to write a trial balance format reconciling report that isolates these adjustments as they have been entered in a specific transaction *category* (IFRS):

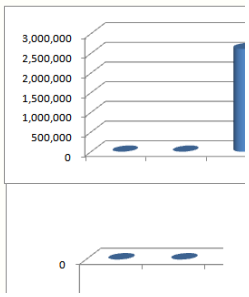
IFRS Reconciliation Report
Entity: Corporate US
Periods Through: January 2011

Account	Account Description	USGAAP Balances	IFRS Adjustments	IFRS Balances
10100	Cash	13,445,850		13,445,850
11100	Accounts Receivable	501,100	5,000	506,100
12000	Inventory	330,000	60,000	390,000
13000	Prepaid	265,025		265,025
13100	Other Current Assets	224,700		224,700
16100	Long-Term Account Receivables	1,474,750		1,474,750
17100	Other Long-Term Receivables	1,390,700		1,390,700
17300	Goodwill	0		0
18100	Building	10,776,150		10,776,150
18200	Equipment	3,570,325		3,570,325
18300	Computer	1,884,050		1,884,050
18700	Accumulated Depreciation Building	(1,984,250)		(1,984,250)
18800	Accumulated Depreciation Equipment	(685,950)		(685,950)
18900	Accumulated Depreciation Computer	(14,250)		(14,250)
19100	Other Long-Term Assets	5,513,300		5,513,300
21100	Accounts Payable	(1,957,500)		(1,957,500)
23100	Other Short-Term Debt	(11,384,950)		(11,384,950)
24100	Long-Term Account Payables	(9,701,600)		(9,701,600)
25100	Other Long-Term Debt	(14,215,800)		(14,215,800)
30000	Currency Translation Adjustment	0		0
31000	Retained Earnings	(318,200)		(318,200)
40010	Product Revenue	(1,401,050)	(5,000)	(1,406,050)
40020	Services Revenue	(944,300)		(944,300)
40030	Maintenance Revenue	(177,100)		(177,100)
40040	Other Revenue	(88,550)		(88,550)
50010	COGS - Product Sales	980,000	(60,000)	920,000
60010	Salaries	874,800		874,800
68130	Gift and donations	1,050		1,050
68140	Special events	1,050		1,050
68150	Bank charges	1,050		1,050
68180	Miscellaneous expenses	46,200		46,200
68190	Bad Debt Expense	98,350		98,350
68200	Taxes	103,800		103,800
	Grand Total	**0**	**0**	**0**

It is equally straightforward to write a consolidating statement of operations that separates these adjustments into a separate column (in this example no USD-translated transactions have been generated in either the Asia or EMEA entities, hence those columns have no amounts):

IFRS Statement of Operations
Consolidating Version
Currency: US Dollar
January, 2011

Account Descriptions	Corporate Asia	Corporate EMEA	Corporate US	IFRS Adjustments	IFRS Total
Revenue					
40010 Product Revenue	0	0	1,401,050	5,000	5,000
40020 Services Revenue	0	0	944,300		0
40030 Maintenance Revenue	0	0	177,100		0
40040 Other Revenue	0	0	88,550		0
Total Revenue	**0**	**0**	**2,611,000**	**5,000**	**5,000**
Departmental Expenses					
50010 COGS - Product Sales			980,000	(60,000)	(60,000)
60010 Salaries			874,800		0
60020 Overtime			3,150		0
60030 Bonuses			32,200		0
60500 FICA			91,000		0
60510 Other Fringe Benefits			98,000		0



BI360 also allows entries in the database to be associated with user-defined dimensions. These dimensions are available to identify transactions in the database in any way needed. In our example of the IFRS adjustments form, a user-defined dimension has been used to specify the revenue adjustments separately from the inventory adjustments. This simplifies definition of a report which only includes data for a specific adjustment type. Here is an example of a reconciling report which displays only the adjustments to inventory, grouped by period, including the explanations entered in the form for the entries:

Inventory Reconciliation - US GAAP to IFRS
Entity: Corporate US
Currency: US Dollar
Periods Through: March 2011

Inventory Per US GAAP		**$ 395,000**
January		
	Adjustment of inventory sales from LIFO to FIFO	25,000
	Reversal of previous inventory writedown	35,000
	Total For January	*60,000*
February		
	Adjustment of inventory sales from LIFO to FIFO	45,000
	Total For February	*45,000*
March		
	Adjustment of inventory sales from LIFO to FIFO	15,000
	Total For March	*15,000*
Total IFRS Adjustments		*120,000*
Inventory Per IFRS		**$ 515,000**

The examples above are expository only and a real-world USGAAP/IFRS conversion model could of course be much more complex; the forms and reports might need to reflect more challenging business rules. The BI360 Reporting form/report writer and the *BI360 Budgeting (think of it here as an input and calculation storage module)* data storage are both very flexible however and can accommodate such rules. The underlying Excel functionality is a significant benefit for complex implementations. Also, because *BI360* is based on Microsoft Excel, any existing IFRS spreadsheet models created for the organization may be adapted. This capability may reduce to level of effort to move to a database-backed IFRS solution. Equally important, adapting proven computational workbooks may be more acceptable from a compliance and risk perspective.

Conclusion

The journey between two different sets of authoritative guidance for accounting presentation is a task that will cut across many disciplines and generally include both internal staff and trusted advisors. Even with solid planning and execution it will be a daunting task, particularly for the finance and accounting functions who will be most closely involved. Having available a suitable and flexible integrated tool such as the BI360 reporting suite can be an important part of a successful transition strategy.

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[9] Kim, Jim. "Debate: The impact of IFRS on Sarbanes-Oxley." FierceComplianceIT Website <http://www.fiercecomplianceit.com/story/debate-impact-ifrs-sarbanes-oxley/2008-07-03> viewed 01/20/2010.

Appendix 2 - Currency

Introduction

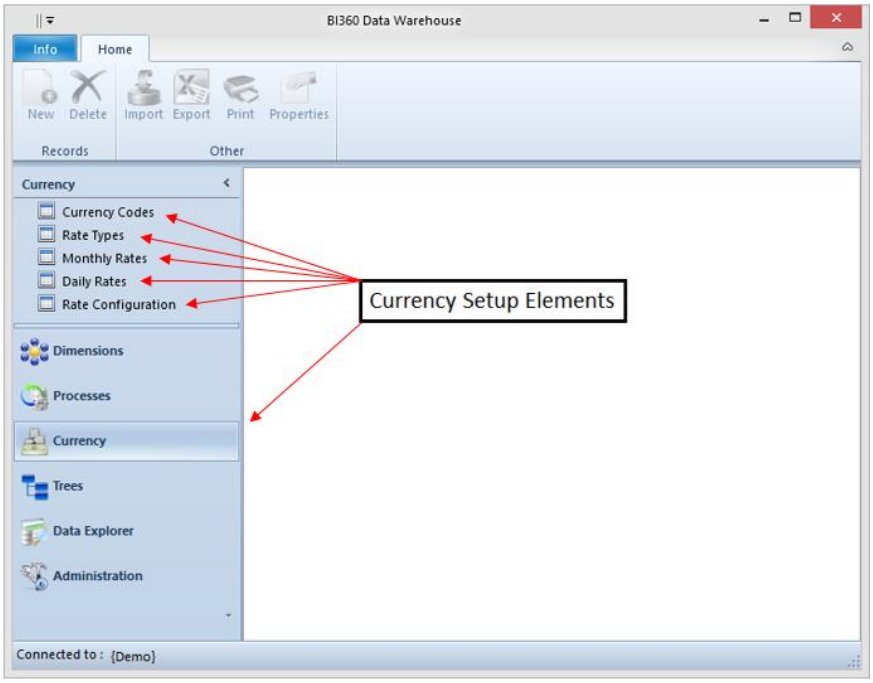
This Appendix mainly focuses on BI360 users deploying the BI360 Data Warehouse(DW). It will also briefly cover currency conversion for companies only using BI360 as a live report writer on their ERP database.

Users of BI360 DW requiring multiple currency reporting are supported in two fashions:

1) There is a complete currency translation process built into the BI360 Data Warehouse user interface. This translation requires some initial setup and then it will use business rules to automatically convert each foreign currency. The process generates new transactions in the target currency and both original- and these converted transactions can be used in reports.
2) For very simple currency needs, since the BI360 DW currency tables are exposed to the BI360 report writer, reports can bring the native currency transaction data and the FX rates into a report then perform the currency conversion in the report itself using Excel formulas. See the end of this Appendix for more information.

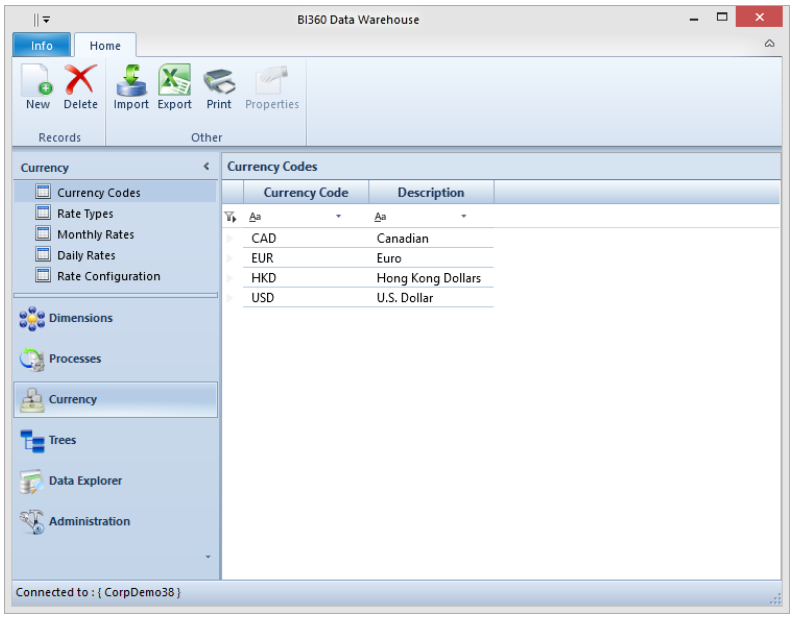
Currency Setup

The main items that need to be configured for a multi-currency model in BI360 DW are accessed from the *Currency* section of the BI360 Data Warehouse interface:



1. Currency Codes

Currency codes (for example, USD for US Dollars) must be initialized for any currency which will be reported on. A good practice is to use the widely-recognized three character ISO 4217 codes. *Currency codes* can be manually entered, imported from a file (CSV or Excel files), or imported via SQL Server Integration Services (SSIS) integration. The *currency codes* will then also be available in the Entity (company) dimension in the currency field.



2. Rate Types

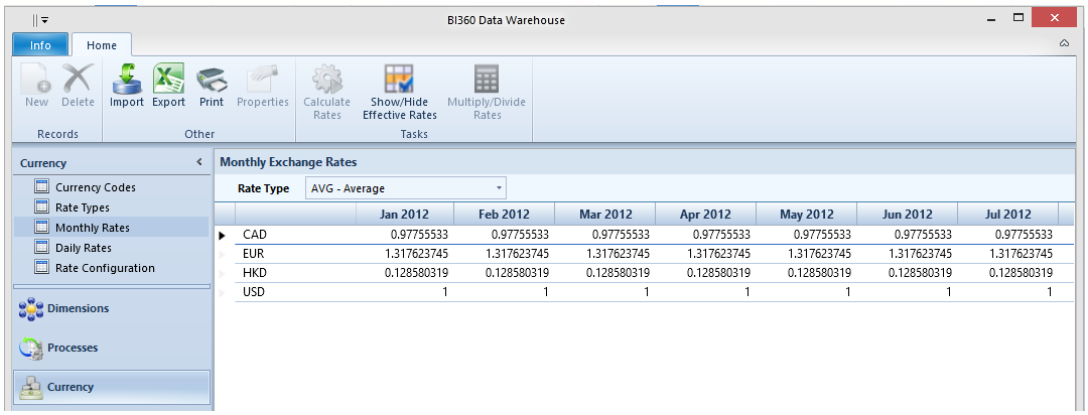
Rate Types define the nature of FX rate. Common rate types are:

- Average (AVG): Typically used for the profit & loss accounts, applied by period.
- Closing (CLS): Typically used for the balance sheet accounts, applied to period ending balances.
- Budget (BUD): Typically used for all accounts for budgets.
- Statistical (STAT): Typically used for non-financial accounts not subject to currency translation.

Other rate types may be set up as needed. Another common rate type is the historical rate which results in the translated amount always being the same as the date/period in which the translation was initially booked. Typically used for historical asset evaluation, etc.

3. Monthly Rates

These can either be entered manually or loaded to the BI360 DW as part of an automated ETL process:



These are the rates which are invoked when the Currency Conversion process is executed (see "Currency Conversion Business Rule" section below).

4. Daily Rates

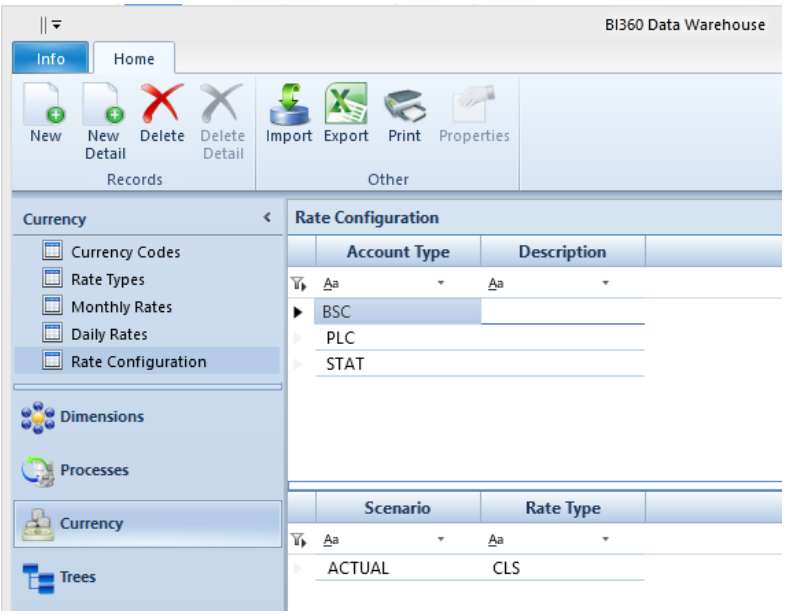
Daily spot rates can be imported into the warehouse in the *Daily FX Rate* tables. The source for the daily rates is typically the ERP system or other external database. *Daily FX Rates* can be directly imported or imported via SSIS integration. Daily rates cannot be manually entered or adjusted. Should you choose to load daily rates, BI360 can also automatically convert these to monthly rates.

5. Rate Configuration

Rate Configurations are used to determine which *Monthly FX Rates* are applied to which transactions when the *Currency Conversion Business Rule* is executed. The *Rate Configuration* maps the following fields:

- *Account Type* (i.e., balance sheet).
- *Scenario* (i.e., actual or budget).
- *Rate Type* (i.e., closing rate).

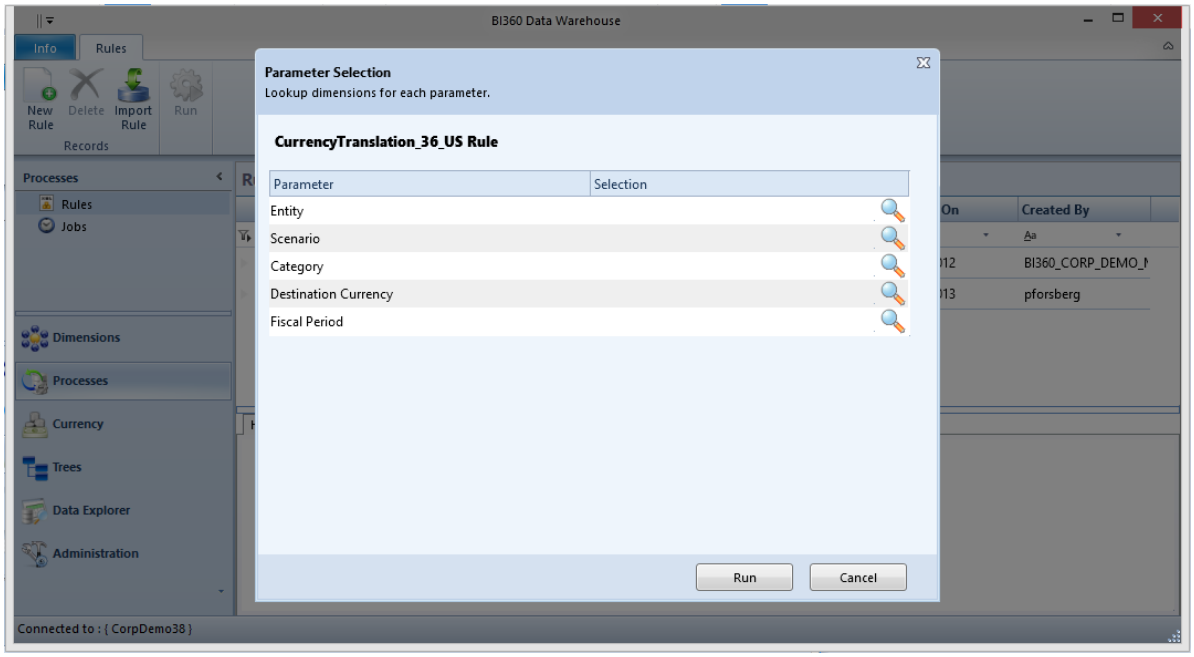
This mapping table controls the calculations used to generate the translated currency transactions (see the next section "Currency Conversion Business Rule").



Account Types may be created on the fly in the *Rate Configuration* interface; these *Account Types* are then available as a lookup in the Acounts table. However, the *Scenario* and *Rate Type* are lookups in the *Scenario* and *Currency Rate Type* dimension tables; therefore, the members must be entered before the *Rate Configuration* can be completed.

Currency Conversion Business Rule

The *Currency Conversion* process creates additional translation transactions with an *Amount* value which reflects the appropriate rate from the *Monthly Rates* table. The *Currency Conversion* is accessed from the *Processes* section BI360 Data Warehouse Manager:



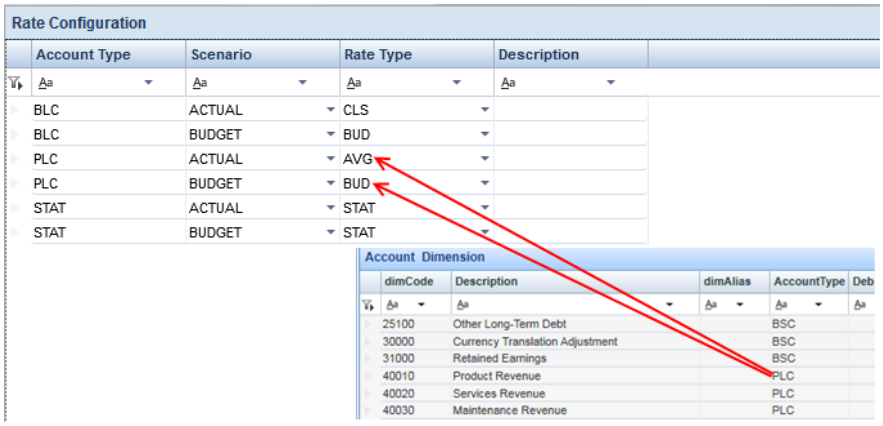
The following dimension settings determine which transactions will be selected for translation:

- *Scenario* (also used for the translation transactions).
- *Entity* (also used for the translation transactions).
- *Period(s)* (also used for the translation transactions).
- *Source Category*

The following dimension settings determine two dimensions which are used for the target transactions:

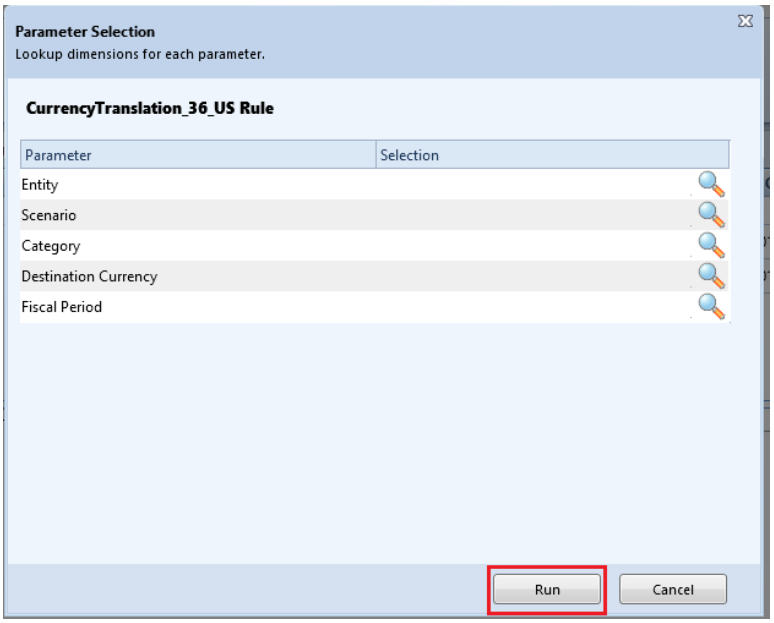
- Destination *Currency*.

The appropriate *Monthly FX Rate* is determined by the settings in the *Rate Configuration* and the *Account* interface in the *Dimensions* for the *General Ledger* module in the BI360 DW. Here is a sample:



In this case, a transaction for account 40010 with the *Scenario* ACTUAL, which is associated with *AccountType* PLC, would be translated using the AVG *Rate Type* for transactions. However, a transaction for account 40010 with the *Scenario* BUDGET would be translated using the BUD *Rate Type.*

To execute the *Currency Conversion* process click the Business Rules link at the top of the page, then the Execute rule button. This can also be scheduled to run at a specific time, e.g. 15 minutes after each time data is loaded from the General Ledger and into the BI360 DW.



In the next section you will find a currency translation example.

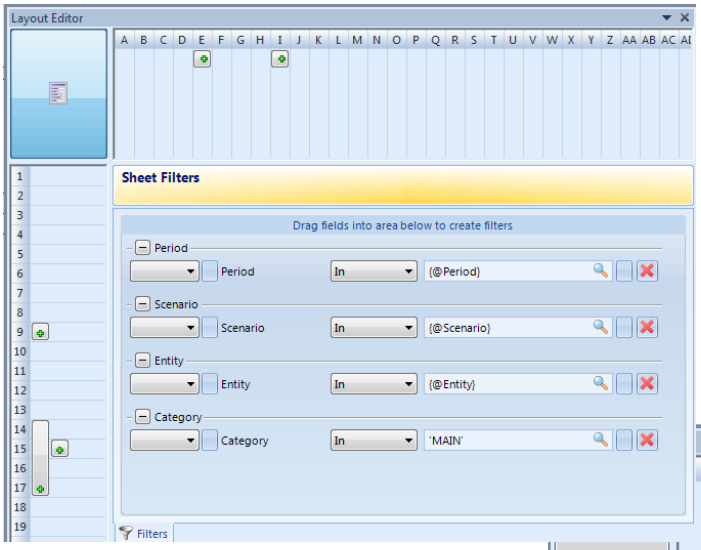
BI360 Currency Translation in Practice

This section shows how the currency translation functionality in BI360 may be used in a typical real world situation. Many possibilities exist for designing multicurrency financial reports using BI360, but the following examples should provide inspiration to design reports to fit your business needs. The examples below assume the "current rate" translation rules most commonly used in U.S. GAAP.

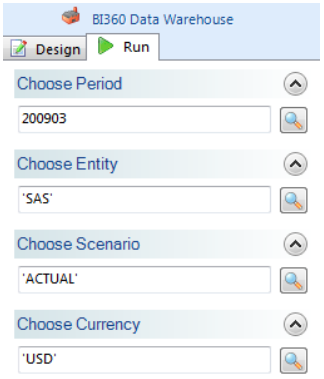
Profit & Loss Accounts

To create Profit & Loss financial statements with accounts with amounts in the target currency is very straightforward in BI360. As we saw in the last section, the translated transactions are created on a period-wise basis, using the rates in place in the *Monthly FX Rates* table. So assuming that the *Rate Configuration* settings are appropriate, the transactions may be brought into BI360 Reporting by simply identifying the *Destination currency.* To return to the previous example, here is the revenue section of a Profit & Loss report which uses the transactions created in the last section:

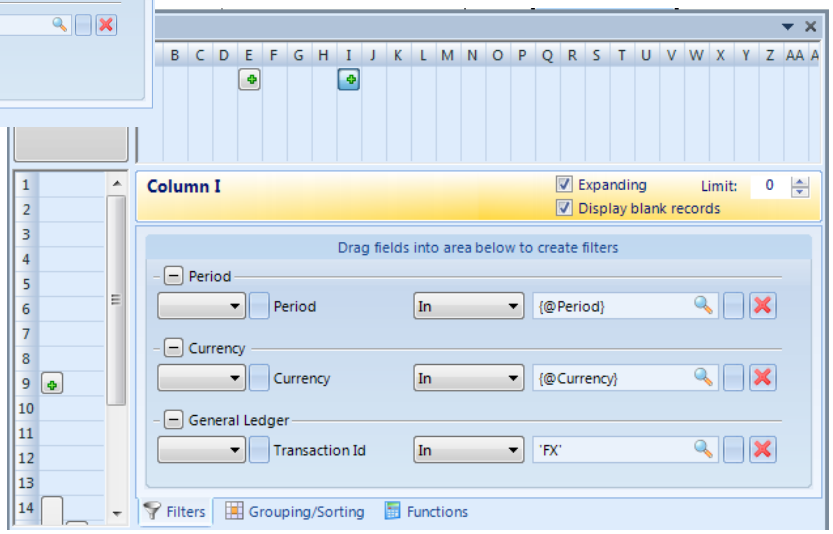
Report Sheet-level definition:



Parameters:



Report Column-level definition:



Here is the executed report converted to USD in column E and in local currency in column I:

Profit and Loss Detail Report
Corporate Asia
USD

Account Descriptions	Mar, 2009 Actual	Total	Local HKD Mar, 2009 Actual
Revenue			
40010 Product Revenue	268,860	268,860	2,084,500
40020 Services Revenue	182,998	182,998	1,418,800
40030 Maintenance Revenue	38,346	38,346	297,300
40040 Other Revenue	17,528	17,528	135,900
Total Revenue	**507,732**	**507,732**	**3,936,500**

Balance Sheet Accounts

Creating a Balance Sheet is similar to creating a Profit and Loss statement. However, with the Balance Sheet; the **Value2** field should be used to capture the YTD translated amounts.

Because the translation occurs within the business rule and stores within the warehouse, there are no additional steps required to show multi-entity historic rates.

	A	B	C	D	E	F
2		**Balance Sheet Report**				
3		Corporate Asia		Local		
4				HKD		USD
5				March, 2009		March, 2009
7		**ASSETS**				
8		*Current Assets*				
9		Cash & Equivalents		4,175,300		538,614
10		Accounts Receivable		188,300		24,291
11		Prepaid Expenses		100,000		12,900
12		Other Current Assets		80,800		10,423
13		*Total Current Assets*		*4,544,400*		*586,228*
14						
15		*Property & Equipment*				
16		Building		4,229,700		528,713
17		Equipment		1,391,900		179,555
18		Computer		707,400		91,255
19		Accumulated Depreciation		(982,200)		(126,704)
20		*Net Property & Equipment*		*5,346,800*		*672,818*
21						
22		Long-Term Account Receivables		585,100		75,478
23		Other Long-Term Receivables		533,100		68,770
24		Goodwill		0		0
25		Other Long-Term Assets		2,098,900		270,758
26						
27		**TOTAL ASSETS**		**13,108,300**		**1,674,052**
28						

Currency Translation Adjustment

Currency translation adjustment is the result of translating different portions of the balance sheet using different rates. In this example, the P&L accounts use a different rate (month average rate) from the Balance Sheet accounts. This difference is almost always carried as a separate line in the equity section of the Balance Sheet identified as, for example, Currency Translation Difference (CTD) or Accumulated Comprehensive Income (ACI). In this case, the amount of CTD will be determined as the difference between the Net Income translated using the period Average Rate versus translating the ending balance for Net Income at the Closing Rate.

Here is a summarized Balance Sheet in presented in native currency:

SAS - Corporate Asia		
February, 2011		
HKD		
Assets		65,336,400
Liabilities		64,516,500
Owners' Equity:		
Retained Earnings		638,000
Net Income		181,900
	Total Owners' Equity	819,900
	Total Liabilities And Owners Equity	65,336,400

Here is the same Balance Sheet, presented in the translated currency. To achieve this, the P&L accounts are presented with the Average Rate on one row and the Closing Rate on the second row. Row 13 and 14 can be hidden for presentation purposes:

	A	B	C	D	E	F	G
1							
2	SAS - Corporate Asia						
3	February, 2011						
4	US Dollar						
5							
6							
7	Assets			8,386,907			
8							
9	Liabilities			8,281,661			
10							
11	Owners' Equity:			Amount			
12	31000	Retained Earnings		81,897			
13	Net Income			23,366			
14	Net Income @ Closing Rate			23,350			
15		Accumulated Comprehensive Income		(17)			
16		Total Owners' Equity		105,246			
17							
18		Total Liabilities And Owners Equity		8,386,907			
19							
20							

Other sources of currency translation adjustment are historical or computed rates, for example for investments or retained earnings respectively. While these rate types have not been discussed in this document, they would be handled exactly the same way as Net Income. That is, the difference between translation using the historical/calculated rate and the closing rate would be an additional row on the Balance Sheet, etc.

Other Translation Options - Currency Translation on Live ERP Data

BI360 can be also used for multicurrency reporting directly on the ERP database, without the data warehouse. In the case where the ERP system itself performs and stores the converted amounts, BI360's report writer does not have to do anything but report on the numbers.

For simple currency conversion needs, reports you design with the BI360 report writer, can read the native currency transaction data from the ERP database as well as the exchange rates (or these can be entered/maintained in the report definition) and the report then performs the currency conversion using standard Excel formulas.

An executed report could for example look like the below where the displayed rates have been multiplied with the local currency amounts and the converted amounts are showing. For demonstration purposes the rates (pulled in automatically from the ERP database) are shown on row 7 above each month.

Multi-Company Report with Multi-Currencies

	Fabrikam, Inc.			Solver, Inc.			Solverkam, Inc.		
Exchange Rate	1.04429	1.0523	1.0268	0.70035	0.73103	0.73395	1.098	1.1286	1.10319
Account	201401	201402	201403	201401	201402	201403	201401	201402	201403
4110 - US Sales - Finished Goods	52,899.13	60,833.99	0.00	84,638.61	189.66	0.00	42,319.31	94.83	0.00
4110 - US Sales - Retail/Parts	956,425.39	1,099,889.20	0.00	1,530,280.62	1,759,822.71	0.00	765,140.31	879,911.36	0.00
4111 - Canadian Sales - Retail/Parts	42,383.02	48,740.47	0.00	67,812.83	77,984.75	0.00	33,906.41	38,992.37	0.00
4112 - AustralAsian Sales - Finished Goods	5,897.48	6,782.11	0.00	9,435.98	10,851.37	0.00	4,717.99	5,425.69	0.00
4112 - AustralAsian Sales - Retail/Parts	90,878.03	104,509.74	0.00	145,404.86	167,215.58	0.00	72,702.43	83,607.79	0.00
4114 - Germany Sales - Retail/Parts	0.00	5,514.33	0.00	0.00	8,822.93	0.00	0.00	4,411.46	0.00
4115 - United Kingdom Sales - Finished Goods	6,133.24	7,053.22	0.00	9,813.18	11,285.16	0.00	4,906.59	5,642.58	0.00
4115 - United Kingdom Sales - Retail/Parts	838.24	963.97	0.00	1,341.18	1,542.36	0.00	670.59	771.18	0.00
4116 - South Africa - Retail/Parts	4,719.68	5,427.64	0.00	7,551.50	8,684.22	0.00	3,775.75	4,342.11	0.00
4117 - Singapore Sales - Finished Goods	1,587.49	1,825.61	0.00	2,539.98	2,920.98	0.00	1,269.99	1,460.49	0.00
4117 - Singapore Sales - Retail/Parts	1,587.49	1,825.61	0.00	2,539.98	2,920.98	0.00	1,269.99	1,460.49	0.00
4120 - US Sales - Service Plans	156,463.63	179,933.18	0.00	250,341.81	287,893.08	0.00	125,170.91	143,946.54	0.00
4122 - AustralAsian Sales - Service Plans	11,718.75	13,476.56	0.00	18,750.00	21,562.50	0.00	9,375.00	10,781.25	0.00
4130 - US Sales - Installation Charges	198,513.54	228,290.58	0.00	317,621.67	365,264.92	0.00	158,810.84	182,632.46	0.00
4132 - AustralAsian Sales - Installation Charge	10,457.43	12,026.04	0.00	16,731.89	19,241.67	0.00	8,365.94	9,620.83	0.00
4140 - US Sales - Repair Charges	77,297.05	88,891.61	0.00	123,675.29	142,226.58	0.00	61,837.64	71,113.29	0.00
4141 - Canadian Sales - Repair Charges	4,538.68	5,219.48	0.00	7,261.89	8,351.17	0.00	3,630.95	4,175.59	0.00
4142 - AustralAsian Sales - Repair Charges	4,086.94	4,699.98	0.00	6,539.10	7,519.97	0.00	3,269.55	3,759.98	0.00
Total Revenue	$ 1,626,425.21	$ 1,875,903.31	$ -	$ 2,602,280.34	$ 2,904,300.58	$ -	$ 1,301,140.17	$ 1,452,150.29	$ -
5100 - Salaries and Wages	80,611.30	31,815.37	28,041.14	128,978.09	50,904.59	44,865.83	64,489.04	25,452.30	22,432.91
5110 - Overtime Pay - Consulting/Training US	11,728.00	13,487.20		18,764.81	21,579.53		9,382.40	10,789.76	
5130 - Commissions - Sales	47,659.98	3.56		76,255.97	5.69		38,127.98	2.85	
5150 - Employee Benefits - Administration	2,831.11	1,530.20	1,331.09	4,529.78	2,448.33	2,129.75	2,264.89	1,224.16	1,064.87
5170 - Payroll Taxes - Accounting	4,884.85	1,907.22	1,681.75	7,815.77	3,051.56	2,690.81	3,907.88	1,525.78	1,345.40
5170 - Payroll Taxes - Administration	1,142.45	446.02	393.33	1,827.92	713.63	629.33	913.96	356.82	314.66
5600 - Contract Services - Consulting/Training	35,343.75	40,645.31		56,550.00	65,032.50		28,275.00	32,516.25	
5600 - Contract Services - Service/Installation	317,391.42	366,929.60		507,826.28	587,087.36		253,913.14	293,543.68	
6100 - Training - Accounting	468.75	539.06		750.00	862.50		375.00	431.25	
6100 - Training - Administration	1,406.25	1,617.19		2,250.00	2,587.50		1,125.00	1,293.75	
6100 - Training - Sales	1,425.00	1,638.75		2,280.00	2,622.00		1,140.00	1,311.00	
6100 - Training - Service/Installation	3,346.88	3,848.91		5,355.00	6,158.25		2,677.50	3,079.13	

Appendix 3 - Sarbanes Oxley

Summary

BI360 provides a rigorous platform for the consolidation of financial statement information originating from one or multiple ERP sources. BI360 relies on a multidimensional database model to identify all reportable general ledger entries, based on Microsoft SQL Server ("MS SQL") on-premise and Microsoft Azure SQL in the cloud. BI360 separates the business logic for consolidation models from the source data. Complete segregation is maintained between source data, which cannot be overwritten after import, consolidation entries, and the consolidation model, thus providing a transparent audit trail from the subsidiary books through final consolidation. Additional strengths of BI360 include:

- User access rights definable with complete granularity, enforced by the *SQL Server* database engine and the leading Microsoft Active Directory Standard.
- Entries are explicitly identifiable by user and date/time.
- Model specifications saved in *SQL Server* database tables as well as the data, promoting data integrity by allowing for a complete, seamless backup/restore regimen using standard technologies.
- Explicit currency conversion rules definable by business unit and reporting period.

The advantages of BI360 as a tool for complex financial statement consolidation are especially evident when compared to manual spreadsheet-based consolidation routines.

MS SQL Server as Database

The foundation of BI360's capabilities as a tool for flexible and secure consolidations is the Microsoft SQL Server (MS SQL) database (and Azure SQL in the cloud). *MS SQL* provides a robust platform for transaction storage, as well as state-of-the-art security control. (The method by which *BI360* takes advantage of the *MS SQL* security framework is described further in the Data Integrity section below.) Both the consolidation logic and data reside in *MS SQL*, allowing standard backup and restore procedures to ensure high availability. *BI360* stamps all entries into the *MS SQL* database with time/date and user identification to further solidify the audit trail. The date and user that *created* a transaction as well as date and user that *changed* a transaction is tracked on every single transaction record and made available in audit reports.

Consolidation Model Specification in BI360

BI360 uses a multidimensional database model to store reportable transactions, with transactions typically defined as trial balance level entries. Note: If desirable, journal Entry level detail can also be loaded into the BI360 database. This technology results in a clear separation of the individual entities' data from the business logic required for the consolidation, and from the resulting consolidated data. Transactions included in the *BI360* database as reportable events are

identified on five mandatory dimensions:

- Business Unit ("Entity") Code
- Reporting Period Code
- Transaction Type ("Scenario") Code. E.g.: Budget, Actual, etc.
- Transaction ("Category") Code. E.g. General Ledger entry, Consolidation Eliminating entry, etc.
- General Ledger Account Code.

Additionally, there are a large number of user defined dimensions and dimension attributes which can be used (in addition to the five mandatory dimensions) to capture additional characteristics of a transaction. Typical uses of user defined dimensions would be to capture market segment, project data or product data.

Any consolidation model requires the use of all five mandatory dimensions to specify an entry to be included; consolidating items are included whenever all five explicitly identifying codes within the database are present (if user defined dimensions have been used to identify a transaction, the appropriate values for these dimensions are required as well).

To reiterate: Since the business logic in consolidation models is defined and maintained separately from any subsidiary data brought into the BI360 database, there results a transparent, precisely delineated and auditable trail from the subsidiary data through to the final consolidation.

Data and Model Integrity

Integrity of the data during the consolidation process begins with granular, precise control over User Access Rights. BI360 password-restricts access to transactions, accounts and reports by individual user or inherited Active Directory group membership. These restrictions are enforced by the *MS SQL* database engine based on the security settings configured in BI360.

Integration of multiple data sources to be consolidated also protects data integrity. Subsidiary entity data is integrated into the *BI360* database either via direct data transfer (using SQL Server Integration Services) or by manual upload. The data is locked once imported/uploaded, and protected from subsequent modification; deletion of integrated or uploaded data may be restricted subject to defined user access rules.

The integrity of the consolidation models, as well as the underlying data, is secured in BI360. The business logic in the reports is only available to be altered by administrators/power users with specific rights and a Report Designer license. Thus, the same access control and unified backup/restore process which protect the data are available to secure the consolidation framework as well.

BI360 Implementation of Currency Conversion

The data specification mechanism described above provides *BI360* with a robust ability to apply currency conversion rules in compliance with national or international generally acceptable accounting principles. Moreover, different conversion rules may be defined and applied to the same transaction, for example if native currency and consolidated currency statements, or different levels of consolidation, are needed. The building blocks of currency conversion in BI360 are:

- Currency identification specific to Business Units.
- Translation rules specific to General Ledger Accounts.
- Conversion rates specific to Reporting Period.

The default translation rules for a given Account may be overridden in specific consolidation models. Taken together, these elements provide for both complete flexibility and a solid audit trail in multiple currency environments.

Advantages Over Spreadsheet Based Consolidation

The strengths of BI360 as a tool for complex, multi-entity consolidations can be better understood by comparison to consolidations based on manual spreadsheet models.

Audit Trail

Typically, data and business logic are combined in spreadsheet-based consolidation models. Manipulations of the consolidation model can inadvertently affect the data, and vice-versa. Attempts to prevent this possibility must rely on ad-hoc protection of ranges, which are complicated and difficult to maintain. Moreover, these approaches are often poorly documented, and thus tend to degrade over time. BI360, on the other hand, provides a rigorous, auditable back trail to source data via an explicitly defined model.

Currency conversion with multiple international subsidiaries exemplifies the difficulties with auditing spreadsheet-based consolidation models. A firm with multiple subsidiaries operating in several currencies with different conversion rules for nominal and balance sheet accounts may easily have thousands of cells with dependent relationships to periodic conversion rates. While effectively tracing precedent and antecedent links on this scale is impractical, the currency conversion regime in BI360 is based on transparent, explicit, data base-driven rules subject to ready verification.

Access Control

It is usually difficult to audit who added data in complex consolidation spreadsheet models maintained by multiple users. Spreadsheets are not by nature designed to support multiple users, and access controls often represent a workaround at best. Because *BI360* is designed as a multi-user reporting environment, controls are executed using the same controls available in other

accounting software. In addition to enforced user access rights restrictions, *BI360* stamps all transactions in database with user identification. Thus, in the case where a control failure does occur, the problem may be isolated and addressed in a timely fashion; a similar problem in a spreadsheet model might be intractable due to an inability to pin down the source.

In summation, spreadsheet consolidation models rely on ad-hoc, difficult-to-audit controls and relationships. BI360's multidimensional, SQL Server-based model implements a control regime using rules-based models which can minimize the control risks in complex consolidations.

Appendix 4 - Typical Steps in the Setup of a Consolidation Model

The purpose of this appendix is to provide Power Users/Administrators with an idea of the major steps in setting up and managing BI360 for consolidations.

Note: This appendix is not meant as a "training manual" for any of the BI360 modules, but rather it is meant to describe specific activities related to Financial Consolidations. Before you begin, please download the BI360 Data Warehouse manual. Please visit support.solverusa.com for user manuals, white papers and training videos for the different BI360 modules.

Key BI360 Modules for Consolidations

For consolidation models, the key BI360 modules are:

1. **BI360 Data Warehouse** -Interface to manage database, transactions, rates, scripts, etc.

2. **BI360 Reporting** - For designing and running reports.

3. **BI360 Budgeting** - For input of data like adjustments, manual eliminations, comments, etc. This module is only needed if your consolidation process requires manual data entry or storing of data calculated in reports, such as allocations.

Getting ready to set up BI360 for Consolidations

Here are some tips for items you want to have ready before you start setting up BI360 as a Financial Consolidation solution:

1. Decide on Your Chart of Accounts:

a. Do you have a single chart of accounts for all companies?

b. Or…do you have different chart of accounts in your subsidiaries and require to map them into a Corporate (or "consolidated") chart of accounts? If so, then prepare (e.g. in an Excel spreadsheet) the exact mapping of accounts from subsidiaries into Corporate chart of accounts you plan to use in BI360.

2. Review other Dimension Codes:

If you have other dimension codes that you do not consider to be part of your "Chart of Accounts" (such as departments, companies, etc.), will they remain the same in BI360 as in your ERP system or do they need mapping to "Corporate dimensions" used in your consolidation reports? If so, then prepare (e.g. in an Excel spreadsheet) the exact mapping of accounts from subsidiaries into Corporate chart of accounts you plan to use in BI360.

3. Document Your Consolidation Process:

a. Do you have CLEARLY defined consolidation process? If so, have this documented and ready.

b. If not, write it down in detail. If you plan to make changes to this process when you implement BI360, please describe your ideal process and consult with a BI360 expert if this process can be replicated in BI360 or it needs to be changed.

4. Data Integration:

a. Do you know exactly where your General Ledger data is coming from (database server and GL tables within that database) and if this data source(s) is available of direct integration to the BI360 Data Warehouse or it requires a file export/import process?

b. Will you only be bringing Monthly Trial Balances into the BI360 Data Warehouse or also GL Journal Entry level detail transactions?

5. User Security:

a. Make a list of all users that will be logging into BI360

b. For each user, write down what they will have access to. For example:

i. Which companies?

ii. Design reports or just run reports?

iii. Enter data (like manual eliminations)?

iv. Manage BI360 Data Warehouse (trees, exchange rates, elimination processes, etc.)?

6. Preparing for Report Design:

a. Make a list of all the reports required in your consolidation process

b. Group these reports into “must have” and “nice to have” reports

c. Gather examples or screenshots (or mock up in Excel) the desired report layouts

d. For each report layout, specify the business rule (i.e. account ranges or calculation) for each row in the report. Excel is excellent for this, if you already have your desired report layouts mocked up in Excel.

The purpose of the steps above is to make sure that, PRIOR TO THE BI360 IMPLEMENTATION START, you and your finance team have discussed, selected and documented the reports you need for consolidation in BI360, so that when you or your consultants start implementing BI360, you don’t have delays, confusion or re-work due to lack of good instructions/guidelines.

7. Write up a Project Plan

Depending on who is responsible for your BI360 implementation, write up a project plan so all involved personal know what the forthcoming activities are, who are responsible and related deadlines.

1. Configuring the BI360 Data Warehouse (BI360 DW)

Before you can put any type of data in the BI360 DW, you need to configure the DW. This is a completely non-technical task that you do using the BI360 DW user interface. In short, this is where you decide which DW modules to use (such as the GL module), which fiscal/calendar year concept to use for your consolidation, which dimensions to use in a module (i.e. in the GL module), which rate types (if you will use currency conversion) to use, etc. See the BI360 Data Warehouse user manual for more information.

2. Configuring the Consolidated Chart of Accounts

After BI360 has been installed, a typical first step in the actual implementation is to configure the Chart of Accounts in the BI360 Data Warehouse. There are several methodologies and options when it comes to the chart of accounts that companies use for consolidations (sometimes also referred to as the "Corporate chart of Accounts"):

Single chart of accounts used across all subsidiaries
This is the easiest situation. If all of your subsidiaries use the same chart of accounts, you will likely also want to use this same chart of accounts in the BI360 DW. In this case, you either include the chart of accounts as part of the automated data upload (ETL) to the BI360 DW or you import it from Excel or you enter it directly in the BI360 DW Manager interface.

Different chart of accounts used by subsidiaries
If this is your situation, you have several options for how you want to handle this in BI360, all depending on what you think is easiest to manage by your staff:

a. Set up subsidiary to parent chart of accounts mapping inside the ETL tool
   i. Pros:
      - All mapping is in a single integration file/process.
   ii. Cons:
      - Most ETL tools (including Microsoft SSIS) are relatively technical and if there are new accounts in the subsidiaries that don't fit any of the mapping rules that was set up in the ETL tool, then you need to have ETL expert update the ETL tool for you before data again can be correctly loaded to the BI360 DW

b. Set up subsidiary to parent chart of accounts mapping in Excel

With this option you set up a simple mapping schema in Excel (i.e. the first Excel column is the parent list of accounts and the next two columns list "From" and "To" accounts from the subsidiary. For example, in the parent column you list account 1010 and in the "From" and "To" columns you list account 00014 and 01150. This means that all accounts from 00014 to account 01150 should be aggregated into account

1010 in the BI360 DW and that will be the lowest level of detail for this item in your consolidated financial reports.

The ETL tool (typically Microsoft SSIS) can then point to the Excel mapping file(s) as it loads a subsidiary's GL data into the BI360 DW and handle the mapping as data is loaded into the BI360 DW.

i. Pros:

- Very easy for non-technical staff to manage account mapping since it is in Excel. Also easy to push mapping process out to subsidiaries since they best know their own, local chart of accounts.
- You keep the consolidated chart of accounts in the BI360 DW very simple and clean since you only will deal with one, single, chart of accounts in the DW, which also means that reports will be easier to write and faster than if you brought in all kinds of detailed accounts from each subsidiary.

ii. Cons:

1) You need to be aware of- and manage - the Excel files(s) so they are always in the same location on the server and always updated.

c. Set up subsidiary to parent chart of accounts mapping inside the BI360 DW Manager

This means that you would load the chart of accounts from each of your subsidiaries into the BI360 DW, and manage the mapping inside BI360 using either attributes on the account dimension or Account Trees, where you drag drag and drop each subsidiary account up under each relevant consolidated account. In each case, whether you use account attributes or account trees for your mapping, you will be referring to these when you design BI360 reports.

i. Pros:

2) Nice, non-technical interface (account attributes or trees) in the BI360 DW manager where a business user can configure the account mapping.

ii. Cons:

3) If you have a large number of different subsidiary chart of accounts, the account table in the BI360 can become very large (e.g. thousands of accounts) and thus the person responsible for the account mapping has to manage a large number of mappings (attributes or trees) and reports will run somewhat slower than if you had performed the mapping before (see two options for this above) the data is loaded into the BI360 DW.

3. Data Loading and Validation

There are generally three types of data that is loaded to the BI360 DW:

a. Transactions

I. GL Summary (Trial balances) per department or per Subsidiary – this is obviously required data in order to create financial consolidation reports

II. GL Detail (Journal Entry level GL transactions) – this is optional and typically only done by companies that want drill down in reports to go all the way to journal entries.

b. Exchange rates

I. Monthly Average Rates

II. Month End rates

You can have as many rate types (Average, Closing, Budget, etc.) as you want in BI360. You can also load/enter monthly rates for the same currency that are different for different companies in that currency. Read the BI360 DW user manual for more information on this.

c. Dimensions

I. Dimension codes and descriptions (such as account codes/descriptions, company codes/descriptions).

II. Trees

i. These are usually not imported as it is usually quick and easy to design the trees inside the BI360 DW.

ii. However, imports from Excel are supported, and may be convenient in some cases. For example, large account trees which roll up multiple local charts of accounts into a single corporate chart of accounts may be easier to maintain in Excel then upload into BI360.

If you are loading rates form your ERP or other system that typically only stores DAILY rates, BI360 can automatically convert DAILY rates to MONTHLY rates and the BI360 DW Currency Module can store both daily and monthly rates.

There are three different ways you can populate the BI360 DW with data:

1) Set up automated import using an ETL tool (like Microsoft SSIS, the BI360 ETL tool or the BI360 DW Connector wizards). If you are using SSIS and you need to understand the BI360 DW table schema, there is a BI360 Data Warehouse White Paper available on support.solverusa.com that describes the database structure.

2) Import data from Excel using the Import menus that exist in all the screens in the BI360 DW Manager. This method is sometimes the quickest and easiest, if some of your data only needs to be loaded once or such history from an old ERP system or budgets from a third party budget system that only is updated once per year. Other

reason to use file importing is if you are only creating a test or pilot model in the BI360 DW,

3) Enter data directly in the DW user interface (available for Dimensions, Exchange Rates and Trees, while Transactions, such as GL data, has to be imported or you need to use the BI360 Budgeting module to set up Excel or Web input forms to enter data there).

4. Set up Account Dimension Attributes and Trees

Once your dimension data (see prior paragraph) has been loaded into BI360, decide to use Account attributes or Account Trees (or both) to manage and simplify things like:

a. Mapping of subsidiary to parent accounts (discussed earlier in this document)

b. Grouping of accounts (e.g. grouping all Short Term asset accounts into a group called "Short Term Assets"). This will make reports faster to build, faster to run and require less or no maintenance in a report when you have new accounts in the future.

c. Creating consolidation trees for your companies (these will later be used in your consolidation reports. *Entity trees must be configured if you are going to utilize BI360's automated elimination or minority scripts.* This is discussed in greater detail later in this document).

See the BI360 Data Warehouse User Manual for currency setup details and instructions on importing and running Process rules.

5. BI360 Consolidation Rules

In BI360, rules are data handling procedures that are run from the Processes section of the Data Warehouse Manager. There are three BI360 consolidation rules: currency conversion, minority interest eliminations and intercompany activity eliminations. Running (or scheduling to run automatically) these rules in the BI360 DW Manager create transactions which can be used to create consolidated financial statements. These transactions are described in the following sections. To guarantee integrity in your BI360 Data Warehouse, the automated BI360 scripts must be executed in the following sequence:

1) Currency conversion.
This script will delete any minority interest and intercompany activity transactions as well as any existing currency translation transactions in the selected periods.

2) Minority interest elimination calculation.
This script will delete intercompany activity elimination transactions as well as any existing minority interest eliminations in the selected periods.

3) Intercompany activity elimination calculation.

This script will only delete any existing intercompany activity elimination transactions in the selected periods.

4) Additional information regarding setup of the consolidation rules is contained in Appendix 2: Enabling BI360 Consolidation.

6. Setup Currency Conversion

This setup is only required if you need BI360 to perform currency conversion. There are five steps to currency conversion setup:

1) Set up the Rate Types in the Currency section of the BI360 DW user interface.
2) Set up the Account Types and assign them to account codes in the account dimension in the BI360 DW user interface. As many Account Types as required may be created to map to the various types of accounts requiring translation (e.g., income statement accounts, balance sheet accounts, retained earnings accounts, historical rate accounts).
3) Map Rate Types and Scenarios in the Currency section of the BI360 DW user interface.
4) Loading or entering exchange rates (discussed earlier in this document) into the Currency section of the BI360 DW user interface.
5) Import the appropriate currency translation rule(s) into the Processes section of the BI360 Data Warehouse user interface. There are two standard rules available for BI360.

    - The first supports the general requirements for US GAAP and similar accounting standards. The data for all accounts is loaded with opening balances and periodic activity.
    - The second supports IFRS requirements. The data for all accounts is loaded with ending balances for the period.

This currency translation rule is available for download at support.solverusa.com at https://support.solverusa.com/index.php?/Knowledgebase/Article/View/489 . Additional information regarding setup of the consolidation rules is contained in “Appendix 2: Configuring BI360 Consolidation.”

See the BI360 Data Warehouse User Manual for currency setup details and instructions on importing Process rules.

7. Setup Minority Interest Elimination

This setup is only necessary if there are entities which are less than 100% owned (or controlled) by the parent. There are three steps to prepare for minority interest elimination calculations:

1) Set up an entity tree (or trees) in the Data Warehouse user interface that have nodes set to less than 100% ownership. Minority interest eliminations are only calculated for transactions with entities represented in entity tree nodes with Percent Ownership set to less than 100%.

2) Enable the Tree and Minority Parent dimensions for the GL Summary module in the Data Warehouse user interface.

3) Import the minority interest elimination rule into the Processes section of the BI360 DW user interface. The rule is available for download at support.solverusa.com at https://support.solverusa.com/index.php?/Knowledgebase/Article/View/489.

Note: See the BI360 Data Warehouse User Manual for tree setup details and instructions on creating trees and importing Process rules. Additional information regarding setup of the consolidation rules is contained in "Appendix 6: Configuring BI360 Consolidation."

8. Setup Intercompany Activity Elimination

This setup is only necessary if there are entities within the organization which conduct business with each other that needs to be eliminated for consolidated reporting. There are four steps to prepare for intercompany activity elimination calculations:

1) Set up an entity tree (or trees) in the Data Warehouse user interface. Intercompany elimination transactions are only calculated for transactions with both entity and corresponding entity.

2) Enable the Tree and Interco Parent dimensions for the GL Summary module in the Data Warehouse Manager.

3) Create or import transactions with the corresponding entity degenerate dimension populated. Corresponding entity identifies the counterparty entity in the organization for the transaction. For example, say that company A makes a loan to company B, and both company A and company B are subsidiaries in the same organization. Company A would book a loan receivable transaction with corresponding entity = B. Company B would book a loan payable with corresponding entity = A. When possible, the corresponding entity field should be populated when the base transactions are created in the data warehouse. If this is not practical, then a form can be used to populate corresponding entity.

4) Import the intercompany activity elimination rule into the Processes section of the BI360 Data Warehouse Manager. The rule is available for download at support.solverusa.com at https://support.solverusa.com/index.php?/Knowledgebase/Article/View/489.

See the BI360 Data Warehouse User Manual for tree setup details and instructions on creating trees and importing Process rules. Additional information regarding setup of the consolidation rules is contained in “Appendix 2: Configuring BI360 Consolidation.”

9. Currency Translation Process

The consolidation process is initiated by executing the Currency Translation rule in the Processes section of the Data Warehouse user interface. The output of the rule are transactions that reflect the rate types and rates set up in the mapping described above in section 6, “Set up Currency Conversion.” The output is also limited by several parameters:

1) Entities.
2) Scenario.
3) Category.
4) Destination currencies.
5) Periods.

Multicurrency organizations usually create consolidated reports restricted to the translated amounts. There are two primary filters used to limit reports to data generated by the currency rule:

1) Category codes begin with FX (FX is appended to the beginning of the category code of the native currency transaction).
2) The Row Comment attribute is FX (if the transaction currency is different from the native currency) or FC (if the transaction currency is the same as the native currency).

Aside from these filters there are no special requirements to create reports using currency translation transactions. For more information on report syntax please see the BI 360 Report Designer User Guide.

Currency translation adjustment:

When a balance sheet or other financial statement contains accounts that are translated at various rates a currency translation adjustment amount must be calculated based and presented on the differences. The currency translation rule for US GAAP provides special support for calculating currency translation adjustment. For accounts which are mapped to either the average or closing rate type, all of the year-to-date native currency periodic activity in the Monthly Amount fields is totaled and translated at the closing rate for the report date in the Annual Amount field. These are generally the correct amounts for balance sheet accounts. This amount is stored in the Value2 – YTDTotal – field. Net income (based on the income statement accounts) on the other hand should generally be presented on the balance sheet as the sum of each period separately translated at the

average rate for that period. This is consistent with the presentation in the profit and loss statement. If the Account Types are configured correctly, then these translated amounts are stored in the Value1 – Monthly Amount – fields. Taking the difference between the net income thus calculated vs. the net income from the Annual Amount field for the income statement accounts provides the required amount for currency translation adjustment.

If there are other accounts requiring translation (e.g., retained earnings, historical rate accounts translated at specific identification rates) then additional steps need to be taken to calculate the associated currency translation adjustment. These are outlined in a white paper available on the Solver support website.

10. Minority Interest Elimination Process

The creation of minority interest elimination transactions is initiated by executing the Minority Elimination rule in the Processes section of the Data Warehouse user interface. The minority interest elimination process is based on the entity tree structures created in the Data Warehouse. If there are no nodes in any entity tree with Percent Ownership set to less than 100% then no minority interest elimination takes place.

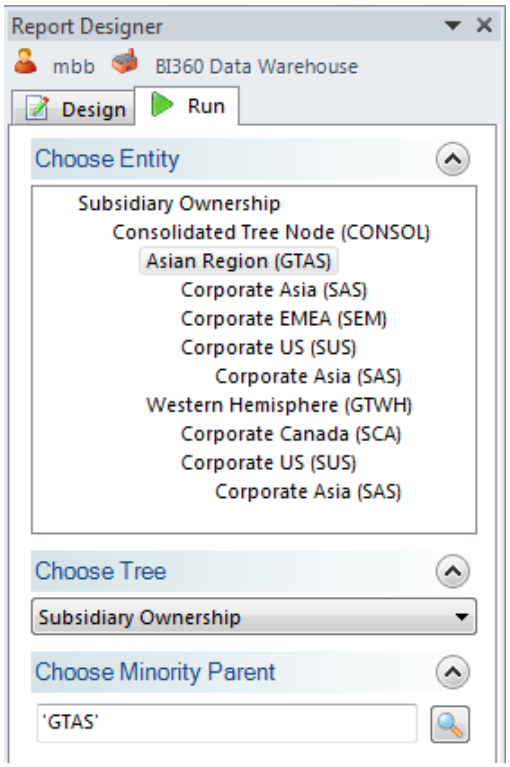
Minority interest eliminations have exactly the same transaction structure as the original transaction on which they are based EXCEPT that they have two additional dimensions:

1) Tree – Identifies the entity tree which is driving the elimination.

2) Minority Parent – identifies the branch in the tree which is driving the elimination.

Examples of base transactions and the related minority interest eliminations may be seen in Appendix 1 below. Note that there can be many more minority elimination transactions than original transactions since each tree will require a minority elimination transaction at each level where there is minority elimination required.

Building consolidated or consolidating reports so that the filters for entity tree and entity tree node are matched to the filters for the tree dimension and minority parent dimension will fetch results which properly match the base transaction(s) and appropriate minority interest elimination transaction(s). If the filter for entity tree and entity tree node is driven from a tree-style parameter then sheet-per-value functionality with proper eliminations is available as well. This is a screenshot of typical parameters with properly matched selections for a consolidated report with minority eliminations:



It is not currently possible for the tree and minority parent selections to be inherited from the selection for the entity tree/entity node.

Aside from the requirement to match the filters for the tree and the minority parent to the entity tree/entity tree node, there is no fundamental difference in syntax or practice for the tree and minority parent dimensions versus any other dimensions. For more information on report syntax please see the BI360 Report Designer User Guide.

11. Intercompany Activity Elimination Process

The creation of intercompany activity elimination transactions is initiated by executing the Interco rule in the Processes section of the Data Warehouse user interface. The intercompany activity elimination process is based on the entity tree structures created in the Data Warehouse. If transactions have both an entity code and corresponding entity code that are members of a branch of an entity tree, then an intercompany activity elimination entry is created.

Intercompany activity eliminations have exactly the same transaction structure as the original transaction on which they are based EXCEPT that they have two additional dimensions:

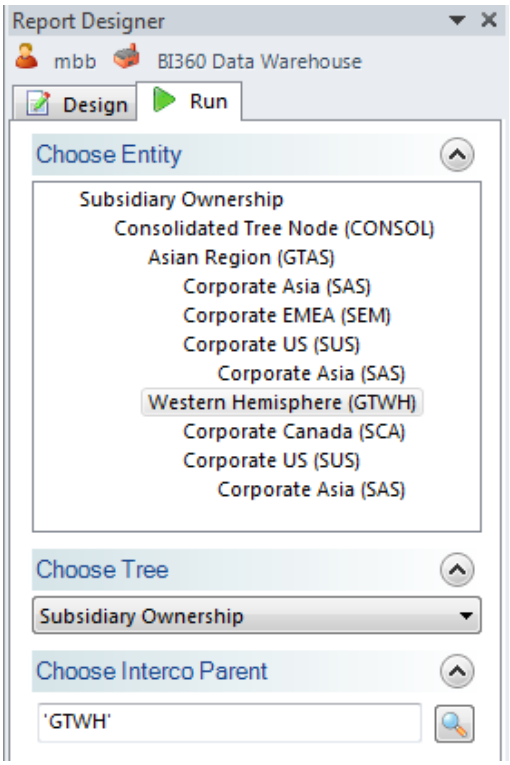
1) Tree – Identifies the entity tree which is driving the elimination.

2) Interco Parent – identifies the branch in the entity tree which is driving the elimination.

Amounts for intercompany activity eliminations are integrated with any minority interest elimination from the same base transaction for the same tree and the same parent. For example, if there is minority interest elimination required equal to 40% of the base transaction amount, then the intercompany activity elimination would be equal to 60% of the base transaction amount. If there is no associated minority interest elimination, then the intercompany activity elimination is equal to 100% of the amount of the base transaction.

Examples of base transactions and the related minority interest and intercompany activity eliminations may be seen in Appendix 1 below. As with minority interest elimination transactions, there can be many more intercompany activity elimination transactions than original transactions.

Building consolidated or consolidating reports so that the filters for entity tree and entity tree node are matched to the filters for the tree dimension and interco parent dimension (and minority parent dimension if minority interests are present in entity trees) will fetch results which properly match the base transaction(s) and appropriate intercompany and minority interest elimination transaction(s). If the filter for entity tree and entity tree node is driven from a tree-style parameter then sheet-per-value functionality with proper eliminations is available as well. This is a screenshot of typical parameters with properly matched selections for a consolidated report with intercompany activity eliminations:



It is not currently possible for the tree and interco parent selections to be inherited from the selection for the entity tree/entity node. However, it is possible to have a user's selection of a Interco Parent be inherited by the Minority Parent parameter (or vice versa); specific instructions for this technique are available here.

Aside from the requirement to match the tree/interco parent filters to the entity tree/entity tree node, there is no fundamental difference in syntax or practice for the tree and minority parent dimensions versus any other dimensions. For more information on report syntax please see the BI 360 Report Designer User Guide.

12. Manual Input Forms for Eliminations and Adjustments

It may be beneficial to set up data entry forms in BI360 so users can input data such as:

- Assignment of corresponding entity codes.
- Elimination transactions (that for whatever reason would not be automatic eliminations).
- Other consolidation adjustments (i.e. for reclassification of data that came in wrong/incomplete from a subsidiary or currency adjustments).
- IFRS to local GAAP adjustments.

You can use the BI360 Budgeting module to create highly user friendly input forms either for use with the BI360 Excel interface or the BI360 Web Portal.

Such manual entries are typically (you decide when you set up the input form) stored to a separate Category (this is a dimension in the BI360 DW) code(s) so you later can include and exclude your adjustments with your imported GL data and also you can break out the adjustments in separate columns in your consolidation reports.

The BI360 DW has full audit trial (i.e. for Sarbanes Oxley and other audit reasons) that automatically will track who enters and changes the adjustment transactions and at what date and time. It can also include text comments to explain what the adjustments where needed for.

See the BI360 Budgeting User Manual for more information about Form design.

13. Design Reports and Distribution

Once the BI360 DW is set up and populated, processes for currency conversion and eliminations have been run, and any manual adjustments have been entered, it is time to design your financial consolidation reports. For most companies, these types of reports will include:

a. Trail balance report

b. Consolidated and Consolidating Profit & Loss

c. Consolidated and Consolidating Balance Sheet

d. Consolidated and Consolidating Cash Flow

Many companies desire to automatically compile the same report across sheets in a single Excel workbook, starting with a consolidated version of the report on the first sheet and then replicating the same report format on the next sheets according to a consolidation tree set up in the BI360 DW. This is a powerful feature in the BI360 Report Designer. However, if you have more than 75-100 sheets in the same workbook it will significantly slow down the report execution and it might be better to consider on-demand execution or running the report in separate Excel files per company.

Of course, any number of other reports can also be created. In short, you use the BI360 Report Designer to set up the reports you desire. Then you have three ways of running these reports:

a. Run reports with the BI360 Excel add-in.

b. Run reports and distribute (or print) automatically with the BI360 Publisher module.

c. Run reports in the BI360 Web Portal.

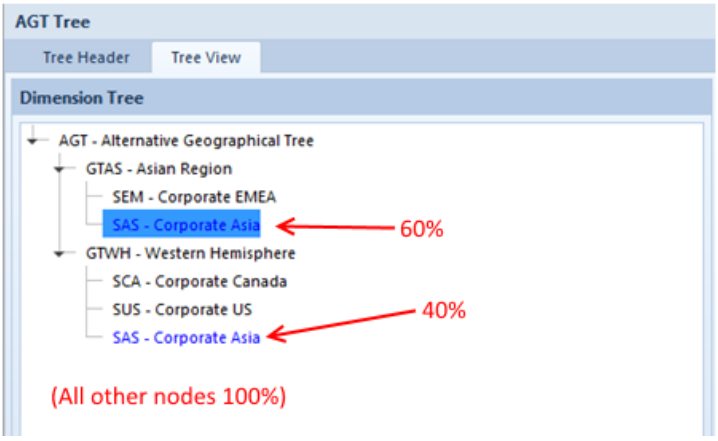
See the BI360 Report Designer User Manual for more information about Report design.

14. Testing and Validation

Once you have completed all the steps above, make sure you set aside time to test both your data and your reports before you go live.

Appendix 5 - Minority Interest and Intercompany Activity – Examples.

Tree with simple structure



1. Example 1 based on simple tree: Entity=SAS/EntityCorr=SUS/Tree=AGT/Parent=GTAS
   Minority elim = 100%-(100%*60%) = 40%
   Entity and EntityCorr are not both in the GTAS branch, so no interco elimination.

C	D	E	F	I	J	K	L	M	N	O	Y	AE	AF
Account	Category	Currency	Department	Entity	EntityCorr	Interco Parent	Minority Parent	Scenario	Period	Amount	Source	Tree	% of base
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100.00%
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100.00%
11110	MAIN	HKD	000	SAS	SUS		GTAS	ACTUAL	20140101	139,825.81	MinorElimTrans	AGT	-40.00%
11110	IN	HKD	000	SAS	SUS		GTAS	ACTUAL	20140101	139,825.81	MinorElimTrans	AGT	-40.00%

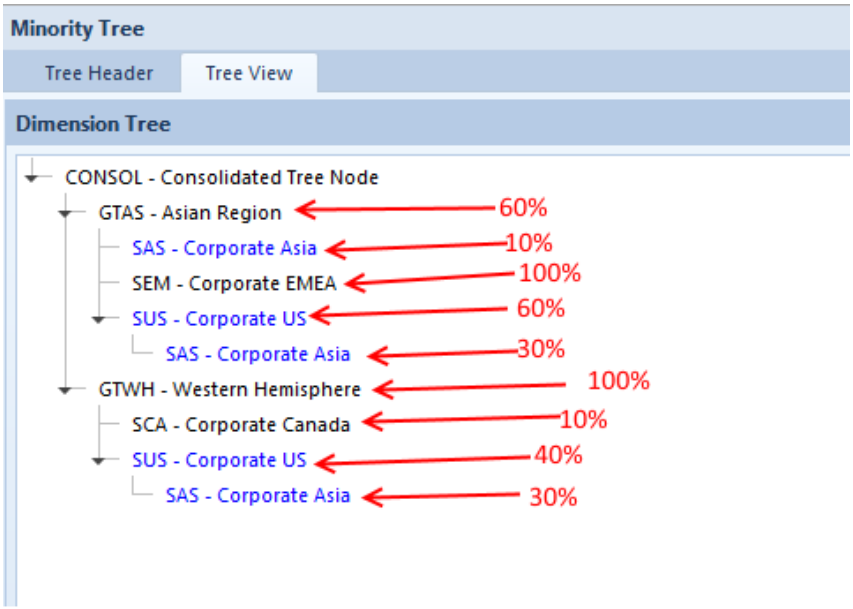
2. Example 2 based on simple tree: Entity=SAS/EntityCorr=SUS/Tree=AGT/Parent=GTWH
   Minority elim = 100%-(100%*40%) = 60%
   Entity and EntityCorr are both in the GTWH branch, so remaining interco elimination = 40%.

Account	Category	Currency	Department	Entity	EntityCorr	Interco Parent	Minority Parent	Scenario	Period	Amount	Source	Tree	% of base
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100.00%
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100.00%
11110	MAIN	HKD	000	SAS	SUS		GTWH	ACTUAL	20140101	209,738.71	MinorElimTrans	AGT	-60.00%
11110	MAIN	HKD	000	SAS	SUS		GTWH	ACTUAL	20140101	209,738.71	MinorElimTrans	AGT	-60.00%
11110	MAIN	HKD	000	SAS	SUS	GTWH		ACTUAL	20140101	139,825.81	IntercoElimTrans	AGT	-40.00%
11110	MAIN	HKD	000	SAS	SUS	GTWH		ACTUAL	20140101	139,825.81	IntercoElimTrans	AGT	-40.00%

3. Example 3 based on simple tree: Entity=SAS/EntityCorr=SUS/Tree=AGT/Parent=AGT
   Minority elim = 100%-(100%*60%)–(100%*40%)= 0%
   Entity and EntityCorr are both in the AGT branch, so interco elimination = 100%.

C	D	E	F	I	J	K	L	M	N	O	Y	AE	AF
Account	Category	Currency	Department	Entity	EntityCorr	Interco Parent	Minority Parent	Scenario	Period	Amount	Source	Tree	% of base
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100.00%
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100.00%
11110	MAIN	HKD	000	SAS	SUS	AGT		ACTUAL	20140101	349,564.52	IntercoElimTrans	AGT	-100.00%
11110	IN	HKD	000	SAS	SUS	AGT		ACTUAL	20140101	349,564.52	IntercoElimTrans	AGT	-100.00%

Tree With Complex Structure



Note that this tree has cascading minority ownership levels. For example, in the GTWH branch SUS is 40% owned, while SAS is 30% owned by SUS. Therefore the effective ownership of SAS in the GTWH branch is:

40% * 30% = 12%.

1. Example 1 based on complex tree: Entity=SAS/EntityCorr=SUS/Tree=GT/Parent=SUS
   Minority elim = 100%-30% = 70%
   Entity and EntityCorr are both in the SUS branch, so remaining 30% is interco elimination.

C	D	E	F	I	J	K	L	M	N	O	Y	AE	AF
Account	Category	Currency	Department	Entity	EntityCorr	Interco Parent	Minority Parer	Scenario	Period	Amount	Source	Tree	% of base
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100%
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100%
11110	MAIN	HKD	000	SAS	SUS		SUS	ACTUAL	20140101	244,695.16	MinorElimTrans	GT	-70%
11110	IN	HKD	000	SAS	SUS		SUS	ACTUAL	20140101	244,695.16	MinorElimTrans	GT	-70%
11110	MAIN	HKD	000	SAS	SUS	SUS		ACTUAL	20140101	104,869.36	IntercoElimTrans	GT	-30%
11110	MAIN	HKD	000	SAS	SUS	SUS		ACTUAL	20140101	104,869.36	IntercoElimTrans	GT	-30%

2. Example 2 based on complex tree: Entity=SAS/EntityCorr=SUS/Tree=GT/Parent=GTAS
   Minority elim = 100%- 10%-(60%*30%) = 72%
   Entity and EntityCorr are both in the GTAS branch, so remaining 28% is interco elimination.

Category	Currency	Department	Entity	EntityCorr	Interco Parent	Minority Parent	Scenario	Period	Amount	Source	Tree	% of base
MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100%
MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100%
MAIN	HKD	000	SAS	SUS		GTAS	ACTUAL	20140101	251,686.45	MinorElimTrans	GT	-72%
MAIN	HKD	000	SAS	SUS		GTAS	ACTUAL	20140101	251,686.45	MinorElimTrans	GT	-72%
MAIN	HKD	000	SAS	SUS	GTAS		ACTUAL	20140101	97,878.07	IntercoElimTrans	GT	-28%
MAIN	HKD	000	SAS	SUS	GTAS		ACTUAL	20140101	97,878.07	IntercoElimTrans	GT	-28%

3. Example 3 based on complex tree: Entity=SAS/EntityCorr=SUS/Tree=GT/Parent=GT
   Minority elim = 100%-(60%* 10%)-(60%*60%*30%) – (100%*40%*30%) = 71.2%
   Entity and EntityCorr are both in the GT branch, so remaining 28.8% is interco elimination.

C	D	E	F	I	J	K	L	M	N	O	Y	AE	AF
Account	Category	Currency	Department	Entity	EntityCorr	Interco Parent	Minority Parent	Scenario	Period	Amount	Source	Tree	% of base
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100.00%
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100.00%
11110	MAIN	HKD	000	SAS	SUS		GT	ACTUAL	20140101	248,889.94	MinorElimTrans	GT	-71.20%
11110	MAIN	HKD	000	SAS	SUS		GT	ACTUAL	20140101	248,889.94	MinorElimTrans	GT	-71.20%
11110	MAIN	HKD	000	SAS	SUS	GT		ACTUAL	20140101	100,674.58	IntercoElimTrans	GT	-28.80%
11110	MAIN	HKD	000	SAS	SUS	GT		ACTUAL	20140101	100,674.58	IntercoElimTrans	GT	-28.80%

4. Example 4 based on complex tree: Entity=SAS/EntityCorr=SUS/Tree=GT/Parent=GTWH
   Minority elim = 100%-(40%*30%) = 88%
   Entity and EntityCorr are both in the GTWH branch, so remaining 12% is interco elimination.

Account	Category	Currency	Department	Entity	EntityCorr	Interco Parent	Minority Parent	Scenario	Period	Amount	Source	Tree	% of base
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100.00%
11110	MAIN	HKD	000	SAS	SUS			ACTUAL	20140101	-349,564.52			100.00%
11110	MAIN	HKD	000	SAS	SUS		GTWH	ACTUAL	20140101	307,616.78	MinorElimTrans	GT	-88.00%
11110	MAIN	HKD	000	SAS	SUS		GTWH	ACTUAL	20140101	307,616.78	MinorElimTrans	GT	-88.00%
11110	MAIN	HKD	000	SAS	SUS	GTWH		ACTUAL	20140101	41,947.74	IntercoElimTrans	GT	-12.00%
11110	MAIN	HKD	000	SAS	SUS	GTWH		ACTUAL	20140101	41,947.74	IntercoElimTrans	GT	-12.00%

Appendix 6 - Configuring BI360 Consolidation

General information about the setup of BI360 configuration is contained above:

Section 6: Setup Currency Conversion

Section 7: Setup Minority Interest Elimination

Section 8: Setup Intercompany Activity Elimination

The purpose of this appendix is to provide more specific configuration instructions. While the BI360 consolidation tools will work on any version of BI360 starting with 4.0 it is recommended for versions 4.5 or later due to improved performance.

Installing the consolidation process rules:

The current versions of the consolidation rules are available on the Solver support site: https://support.solverusa.com/index.php?/Knowledgebase/Article/View/489.

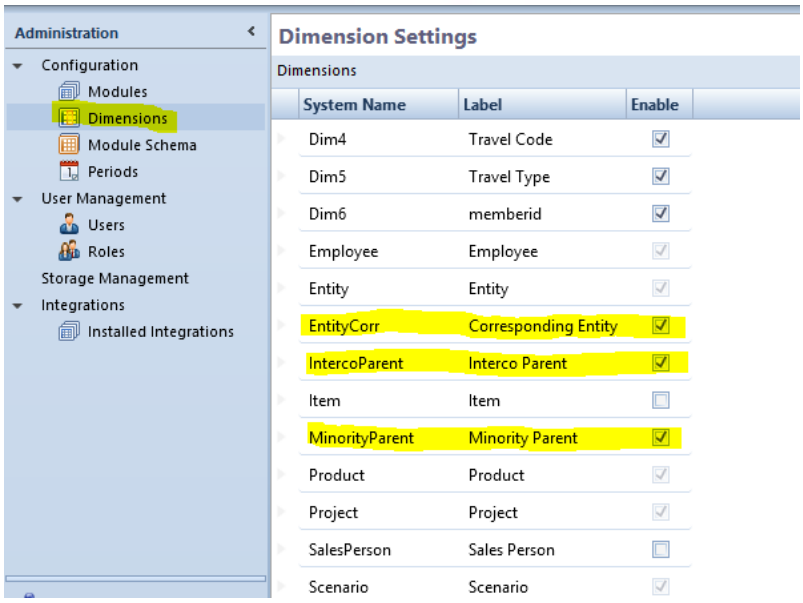
There are 3 separate rules for currency translation, minority interest eliminations and intercompany transaction eliminations. Only install the rules required for the particular consolidation environment:

- If all consolidations are in a single native currency, then the currency translation rule is unnecessary.
- If all entities are 100% owned, then the minority interest elimination rule is unnecessary.
- If no intercompany transactions need to be eliminated in consolidation, then the intercompany elimination rule is unnecessary.

As described in the body of the user guide, any of the three rules present must be executed in this order (currency, minority interest, intercompany transactions).

Configuring dimensions for BI360 consolidation:

Several dimensions must be enabled from Administration in the Data Warehouse user interface for the BI360 minority interest and intercompany transaction elimination rules to function. These dimensions should be mapped to the GL Summary module:



- The above dimensions (when enabled) are only available on the GL Summary module; hence they should only be mapped to GL Summary in the Module Schema interface of the Data Warehouse Manager.

- All three dimensions reference the d_Entity table.

- When enabling the IntercoParent and/or MinorityParent dimensions another column is created on the GL table called Tree. This column references the tree-Header table.

- These dimensions are not required for currency translation only.

- For general instructions on maintaining dimensions, please see the BI360 Data Warehouse Users Guide.

Appendix 7 - Additional BI360 Information and Resources

BI360 Reference Documents: https://www.solverglobal.com/products/documents

Any other information you need: Request from info@solverglobal.com or your partner

BI360 Customer Case Studies: https://www.solverglobal.com/products/customers

BI360 customer portal, on-demand videos and webinars:

- Webinars https://www.solverglobal.com/products/webinars/
- Examples by industry: https://www.solverglobal.com/products/solutions/
- **On-demand videos of BI360**
    - o Solver site: https://www.solverglobal.com/products/experience-bi360/
- **Customer portal** gives access to rich and valuable BI360 information including – **Solver University, BI360 forum, BI360 Blog, various BI360 whitepapers, training videos**, etc. See preview here - https://support.solverusa.com/
- **Visit our website** for a host of information: http://www.solverglobal.com