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analyst and cognos consultant, and has since worked with leading IT and financial services companies. He has earned a degree in financial management along with his work in the field of Cognos and BI, successfully advancing and winning awards and certificates year after year. He currently works in the United Kingdom, using his skills in Cognos, S'L, BI and Data Warehousing. In his spare time, he writes technical blogs, as well as conducts training/seminars on demand. He wrote his first book, IBM Cognos 8 Report Studio Cookbook with Packt Publishing, which covers many of the main advanced features of Report Authoring. It starts by engaging readers on the same platform and introducing basic features useful at any level of reporting. He then climbs to the best practices and techniques to overcome the limitations of Report Studio 8. He believes that this book is an excellent collection of knowledge and methods to work on TM1, which will prove very useful for readers. It was very nice to see this book. Thanks to Ankit for producing such useful literature and packt for giving me this opportunity to consider. I hope my feedback has been helpful. I would also like to thank my beautiful wife Dolly for her support. www.PacktPub.com support, e-books, discount offers and more you can visit www.PacktPub.com to support files and downloads related to your book. Did you know that PacktPub.com offers eBook versions of each book published, with PDF and ePub files available? You can switch to a version of the book www.PacktPub.com, as a client of the printed book, are you entitled to a discount on a copy of the book. For more information contact us by email packtpub.com email. In www.PacktPub.com you can also read a collection of free technical articles, subscribe to a range of free newsletters and get exclusive discounts and offers on Packt books and e-books. do you need instant solutions to your IT questions? 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Table Content Foreword 1 Chapter 1: Start with TM1 7 Introduction 7 OLAP 9 OLAP Content Structure Terminology 13 OLAP (Online Transactions) 13 Introduction to TM1 15 Consider USERTM1 role 16TM1 Architecture 17 Installing tm1 server and customers on machine 23 Creating new TM1 Data Server 28 Connection to existing TM1 Server 32 Setting TM1 Data Server to launch as a Windows 35 Summary service 37 Chapter 2: Creating Sizes in TM1 39 Chapter 3: Building Cubes and Views 73 Introduction 39 Creating Sizes by Hand 43 Creating a Month Measuring 50 Adding Additional Levels in Measuring Months 54 Adding Next and Previous Attributes in Measurement Months58 Creating Dimensions using Turbo Integrator 62 Execution Scripts for The Process TM1 69 Introduction 73 Creating a Static Choice List 83 Creating Cube Sales_Plan 92 Creating a Subset select list of 98 Table Content Chapter 4 : Downloading and Maintaining Data 107 Introduction 107 Chapter 5: Automating Data Loading Processes with Scripts 173 Chapter 7: Setting Drilling Paths 215 Chapter 8: Using Rules for Extended Modeling 229 Chapter 9: Transforming Currency 279 Introduction 107 Downloading data using Turbo Integrator processes 109 Using formulas in variables 115 Clearing data from the cube using the process 128 Data Accumulation 132 Data Saving 134 Introduction 137 Creating Simple Rules 138 Using the rule to override ag 148 Creating a data-sharing rule between diced 157 Creating a selection list using Rule 161 Review of Rule Sheet 167 Conducting Computing in dimensional hierarchies 170 Introduction 173 Introduction 173 Downloading data from multiple columns into one column 175 Creating measurement and subset in Turbo Integrator 184 Creating a measurement with an uneven/unbalanced hierarchy of 188 Data Exports to ASCII text using Turbo Integrator 196 Moving data between versions 199 Data Moving using scripts and settings 205 Creating and planning routine work 212 Introduction 215 Creating a drilling path to submission in another Cube 216 Creating a drilling path to source ODBC 223 Introduction 229 Creating Cube costs 229 Study cube spread profile, Lookup cube, and virtual cube 249 Impression 260 Introduction 279 Creation of currency measurement and attributes 280 Creation currency cube 285 ii Table contents Filling currency attributes using using Cuba Creating Rules for Applying Exchange Rates and Calculating equivalent amounts in target currency 289,293 Chapter 10: Modeling for Various Financial Requirements 299 Chapter 11: Optimization Rules Performance 325 Chapter 12: Working with Managed Application Planning 339 Chapter 13: Determining Worker Process 409 Introduction 299 Adding Measurement 300 Creation Continuous Time Model 307 Introduction 325 Adding SKIPCHECKS and FEEDERS 329 Introduction 339 Introduction 340 Installation and Settings components IBM CognosTM1 Contributor 342 Installation Apache Tomcat 6.0.18 for IBM CognosTM1 Author 343 Installation IBM CognosTM1 Author 344 Deployment IBM CognosTM1 Contribution to Tomcat Server 346 Setting IBM CognosTM1 Contributor with Microsoft IIS 348 Launch IBM CognosTM1 Contribution first time 348 Installation IBM CognosTM1 Administration Investors Tool 352 Data Connection to Managed Planning Application 354 Introducing IBM CognosTM1 Contribution Workflow Screen 357 NavigationTM1 Contributor Workspace 365 Opening Node and Changing View 368 Input editing, and Data Distribution 378 Data Review 387 Creating and Deploying Managed Planning Applications in Web 392 Security And Access 400 Security Assignment for Managed Application Planning 401 Introduction 409 Adding Users and Groups to TM1 1 410 Security 410 Installation IBM CognosTM1 WorkFlow 416 Adding New Process and Tasks Using IBM 418 CognosTM1 WorkFlow 418 Review submitted tasks 441 iii Table Content Chapter 14 : Integration with IBM Cognos 8 451 Introduction 451 Integration IBM Cognos TM1 with IBM Cognos 8 BI 455 Index 469 iv Foreword IBM CognosTM1 is one of the most popular multidimensional analysis tools used to create collaborative planning, budgeting and forecasting solutions, as well as analytical and reporting applications. This cube-based technology makes a quick crunch of numbers at the end of the server and helps end customers move away from manual and tedious planning, budgeting and analytics processes. IBM CognosTM1 Cookbook is a complete guide to building and managing applications with IBM CognosTM1. Every important aspect of TM1 is covered with practical recipes that will make you familiar with the tool and ready to take on TM1 projects in the real world. Existing TM1 users and developers will also benefit from the practical recipes covered in the book. The book will begin with a chapter focusing on the basics of MOLAP and dimensional modeling, which forms the basis on which IBM CognosTM1 is based. After that, the chapters will be more TM1-specific, starting with the introduction of sizes and cubes and ways of their creation and management. Further chapters will dig deeper into TM1 and the rules. We then learn more advanced TM1 features, such as automating common using scripts, setting drilling paths, using rules for advanced modeling, currency conversion, modeling for different fiscal requirements, and more. At the end of the book, we'll cover how to present data and reports, workflows, and TM1 application security. The foreword that this book covers Chapter 1, Getting Started with TM1, introduces multidimensional concept, IBM Cognos Suite tools, as well as concepts such as corporate planning, BI, and OLAP. He introduces the idea of IBM Cognos TM1 is a strong tool OLAP. It also introduces you to the architecture and installation of IBM CognosTM1. And sets up an application for the first time to plan examples. Chapter 2 Making Measurements in TM1 introduces and works with measurements in IBM CognosTM1. It expands the application of sampling planning introduced in Chapter 1 to demonstrate cases of use around TM1 measurements. Chapter 3 Building Cubes and Views represents and works with cubes at IBM CognosTM1. It expands the sample planning app to demonstrate instances of use around TM1 cubes and views. Chapter 4, Downloading and Maintaining Data, introduces readers to downloading and maintaining data (ETL) in TM1. It introduces you to the Turbo Integrator module. It expands the example of app scheduling to demonstrate ETL processes using the Turbo Integrator module. Chapter 5, Adding Business Rules, introduces readers to the ibm rules editor Cognos TM1 to write business rules. It presents you with the syntax and semantics of basic business rules and demonstrates how business logic can be implemented with TM1 business rules. Chapter 6, Automation of data download processes using scripts, directs readers into writing scripts for some of the most useful and common usage cases that the TM1 developer may need to write in the real planning implementation. Chapter 7, Drilling Path Setting, guides readers into implementing drilling paths. Recipes are included to implement the drill between the cubes and the ODBC data source. Chapter 8, using advanced modeling rules, expands the idea of writing business rules to implement some complex business cases of use, such as virtual cubes, cubes, and profile cubes. Chapter 9, Currency Conversion, introduces business problems carried out in several currencies. Creating a currency measurement and a cube in TM1 helps to maintain the single currency accountability and therefore consistency in reporting business results. The chapter has different recipes to demonstrate the concept. Chapter 10, Modeling for Various Financial Requirements, introduces readers to the aspect of time and includes recipes for implementing time measurement and continuous time model. 2 Foreword Chapter 11, Optimization Rules talks about setting up performance rules. Recipes included to demonstrate how FEEDERS and SKIPCHECK are written to improve performance rules in Planning application TM1. Chapter 12, Working with Managed Planning Applications, comprehensively explores the components of IBM CognosTM1 Contributor. It includes recipes for the installation, configuration, use and integration of IBM CognosTM1 Contributor components with IBM Cognos TM1. Chapter 13 Working Process Definition introduces the IBM Cognos TM1 Workflow component, installing, configuring, use, and integrating with other components of IBM CognosTM1. Chapter 14,-14 Integration with IBM Cognos BI explores the integration of the planning application and the level of reporting. Recipes are included to demonstrate how IBM Cognos BI components can be associated with the IBM CognosTM1 planning app. What you need for this IBM CognosTM1 (9.5.2) Server book, Web Client, and Prospects for Microsoft Excel IBM CognosTM1 (9.5.2) Working Process IBM CognosTM1 (9.5.2) Author and Contribution Web Client Microsoft Excel Microsoft Internet Information Server Apache Tomcat Java and .NET framework installed and operated by IBM Cognos 8.X BI Server and Framework Manager 3 Foreword Who this book is designed for potential developersTM1 or analysts who want to successfully build and manage full planning, budgeting and reporting solutions with IBM CognosTM1. Previous knowledge about TM1 is not expected. Existing TM1 users and developers will also benefit from the practical recipes covered in the book. Conventions In this book, you will find a number of text styles that distinguish different types of information. Here are some examples of these styles, and an explanation of their meaning. The code words in the text are as follows: Each TM1 data server is shown to have tm1s. cfg (configuration file) and tm1s.lic file in tm1 data server directory. The line of the code is set as follows: static:value1:value2:value3:value4. If we want to draw your attention to a specific part of the code block, the respective lines or elements are set in bold: Profit and unit Sale price - new unit Cost conditions and important words are displayed in bold. Words you see on the screen, menu, or dialog, for example, appear in the text: The first dimension in the column is time (years), and the second dimension in the column is the product (product line). Warnings or important notes appear in a field like this. Tips and tricks appear like this. 4 Foreword Reader feedback from our readers is always welcome. Let us know what you think of this book - something you liked or may not have liked. Reader feedback is important for us to develop titles that you really get the most out of. To send us general feedback, simply send an email to email protected and mention the title of the book through the topic of your message. If there's a book you need and would like, we have published please send us a note in the form of SUGGEST A TITLE on www.packtpub.com or email If there is a theme that you have experience and you are interested in writing or contributing to a book www.packtpub.com/authors see Customer Support Now that you are a proud packt book owner, we have a number of things that will help you get the most out of your purchase. Errata While we have taken care of the accuracy of our content, mistakes happen. If you find an error in one of our books - maybe a text or code error - we'd appreciate it if you let us know. By doing so, you can save other readers from disappointment and help us improve subsequent versions of this book. If you find any errata, please report them by visiting by selecting the book, clicking on the errata link errata view form link, and entering the details of your errata. Once your errata is verified, your submission will be accepted and errata will be uploaded to our site, or added to any list of existing errata, in the Errata section of this title. You can view any existing errata by selecting a name from support. 5 Foreword Piracy Piracy copyright materials on the Internet is an ongoing problem in all media. At Packt, we take the protection of our copyright and licenses very seriously. If you encounter any illegal copies of our work, in any form, on the Internet, please provide us with a location address or website name immediately so we can take a step of protected with a link to suspected pirated material. We appreciate your help in protecting our authors, and our email protected if you have a problem with any aspect of the book and we will do everything we can to resolve it. 6 1 Start with TM1 IBM CognosTM1 integrates business planning, performance measurement, and operational data so that companies can optimize business performance and customer experience, regardless of geography or structure. TM1 provides immediate data visibility, collaborative process accountability, and consistent reporting, enabling managers to quickly stabilize operational fluctuations and take advantage of new opportunities. TM1 has a distinctive advantage over other analytical tools on the market at the following major points: ff TM1 is based on a multidimensional database in the form of cubes with the function of recording back to the source databases ff Engine TM1 performs complex memory calculations on the client side, resulting in the quick processing and scalability of ff Only non-zero data cells transferred to the client machine, which usually forms no more than 20 percent of the total. Data hence, the problems associated with the bandwidth of the network, there is no upcoming chapter will present TM1 TM1 solution along with general performance management concepts to begin with. IBM Cognos Performance Management Solution consists of the following core components: ff Enterprise Enterprise Business Intelligence Enterprise Start-up with TM1TM1 will be covered as part of enterprise planning and will remain the focal point in this book. Note that TM1 cubes can be a source of data for Business Intelligence (BI) applications. The basics of this integration will be addressed in the last chapter of this book. However, BI will not be considered an integral regarding the authors of reports, diagrams, the generation of special requests and other specific copyright practices accepted in the Cognos BI package. They are best explained in other Packt Publishing offerings such as the Cognos Cookbook. The book will focus on building and managing planning applications using TM1 offerings. He will also discuss the contributor's component and its application in detail. Finally, it will touch on integration points between the planning application and the BI infrastructure, which may or may not be useful to all readers. Corporate planning tools in this category are designed for planning, budgeting, forecasting, modeling, consolidation, and financial reporting. A key example of use is the creation of managed planning applications that can be used by business users to transfer planning data to a central repository. Business data after it is approved can be reviewed by stakeholders and may be approved or rejected. The entire workflow is controlled by different layers of security. The data, once completed, can be viewed in different templates and users can perform slices and dice as applicable. An example would be a central budget application in which business users are distributed across different geographic locations and contribute data according to the subsidiaries for which they are responsible. Once approved, the data is reviewed by related managers and, if approved, the final numbers are returned to the original databases. Top-level management can be provided with reports and templates to view and manage your data on time. Corporate business intelligence tools in this category serve to model and analyze business data and detect hidden business trends. This allows users to determine key performance metrics and track critical business metrics with specific business parameters and criteria. This usually includes reporting, dashboard, indicators, and so on, and each of them will be covered by different tools within the Cognos BI Suite such as Report Studio, Metric Studio, Event Analysis Studio, and so on. Chapter 1 Of Cognos's Essential Tools for Corporate Planning and Business Analytics are below: Category Tool Description Corporate Planning Cognos Planning Suite Planning and Budgeting Solutions. Corporate Planning Cognos TM1 Planning and Budgeting Solutions. Evaluation of Cognos BI business intelligence, event management, analysis and reporting. Enterprise Business Intelligence Cognos GO Extended BI (office integration, mobile portability and flash dashboard). Enterprise Business Intelligence Cognos NOW Transactional and RUNtime BI. In the following chapters, we will focus on Cognos TM1 as a planning and budgeting tool based on OLAP technology, as explained in the next section. Online Analytics (OLAP) In OLAP computing is an approach to a quick response to multidimensional analytical queries. AS a general rule, OLAP uses a multidimensional data model to create a relational database (ROLAP) or directly based on a multidimensional cube (MOLAP). The OLAP tool is a category of software that provides data analysis and can include either ROLAP or MOLAP. In this book we mean TM1, which performs MOLAP because it is directly based on multidimensional cubes. The ROLAP tool will have a multidimensional model/view on top of the relational database, allowing multidimensional queries. However, the relational database is still mentioned in the backend. When we say that data is stored in a multidimensional database, we mean that the data is stored in a cubic data structure, and one data point can be viewed and analyzed from different points of view at the same time. This single data point (mostly numerical in nature) is similar to a dimension (which must be measured), and perspective (descriptive in nature) is similar to a dimension that can again be hierarchical in nature. Start working with TM1 Imagine an N-coordinate system with an axis pertaining to the size and pulling of the data pertaining to the measure. Sizes can again be flat or hierarchical in nature. Hierarchical measurement refers to functionally similar data located at different levels of detail. For example, data for a year, month, and day relate to similar data located at different levels, such as the Years of the Month. This structure allows the user to move from a higher level of detail (year) to a lower level of detail (month of the day). Navigating from higher level parts to lower level parts is called drilling down. Navigating from lower-level parts to higher level parts is called drilling. Thus, in the previous example, the hierarchical nature of time measurement allows the user to drill (for example, month after year) and drill down (e.g., year after month). A similar analogy would be the measurement of the region, with different levels, such as the World Country (en) Region of Cities. Once explained, there may be several hierarchical measurements and measures that can be arranged together as cubes. Such a cube can be a sales cube that has a target revenue and sales as two indicators. Time (year) Month and (Product Line) Product Type) can be two hierarchical dimensions in such a cube. Please note that there is absolutely no need for the measurement to be hierarchical in nature. The exact nature may depend on the cases of business use that the analyst is trying to achieve. As a logical conclusion to the explanation above, once such a sales cube is ready, the user can view the sales revenue and target sales from different measurements (time or product) and at another level of detail (drill, drill down), and all this can be done at the same time, even when the user is offline. In Chapter 1, the previous figure depicts a multidimensional sales cube with three a downs, meaning three dimensions. A cube cell represents the value of data or tuples that have a numerical value, such as a sales goal. Note that the cube has NULLS for some combinations. These NULLS will be missed during processing in customer side memory; processing is much faster and more efficient. Several possible dimensional analysis scenarios, based on the above-mentioned sales cube installation, should be shown as simple hand-crafted crosstabs in Excel: The previous figure illustrates a dimensional modeling scenario where a measure, such as a sales figure in millions, is viewed from more than one point of view and presented as a measurement (level) in rows, columns, and filters. The first dimension in the column is time (years), and the second dimension in the line is the product (product line). The data shown is shown only for the Asia-Pacific region, as indicated in the filter for the region. Thus, we use three dimensions in the previous analysis: region, time and product line, while the measure analysis is sales revenue. The year and product line are the time and size levels of the time measurement, respectively. The Asia-Pacific region is a member of the region's highest measurement level. 11 - Start working with TM1 Similarly, the previous figure illustrates the analysis with three dimensions again: Time (Months), Product (Product Line) and Region. The months displayed in rows are the second level of time measurement. In this case we drill down on 2010 to view the monthly level of details by the size of the time. Ideally, a monthly level of detail should be added to give yearly figures as default behavior; a year, as a consolidated element, is the sum of individual monthly indicators. The previous figure expands the same example, but the measurement of the product is further drilled to the product type level to find detailed information for the vehicle product line as shown. Please note that the detailed data for each month are folded into vehicle data for the relevant As shown in the picture above, measures can also be changed (Profit Booked instead of sales volume) depending on the cases of business use. The case shown in the above figure is similar to where the figures currently represent the profit booked in USD instead of sales in millions. In Chapter 1 OLAP Of The Terminology Data Structure This topic intends to introduce the terminology of the data structure commonly used when it comes to OLAP. These terms are quite liberally used throughout this book and in the data warehousing/bi world as a whole. Please refer to the following table for terminology: Terminology Description Example Dimensions Perspectives, through which users want to slice and dice the data. A group of products with functionally similar descriptive data located in levels that one or more hierarchies form a measurement. Product Range Product Type Individual building blocks of hierarchy. The hierarchy of the Product Line Levels of the Time of the Year is a month of value measures that can be measured for different dimensional members. Sales Revenue Cubes Collection sizes and measures. Functionally similar data that can be analyzed in the OLAP tool. The values of individual data of Cube sales members. FMCG, 4 Wheeler Sales Trust 2010, JAN Attributes Provide additional information for members value. The color number of OLAP watches (when online analytics) compared to OLTP (online transactional) As we move on, it is worth understanding the difference between an OLTP-based and OLAP-based system. This is only the kind of knowing how TM1 is based on OLAP technology, which is the main focus of this book. Starting with TM1 In a nutshell, all day-to-day database processing supports daily transactional processing, does not focus on historical data analysis and is based on OLTP technology. OLAP-based systems are more historical databases designed to support MIS or DSS with quick-deal operations and large aggregated data. Denormalization is the key to such databases, unlike OLTP systems that follow the approach to normalization. Denormalization refers to the process of optimizing the performance of database reading by adding redundant data or grouping data. Thus, different but related pieces of information are still duplicated between the tables, avoiding connections during the time of view of reading operations. Normalization will try to avoid this duplication by storing different parts of related information in different tables, making operators manipulate the data (insert/update) quickly, but only to read queries now have to use more connections and performance more slowly. Check out the following table to compare OLAP and OLTP approaches: OLAP OLTP Identify multidimensional analysis of data located in a cube format and modeled in the measurement structure. Analysis of data located in a relational database. Dimensional structuring of data is not necessary. Scheme Star Scheme, Snowy Scheme. Flat Scheme. Normalization is renormalized. Normalized. The insertion and upgrade restrictions are slow. Reading operations is slow. The benefits of fast-read operations. Fast updates and inserts. Portability portability cubes be created and available offline. OLTP processing usually requires users to be online if they need to do any data analysis. Use usually where quick and effective analysis is the main case of use. Typically used where inserts and updates should be performed frequently as part of day-to-day operations. Data volumes typically include large amounts of data and historical data. Typically, data volumes are smaller and historical data is generally not supported. Pre-aggregate values calculated during the creation of the cube for quick analysis, such as total sales revenue for each quarter. Calculated during execution, saving a lot of disk space, but slower during the search. Chapter 1 Introduction to TM1TM1 is an OLAP tool with one or more powerful TM1 data server running remotely or on the same server. TM1 data servers provide access to shared data within the organization. These data servers are managed by one or more admin servers. Users can work on shared data and objects across the organization through intuitive client interfaces that interact and send requests to administrator servers. The administrator's server then submit a request to one of the TM1 data servers. The data server then gives customers access to common objects. Customer Interfaces provided by TM1: ff Excel add-ons (TM1 Perspectives) ff web browser (TM1 Web) ff TM1 Architect Interface users want to use depends on the role they play in the organization, as well as the level of comfort they have with a specific interface. In addition, customers must install TM1 Perspectives for Excel as a standalone add-on. When installing TM1, although it is installed automatically, customers who just want to access the data should not have a full SET-up of TM1, but only an Excel plugin if they want to use TM1 Perspectives for Microsoft Excel. TM1 The Web does not require any installation on the customer's side and can be accessed over the Internet. In future chapters, we will use TM1 Architect as an interface to create and view examples of applications. TM1 has an ETL (Extraction Transform and Load) tool built in to transfer data from the original databases to targeted multidimensional cubes in the required format. In TM1 terminology, the ETL is called Turbo Integrator, and ETL processes are called Turbo Integrator (TI). TI processes can also be written to record data in the original databases, and also when the user changes business data and decides to keep that back to the backend of the database. With one of the user interfaces above, multidimensional models are created that are business-specific. Built-in TI processes allow users to pull data from source databases and populate the cubes on top of the models. TI processes can also be custom-made and modified for specific ETL requirements. Business-specific Business-specific patterns are then created again using one of the client interfaces on top of the respective cubes. Users are given access to cubes and templates to view, analyze, and modify data. The data can also be stored for the initial databases using built-in TI processes. Explore the roles of TM1 users, users can access customer interfaces and tools in TM1, depending on the role they play in the organization. Some may be interested in defining business logic, while others may take on the role of modeling multidimensional cubes by determining sizes and facts. Admin roles must also be clearly defined for home activities such as user identification, security policies, backup, and recovery. The authors are end users who want to fill in business-specific data in already developed templates and play a role in the final analysis and consolidation. Please find a summary of users and common roles that are usually followed. The exact nature of the distribution of users and their respective responsibilities may vary from organization to organization. User Roles and Responsibilities Fashion Designer/Analyst/App Developer designs and builds multidimensional models and cubes, applies business logic, displays data streams, and creates custom templates and reports. The administrator manages the technical deployment of the application as a whole. Considers hardware and software requirements. Tracks all household activities such as safety, replication, backup, and recovery. The input data of the contributor in the templates. View reports and responses to business queries. The subsequent chapters will detail the different set of activities that each of them takes. Although the previous table should be considered a general guide, there is no clear line between the responsibilities performed by these users, as roles often overlap between users. The architecture of CHAPTER 1 is based on the architecture of client servers and various components that interact seamlessly with each other to achieve the desired functionality. The following figure depicts the development process in a broad sense: As in the previous figure, multidimensional cubes are on data servers. These cubes, in turn, take their size structure from multidimensional models created by the fashion designer. Data is fed into these cubes from one of the backend sources of data through the built-in turbo integrator processes. Please note that these ETL processes may be modified to meet the user's requirements. Turbo integrator processes can be written to obtain data from a variety of data sources, including OLAP, relational (using S'L queries) and real-time systems. You can also import from Excel text and file files. Thus, the backend of data sources can be of any type and the turbo integrator handles all database-specific complexities. Users don't need to worry about disparate multiple data data The start of the TM1 data can be modified with customer interfaces and moved to cubes. Thus, modified data cubes can be stored back into the backend of the database using embedded or configured TI processes in accordance with business requirements. TM1 cubes are nothing more than business data in a multidimensional format. Although the sizes and facts in the cubes are determined by a multidimensional model created by the analyst/model, the data in the cubes is usually viewed and analyzed using one of the client interfaces, TM1 data. TM1 cubes, along with its size and other components, are called TM1 objects and are placed on one of the TM1 data servers. Different TM1 data servers can host different TM1 objects depending on the organization's semantics. For example, there may be a separate data server to host financially related cubes and processes, and only the finance department, the CFO, and the CEO have access to it. Similarly, a sales-related data server places a sales plan, sales revenue, and expense-related cubes that are shared only with the sales department and senior management. TM1 Admin Server is a process that tracks all TM1 data servers that are online and registered to it. The admin server works on a computer known as Administrator Host. The TM1 data server needs the associated administrator host to be listed in a configuration file that is specific to each TM1 data server. In future sections we will discuss this in detail. When TM1 Data Server starts, the server registers with the process of the administrator's server that works on the Administrator's host specified. CUSTOMERS TM1 refer to the admin server process to determine which TM1 data server is available on the network. Depending on their role, the user can request access to TM1 shared objects (cubes, sizes, and subsigns) through one of the client interfaces. The requests are routed to TM1 Data Server by TM1 Admin Server. Users, through client interfaces (Excel, Web, or Architect), access Server Explorer, which is the interface provided by tm1 Admin Server. Server Explorer lists all TM1 data servers registered in the tm1 Admin Server process on the network, depending on the access rights that the user may have. TM1 Perspectives and TM1 Architect can connect to the local TM1 server, which acts as a repository for private data. With proper authority, we can copy the data from the remote server to the local server, replicating that data, and then synchronize the updates back to the remote server. Chapter 1 Data Server TM1 then provides the user with shared TM1 objects depending on the policies administrator. In this way, the user can create and access TM1 objects using one of the client interfaces, again depending on the security policies already defined. In B Turbo integrator processes come into play. ETL-related processes are then completed and configured. Turbo integrator processes are performed from within the architect or perspective and hide from users the complexity associated with requesting multiple databases of different types. Please refer to the following digit to get an idea of the typical TM1 deployment scenario, the different components, and how they interact with each other. All TM1 data servers can be on the same server or multiple servers. Each TM1 data server is shown to have tm1s.cfg (configuration file) and tm1s.lic file in the TM1 Data Server catalog. As we hinted earlier, tm1s.cfg is a configuration file that is specific to each TM1 data server. This file is constantly hosted at 60 seconds intervals on the TM1 data server to detect any changes in dynamics parameters. If the dynamic setting is changed while the TM1 data server is running, the changed value is applied immediately and no reboot is required. Most of the options in the Tm1s.cfg file are static. These parameters are only taken from the Tm1s.cfg file when the TM1 data server is launched. If we want to change the value of the static setting, we have to close the TM1 data server, edit the value in the Tm1s.cfg file, and then restart the TM1 data server. If the parameter value contains spaces, you need to attach the parameters values to double quotes. Now in the next section we will discuss another very important concept that is specific to each installed tm1 Data Server. After that, we'll go back to the Tm1s.cfg. Data Catalog, which is again specific to the TM1 data server, contains cubes, sizes, and system information that are downloaded into memory when the TM1 data server is downloaded. When we provide access to the TM1 data server from any of TM1's customers, TM1 reads non-zero data from that server's data catalog and uploads it to memory. Start working with TM1 Any changes we made to cubic data values are immediately stored in memory and in the transaction log (Tm1s.log). Calculations and consolidations are done on demand in memory. Thus, all TM1 data files, i.e. cubes, size, and so on, are supported in memory and all the manipulations that are performed in memory, which makes processing very quickly. The processing of data in memory along with a function that only does not have zero data downloaded gives the tool a distinctive advantage in terms of processing speed. TM1 stores the data back in the data catalog on the disk when any of the following occur: ff TM1 Data Server is off. Depending on the privileges, the user clicks on the server icon in Server Explorer and selects Save Data from the pop-up menu. This directs TM1 to save on your browser version. ff Administrator Administrator File on the data to save everything in server Explorer. This directs the TM1 admin process to keep the changes on all TM1 Connected Data Server if it has the proper authority. ff The user saves the update package. Therefore, as long as the data is not stored manually or through TI processes, all operations will be performed in memory, which leads to rapid processing. We need to choose a path for a data catalog when installing TM1. Please note that we need to specify different locations of the data directory for local and remote servers. For a local server, we need to specify the location of the data catalog by naming this directory in the Tm1s.ini Tm1p.ini DataBaseDirectory option. We can change the .ini file using the TM1 Options menu in Server Explorer. By default, the way to catalog data for a local server is the custom tm1data-P-Data. For a remote server, you must specify the location of the data directory using DataBaseDirectory in Tm1s.cfg. The password for the admin user is Apple, and the old password are the administrator/apple. Readers are encouraged to install TM1 and play around with the sample data server. Chapter 1 Please refer to the following table, which describes each of the mandatory settings values in the Tm1s.cfg file described in the previous section. Both of the parameter values are static in nature. The description of sr No Parameter 1 AdminHost defines the name of the computer or IP address of the administrator host on which the administrator's server operates. We can specify multiple admin hosts by sharing each host's name with a box on Windows TM1 or a colon on the UNIXTM1 server. The admin host line is limited to 1,020 characters or bytes. 2 DataBaseDirectory identifies the data catalog from which the server downloads cubes, sizes, and other objects. You can list several data directories by dividing it with a comma. Now we'll give a short short of another important file in TM1 called Tm1p.ini file. The Tm1p.ini file identifies the environment information for tm1 (TM1 Perspectives, Architect) and is specific to each user by logging into the TM1 data server through one of the customers mentioned above. Tm1p.ini has an AdminHost option that has a TM1 Administrator Host customer link. When we install TM1, the place of installation for the system version of the default file Tm1p.ini is %ALLUSERSPROFILES%Applix-TM1Tm1p.ini. In most cases, the full path to the Tm1p.ini file: C: Documents and Settings All usersApplix-TM1-Tm1p data. Ini Version of the default system Tm1p.ini allows multiple users to use on this computer. Tm1p.ini must be present at the first launch of TM1 on the default settings in the system govern the behavior of the initial tm1 customer launch for each user. Once a user launches TM1 on a computer, a specific copy of Tm1p.ini is created in %APPDATA%-Applix-TM1Tm1p.ini. In most cases, the full path to the Tm1p.ini file: C: Documents and Settings (App Data) (ApplixTM1 tm1p.ini No.21 Start with TM1 Custom copy Tm1p.ini accepts all settings and changes for the user and adjusts the customer's behavior TM1 for all subsequent customer TM1 user sessions. DataBaseDirectory is one of the important parameters specified in the file that is used to indicate the full path to the local server data catalog. We can specify multiple data directories by sharing the names of directory names with a comma. A detailed description of these parameters can be referenced to the TM1 Administer and Deploy Manual. Please note the important options in the Tm1p.ini file. Sr No Option Name Description 1 AdminHost displays the name of the administrator host on which the admin server operates. On TM1 Options, use Administrator Host's Entry Options. 2 DataBaseDirectory uses the full path to the local server data catalog. We can specify multiple data directories by sharing the names of directory names with a comma. The TM1 Options dialog also stores many of the settings available at Tm1p.ini. The TM1 Options menu is available at Server Explorer. We can change these settings by using the TM1 Options dialog window or editing the Tm1p.ini file. In a nutshell, we can specify the location of the Administrator Host differently to customer and remote servers. ff Include the host of the administrator that customers refer to in the Tm1p.ini AdminHost option. You can change the Tm1p.ini file using the TM1 Options menu in Server Explorer. ff Enter the administrator host and the remote servers on which they are registered using the AdminHost option in tm1s.cfg. TM1 Perspectives and TM1 Architect can connect to the local TM1 server, which acts as a repository for private data. With proper authority, we can copy the data from the remote server to the local server, replicating that data, and then synchronize the updates back to the remote server. Chapter 1 We will now look at the entire workflow summary in the following chart: Installing tm1 Server and customers on the machine This section will demonstrate the installation of a typical TM1 installation of a single machine, which we will use for subsequent examples that will follow in the book. Please note that users are supposed to have the necessary licenses to use the TM1V9.5.2 server and its components, which forms the backbone of all the following practical applications. Let's start with the installation: 1. Copy TM1 on a local drive and click on set up.exe 2. Click on the next one and take the zlt;/user option in subsequent clues and masters. Only important screens will be captured in the next steps, for the rest just to accept the default and click on the OK or Next button, depending on what is applicable. 23 - Start working with TM1 3. In the following screenshot, you can choose: TM1 Perspectives for installing a server and perspectives for Microsoft Excel customers for excel customers. TM1 to install TM1 Server, TM1 Architect, and TM1 Perspectives. TM1 Web to install TM1 Server, TM1 Architect, TM1 Web, and TM1 Perspectives, and TM1 Contributor. 4. The next screenshot of the TM1 Contribution to install TM1 Server, TM1 Architect, TM1 Web, TM1 Perspectives, and TM1 Contributor. 4. The next screenshot of the TM1 Contribution to install TM1 Server, TM1 Architect, TM1 Web, TM1 Perspectives, and TM1 Contributor. 4. The next screenshot of the TM1 Contribution to install TM1 Server, TM1 Architect, TM1 Web, TM1 Perspectives, and TM1 Contributor has been selected, but ideally readers should choose a TM1 Contributor if they are interested in the TM1 Web and contributor as well, which will be detailed later. The next stages of the installation will be the same for all previous options. 5. Review and change the installation catalog you want, as shown in the first glass in the next screenshot. Choose standard as an installation type, it will install all the components of the TM1 and TM1 Contributor on one machine. The second option is useful if you want to install multiple servers where the components are distributed across multiple machines. No 24 - Chapter 1 6. All TM1 components communicate with TM1 customers using SSL. The admin server also supports older TM1 customers who can't use SSL by listening to two ports, one secure and the other unprotected. For TM1 customers who can use SSL, connect to the TM1 admin server with a secured port (otherwise they connect with an unsecured port). If the protected port number is already in use in the Administrator's Host, another port may be listed for the secured port. In general, it is not required (and can be located as is. 7. Please note the port number that TM1 Server will use during the action, as shown in the following screenshot: No. 25 - Start with TM1 8. Enter the Administrator's actual username and the password of the machine on which the TM1 components are installed. Please make sure that the correct user credentials are given in the boxes, otherwise the installation will not continue. 9. Click Set to start installing. 10. Click on the finish to complete the installation and restart the machine. Previous steps will install TM1 Server and components on the same server. The components installed depend on which option is chosen at the beginning. As previously depicted, TM1 Contributor will install TM1 Server, its components (including TM1 Web) and TM1 Contributor on the same server. In addition, the default example is tm1 Data Server planning. Please refer to two new services, led by a Windows Services Researcher, which visible after a successful successful as shown in the next screenshot. The first service is TM1 Admin Server, and the second default is TM1 planning example TM1 Server, which is set by default but not necessarily required. Note that older models, cubes, and TM1 objects can now be ported to a new installation and used as before. All subsequent recipes will involve this local scenario of installing a single server on the Windows field. After the successful installation of TM1, the Architect and MS Excel perspectives will be shown in the Start menu, as shown in the following screenshot: at the end of this section, we successfully installed TM1 v 9.5.2 on the Windows field as a single server installation. THE TM1 components are installed on the same server, and we will be able to follow the follow-up practical scenarios as needed. By creating a new TM1 data server, we'll create a new TM1 data server called DemoData and make a connection. 1. From the Start menu, click on the Administrative Services Management Panel, as shown in the following screenshot. Also, click Windows and R, and then enter Services.msc to open Windows services directly. No 28 - Chapter 1 2. Make sure tm1 Admin Server is up and running. 3. View Files C: Program FilesCognos,Step3,custom-TM1Data-PlanSamp and copying tm1s.cfg. 4. View Files C: Cognos,TM1Custom-TM1Data Program Files and Created a Subfolder called DemoData. Start work with TM1 5. Create subfolders called Logfiles and Data in C: Cognos TM1, Custom-TM1Data-DemoData. 6. Insert the tm1s.cfg file copied into step 3 and paste in C: Cognos (TM1) 7. Open tm1s.cfg in a notebook. 8. Change the name of the server on DemoData. 9. Change DataBaseDirection to C: Cognos,TM1 Custom TM1DataDemoData Data. 10. Change PortNumber to 11111. 11. Change AdminHost on localhost. 12. Add a return after DataBaseDirectory, and then include the following loggingDirectory: CognosTM1 Custom TM1Data DemoDataLogfiles. 13. Save and close the file. 14. Browse C: Cognos-TM1bin Program Files and create a shortcut for tm1s. exe on the desktop. 15. Rename the label in DemoData. 16. Tap the right button on the folder and then click on the Properties. 17. In the target field at the end of this type of expression -z C: Files of the program Cognos TM1-Custom-TM1Data-DemoData-Data. Full expression should now look like C: Files of the programCognos-TM1'bin'tm1s.exe -z C: Files of the programCognos'TM1'Custom-TM1Data-DemoData-Data. 18. Click on OK. 19. Double tap the DemoData icon to run a newly created data server. 20. The next window pops up to show the state of the server that has started, and the status of the taskbar will change from download to launch. 30 - Chapter 1 21. The server is ready for use. 31 - Start working with TM1 22. Close to shut down the server. Don't save anything because we haven't changed the configuration settings of the server. Neither of the two TM1 data servers running on the same machine have the same port number and data server name. 24. In our demo script, we just created a TM1 Data Server called Planning Sample on the machine. Another data server called Planning Sample has already been created and sent with the installation. 25. These data servers may be visible as a Windows service, as in the case of sample planning, or they may be available as a desktop shortcut, as in the case of DemoData. 26. These data servers can now be accessed through Admin Server and any of the clients we have installed in previous stages. By connecting to the existing TM1 server, we will now dial a connection to an existing TM1 server called Planning Sample. 1. As explained in the previous recipe, please open Windows services by clicking on Windows and R and then typing Services.msc. 2. Make sure TM1 Admin Server is up and running. 3. Make sure that TM1 Server is a planning example that is running, as shown in the following screenshot: No. 32 and Chapter 1 4. Double While the DemoData icon on your desktop to run the data server we've created in previous steps. 5. Open the architect's tool from the Start menu, as shown in the following screenshot. No. 33 - Start with TM1 6. Two of our data servers are visible in the Architect. 7. Double tap the planning sample and provide login credentials as an administrator/apple. Please note that TM1 is not business-sensitive, while entering the user's credentials below/the top register does not matter. 8. You can see the various examples of applications, cubes, and sizes created in sampling planning: No. 34 and Chapter 1 9. Similarly, log in to DemoData using the administrator as a user and without a password. It doesn't have any objects created (as we created THE TM1 Data Server from scratch), but the various nodes are visible. 10. Servers are ready to go now and can be accessed through one of the client interfaces according to user preferences. In subsequent modules, we will always have access to the server represented with the help of an architect. TM1 Admin Server tracks all TM1 data servers running on the network. When tm1 Data Server starts, it registers with the administrator's server that works on the Administrator's Host specified. Single or multiple admin hosts should be listed as split-value commas in the Host Administrator field for each TM1 data server in the tm1s.cfg file for the data server. 12. In our case, localhost servers and TM1Application Servers (sample plan) are installed on the same server with

customers. We have created another TM1 data server as part of the demo above (DemoData). Set up your TM1 data server to work as a Windows II service. Open the DOS/team tip box: Start running out cmd and go to the TM1 bin catalog using the CD command and to the catalog of TM1 bin. 35 - Start working with TM1 2. Please note that the default installation path is C: Program Files (Cognos)TM1. Join the following command: tm1sd.exe -install -nNameOfTM1Server -zPathtoTm1s.cfgFile 3. In the previous nameOfTM1Server team (after -n) this is the name we want to give this service TM1 Server. If the name we're going to use contains spaces, that value should be in double quotes. PathtoTm1s.cfgFile (after -z) is the way to the tm1s.cfg file for the TM1 Server we set up. For example: tm1sd.exe-install -nDemoData -zC: Files of the programCognos-TM1 Custom TM1Data-DemoData 4. If the previous team is successful, it will return the following message: TM1 Server / tm1 production server installed. Then we can go to the service list and see the new TM1 Server that you set up. Following the previous example, the service will be listed as: TM1 Server / DemoData. We can then set up the service to automatically run and run under a specific user domain. If we're creating a brand-new TM1 server for which we no longer have a tm1s.cfg file, you can copy tm1s.cfg from TM1 and modify it accordingly. At a minimum, we will keep the values of ServerName, DataBaseDirectory and PortNumber. If the service is not running (the error message that the service cannot be started), launching the same TM1 Logical Server as a desktop application usually provides more detailed information about the bug. Removal of TM1 1. To remove TM1 Server (again, following the previous example), follow steps 1 and 2, and then hang the following command: tm1sd.exe-remove-nNameOfTM1Server 2. Where NameOfTM1Server (after -n) is the name of the TM1 Server that we want to remove. For example: tm1sd.exe -remove -nDemoData - 36 - Chapter 1 Summary In this chapter, we started with ibm's introduction into performance management solutions and gradually moved to IBM CognosTM1 as a business planning solution. We learned the concept of OLAP; TM1 uses OLAP technology. The modules that followed took us through the basic workflow and architecture of TM1. Subsequent modules demonstrated how to install TM1 as a single server setup and gain access to servers through an architect. The following chapters will be more specific to TM1 and expand the idea of creating and working with the measurements that have been introduced in this chapter. 37 - 2 Creating Sizes in TM1 In this chapter, we'll cover: ff Creating a month of measuring ff Adding sizes manually ff Creating a month of measuring by hand with rules ff Adding Next and Previous attributes Months measuring ff size using turbo integrator ff Execution scripts for the TM1 process Introduction In this chapter we're going to cover which are the main building blocks of TM1 cubes. Typically, measurement is a piece of data that categorizes each item in the dataset into non-query regions. It provides structured information about the labeling of structured numbers and provides tools for slicing and bone data. Here we will discuss the concept of sizes typical of TM1, and gradually clarify the topic. Making measurements in TM1 Once stated sizes are the main building blocks of TM1 cubes. In accounting, if we are dealing with simple numerical measures such as profit booked and total income, then the region, time and products may be several possible sizes. Thus, the booked profit can vary for different regions, time period and products. Again, the measurement of time can be structured in the year, month, and day format that form the hierarchy for measuring time. Year, month, and day can be different levels of time measurement. Other measurements can also be structured into multiple levels; However, it is not necessary for measurement to have more than one level. Similarly, total income can be another measure or measurement measure, as implied in TM1 terminology. It is interesting to note that in TM1 measurement measurements may not always differ from the usual measurement of analysis. Thus, we can have both numerical and string values in the dimension. The only difference is what needs to be considered and what is promising in order to deal with it. For example, a product type can be a measurement measurement in one case when we want to know the most popular product for different region and time combinations. Otherwise, it would be a regular measurement when we want to measure total booked income for region and time span combinations. This structure, once defined, leads to the creation of cubes and, therefore, the analysis of our indicators (booked profits) from different points of view (sizes such as time, region, types of products). Imagine the analysis should be performed for the total income of 2010 (time) for the Asia Pacific region (Region). Now that we know the figure of, say, $200 million, we want to keep drilling down to see how that figure is distributed among different products. So how much, from 200 million U.S. dollars was contributed by FMCG and how many VEHICLES. Since the measurement time has different levels (year as the first level), we can also know the monthly gap of these figures, and for this we just need to drill down from 2010 (year level) to the month level (January' 2010, February' 2010, December' 2010). Drilling from month to year should also be possible in this case (say, from January 2010 to 2010 In the nutshell, depending on the needs of organizations and the availability of data, the size and measures are determined. Dimensions are then structured at different levels to form a hierarchy. Once such a structure is in place (multidimensional model model The cube can be created in the same way as organizational data, but in a multidimensional format, the structure of which is determined by the model. The cubes are then divided between users who can analyze the data according to business needs. Therefore, in the previous example, products, time, and area are measurements (regular measures). From this time is a multi-level dimension and structured in a hierarchy where days wind down in months and months folded into a year (year and month). Total income and booked profits are measures (size measurement). 40 Chapter 2 Each of these measurements (a routine measurement or measurement measurement) consists of elements that are actual data in the cube and are structured lists of related elements. Items are actual data that include sizes and therefore cubes. For example, the measurement of time consists of elements such as 2010, January, December 21, 2010, which are again structured in the hierarchy as just explained. The size of the product consists of elements such as vehicles, FMCG and so on. Total income and total booked profits are measurement sizes and are elements in themselves. Once explained, the elements are used to identify the data in the cubes. They act as coordinates that identify a specific numerical value or text line in a cube. The elements are the main building blocks of cubes and determine what data is actually stored in the cube. Each item has a type associated with it in TM1, as shown in the following table: Symbol Element Description Example is a simple element at the lowest level of the hierarchy. It does not have any baby elements. Sales revenue, December 21, 2011 (assuming that the measurement of time has a day as the last level) String elements that define those cells that have data strings. Consolidated Elements Of Life Insurance (Policy Type), Asia Pacific (Region) that determine aggregated data in the cube. One or more of the children's items are folded down to the consolidated element. Net income (total revenue - Total Cost), 2010 (Day rolled back in months and months rolled up in years) Weights are used in the context of elements and aggregations. Thus, weight determines an element's contribution to aggregation. For example, if we look at a consolidated element, Total Sale Price, for a product that we intend to calculate as a summation of the base price and tax, then every simple element that is the base price and tax makes an equal contribution with factor 1. Thus: Total Sale Price - Base Price (1) Here 1 can be called the scales of the relevant simple elements Base price and tax. The general aggregation such that the general formula for the measurement No. 2 - width 2, then my individual weight will be 2 as for simple that have been introduced in this chapter. 37 - 2 Creating sizes manually ff Creating a month of measuring ff Creating a month of measuring by hand with rules ff different simple elements can contribute to aggregated elements in different ways. Negative weights are also possible for a case that requires subtraction, for example: Sale price - Marked price - Discount. Thus, here the labeled price has a weight of as much as 1 while the discount has -1 as its weight. If by creating sizes in TM1 similarly, we assign to some elements because we don't want to consider them in consolidation. The same results can be achieved by rules, but using weights and consolidations in the previous order to achieve results is much faster than the rules. Please note that all aggregations are performed during the time of the ram time. Cube only solves fewer levels, simple, not zero elements. As we just learned the items identify the data in the cube. The elements describe the elements themselves. Attributes are used to describe items. They are used to describe features of an item, aliases, or alternative names, format, and accuracy. We can select items by the attributes in the cube that we'll see in later sections. We can also display item names in the TM1 window using their aliases. We use an attribute editor to create attributes and assign attributes and will be described in later sections. The types of attributes that are descriptive attributes, such as the January item, can have a descriptive attribute such as the number of days, the short name, the number of the month, and so on. Alias attributes, for example the element January can be called differently in German, French, and Chinese different aliases of the same element. Display format attributes, such as the numerical measurement element, can be formatted by applying different format attributes such as currency, accuracy, percentage, and so on. Note that attributes simply contribute and provide support data for the item. It's a good idea to use display formats to measure size (measures we track) in a cube with an attribute editor or a cube viewing window. TM1 determines which display format to use in the cube viewing window as follows: ff TM1 first checks the items in the column measurement for display formats. If the sizes are stacked, tm1 checks the bottom up. If the format is not found, TM1 checks the header elements for display formats. Items are checked from right to left. ff If the format is not found, TM1 uses the format for the current view. 42 Chapter 2 To ensure that TM1 applies the format for cubes, strut a measurement containing measures like the lowest dimension of the column. If we want to set multiple attributes for one item, additional elements or sizes must be created, otherwise we could lose a valuable piece. For example, if the car is available in several colors, then we should consider creating additional elements for each color in a separate dimension. Dimension. How can we determine car sales for a certain color. However, if the car is available in the same color, then the color of the car say red, should be an attribute and not an additional element in a separate dimension. The measurement can be created manually or using turbo integrator processes. TM1 supports spaces and some special characters as names. When identifying names in the measurement, you should take care to determine exactly where the data cell in the cube is located. In this way, renaming the measurement will change how data points are aligned in the cube. If we need to rename the dimension, it is desirable that we destroy and recreate the cube. Dimensions can be created: ff Manual ff Using turbo integrator ff Using measuring sheets Creating sizes by hand As we've seen before, sizes are an integral part of TM1 cubes. We can create measurements either manually or using rules. Get ready We will use the demo server TM1, which we created in the previous chapter. 43 Making Measurements in TM1 How to Do It... 1. From the Start menu, click on the Administrative Services Management Panel, as shown in the following screenshot. Also, click on Windows q R and then enter Services.msc to open Windows services directly. 2. Make sure TM1 Admin Server is up and running. 44 Chapter 2 3. Double tap the desktop demodata icon to run the data server created as part of Chapter 1. 4. Open the Architect's tool from the Start menu. 5. In the architect, our two application/data servers are visible, as shown in the following screenshot. 6. Double click on the demos. For the username, enter the administrator and for the password, do not enter anything. 7. Click on the OK button to view the demoted object. 8. Tap the right button on sizes and then click on Create a New Dimension. 9. The measurement editor's window will open. The same can be done by clicking on the dimensions and then clicking on Creating a New Dimension from the Dimensions menu on the toolbar. 45 Creating sizes in TM1 10. In the Dimension editor, click the right button and select the Insert Item from the menu. The same functionality can be achieved by clicking on the Edit menu and selecting the Insert Element. 11. In the measurement element insertion window for insertion of the item type, the unit sale price. Hold the rest by default and click on the Add button. Other available options in the list fall out of the list of types worth noting in the context of the types of items explained in the previous section. 46 Chapter 2 12. Similarly, add a unit value, margin and margin and click on OK. 13. Click on the display property window as On the next screenshot: 14. Once you click on the icon, you'll see the next window. It shows properties such as name, owner of security, type, level and and 15. Click save. 16. With the name of the measurement Price_Cost_Measures click on OK. 17. Please note the changes in the bar header. 47 Creating sizes in TM1 18. Now we will add consolidated estimated profit of the goods, as shown in the following screenshot. In the same window, click the right button to open the menu and select the Insert Element as shown in the video. 19. Insert a consolidated element named Profit and select Consolidated from the fall down item type. 48 Chapter 2 20. Click on Add and then OK. This will add a new element of profit. Please note that this is a composite element, therefore, displayed differently. 21. The price and unit value of the drag is in line with the profit, as shown in the following screenshot 48 Chapter 2 22. Изменение элементи весь удельной стоимости по -0., как показано на данный момент, так что в то время как прибыль рассчитывается как консолидация базовой единицы цена продажи единицы и удельной стоимости фактической формулы применяется прибыль и цена продажи единицы - единица стоимость 23. Click on OK to close the Measurement Element Properties window. Now that the value of the cube is calculated, the profit will be calculated as consolidation of the unit sale price and unit value, by subtracting the unit's unit price, as the unit's share price weight is -1. Now click on OK to close the measurement editor without saving the last profit item addition, which we added just to give an idea of adding consolidated and calculated items. We will use more of these elements in later recipes. How it works... In previous steps, we have already seen the creation of measurement Price_Cost_Measures with the architect's help. This measurement measurement can now be incorporated into the cube, and the data can be populated for its elements. Calculated and consolidated items are calculated as needed and are defined in measurement. See also We have already seen the creation of measurement measurement by hand. In the same chapter we will create a measurement of the months that we will use as a measurement of time in the next section. We will also create sizes using a turbo integrator. 49 Creating Measurements in TM1 Creating a Month of Measurement Now we will create a months-long measurement that will act as a time measurement for our model. Measuring months when included in the cube will give time for data settled in the cube. Measuring time is desirable in almost all cases of use, in a practical scenario, to view and analyze data from the aspect of time. Get ready Please make sure that as stated above the TM1 Administrator server service is running and the DEMODs TM1 server is working. How to do it... 1. Keep the Server Explorer window for the demo data server open, as shown in the next 2. Right click Dimensions and click on Create a New Dimension. 3. Open Excel and january 1 in the A1 cell, as shown in the following screenshot: 4. Place the cursor on the bottom right corner of A1 until it becomes the sign A. 50 Chapter 2 5. Drag the cursor vertically vertically A12 until all 12 months appear, as shown. 6. Copy 12 months from Excel and paste them into the grey glass dimensional Editor. 7. Save the measurement with the name Months and click on OK. 51 Creating sizes in TM1 Please note that the symbol other than the items means that it is a sheet level numerical element. They act as pointers for data maps in cubes and maps for numerical value of data, not text. Now we'll create another dimension by the name of the Version measurement, as shown in the next screenshot. Please keep the Server Explorer window from the previous recipe open, as shown in the following screenshot: 1. Click The Dimensions button and click on create a new dimension. 2. The measurement editor inserts as elements the budget version 1 and the budget version 2. 52 Chapter 2 3. Click on OK and save the dimension as a version. How it works... Now the demodata server has two regular measurements that are months, a version, and a measurement measurement called Price_Cost_Measures. Note Price_Cost_Measures contains a numerical measure and is therefore a measurement. This is just a grouping of measures, and it should not be confused with the usual measurements that have descriptive data to determine where each data point is displayed in the cube. Each data point described above can be described as a measure. There's more... Items in a normal measurement that map a line of data rather than numerical measures are called string items. Comments are an example of such a line item. We'll create a string of items later in the book. A measurement that has at least one line element is called a string measurement. As the overall use cord sizes are created last. Dimension measurements are created after regular measurements as a common practice. Thus, it is desirable to create a measurement dimension, followed by conventional dimensions and string measurements. 53 Create measurements in TM1 Adding measurements to the measurement months In this section we will create additional levels in the measurement months. We will be adding these levels manually with the help of the measurement editor. How to do it... 1. In Server Explorer for demos, click on the months-long measurement structure and click on the additional measurement structure. 2. From the Edit menu, click the Insert Element and add the following with the default options. 5 No 1 No 3 No 4 Overall Year Chapter 2 3. In the previous screenshot note that although the weight of 0 they will be when the children are created in the dimension. 4. The resulting dimensional structure should look as shown in the following screenshot: 55 Create sizes in the key TM1 Press Ctrl and choose January, February and Mar and drag it apart from No.1. Let go when the icon appears to move January, February, and Mar as child at No. 1. This means values that are displayed in January, February, and Mar are rolled up to No.1 (quarter 1). the sign denotes No.1 as Element. Its value will be the aggregation of children's values, which are January, February, and Mar. . The same results can be achieved by creating a whole year. Click the right button on Total Year and insert No. 1, No. 2, No. 3 and No. 4 as your children. Right click on No 1 and paste Jan, February, Mar as his kids, and so on. 6. Click the right button on No.1 and click on The Properties Element to check it out. 56 Chapter 2 7. Note that the type of item is configured to be consolidated. Other types of items are simple and string, as explained in previous sections. 9. Similarly, click on January to view its element properties, which will be simple. As explained in the previous steps, repeat so that the hierarchy is shown in the measurement. In this way, other consolidated elements No.2, No.3, No.4 and Total Year are created in the measurement. When we change the order of the items in the measurement, we have to say TM1 directly to assign new index numbers for each item by clicking on the order of the set measurement. The next time the measurement is opened, the same order is maintained. Adding the following and previous attributes to the Months Dimension In this section, we'll add next attributes to the existing Month Dimension with Editing Attribute Editor. We'll then demonstrate the addition of a pseudonym attribute. Finally, we'll use Price_Cost_Measures formatting with the Format attribute. How to prepare Make sure that the TM1 Server Administrator service is running. We will use the demodata TM1 server to demonstrate the recipe, hence make sure that the TM1 server is also running. Keep IBM CognosTM1 Architect open from Start Menu. 58 Chapter 2 How to do it... Let's start with the Server Explorer window, as it used to be. 1. Open Server Explorer, click the right button to measure the months and select the attributes of the editing element, as shown in the next screenshot. 2. From the Editing menu, select Add a new attribute. 3. In the New Attribute dialogue field, the new attribute name is a new attribute as next with default options. 59 Creating sizes in TM1 4. Similarly, add another attribute of the text called The Previous One. 5. Now enter the values of attributes, as shown in the following screenshot. Add another attribute named Full Name and Alias type. By default, TM1 assigns defaults to alias. These values can be changed, as shown in the attribute editor. 6. Click OK and close. 7. Thus, we added text attributes (Next, Previous) and a pseudonym attribute (full name) to measure months. Next, we'll add the Price_Cost_Measures formatting attribute to the format elements in the measurement. 8. In Server Explorer, right click and click on the attributes of the editing element. 60 Chapter 2 9. Click on the unit sale price and drag it to margins without releasing the mouse button to select the three cells as shown in the video. Then click on the Format button. 61 Creating sizes in TM1 10. Click on the Currency option and then click on OK. Similarly for margin % click on the percentage and then click OK. 11. Click on to close. 12. So we've done the formatting of the measurement elements using the Format attribute. How it works... In the previous section, we demonstrated the functionality associated with attributes and used them as text attributes to measure. We also used a pseudonym attribute and applied formatting of items using format attributes. See also So far we have created sizes by hand and added attributes. In the next section, we'll create sizes with Turbo Integrator. By creating dimensions with Turbo Integrator Next, we'll introduce another important TM1 concept, Turbo Integrator, which is the ETL tool built into TM1. Turbo scripts generated in the module and data from a variety of sources can be extracted, converted, and loaded into TM1 cubes. Turbo Integrator is an ETL (Extraction Transform and Load) tool that comes with TM1. The main target of Turbo Integrator is the Turbo Integrator process that can be created for: ff Load Data in Cubes 62 Chapter 2 These processes can be run manually or can be scheduled to run at fixed intervals. The Turbo Integrator process can download data from a variety of sources, including CSV, ODBC, other TM1 objects, and so on. In the next section, we'll create measurements with the TI process. More information will follow in later sections. How to prepare Make sure that the TM1 Server Administrator service is running. We will use the demodata TM1 server to demonstrate the recipe, so make sure the TM1 server is also running. Keep IBM CognosTM1 Architect open from Start Menu. How to do it... Now we're going to create a new dimension of products using TI processes. 1. Create Products.csv, which will act as a data source for the demonstration. Open and empty the Excel sheet and enter the data, as shown in the next screenshot. Save the file as Products.csv in C: Cognos TM1 Custom TM1Data TI_Data. Please note that the path may vary depending on where the TM1 was installed. The path on which CSV is stored can be in accordance with user preferences. The previous path is only an example and can be changed according to specific preferences. 63 Creating sizes in TM1 2. Open Server Explorer and double click the right button on processes and create a new process. Choose Create a New Process. In the Turbo Integrator dialog field, select text as a type of data source. Browse Products.csv. The type of delimitator must be chosen as a Delimitator and the Delimiter must be chosen as a comma. On Preview to see the first 10 lines in the data source. Data. Click on OK to reject the following warning, which only matters when working on a remote server. When working on a remote Universal Naming Convention (UNC) server, the path should be used for files. 5. Please note that this is just an informative warning that if the source of the data is on a remote computer, the text file should be named in accordance with UNC naming conventions. In the demo we follow, the text file is placed on the local server; hence, the warning does not apply to us. An example of this UNC naming path is : ComputerNameSharedFolder-Resource. 64 Chapter 2 6. Once we reject the warning by clicking on OK and follow the previous steps Turbo Integrator the dialogue should look like the one shown in the following screenshot: 7. Click on the variable tab and change the variable name and content as shown in the following screenshot: 65 Create sizes in TM1 First row with variable name v1 means item name1 Item. The Content column for this line should be set on The Item. The column shows how the incoming data will be used, converted, and displayed during the TI process. Other values this column may have are shown in the following screenshot: Therefore, for further clarification on this issue, please refer to the following table. Content Description ignore the column ff ff TM1 First row with variable name v1 means item name1 Item. The Content column for this line should be set on The Item. The column shows how the incoming items at the level of the Sheet Consolidation column is converted into consolidated items, and the parent to other items of the Data Column has data values for the Cube Column Attribute contains attributes of items Other Other values do not fall into any of the above categories. It is used custom variables or line value formulas from the first column in Products.csv will be read in the vProducts variable; therefore, the variable type for this variable was listed as a string. Values read from the product measurement will be directly displayed on the sheet level elements in the Product measurement. Formulas can also be specified to convert data and read into variables, so that the TM1 object is created/populated accordingly, with the changed data. The second and third columns in CSV are associated with vProductTypes and vTotalProduct variables, respectively. They will be compared to consolidated elements. Products.csv fills them with line values that will be presented as consolidated elements in product measurement. No formula is required because the line values read from CSV are directly displayed on the Product Measurement Elements. 8. Click on the Map tab and then tab sizes. This tab determines the display from source to target measurement only for Sheet. 66 Chapter 2 As shown by parental measurement Products for leaf level measurement vProducts. We are creating this dimension for the first time; therefore, we allow TI to create actions rather than update or recreate. The target element to be created will have numeric numeric as selected in the item type drop down. Another option here for the item type is a line that, as explained in the previous section, will match the descriptions of the rows in the cube, for example, the Comments item may have lines that are stored in the cube. The above installation is directly displayed on the N or S symbols visible in the dimensional or subset of the editor, as explained in previous sections. Thus The type of element for vProducts is set as Numeric as the elements created will serve as coordinates to the numerical dimension instead of some string description. The order of the item determines the sorting order by which the elements will be located in that dimension. Internally, the measurement elements are sorted according to the indexes assigned to each of the elements. The setting will determine which indexes are assigned to which elements and, therefore, the sorting orders in the resulting measurement. The order of the item can be set in automatic or manual mode: the first setting allows users to sort items according to the Hierarchy (sorted first by the upper levels and then within the level), level (sorted within the same level) or by name in alphabetical order. The latest setting allows users to place items manually in the self-checked editor itself. Click on the Input button. In a conversation to order measurement elements, click on automatic sorting and sorting by Hierarchy. Click on OK. 9. As a result, the size of the tab should look like the next screenshot: 67 Create sizes in TM1 10. Click on the Consolidation tab. This tab determines the display from source to target measurement for consolidated items. 11. For vTypeProducts, click on the Child Variable column and select vProducts, as shown in the following screenshot: 12. Similarly, for the vTotalProduct line, select your child's variable as vProductTypes. 13. According to the order of components for vProductTypes, click on the Input button. Click on the automatic to select one of a kind. 14. Similarly, for the vTotalProducts line, click the Input button and click on the automatic button. The resulting screen should look as shown in the following screenshot: 68 Chapter 2 As seen in the previous screenshot, the measurements under which these items will be created are products that are listed for the Dimension column. Because they are consolidated elements, the Children's Variable column shows variable variables, as shown in the previous screenshot. The weight in the image above means how much the child's specified element contributes when rolling up to the parent said of the element. Click on the Advanced tab, then click on the Prolog, Metadata, Data, and Epilog tabs to update, work, and work out the basic scripts. See We've just created sizes manually and using Turbo Integrator processes. Cuba can now be created using measurements and organizing them in a particular order. We'll see more about creating cubes in Chapter 3 when we discuss creating cubes. Cubes. Scripts for the TM1 process there are four scenarios that are running while the TI process is kicked off. Each of the tabs shown in the previous screenshot displays the code that is executed with each script. It's important to click on each tab so that the scripts are updated, compiled, and stored after the TI related process has been created/changed. These scripts can also be manually modified if absolutely necessary. More information about the scenarios will be published in later chapters. 69 Creating sizes in TM1 Get ready Make sure the tm1 Admin server service is running. We will use demodata TM1 server to demonstrate the recipe; So make sure the TM1 server is also running. Keep IBM CognosTM1 Architect open from Start Menu. How to do it... 1. Click on the save and enter CreateProductCSV as the name of the process. It's a good idea to save the process as soon as you create a new, empty process. The TI master cannot be used until all the fields and tabs are completed without (syntax) errors. So saving in advance is very useful in many cases. 2. Click on the start to complete the process. 3. Click on the OK button and close the Turbo Integrator dialog. 70 Chapter 2 4. In the Server Explorer window note, a new dimension called Products was created. Double-click on the Product measurement to view the items and the hierarchy associated with them. 5. These are the same items that are found in Products.csv. We have already ordered them in accordance with the hierarchy in the TI process; otherwise you could order them in the dimensional Editor window. 71 Creating sizes in TM1 6. Similarly, we can create a measurement based on Channels.csv using a TI process called CreateChannelCSV. 7. The resulting measurement should look like the following screenshot: 8. The previous measurement created will be used for further recipes. How it works... In previous stages, we have created a measurement of products and channels through the Turbo Integrator process. Items are created directly from the respective CSV's. In this way, we can similarly create dimensions from data scattered across different data sources through Turbo Integrator processes. See also Chapter 3 will focus on creating cubes, and we'll see data downloads using Turbo Integrator processes in Chapter 4, which will allow us to upload data to the cubes. 72 3 Building Cubes and Submissions In this chapter, we'll cover: ff re-order sizes in cube ff Creating multidimensional Cuba FF Creating a static selection list ff Creating Sizes_Plan Cube ff Creating a subset of Select List Introduction In the previous chapter we've seen sizes in detail that are major building TM1. We also created and used attributes as a pseudonym for elements and formatting Size. In this chapter, we will expand the same concepts and use them to create TM1 cubes. Multidimensional cubes are a data structure that allows you to manipulate and analyze data from different points of view. Cube TM1 stores data for reports, analysis and data for further calculations. The creation of cubes and representations in general according to the semantics of the TM1 cube should have at least one measurement measurement and two or more regular measurements, which in turn consists of one or more elements. Although in practical scenarios there may be cubes without measuring measurement. Items from each measurement identify one blunt or dot of data inside the cube. It's like a 3D axis system (x, y, z) each tuple coordinate determines a specific data point in space. The cube can be seen as an extension of the same three-axis system, but with the number of n sizes instead of three, as in the previous example. In addition, as best coding practice, please ensure the measurement order by referring to the following rule: ff Turn on the measurement measurement in the latter. ff String elements should be in the last dimension in the cube. ff If the line element is not defined in the last dimension, it is ignored by the cube. ff Order sizes from the smallest rare to the largest rare, and then from the smallest dense to the largest dense. A rare measurement would have a relatively small percentage of completed data points than a dense measurement. The memory used is a measure available in the property panel for cubes and sizes and can serve as a pointer to solve the centriet. In this chapter, you'll also learn about the selection lists that represent the list of valid values that appear when the user wants to select valid values for the cell in the cube. These values are predefined and offer valid values that a particular element or cube cell may have. When the administrator determines the selection list of an item or cell, a menu appears to include a predetermined value in order to enter the data into the specified cell, when a user views a cube in one of the customers. The user, by entering values for such items and cubic cells, can choose only from the predetermined values identified in the selection list, and is a way to ensure that the verification check is to ensure that the user cannot enter any special incorrect values in the cube. The type and format of the data for the list and the selection item must be matched in order to defined a list of the selection of an item or cell. Please note that the line selection list, which can only be applied to line elements, should also be in the last dimension in the cube, they won't show up. Data entered through Turbo Integrator or Spread processes will not be verified by the selection lists once the selection list has been determined. In this way, you can see the values in the cells that don't match those in the selection list. For example, if we have gender as a measurement, it makes sense to give users only two valid options as long as they enter data for gender that are male and female. Anything other than this cannot be entered and TM1 will throw errors if the user tries to enter anything other than what is defined in the selection list. 74 Chapter 3 There are two ways to create a list of choices: ff Simple list of choices, which appears in every cube containing this dimension. ff Extended selection list, using rules to determine when the selection list should appear. There are three types of list of choices: the ff Static selection list consists of the colon: the list of values that use syntax is static:value1:value2:value3:value4 ff Subset pick list contains values corresponding to all items in the Subset Dimension. The subset list is selected using syntax: subset:dimension_name:subset_name ff Dimension pick list contains values that correspond to all elements of the measurement. Dimension pick list contains values corresponding to all items in the dimension using syntax: size:dimension_name As accepted coding practice the first item in the static selection list always remains blank, allowing the user to clear the existing choice. For MS Excel, space must be defined for the empty. Recalculating the size of the cube is not always possible to be completely familiar with business data; therefore, the sparing dimensions in the cube are not always predictable. The data and distribution cube also changes over time; therefore, the measurement order, based on the sparonity, can shift from ideal to less ideal. This results in less optimal performance. It is important to note that it is not recommended to reorder the dimensions frequently, as reordering is a very expensive operation in terms of memory consumption. To solve the problem, TM1 includes a feature that allows the user to optimize the measurement order in the cube, thereby consuming less memory and increasing performance. How to do it... 1. In the Server Explorer tree bar, select a cube that will be optimized. 2. Click on the cube, re-order sizes 75 Construction cubes and species 3. The Cube Optimizer Dialog window opens, as shown in the following screenshot: 4. Select a measurement in the New Order of Dimensions box. 5. Click up or down to change the measurement order in the cube. 6. Click on test. 7. Notice the value next to the Change Percentage tag. If this is a negative, new size order memory and therefore is more effective. 8. Repeat steps from 3 to 5 until the most effective measurement procedure is achieved. 9. Click on OK. There's more... Views created can be saved to focus on a specific location of measurements in the cube. They can be saved for future links and mean a useful snapshot of sizes and data that can be updated with the latest data at the touch of a conversion button, while retaining basic size mechanisms and filtering the same. 76 Chapter 3 Views can be saved as public or private views depending on business requirements, and users can access them selectively based on the security model applied. The functionality of the Recalculation button is similar to that of an update and is used to download a view with the latest data every time a user clicks on it. Unlike public views, private views are only available to the person who created the view. Public views are available to all users based on the security you set. Typically, the Administrator oversees the creation and access to such views. The view is functionally similar to database representations that are fairly well known. They don't have the data, but simply store the definition and provide a pigeon hole of vision inside the cubes, very specific to business requirements. We'll create the default view on the multidimensional cube in the next recipe, creating a multidimensional cube. The cube will be called Price_and_Cost and detailed steps are shown in the following sections. How to prepare Make sure the TM1 Administrator service is up and running. The demodata TM1 should be up and running. Keep IBM CognosTM1 Architect open from the launch menu and log on to the demo data server to expose TM1 objects in Explorer Explorer. How to do it... 1. Open Server Explorer window. 2. Click the right button on the cubes and click on the creation of the new cube, as shown in the following screenshot: 77 Building Cubes and Views 3. In the creation Cube dialog, Price_and_Cost as the name of a cube. Choose all available measurements in the left glass; double click to move all dimensions in sizes in the new cube in the right glass, as shown in the following screenshot. We used the underlinage for the names in the example, but this is not absolutely necessary because the spaces are resolved in TM1. Users are free to use spaces in TM1 object names as needed. 4. Changing the order of measurements with the up and down arrow, as shown in the video. Make note that the order is complied with the order rule already stated in this recipe. Click on the Create button 5. A new cube called Price_and_Cost appears in the Server Explorer window. At the moment, the cube is an empty box with no data. However, the structure given the size and elements is there. 78 Chapter 3 6 Double Click Price_and_Cost cube. 7. Drag and drop Price_and_Cost_Measures on top of the month of measurement (Total Year) in the name area to change them, as shown in the following screenshot: 79 Building cubes and views 8. Click on the month-long measurement to open the editor's subset, as shown in the following screenshot: 9. Click on all icons to exclude a year from the measurement to the lowest level. 10. Now click on the filter by level, select the lowest level, which is 0 and click on OK. 11. From a subset of the menu, click on Save As, for a set of Months names, and select the options as shown in the following screenshot: 80 Chapter 3 12. Thus, a subset called Months is preserved, which can be used in other cubes and representations as a measurement of time. Click on OK to close the editor's subset. 13. Here, in the previous phase, we have just created a public subset that is available to all users who have at least read access to the related dimension. To create a public subset, we need the privilege of a parental measurement administrator. A private subset, on the other hand, is only available to the user who creates them. 14. Click and drag versions to the products (TOTAL PRODUCTS) measurement to change them. Click on the Recount button to fill in the latest data. 15. Click the arrow down next to all channels and select the Golf Shop from the fall down. Click the Recalculate button to download the latest data. 81 Construction of Cuba and species 16. Click on Save As from the file menu and select by default. This will allow you to keep the current view as the default view, which was automatically opened when you double-clicked on the cube name. The view can also be saved as a public or private view by clicking on the box. As in subsets, public views are available to all users based on the security set you create. Private views, on the other hand, are only available to users. A cube view cannot be saved as a public view if it contains a private subset. 18. Close the viewer's cube. The data for this cube will be downloaded in subsequent chapters. 82 Chapter 3 How It Works... In previous steps, we've created Price_and_Cost from the interface provided by IBM CognosTM1 Architect. We have also identified subsms that can be reused in the design of other TM1 objects. A Price_and_Cost has also been created with the subsets that focus on select lists. Creating a static selection list We will create a static selection list for the creation of a subset of select lists to focus on select lists. Creating a subset of Select List 83 IBM CognosTM1 Architect open from the launch menu and log on to the DemoData server to expose TM1 objects in Server Explorer. How to do it... 1. Open the Server Explorer window and click on the measurement on the show on the next screenshot: 85 Building cubes and views 9. Click on the Edit menu in the attribute editor and select Add a New Attribute. 10. Enter the picklist for the name and make sure the text is selected as shown in the following screenshot: 11. This will add an additional attribute called Picklist, as shown in the following screenshot: 12. In the cell next to the Commentary and Picklist user, enter: Static::High:Medium:Low 86 Chapter 3 13. This will add a selection list for the Comment item and as a result the select list will have values like high, medium and low. 14. Click on OK to close the editor. Previous steps have added a text element called Comment to hold the values entered through the selection list. A string element should always be created in the last dimension of the cube; otherwise it will be ignored by the cube. If measuring Price_and_Cost is expended. Price_Cost_Measures is the last dimension where exactly the line of the Comment element was added. 15. Double Price_and_Cost in Server Explorer to open it in Cube Viewer. 87 Construction cubes and species 16. The viewer of the cube shows the default view created in the previous section. 17. Double click Price_Cost_Measures open in a subset of the editor. In a subset, the editor twice clicks on the All icon and click on OK to close the editor's subset. 18. In the Cube Viewer, click on Price_Cost_Measures down and select Comment. Click on the Racalculate icon. 18. In the Cube Viewer, click on Months to open the measurement in Subset Viewer, as shown in the screenshot: 88 Chapter 3 20. Click on the Use Alias icon in the Subset editor and make sure to drop down, except for the icon, selected in the full name, as shown in the photo. Click on OK to close the window. 89 Construction cubes and species 21. Click on the Recount icon in the Cube Viewer window. 22. From the file menu in the Cube Viewer window, save the view as a private view called Price Comment, as shown in the following screenshot: 23. On the window View click to expand TOTAL PRODUCTS and CAMPING EQUIPMENT and click in the first cell in January. It will show a picklist defined in the previous section. Click on any values appearing in the selection list to fill the cell. 90 Chapter 3 24. Choose a high value and view changes, as shown in the following screenshot: 25. The cell will make no difference other than what is defined for Picklist. Any attempt to assign a Comment element with any other value will throw an error. Thus, you can only save the values that are defined for Picklist, which are high, medium, and low. Any other arbitrary value, such as A, will not be stored in the cell, as shown in the following screenshot: 91 Building Cubes and Views 26. Close the viewer's cube. In previous steps, we've added a Comment element that has one of the three values among the high, medium, and low approved by the selection list. See also a subset of select list to be discussed in the subsequent recipe, Creating a Subset pick list, but before then we'll be looking at creating a Sales_Plan cube in the next recipe. By creating Sales_Plan in this recipe, we will create a Sales_Plan that will help us build demos on our example. We will go through subsequent recipes that will be based on Sales_Plan cube. How to prepare Make sure the TM1 Administrator service is up and running. The DemoData TM1 should be up and running. Keep IBM CognosTM1 Architect open from the launch menu and log on to the DemoData server to expose TM1 objects in Server Explorer. How to do it... 1. Create Subsidiaries.csv with the data shown in the following screenshot: 92 Chapter 3 2. In the Server Explorer window, click the right button on the processes and create a new process called CreateSubsidiariesDim, as shown in: 3. Click on the Variable tab and identify variables to read data from the source, as shown in the photo. Note the Contents column that indicates the intended use of the variable. For example, data read in vSubsidiary forms elements of auxiliary measurement, while data read in vTotal form consolidated measurement elements. 93 Construction cubes and species 4. Click on the Map tab and click on the Dimensions tab to determine how the lowest-level items appear in the measurement. 5. Click on the Consolidation tab to determine the display for consolidated items. 6. Click on the extended tab and then on Prolog, Metadata, Data and Epilog to generate metadata and required scripts. 7. Save the process and execute. 8. Take note of the size of the subsidiaries, therefore, created. 94 Chapter 3 9. Create another dimension, Sales_Plan_Measures, by hand through The Excel sheet. The items that will be included in the measurement as shown in screenshot: 10. The last element that is Seasons is the line element and the remaining elements from A1:A13 are numerical elements. 11. Tap the right button on The Dimension in Server Explorer and click on Create a New Dimension. 95 Construction cubes and species 12. Copying A1:A13 cells in CSV CSV above and insert them into the measurement editor, as shown in the following screenshot: 13. Click on the last item; which is GROSS MARGIN% go to the Edit menu and click on the insertion element to enable it in this case, as shown in screenshot: 14. An element of a size like that we added above can be done by clicking on the icon in the bar. 96 Chapter 3 14. Save the measurement as Sales_Plan_Measures as shown in the following screenshot: 15. In the Server Explorer window, click the Cuba button and click create a new cube. 16. Click on the Create Cube button, and now the new cube is visible in the Server Explorer window under

the Cubes folder. 97 Build cubes and views See also In the following recipe, Create a subset of pick list we will use Sales_Plan created in this recipe. Creating a subset of select list subset to choose contains values corresponding to all elements of the named subset. If members of the subset change, the values available in the selection list change accordingly. Similarly, the measurement selection list contains values that correspond to all the measurement elements. If the members of the measurement change, the values available in the selection list change accordingly. This recipe will be based on a subset of pick list. The Pick List measurement is created in a similar way, and the basic concept remains the same. How to prepare Make sure the TM1 Administrator service is up and running. The DemoData TM1 must be up and running. Keep IBM CognosTM1 Architect open from the launch menu and log on to the DemoData server to expose TM1 objects in Server Explorer. How to do it... 1. Double-click sales_plan to open Cube Viewer in Server Explorer window. 2. Swap Sales_Plan_Measures versions and then versions with months to get the screenshot: 98 Chapter 3 3. Click on the measurement months, click to open a subset of the editor. Click on Months from the chosen subset shown in the following screenshot: 99 building cubes and 4 views. Click OK to close the editor and continue. Click on the Overcounted download button as shown in the following screenshot: 5. Double click on TOTAL PRODUCTS and open the editor's subset. In Subset, the editor expand CAMPING EQUIPMENT, select the lights and on OK, as shown in the following screenshot: 100 Chapter 3 6. In the Cube Window window, click the Recalculat button to display the cube in the current configuration. h 7. From the file menu, save the view as the default view, as shown in the following screenshot: 8. Open the Server Explorer window, right click on the Sales_Plan_Measures and click on the editing element attributes to open Attribute Editor. 9. In the attribute editor, click on Add New Attribute from the Edit menu. Name attribute as Picklist. 10. In the Picklist column next to a subset of the season element:Months:Months. 11. The previous code, will add a subset list based on a subset of months in the month measurement. 101 Building cubes and views 12. Select the Unit Sales Price cell under the format and drag it up to gross margin to select all the cells below the format and between the two elements. Please refer to the following screenshot: 13. Click on the Format button, click on the currency, and then click on OK. 102 Chapter 3 14. Click OK to close. For quantitative values, apply the comma format. 103 Construction orders appears 16. Click on OK to close the attribute editor. 17. The Server Explorer window opens the default view of the Sales_Plan cube. Note the list of months appear when the drop in the cells for the Element Seasons is pressed. 104 Chapter 3 18. Thus, the Seasons element consisted a subset of choice, which is a source of subset called Months. Close all the windows, keeping the work done until now. How it works... We've added a selection list that identifies all the possible values that a cube cell can take. Determining the selection list serves as a guideline for the user when entering the data, and also ensures that the cube contains only valid values. See also Now we have learned how to create subsets and cubes, we will look at download data using turbo Integrator processes in Chapter 4. We'll also learn more about Turbo Integrator processes and how useful they are in diced data maintenance. 105 Download and maintain data In this chapter we will cover: ff Data Download using Turbo Integrator processes ff Using formulas in variables ff clearing data from the cube through the process of ff data accumulation through the process of ff data retention through the Introduction process Now, as we have already considered how to create cubes, cubes and submissions in previous chapters , we will focus on downloading the data in this chapter. As explained in the previous chapter, Turbo Integrator is an ETL module provided by TM1 that allows app developers to extract, convert, and upload data to cubes that can be removed or updated to meet the requirements, again through Turbo Integrator processes. In this chapter we will cover how TM1 is compatible with different types of databases. We will also learn how to create Turbo Integrator (TI) processes, download, delete, and maintain business-specific data in cubes and models. We will use the same example of demos and expand the various objects that we have created so far. Downloading and maintaining data We will first look at the types of data sources that can feed TM1 models and cubes. Turbo Integrator can download data from: ff ODBC ff Text files ff TM1 views and sizes ff CDBO (used with Microsoft Analysis Services) ff SAP original tables through RFC function module RFC (remote call function) is owned by SAP AG AG to communicate between SAP and other SAP or third-party compatible systems through TCP/IP or CPI-C connections. Remote feature calls can be associated with SAP software and ABAP programming and provide an opportunity for an external program (written in languages such as PHP, ASP, Java, or C, C) to use data returned from the server. Data transactions are not limited to receiving data from the server, but can also be inserted into server records. SAP can act as a client or server when calling RFC. Data can also be entered manually through: ff Direct type in cells, copy-paste data distribution data can also be entered through the processing sheet of DBSS functions. Sheet processing is a customized Microsoft Excel sheet used to download data in a cube. The tm1 sheet features return numerical or string value and can be used anywhere on the Excel sheet. To access these features in Excel, select Insert Feature from the Excel menu bar or click on the Excel toolbar. Data in numerical cells can only be entered at sheet level, which eventually folds to form higher level data points for aggregated items. For line cells, data can be entered at all levels. 108 Chapter 4 Downloading data using The Turbo Integrator Processes In the recipe we'll see exactly how the data is uploaded to the cube through the TI process. TI processes are neither case-sensitive nor space sensitive. The steps associated with downloading data through TI processes are: ff Connection to the source and preview data ff Creating and displaying variable content ff Cube Definition, size, and measures ff Saving and executing the TI process In this recipe we will see how the data from the ASCII file can be downloaded to the cube. Get ready to make sure the TM1 Admin service is up and running. DemodataTM1 Server is to be launched and Server Explorer is up in TM1 Architect. Create price and cost.csv in Microsoft Excel and save as .csv. 109 Download and maintain data How to do it... 1. Run the demods server and open the Server Explorer window as shown in the following screenshot: 2. In the Server Explorer window, click on the Processes button, click on the Process Creation and click on the text to open the Turbo Integrator window. 3. In the Turbo Integrator window, in the Data Source Name dialog, click on Browse and point to the price and cost.csv to open the file. The Type 1 Title Number field indicates that the first line in the text file contains descriptive information about the data. Click on preview to see first lines in the source. 110 Chapter 4 4. Click on the Variable tab. Here, variables must be defined to read from the source. Identify variables that correspond to different fields in the data source, as shown in the Screenshot: 111 Download and maintain data in the previous context, if the column name is reserved for the TM1 or contains space, it will be replaced by Vx. Also, pay attention to the Content for each variable, which determines whether a particular variable contains a specific variable that corresponds to an element or data point in the cube. In other words, the content property is set to the item when values are used to identify an item from a measurement, and is set on data if the values are actual data that will be stored at the intersection. In this example, cost and price are data, and everything else is an element. Note other options that further define non-leaf consolidated elements or attributes. Therefore, in previous steps, we have identified a variable for each dimension. Measurement sizes are displayed with data, as shown in the following screenshot. 5. Click on the Map tab to match the variable with the target cube and select Update Cube for Cube Action. Other Cube Action: Create a cube Create a new cube to recreate the cube to destroy and recreate the Cube No Action Action No. 6. Since we already have Price_and_Cost cube, we will simply select the existing measure and update the cube, as shown in the following screenshot: 112 Chapter 4 7. Click on the Dimensions tab to match the variables because it contains a numerical element. In case we plan to upload these lines to the cube, we had to select a line. In our case, we choose Numeric because we only download numerical data in a cube. For example, if we had another line element in Price_Cost_Measures called Comments, defined as a cube part, we would define the item type as a string. We use dimensions for the variables map to the measurement elements. The type of item directly corresponds to the type of element of the measurement elements. For example, vProduct corresponds to Product Measurement Elements that have numeric elements (each product element may have numerical value at the intersection of the cube), hence the item type is configured to numeric. 9. On the Data tab to compare the values of the data Price_Cost_Measures measurements. For vPrice, click on the arrow under the item to open the subset of the editor. Select the unit cost for the price. 113 Downloading and maintaining data 10. Similar map vPrice to the sale price of the unit in the subset of the data. 11. Click on the extended tab and click on Prolog, Metadata, Data, and Epilog to create scripts. Generated scripts are a direct result of variant variants the user chose the Master in Turbo Integrator. These scripts work in the backend to convert and transmit data. These scripts can also be edited and handwritten as needed, in accordance with the features provided in the TI module. Documentation for TI operations that can be used for authors of such scripts is available in the Help menu. We will enter such manual scripts, with the participation of handwritten scripts, later in the book. 114 Chapter 4 12. Click on Save and in the name box name like LoadPriceAndCostCSV and click on OK. 13. Click on Run and as soon as the process is completed close the Turbo integrator. 14. In the Server Explorer window, double-click on the Price_and_Cost to open the Cube Viewer, as shown in the next screenshot. Select the default view from the fall and click on Recalculate to view the data in the default view. Also, because the view is the default view, it should be automatically downloaded when the cube is double-pressed into Server Explorer. The use of formulas in Formula variables are used in variables: ff To convert the type of data ff For seat holders for data not present in the source ff To combine elements ff To extract only part of the data for the item There are a number of features available for use in TI. Check out TM1 Function to understand the list of features. 115 Downloading and maintaining data readiness ensures that TM1 Admin starts running. The TM1 demod server must work, and Server Explorer must be open in TM1 Architect. Create an Excel file called SalesPlan2.xls, which will be used as an ODBC data source to download the sales plan.com.based. Note the number of columns and sample data. There are 11 columns in the Excel file. The column names and data types are shown below: Column name Data type Subsidiaries Text Channel Text Product Type Text Version Text Staff Text Order Date Number Quantity Number Cash Discount Number Volume Discount Number Freight Number ReturnsandAllowances Number We will be loading Order Date which has month numbers in it. In our measurement of months we have the names of the months; We will be adding aliases of the month number to the measure of the months. 116 Chapter 4 Create an Excel file as discussed with sample data, as shown in the previous screenshot, in the Microsoft Excel interface. Select all the data content in Excel, click the right button and select The Name of the Range. Enter the sale for the name, select Workbook for the area, and click on OK. Save and close the Excel sheet. This will determine the range in Microsoft Excel to be used as a database named in the TI process. 117 Downloading and maintaining data How to do it... 1. In the Server Explorer window in TM1, the architect has the right mouse button for months and click on the attribute editing element. 2. From the editing menu in the attribute editor, click on Add New Attribute. 3. In the name box, enter MonthNumber and click on the warning. 118 Chapter 4 4. Enter the month numbers from 1 to 12 in the MonthNumber (Alias) column, as shown in the following screenshot. Re-write cell records if necessary. 5. Click on OK and close. 119 Downloading and maintaining data 6. Now from the Start menu, click on Run and lead odbccp32.cpl as shown to add DSN to existing SalesPlan2.xls. The exact steps may be different if the user is in a different environment. 7. Click on the Add button in ODBC Data Source Administrator to add the DSN system and select Microsoft Excel Driver, as shown in the following screenshot: 8. Click on the finish to open the ODBC Microsoft Excel Setup. 9. Choose SalesPlan2.xls and for the data source name type Sales_Plan. Choose the appropriate version and click on OK to add ODBC. 120 Chapter 4 10. In ODBC Data Source Administrator, the new added DSN system will be visible, as shown in the following screenshot: 121 Download and maintain data 11. In the Server Explorer window in TM1 Architect, click the right button on processes and select Creating a New Process to open the Turbo Integrator window. 2. Click on the datasource type tab, click IBM CognosTM1 and select from sales in the type of query. Click on Preview to show a couple of the first 10 lines from Excel. 12. Click on the variable tab. Choose on Preview to show the variable so that they relate to the sizes they are associated with. Identify the content for each variable according to the following table: Content description available for the TI process (even if the user chooses to write the code manually) but is not displayed on an item, attribute, or consolidation. Ignore is not available for the TI process and does not display an item, attribute, or consolidation. 122 Chapter 4 13. In the same Turbo Integrator window, under the Variable tab, click on the New Variable button. Rename the new variable to vMonth. 13. Click on the data in the Destinations section and click on the Assessment. 15. Click on the OK button to close. 123 Downloading and maintaining data 16. For the vMonth variable, select a line for a variable type and an item for content. Variables displayed on items or consolidations should be set on an item type line. 17. Click on the Map tab and then on the Cube tab, click on the Cube update. Click on the drop-off menu next to Cube Name and select Sales_Plan. Below Data Action click on the values As shown in the following screenshot: 124 Chapter 4 18. Click on the Dimensions tab to match the variable element with the Size. Because sizes have already been created, the Action column is set up for As Is. Check the table for the actual measurement values assigned to each variable item in the previous screenshot. Variable Measurement Child Channels Channel Channels vProducts Products Version vMonth Months (Data Variables) Sales_Plan_Measures 125 Download and Maintain Data 19. Click on the Data tab to determine the display for Sales_Plan_Measures. For each alternating data, click on the arrow under the item column and from a subset the editor select the appropriate elements, as shown in the following screenshot. 20. Click on the Advanced tab and click on the Prolog, Metadata, Data, and Epilog tabs. Save the process as LoadSalesPlanODBC and then complete the process. 21. Go to Server Explorer in TM1 Architect and click on the Sales_Plan cube. 22. Click on the default view with the drop and click on the conversion button, as shown in the following screenshot: 126 Chapter 4 23. If the default view is not configured, as shown in the video, arrange the dimensions and save as the default view, as shown in the following screenshot. 24. Close Cube Viewer. Chores TI processes can be scheduled to run during business hours. When planning, TI automatically creates routine work that will be scheduled. Either the chores or the TI process can be run on demand from the menu, depending on security privileges. There are no built-in features that allow the user to run the process or random work from the command line. However, this can be achieved by using the APITM1 to write your own program. Many of these utilities are available on the Internet with full documentation. A utility called TM1RUNTI. EXE is available with TM1 9.5.2 the latest hot fix that allows the user to complete the TI process from the command line. Responsibilities must be disabled during editing so that they are not performed during editing. Once editing is done, both duties must be renewed and can be performed on the scheduled date and time. 127 Downloading and maintaining data clearing data from the cube through the process In addition to downloading data, TI processes can be used for: ff ff Pure Data Moving Data from Cube to Cube Automatic Savings In this recipe, we will see how to clean the data from the cube using the Process Turbo integrator. How to prepare Make sure the TM1 Administrator service is up and running. The TM1 demod server must work, and Server Explorer must be open in TM1 Architect. How to do it... 1. Open the Server Explorer window in TM1 Architect. 2. Click the right button on the processes and select Create a new process. 3. On the datasource type tab, click IBM CognosTM1 and select Sales_Plan Cube View from falling down. 4. Click on the view... click, select demos:Sales_Plan and click on the conversion view... button as shown in the following screenshot: 128 128 4 5. View Extract pops up. Click on the OK button without any choices, by default, to select all the items. 6. In the TM1 Save View dialog, enter zDeleteAll and click on OK. 129 Downloading and maintaining data 7. In the Select View column, select zDeleteAll and click on OK. 8. Click on the preview and you should see the next screen: 130 Chapter 4 9. Save the process, as shown in the following screenshot: 10. Click on the Variable tab, then the extended tab and the Prolog tab. 11. The feature must be added to a generated script that will set all data values to zero in Sales_Plan cube. VIEW-1OUT is such a feature, below is the syntax: View's zeroOut ('CUBE', 'VIEW_NAME'); 12. Add the previous feature to the Prolog tab at the end of the generated script, as shown: View 'zeroOut',Sales_Plan'zDeleteAll'); 13. Save and execute the process. Once the process has been completed, close the Turbo Integrator window successfully. 14. Open the Server Explorer window in TM1 Architect and double tap the cube Sales_ Plan, as shown in the following screenshot. 131 Downloading and maintaining data 15. Open the default view from the fall in Cube Viewer and see if all the cells are set up correctly. 16. Close Cube Viewer. Data Accumulation In our load data from the ODBC example, Staff was an additional column in the Excel table, without the appropriate measurement. Typically, TM1 continues to rewrite the present value of the data for employees with the following incoming data value for staff. Thus, the value of the data in the cube after download will only matter to the last employee you download. This is because we have fewer measurements in the cube, then available columns in Excel. In an ideal scenario, values for different employees should accumulate, not correspond with each other. To achieve this functionality, we need to lift TI process to accumulate data instead of storing data, we will update the process LoadSalesPlanODBC accordingly. 132 Chapter 4 Prepare to Get started tm1 Admin. The TM1 demod server must work, and Server Explorer must be open in TM1 Architect. How to do it... 1. In the Server Explorer window, tap the right loadSalesPlanODBC button and click on Edit to open the Turbo Integrator window. 2. Click on the Map tab and check the accumulation values in the Data Action section as shown in the following screenshot: 3. In the Advanced tab, click on the Prolog, Metadata, Data, and Epilog tabs to change the main scenarios. 4. Click on the process to save and execute. If successful, close the Turbo Integrator window. 5. In the Server Explorer window, double-click on the cube Sales_Plan. 133 Downloading and maintaining data 6. Select the default view and click on Recalculate to view the data you're downloading. It works... Obviously, the data values are much higher than those Loaded. This is because this time we are accumulating data values for different employees after rewriting it. So this time we can see aggregated values, not the value for the last employee you've downloaded. Saving data All objects in TM1 are in memory until they are stored on the server. When the data server is turned off, the user is asked to save the changes. Ideally, there should be a process that works automatically after a fixed interval and saves all changes made. We will create such a process in this recipe. 134 Chapter 4 Prepare to make sure the TM1 Administrator Service is up and running. The TM1 demod server must work, and Server Explorer must be open in TM1 Architect. How to do it... 1. In the Server Explorer window, click the right button on the processes and select Creating a New Process. The process will save all the data, not just specifically for the cube or cube of vision. 2. In the Turbo Integrator, click on the extended tab. 3. Click on the Epilog tab and enter SAVEDATAALL; As shown in the following screenshot: 4. Click on the Schedule tab. 135 Downloading and maintaining data 5. Check the Process Schedule as a case called: and bring SaveAllData in the text box. For cry frequency set the process to start every 2 hours, as shown in the following screenshot. 6. Click on Save to save the process like SaveAllData. Close the Turbo Integrator window. 7. SaveAllData's processes and responsibilities are visible in the Server Explorer window, as shown in the following screenshot. 8. A new saved process or chore can be done by clicking right on the available menu. 136 5 Adding Business Rules In this chapter, we'll review: ff Creating Simple Rules ff Using rules to override aggregation ff Creating rules for sharing data between diced ff Creating a list of choices using the rules ff review of the rules sheet ff Doing custom calculations in the dimensional hierarchies Introduction In previous chapters we looked at the size, cubes, and ways to fill in business data for further analysis. The next and obvious step is to apply business logic to objects by implementing business rules and storing them in cubes. Application of Business Rules Guarantees: ff That the same version of computing is used by all users ff Application of custom calculations ff Reformatting business data ff Overriding hierarchical calculations ff Data exchange between cubes Adding business rules Most of the time, the rules are used to store or change data in target cube cells. Therefore, the first step involved in creating and implementing the rules is to determine the appropriate cell to store the values returned by the rule. The cube on which the rule is applied is then identified. The rules apply as to sheet level, as well as to consolidated elements. They can also be applied to string elements. Rules apply to cells in order therefore, more specific rules should be written before the general rules. Once the rule applies to the cell, TM1 stops looking for other rules that apply to that cell. The rules are stored in text files with .rux extension. TM1 provides two types of editor: the advanced rule editor and the simple version. In order to change the editor, the TM1p.ini file must be modified as follows: AdvancedRulesEditor-F/T for a simple editor/advanced editor TM1p.ini is at C: Documents and SettingsAdministratorDataApplix TM1 app for Windows, the installation of a single computer is discussed. Some folders in the previous path may be hidden and may need to be visible before the file can be located. In addition, the prospects should be closed (Server Explorer) if the user wants to change certain settings. For example, when nodes are visible, use the extended rule editor or not, and so on. In subsequent recipes, we will use the extended editor's rules, so the file mentioned above needs to be changed. We will use the same DemoData setup that we used for previous recipes, and we will create an additional cube called Rules to demonstrate concepts, in addition to existing cubes Price_and_Cost and Sales_Plan. Creating simple rules In this recipe we will create a cube and write rules for it. Get ready to make sure that TM1 Admin Server is up and running and TM1 Server demo is running. Enter tm1 Architect's demo data server. How to do it... 1. In the Server Explorer window, click the right button on Cubes and click Create a New Cube. 2. In the dialogue Making a Cube will enter the Rules for the name of the cube. 138 Chapter 5 3. Under the available sizes, double-click for months and Price_and_Cost_ measures to add them to the dimension on the new cube. 4. Click on the Create Cube button. 5. In the Server Explorer window, under the cubes, double tap the Rules cube to open in Cube Viewer. 6. On the recalculation to show the cube. 7. The Cube Viewer extend months to display data as shown in the following screenshot. 139 Adding Business Rules 8. The following screenshot shows the Advanced Rules editor provided by TM1 to write the rules. It has all the necessary existing functions as a text editor, such as a backline, undo, redo, delete, cut, copy, paste, and so on. 10. Click on the brackets after the screenshot: and then Price_and_Cost_Measures as shown in 11. It will open a subset of the editor, from here you can choose one of the measurement elements designed for the target cell. Choose the sale price of the unit and then OK to display the text as shown in the following screenshot: 12. At the end of Line 1, Type 1; As shown in the following screenshot: 13. In the Rules Editor all must end in a colonial. All numbers appear in red and all lines are in blue. All lines must be enclosed in single quotes. 15. Click on the check syntax icon to highlight any syntax errors. 16. Try checking on the syntax of the bug by removing the oconelon in the first line and clicking on the check syntax icon. 140 Chapter 5 17. The previous step would be ignoring an error message, as shown in the following screenshot: 18. Replace the column to fix the bug, and click again on the check syntax icon to make sure there are no bugs in the script. 19. Click save. 20. In the Cube Viewer window for the Rules window, click the Recalculat button to show the updated data. 21. All cells corresponding to the unit sale price are set at $1.00, redefining any consolidation applied. 22. Click on the rule editor. 141 Adding Business Rules 23. Remove the sign and click on the Insert qualifier button or operator on the toolbar, as shown on the button. Click on N. 24. Line 1 should now look like this: 25. Click on the check syntax icon and click on Save. Previous modification ensures that rule applies only to sheet-level elements and that consolidation works as needed. 27. Click on Cube Viewer and recalculate to show the changed data. Please note that only sheet level cells have been changed to $1 at the unit sale price. These elements of leaf level are aggregated as before to form elements of the consolidated level. 142 Chapter 5 28. Note the color of the calculated cells, which includes consolidated cells, gray indicating that values cannot be manually entered for them. Cells that are controlled by rules do not accept data entry. 29. Click on the rules editor. 30. On the first line, click after the oconelon and type C20; The first line is: 32. This will provide a set of sheet level items up to 1 and a consolidated level of consolidated items for the unit sale price set to 20. Again, this will redefine the default consolidation, which is obvious when the Cube Viewer window opens and the data is recalculated, as shown in the following screenshot: 143 Adding Business Rules 33. Click on the Rules Editor window and enter the following statement on the second line: 34. The above rule is a more specific rule than in line 1. The rule sets the sale price of all cells identified in the first quarter and the unit sale price up to 7. 36. Click on the check syntax icon and then save. 37. Open the Cube Viewer window and count. Please note that the data does not change because we have made a more general statement before a specific statement in the Rules editor. In connection with the order The sale price of the unit) cells have already been changed in Rule 1; therefore, Rule 2 does not affect this. 39. To change the cells (No.1, unit sale price) to 7, apply the rule to the current rule 1 and change the order, as shown in the following screenshot: 40. Check out the syntax and click on save. 41. Open the Cube Viewer window and click on the The Recalculate. 144 Chapter 5 42. In the previous case, TM1 had already applied the rule to cells (No.1, unit sale price), so TM1 ignores any other calculations applied on the same cell afterwards. Therefore, more specific rules should be applied to the common ones. Save the view as the default view. 44. Close Rule Editor and Cube Viewer. 45. Go to the Server Explorer window. 46. Expand the Rule Cube and double-click on the Rule Icon Editor. Open Rules 47. On line 3, click the bracket icon, double-click on the Price_and_Cost_Measures, and select Comments from the editor's subset. 48. Outside the bracket, click on the Insert qualifier or operator icon and click on S. 49. Winter after S: as shown in the following screenshot: 145 Adding Business Rules 50. Click on the check syntax icon, save and open the Rules editor in Cube Viewer. Recalculate to see the latest data. 51. Go to the rules editor to add logic to fill Winter/Summer depending on certain terms of the unit sale price. 52. In the Editor's Rules on Line 3, remove Winter and add the following logic: 53. The previous rule is expected to return in the summer if the condition is correct, otherwise Winter. The overall syntax will be: IF (Condition, Result_on_true,Result_on_false) 54. Check the syntax, keep the rule. Open Cube Viewer and count on Recalculate to see the latest data. 146 Chapter 5 55. The next step would be to eliminate no.1 from the rule with the STET command. To remove the area from the rule, we use the STET command just before no.1. 57. STET is a syntax for STET. 58. In the Rules, the editor to make changes, as shown in the following screenshot: 59. Check out the syntax, save and open Cube Viewer. 147 Adding business rules 60. Because the rule did not apply to cell number 1, it is shown in white. 61. Close the Rules Editor and Cube Viewer without any change in the cube view. How it works... In this recipe, we created a cube and added rules to it with the help of the Editor Advanced Rules. These rules take effect when the user views the cube and the data is settled accordingly. We have just written Business Logic to copy static values in the unit sale price and a conditional application to fill out a comment on a cube. Using the rule to override aggregation rules can be used to override the default aggregation rules applied to sheet level elements when they are folded for consolidated measurement items. In this recipe, we will develop the concept of using the existing demodata installation, where we want to add elements to calculate the average price at sheet level. At the consolidation level, we want to create an average by calculating the level of the sheet. Get ready to make sure TM1 Admin Server is up and running. Enter tm1 Architect's demo server. Instructions Instructions This is... 1. Open the Server Explorer window, click the right button, and select the editing measurement structure to open the measurement element insert. 148 Chapter 5 3. Add two new simple items after Margin%, as shown in the said element to open the measurement element. 5. Open the default view Price_and_Cost cube. 6. Swap Price_Cost_Measures (displaying unit sale price). 7. Click on the Price_Cost_Measures to open in a subset of the editor: 8. In a subset of the editor click on the Everything icon, Ctrl and click on the said items UnitPrice_graph, UnitPrice_Hold, right click and select Keep from the options menu. 9. Click on OK. 150 Chapter 5 10. In Cube Viewer, click the Recalculation to fill in the data. If you don't have data in the cube, follow the LoadPriceAndCostCSV process in Chapter 4 and then take the previous steps. 11. Expand CAMPING EQUIPMENT and the Cube should be displayed, as shown in the following screenshot: 12. Save the view as AverageRule by clicking on Save As from the file menu. 13. Close the Cube Viewer window. 14. In the Server Explorer window, tap the right button on the Price_and_Cost and click on the creation rule to open the extended rule editor. On Line 1, #Hold unit sale price to calculate the average price. Points out that the rest of the line is a commentary and is useful for documentation purposes. 16. Click Enter to add another line. Click on the brackets and then double-click Price_Cost_Measures to open the subset editor. Select UnitPrice_Hold and click on OK to return to rule editor. 17. Click on the right and then select , click on the icon Insert qualifying or operator 151 , Adding Business Rules 18. Click on the brackets and then double-click Price_Cost_Measures to open the subset editor. Choose the sale price of the unit and click on OK to return to the rules editor. 19. Bring the Editor to finish the line, as shown in the following screenshot: 20. Click on the check syntax icon and correct any errors. 21. Open the AverageRule view for the cube Price_and_Cost and click on Recalculate to display the data shown in the following screenshot: 22. The UnitPrice_Hold column contains the same values as the Unit Sales Price column. The reason why we want to calculate is the number of items that are factored into the unit sale price. 23. In the rule editor on line number 3, click on the brackets and double Price_Cost_ measures. 24. Click on the UnitPrice_Count and then click on OK. 25. After the N- bracket and on the insert function icon. 26. The service insert dialogue opens, as shown in the following screenshot: 152 5 27. To select a category, click on Logical and select the feature, click on IF, as shown in the said. Click on to continue. 153 Adding business rules 28. The previous step will create an IF condition that would UnitPrice_Count with non-zero unit sales values. 31. Recalculate the AverageRule view and mark the values in the UnitPrice_Count column. 154 Chapter 5 32. So, for sheet level items, the unit sale price is really the price of the unit. For consolidated items, this is actually the sum of the sheet level unit sales price, which is wrong. We are really interested in calculating the average unit sale price for consolidated items. In the next stages we will calculate the average unit price by applying the rule. 1. In the Rules, the editor on line 4 click on the brackets, double-click on the Price_Cost_ and select the sale price of the unit. 2. Click outside the bracket and re-enter no.12. Click on the brackets and double-click on the Price_Cost_Measures. 4. Click on UnitPrice_Hold and OK to return to the rule editor. 5. Tap to the right of the last square bracket and in the next. 1 that indicates a division where the division by zero is replaced by 0 / can be used for normal division where divided into zero NA returns. 7. Now click on the brackets, double Price_Cost_Measures and select UnitPrice_ graph. 8. Click OK and enter the column at the end to come to the rules as shown. 9. Check the syntax, save the rule and recalculate the AverageRule view. 155 Adding Business Rules 10. Please note the average unit sale price per capita in the unit sale price column. Close the Extended Rules editor, and close it. How it works... In this recipe, we re-edified the default aggregation rule to make the average of sheet-level items instead of the amount. We wrote the rules for this and used the IF statement to apply business logic. There's more... The function in the rule can be used for: ff Reformat data ff Combine data ff Do logical operations ff Cell data share in the current cube can be a reference to the name of the item in brackets. To refer to cells in the current cube or on cubes, the DB function can be used in the following form: DB ('Cube_Name', 'Dimension1','..Dimension2'.....'Dimension N') The name of the item or the name of the cube can be specified in individual quotes. The current measurement element can be referenced with an exclamation point (!) preceding the measurement name. Note that the size order should be the same as in the Server Explorer tree. For example, the code refers to a cell that corresponds to a cube Price_and_Cost, the current channel measurement element, the TOTAL element the current measurement element, the Months, the current version measurement element, The Versions, Element Unit Sale Price. DB ('Price_and_Cost', ! Channels,'TOTAL PRODUCTS', ! Months! versions, 'Unit Sales Price') 156 Chapter 5 Creating a rule for sharing data between cubes In the recipe we'll see how the data can be shared between the cubes. Get ready to make sure TM1 Admin Server is up and running and the TM1 Server demo is running. Enter tm1 Architect's demo data server. How to do it... 1. In the Server Explorer window, open the default view Sales_Plan cube. 2. Select a sheet level item for each dimension, such as: GO AMERICAS REGION department store, Cooking Gear, a budget version of 1 3. Click on Recalculate to view the data as shown in the following screenshot: 157 Adding Business Rules 4. In the Server Explorer window, open the default view Sales_Plan cube. 5. On the first line in the Rules Editor click on the brackets and double click on the Sales_Plan_ measures to open the subset of the editor. Choose the sale price of the unit and click on OK to return to the rules editor. 6. Click to the right of the last square bracket and then click on the Insert icon on the toolbar. 10. All cube sizes are displayed in the Insert Cube Reference dialogue. The links that will be used in the DB feature appear in the Link column. You can choose a certain item by clicking on the subset icon. 13. In a subset, the editor click on the subset icon. 13. In a subset, the editor click on the sale price of the unit and click on OK to return, as shown in the following screenshot: 158 Chapter 5 14. Click on OK and bring in the co-ordn at the end. 15. On the subset of the editor of the following line in the next line in the next line: GROSS SALES REVENUE (number); 16. The result will look like this: 17. The first rule will pull the sale price of a unit from a cube Price_and_Cost at N: while the consolidated levels will calculate the unit sale price based on gross sales revenue divided by quantity, and will not be aggregated at consolidated levels. 18. Check the syntax and keep the rule. 159 Adding Business Rules 19. Open Cube Viewer and click on Recalculate. Please note that the value for the unit sale price is currently in the cube. 21. Save the view as the price and close the rules of the editor and Cube Viewer. In the previous screenshot, the values for the unit sale price are gray and cannot be manually changed using Cube Viewer. How it works... In this recipe, we demonstrated how we can share data between cubes using the DB and writing with business rules. Consequently, the same data should not be duplicated and ensures that only one version of the same data is available in different applications, preventing inconsistencies. 160 Chapter 5 Creating a selection list using the rule list of choices can be populated by rules on cube management. The Control Cube is an internal TM1 object used to store metadata about a model such as security, attributes, Cuba's selection list, etc. and control sizes are hidden by default. They are preceded by a right curly brace (me). The selection list control cube consists of the same dimension as the regular cube with which it is associated, along with an additional dimension called the Choice List. Measuring the selection control cube consists of one item of a line called Value. Get ready to make sure that TM1 Admin Server is up and running and the TM1 Server demo is running. Enter tm1 Architect's demo data server. How to do it... 1. In the Server Explorer window, open the Price_and_Cost and expand the protection outdoors. 2. Click to expand the price Comment view. 2. Click on the right button on the Price_and_Cost and open camping equipment. 161 Adding Business Rules 4. In the Server Explorer window, click on the menu from the toolbar and click on the display controls. Control objects can be identified by braces. 5. Click the right button on the Price_and_Cost and open camping equipment. A cube is created, as shown in the following screenshot: 7. Double click on the cube PickList_Price_and_Cost to open in Cube Viewer. 162 Chapter 5 8. Arrange the cube, as shown in the following screenshot: 9. Click on the value for the repellents insects and bring the following: Static: :June:Jul:Aug:Sep 163 Adding Business Rules 10. Please note that the syntax to indicate the selection list by entering the cells with values that will remain the same as before: Static: Value1:Value2......... ValueN subset: Dimension_Name:Subset_Name Measurement: Dimension_Name 11. Click on Recalculation. 12. Click on the price commentary Price_and_Cost and then recalculate again. 13. Click on OUTDOOR PROTECTION to expand. 14. The cell for January to display the selection list as shown in the following screenshot: 15. Click on August from the selection list as shown. 16. Click on other cells and the selection list attribute is still valid. However, using the rule to fill the selection list will redefine the attribute. 164 Chapter 5 17. Tap the right button PickList_Price_and_Cost and then click on the creation rule to open the extended rule editor. On Line 1, click on the brackets and then double-click on the brackets. 19. Ctrl +Click on the following items and click on OK. %%% CAMPING EQUIPMENT %%% GOLF EQUIPMENT %%% MOUNTAINEERING EQUIPMENT %%% OUTDOOR PROTECTION %%% PERSONAL ACCESSORIES 20. Click on the Insert qualifier or operator and then button S. 21. In the next one after S. (Subset:Months:Months); 165 Adding Business Rules 22. Spaces and linear channels can be in the rule editor to improve readability, as shown in the photo, and the selection list showing 12 months becomes visible as a list of comments. Close the view and save the changes. 26. Close the PickList_Price_and_Cost and do not save any changes. 27. In the Server Explorer window with the off the display controls from the View menu. 28. Close TM1 Architect and any other open windows. 166 Chapter 5 How It Works... In this recipe, we've added a selection list to make sure the cube always has valid data for the cells for a specific selection list. This deduces the risk of typical errors during manual diced data entry. 167 Adding Business Rules Is Ready to Ensure the launch of TM1 Admin Server and the launch of the TM1 Server demos. Enter tm1 Architect's demo data server. How to do it... 1. With TM1 Administrator and DemoData Server launched, click on The Start of All IBM CognosTM1 programs and click on Perspectives for MS Excel as shown in the following 2. Click on Enable Macros if asked. 3. In Microsoft Excel, click on Connect from the TM1 menu. 4. Enter user credentials, as shown in the Screenshot: 5. From the TM1 menu, click on the Rule New icon and click on the demo:Rules as shown in the following screenshot: 168 Chapter 5 6. Rules.xru opens with a wide column A. Only statements posted in column A. Other columns can be used for documentation purposes. 7. Rules created in the rule editor will not appear. The rules of the sheet are read and written into .xru files. Therefore, either a rule editor or a rule sheet should be used to create rules for the cube. Both editors should not be used for the same cube. 8. All rules must be written in Column A in the same format as the Advanced Rules editor. 9. The Rule Save icon from the TM1 menu should be used to save the Rules sheet and save the .xru file instead of saving it. 11. Close MS Excel. 169 Adding Business Rules How It Works... In this recipe, we discussed the Rules tables, which can also be used to maintain the Rules in addition to the rule editor. Any of them should be used to write the Rules. The use of the rules sheets has become non-existent these days. Users prefer to use a rule editor. By doing custom calculations in the dimensional hierarchies In this recipe, we will determine the rule calculation that gross MARGIN will calculate based on NET SALES REVENUE and COST OF SALES. Get ready to make sure that TM1 Admin Server is up and running and the TM1 Server demos is running. Open tm1 Architect's demo data server. How to do it... 1. Open DemoData project and keeping TM1 running smoothly. 2. Open TM1 Architect and then Server Explorer. 3. Right to press the Sales_Plan_Measures size button and click on the editing measurement structure. 170 Chapter 5 4. In the measurement editor, click NET SALES REVENUE and then click on the Edit menu. 5. Click on OK. 6. Tap GROSS MARGIN and then from the Edit menu click on the paste as a rule. 171 Adding Business Rules 7. Repeat previous steps to insert COST OF SALES as a GROSS MARGIN baby. 8. Right Click COST OF SALES and click on The Properties Element. In the Element Weight -1 field, click on OK. By default, consolidations are summing up, but by putting weight as -1, subtraction occurs. 9. Click on OK. 10. GROSS MARGIN WILL BE CALCULATED/CONSOLIDATED AS NET SALES REVENUE (-1) - COST OF SALES OR NET SALES REVENUE - COST OF SALES. 11. Change the CSV and download data for NET SALES REVENUE and COST OF SALES so that the data is populated for these two elements. See if the correct data for GROSS MARGIN is calculated. 12. The same could be achieved by writing rules on the cube, but consolidation is always much faster than the rules of processing, hence the application of custom consolidation is a much more effective way than writing rules for it. 13. Click on Save Same close the measurement editor. How it works... In this recipe, we created a custom calculation that gross MARGIN calculated based on NET SALES REVENUE and COST OF SALES. Similarly, the user can add user calculations to the measurement hierarchy, which is useful for implementing business logic as a whole. 172 6 Automation of data download processes using scripts In this chapter we will cover: ff Download data from multiple columns into one column ff Creating measurement and subset in Turbo Integrator ff Creating measurements with an uneven/unbalanced hierarchy of ff Export data in ASCII Text using Turbo Integrator ff Moving data between versions of ff Moving data using scripts and settings we will use advanced features of Turbo Integrator and use logic in TI scripts to download user data to the cube. We will also focus on moving data between versions and data exports to ASCII. Finally, we will build housework to plan a process, or a chain of processes. Introduction As explained earlier, Turbo Integrator is an ETL tool (mining, transformation and download) in TM1. It can be used to create, sizes, cubes and to fill cubes from a variety of data sources. Automation of data download processes through Scripts TI processes can also be used to record data in ODBC data sources and export data to ASCII files. Various TI functions and TM1 rule functions can be used with TI MODALS to achieve conditional data processing and metadata. Each TI process consists of four additional procedures that are performed before and after the actual source of the data is processed by TI processes. By default, these four additional procedures are generated and contain code that is automatically generated by TM1. However, additional features can be added to achieve the desired setting when performing TI processes. These four procedures are generated sequentially and can be reviewed and edited in the Advanced Tab of TM1TI module. Options and features can be added to these procedures that make TI processes flexible in accordance with different data download scenarios. However, any settings must be added outside the reserved area. These four procedures:

Procedural title Description Prolog Contain a number of actions that must be performed before processing the data source. Metadata contains a series of activities that update or create cubes, sizes, and other metadata structures. Epilog Procedure is performed after the data source has been processed. Options Set settings can be used to summarize the process so that it can be used in a variety of A few things that can be achieved with the TM1 module and script settings are: ff Process Schedule to run periodically ff Create subsignms of manual ff Extract data from the view and to another archive ff Cube 174 Chapter 6 Download data from multiple columns into one column In this recipe we will populate data from multiple columns into one column using the TI process. Get ready to make sure the TM1 administrator service is up and running. Start the demo server TM1 and open Server Explorer. How to do it... 1. Tap the right button on sizes and click on Creating a New Dimension to open the measurement editor. 2. From the Edit menu, click on the Insert Element. 3. Add the following measurement elements by clicking on Add after each one. Proceeds from the sales of the Commission_hold Commission_count 4. Click on OK and keep the size as Commission_Measures. 5. Close the window. 6. Go back to the Server Explorer window and tap the right button on Cubes. 7. Click on the creation of a new cube and name the new cube as commissions. 175 Automation of data download processing using scripts 8. In the list of available measurements, double tap the sizes shown in the following screenshot to move them to the new cube: 9. Click on Create Cube and return to Server Explorer. 10. Tap the right button on the commission cube and click on the creation rule. 11. On Line 1, SKIPCHECK Type. SKIPCHECK and FEEDERS are widely used in IBM Cognos TM1 to optimize rule performance. They should be written while the rules are written. We will discuss these concepts in later chapters. 176 Chapter 6 12. The next step is we'll be pulling data from the Sales_Plan cube commissions cube. 13. Click on the brackets and double-click Commission_Measures to select the measurement measurement. 14. Click on gross sales revenue to select an item and click on OK. 15. Click on the I button and click on the Insert Cube Reference link, and then click Sales_Plan in the cube list. This is a link to Sales_Plan cube. 16. Click on the subset next to the channels, click on ALL CHANNELS to select an item from the subset of the editor, and then click on OK. 17. Repeat the previous step with the following: Products, click on TOTAL PRODUCTS Sales_Plan click on GROSS SALES REVENUE 18. Click on OK and go back to the rules editor. 177 Automation of data download processing using scripts 19. On line number 3, click on the reference; At the end. 20. On the next line, click the bracket and then double-click on the Commission_Measures. 21. Click on the Commission_hold and click on OK. 22. Click on the brackets, double click on the Commission_Measures click on the Commission%. 24. Click on OK and enter the space; At the end. 25. In the following two lines, the following are to calculate the average percentage of commissions at the consolidated level, as shown at the level. Line 5 indicates that if the Commission'%% is not zero, 1 other to 27. The next line actually calculates the average with the use of forward slash, which, as previously explained, will assign zero to the Commission if zero. 28. On the next type of line, as shown. 29. The following lines are the following. We'll discuss SKIPCHECK and FEEDERS, which are used to optimize the performance of the rules in the Rule Performance Optimization chapter later. 30. The entire piece of code will look like the following screenshot: 178 Chapter 6 31. Check the syntax, save and close the rule editor. 32. Create Commissions.csv, as shown in the photo, and put it on the following path C: Program Files-cognos-TM1,Custom-TM1Data TI_Data. 33. In the Server Explorer window, tap the right click on the processes and click on the Create a New Process button. 179 Automation of data download processes using scripts 34. This will open the Turbo Integrator window. Enter the Commission.csv, created above, as shown above. Please note that the number of title entries has been set to 1. Click on the preview to view sample records. 36. Click on the Variable tab and set the settings, as shown in the following screenshot: 37. In the above pictures for the subsidiary, version and commission, in the content column The Item was selected. 38. From January to December, the Nimmeric column selects Numeric and selects the Contents column data. 180 Chapter 6 39. On the Map tab, for Cube Action click on the Cube Module and select the Cube Commissions as the name of the cube. 40. In the Dimensions tab, in addition to each element, the Variable click on the appropriate measurement, as shown in the following screenshot: 181 Automation of data download processes using scripts 41. Click on the data tab. In the Element column select the subset of the editor, January to December are relevant values in the data variables. 42. Click on the extended tab and click on the Prolog, Metadata, Data, and Epilog tabs to create scripts. 43. Save the process like LoadCommissionPctCSV and then click on Run. 44. Click on OK to close the Turbo integrator and return to Server Explorer. 45. Open commissions cube and click on the recount. 182 Chapter 6 46. Close the Cube Viewer without retaining the view. 47. In Server Explorer, tap the right button Commission_Measures and then click on the editing element attributes. 48. In the attribute editor, select gross revenue from sales and commission and click on the format. 183 Automation of data download processes using scripts 49. Click on the currency and click on OK twice to close. Return to Server Explorer. 50. Double click on the commission cube and click on the recalculation. 51. Close Cube Viewer without saving. How it works... In this recipe, we settled the gross revenue from sales in the commission cube from the relevant column to Sales_Plan using TI processes. Creating a measurement and subset in Turbo Integrator In addition to downloading data, Turbo Integrator along with features can be used create and update the measurement in terms of its hierarchy, elements, attributes, and sorting order. They can also be used to create, upgrade and destroy the subset for measurement. Start Make sure the TM1 Admin Server service is up and running the demodataTM1 server. 184 184 6 How to do it... 1. Open the Server Explorer window. 2. Click the right button on the processes and click on creating a new process. 3. In the Turbo Integrator, select C: CognosTM1Custom TM1DataTI_Data'Products.csv, as shown in the following screenshot: 4. Please note that the number of headline entries is empty. Click on the preview to view sample records. 5. Click on the variable tab and update as shown. 185 Automation of data download processes using scripts 6. The content column for the three variables was tuned to others. The previous step was also found, as shown in the previous screenshot. Other variables are available for TI processes, but do not require that the display be listed in the Map 8 tab. Click on the extended tab, click on the Metadata, and then, after the operators are generated, add the following: IF (SubsetExists ('Products', vProductType))))) SubsetSize ('Products', vProductType); ENDIF; 9. Previous operators check whether this subset (indicated vProductType) exists in this dimension (Products). If not, it will create a specified subset (vProductType) for the specified measurement (Products). 10. You can check online help for various features and syntax. 11. On the next line after ENDIF; Here's how it goes. TM1 is a case insensitive, hence the case of the entered statements will not make any difference. SubsetElementInsert ('Products', vProducts.0); 12. The previous statement inserts elements (indicated by vProducts variables) into the corresponding subset (indicated by variable vProductType) for this measurement (Products). 0 indicates the first position in the index. 13. The statements received are shown in the following screenshot: 14. Save the process as CreateProductType_subsets, start the process and then close the Turbo integrator. 15. Go to server Explorer and open the products. 16. Click on select Subset to view a subset created within the above TI scripts. 186 Chapter 6 17. Close the subset of the editor. In previous phases, we have created measurements in each type of product under the TI scenario. Please note that the subsets and semantics of the various functions available under TI and Rules may differ. The online help must be passed on to the details of each feature and syntax. Measurements are also available in the help toolbar menu TM1. How it works... In this recipe we have seen how with the help of TI functions, sizes and subsms can be created and saved. We also checked whether the TM1 object that will be created already exists or not, and missed the creation phase if the object already exists. 187 Automation of data download processes with scripts Creating measurements from THE TI hierarchy can be used to convert data before it is uploaded to a model. Some examples of such requirements will vary in the type of data, downloading only the relevant portion of the raw data, data, uneven/unbalanced hierarchy and so on. From now on, we will use the term uneven hierarchy as a synonym for an unbalanced hierarchy. An uneven hierarchy occurs when the relationship between parents and children in a particular dimension may vary from case to case. Consider the measurement case that the data in the Subsidiaries Region organizes. In some cases, there is only one subsidiary for the region and therefore the parent has no subsidiaries. This dimension is a classic example of uneven hierarchy. In this recipe we will see how such hierarchies can be processed in TI processes. How to prepare Make sure that the TM1 Service Administrator is running and the TM1 demo data server is working. How to do it... 1. Create a CSV named UnevenSubsidiaries.csv, as shown in the following screenshot: 188 Chapter 6 2. Place CSV on C: File programcognosTM1 CustomsTM1Data TI_Data. 3. Open Server Explorer window and right click on processes and then create a new process. 4. In the Turbo Integrator window, select text for Datasource type, provide a CSV path, and click on Preview to view the sample data shown in the following screenshot: The previous V1 and V2 screenshots are the same for many subsidiaries. TM1 requires that the items (sheet level or string level) be unique, otherwise TM1 creates sizes, and parents do not have children's objects. Two ways to solve this duplication problem are by manually changing CSV and creating a Turbo Integrator process to create an uneven hierarchy. In the next stages, we'll create a TI process that doesn't involve duplicates, and then we'll fix the process. 189 Automation of data download processes with scripts 5. Click on the Variable tab and set the following: Rename V1 as vSubsidiary to rename V2 as vRegion q rename V3 as vTotalCompany Install content, as shown in the photo. 6. Under the cards, in the Dimensions tab, in the way of the UnevenSubsidiary in the Measurement column, as the name of the measurement. Set the order of the items along the hierarchy by clicking on the Input button and then on the automatic and hierarchical option. Click on OK to close. 7. Click on the Consolidation tab and other than vRegion under the child variable click on vSubsidiary, and then except vTotalCompany click on vRegion. Tap the Input buttons to match the Component Order and set the automatic variety by name, as shown in the following screenshot: 8. On the extended tab, click through the Prolog, Metadata, Data, and Epilog tabs to create the appropriate scripts. Save the process as CreateUnevenSubsidiaries and start the process. 9. If an error message appears, click on YES to view the log file. 190 Chapter 6 10. Double click on the front row and it shows that the circular indicating that the elements at sheet level are not unique. 11. Close the log file and leave the TI open. 12. In Server Explorer, double tap at The UnevenSubsidiary, according to the size of The UnevenSubsidiary, and then click on the all icon and then click on the Hierarchy Sort. As a result, as shown in the following screenshot: GO America and GO Asia Pacific had to be created at elements of leaf level because they do not have children. Instead, they were created as consolidation without children and therefore the data cannot be downloaded to them. Now we will edit the process to cope with this duplication. 14. Save a subset as Subset1 and close the subset of the editor. 15. Open the TI CreateUnevenSubsidiary process and tab the Maps, click on the Dimensions tab and change the action to recreate. Because the measurement has already been created, we can't make any changes to the process until We've done Action as Recreate. 16. On the extended tab, click on the Prolog tab. 191 Automation of data download processes using scripts 17. Copy everything between Begin and End and insert it outside the script space generated. Tap the right button on the script space generated, allowing you to copy and paste. 18. Click on the Metadata tab and repeat the previous shown in the following screenshot: 19. Click on the Variable tab and then change the Content column for all variables to others, as shown in the video. 192 Chapter 6 20. Click on Advanced and then on the Prolog tab. The generated script should look like the following screenshot: 21. Click on the Metadata tab and the script generated should look like the next screenshot: Now we'll add if a statement in the Metadata scenario to test whether vSubsidiary matches vRegion or not. If so, TI should generate only a two-tier hierarchy, otherwise it will generate a three-tier hierarchy. Multiple ELSEIF operators can be added in case we want the same logic to be larger than the two-tier hierarchy. 22. Once the operators are generated in the tab, the following will be inves. IT (protected email); #Create the three-tiered dimensionELEMENTINSERT hierarchy ('UnevenSubsidiary',',' vSubsidiary,'n'n';; DIMENSIONELEMENTINSERT ('UnevenSubsidiary',',vRegion,'c'); #Assigns relationship between parents and children and weight to elements in the DIMENSIONELEMENTCOMPONENTADD hierarchy ('UnevenSubsidiary', vRegion,vSubsidiary,1.000000); DIMENSIONELEMENTCOMPONENTADD ('UnevenSubsidiary', vTotalCompany, vRegion,1.0000000); MORE; #Create two-tier dimensionMENTINSERT hierarchy (UnevenSubsidiary,',vRegion,'N'); DIMENSIONELEMENTINSERT ('UnevenSubsidiary',',vTotalCompany,'c'); #Assigns relationship between parents and weight to elements in the DIMENSIONELEMENTCOMPONENTADD hierarchy ('UnevenSubsidiary', vTotalCompany, vRegion,1.0000000); ENDIF; Check out the comments (,) to describe. 23. The metadata tab looks like the following screenshot: 194 Chapter 6 24. Click on the extended tab, save and start the process. The process goes without errors 25. Close Turbo Integrator to return to Server Explorer. 26. In Server Explorer Double click on the unevenSubsidiary measurement. In a subset of the editor click on everything and then make The Hierarchy Sort. 27. Close the subset of the editor without saving. How it works... In the recipe, we used TI features to create an uneven hierarchy. We've set up the code in the extended tab, which is run during the TI process and therefore forms the UnevenSubsidiary measurement. 195 Automation of data download processes using ASCII text export scripts using Turbo IntegratorTM1 can be used as a source of data for external sources by exporting measurements or cubes to text files. Views can also be created in TI, which is properly formatted for export. This allows you to share data between different systems. How to prepare Make sure that the TM1 Service Administrator is running and the TM1 demo data server is working. Open TM1 Architect from Start Menu. How to do it... 1. Open the Server Explorer window and create a new process with a data type set on TM1 Cube View. In the same window for the name of the data source, select demos: Sales_Plan and click Create View. 3. The extract window opens. Make sure That Skip Consolidate and Skip zero/empty values are checked by default. 4. Under the measurement elements on the same window, click on the subset icon other than the version, and select the budget version 1 from the subset of the editor. Click on OK to return to the View Extract window. 5. In TM1 Save view windows type vexport view and keep the view as a non-private view. TI can only work on public opinion. 196 Chapter 6 6. Click on OK to go back to watching Cube's Turbo Integrator server and select the vExport view as shown in the next screenshot. Click on OK. 197 Automation of data download processes using scripts 7. Click on Preview to see the sample of the entries as shown in the following screenshot: 8. Click on the variable 9 tab. For all variables, set a variable line type and content for others, as shown in the following screenshot: When you export data to an ASCII text or file, all variables must be set in strings, even those shown in the previous screenshot. 10. Click on the extended tab and click on the metadata. 11. Thread the on the Metadata tab below the statements generated. Start: Generated Statements (End: Generated Statements) TextOutput ('C:/TextOutput.csv', Subsidiaries, Channels, Products, Mont hs, Versions,Sales_Plan_Measures,Value); 198 Chapter 6 12. The previous function writes into a text file listed as the first parameter, each of the fields specified after the first setting. The result is displayed on the screenshot: 13. Click on all tabs under extended and save the process like CreateTextOutput, and then start the process. 14. Save and close the Turbo Integrator window. The previous process would be to write the entries listed in the .csv file mentioned as part of textOutput. Open the file and view it. How To It's working... In the recipe, we just used TextOutput to record data in a text file. There are other features available for the same functionality as AsciiOutput. Detailed documentation on them is available in the Help menu in TM1. Moving data between versions This recipe will offer unit sales price figures for budget version 1 that need to be approved, in Price_and_Cost code can be moved to send the version. So we'll see how the data can be moved from one version to another. 199 Automation of data download processes with scripts Is Prepared to Ensure the launch of the TM1 Admin Service and the launch of the demodataTM1 server. Open TM1 Architect from Start Menu. How to do it... 1. Open Server Explorer and right click on version measurement. 2. Click on the editing measurement structure. 3. Measure editor click on budget version 2. 4. From the Edit menu, click on the Insert Element. 5. Call it Send version, click on Add and then on OK. 6. Save and close the measurement editor to go back to Server Explorer. 7. Create a new process with a data source type in the form of TM1 Cube View. 8. In the Data Source Name box, click on View and click on demos: Price_and_ the cost of the cube. 9. Click on the view to view the server cubes. 10. In the View Extract window, in addition to Price_Cost_Measures, click on the subset of the Cntrl-Click icon, as shown on the OK button. 200. Chapter 6 11. Similarly, in addition to the versions, click on the subset icon and select the budget version 1. 12. Click on OK and save the view as a budget version 1. 13. To choose a view click Budget Version 1 and click on OK. 14. Click on the preview. 15. Click on the Variable tab and then rename the fifth variable Price_Cost_Measures as PCMeasures. 16. Create a new variable with the variable name vVersion. 201 Automation of data download processes using scripts 17. Click on the Formula and in the vVersions' Submit Version box type: send version. Rate. 18. Click on OK. 19. Under the variable type for vVersions, click on the line. 20. Install the contents of the variables, as shown: 202 q Channels: Element: Products: Element of the Months: Element of the Version: Other qvPCMeasures: Element of Value: Data q vVersions: Element Chapter 6 21. Click on maps. 22. Select the Cube update and then click Price_and_Cost in the Cube Name List. 23. Click on the Dimensions tab. 24. Set a measurement for each element of the variable, as shown in the following screenshot: 25. Click on the extended tab and click on each tab to update the scripts. 26. Save the process and close the Turbo Integrator window. 28. In Server Explorer, double click on the all icon and click on OK. Click on Send Version 30. Similarly, double click on the Price_and_Cost_Measures, click on everything, select the sale price of the unit and click on OK and in The viewer clicks on the recalculation. 204 Chapter 6 31. Please note that the data was copied to send the version 32. Close Cube Viewer without saving any changes. How it works... In this recipe, we moved data from one version to another using TI processes. This is useful when users want to switch data between versions, as in the above, when the data must be in the version to submit to get a review and therefore it moves from draft version 1 to submit version. Moving the data using scripts and parameters In this recipe we will repeat the result from the previous recipe for Sales_Plan, but using scripts and parameters. How to prepare Make sure that TM1 Server Server Service is running and the DEMOdsTM1 server is working. Open TM1 Architect from Start Menu. How to do one DATA: TM1 Cube TI process from the Server Explorer window. 2. Click on the View button and select Sales_Plan cube. Click on Create a View. 205 Automation of data download processes with scripts 3. In the Extract View window, in addition to each of the following measurements, click the subset Editor icon, as suggested in the previous recipe, click on the All icon, click on 0, and save the view as ztrf_MonthVersion and click on OK. The subsidiaries of the Products of the Channels of The Months of Version 4. Leave Sales_Plan_Measures like everyone else. 5. Select ztrf_MonthVersion Select View and click on OK. 6. Click for a preview. 7. Click on the variable tab. 8. Change the Content column for all variables to others, as shown in the following screenshot: 9. Click on Advanced and then on settings 10 tab. Create three settings, as shown in the following screenshot: 206 Chapter 6 11. Settings Names: pTargetMonth pVersionTarget pVersionSource 12. The data type for each is set up for a string. 13. For pTargetMonth The Fast question is set to enter the month (Mmm) and the default is set for January 14. Similarly, for pVersionTarget, a quick question is set to enter the target version and the default is representing the version. 15. For pVersionSource, The Fast Issue is set to type in the copy version and the default budget version 1. A quick question will be asked by users to let them enter the parameters 16 values. The default is exactly the same as the item in measuring months and versions. The DimensionElementInsert and SubsetElementInsert features that we use in the code do nothing if the item already exists. However, in general practice, it is advisable to test with the DIMIX feature, which returns zero if the item does not yet exist. Syntax function: DIMIX (Element) zgt; 0 implies that the element already exists. The zero meaning implies there is no element. Thus, DIMIX, combined with if, can be used to verify the values of the parameters entered by the user. 17. In the Advanced Tab for the Prolog sub tab, please top the next next End of generated statements Cube and Sales_Plan; The object $Transfer Cube; ----- Old View, if any VIEWDESTROY (Cub, object); --------- Old subsets, if any, in the sub-NETWORK (Months, Object); SUBSETSTROY (Versions, Object); #Create subsms of SUBSETCREATE (Months, Object); SUBSETELEMENTINSERT ('Months', Object, pTargetMonth,1); 207 Automation of data download processes with SUBSETCREATE scripts ('Versions',Object); SUBSETELEMENTINSERT ('Versions', Object, pVersionTarget,1); #Create view VIEWCREATE (Cub, object); VIEWSUBSETASSIGN (Cube, Object, 'Months', Object); VIEWSUBSETASSIGN (Cube, Object, 'Versions', Object); #Clear kind of VIEW-1OUT (Cub, object); #Delete a clear view of VIEWDESTROY (Cub, object); #Delete subsms of SUBSETDESTROY (Months, Object); SUBSETSTROY (Versions, Object); #Create submissions to be used as a data source for the next step #Create the initial subset of SUBSETCREATE (Months, object); SUBSETELEMENTINSERT ('Months', Object, pTargetMonth,1); SUBSETCREATE (Versions, Object); SUBSETELEMENTINSERT ('Versions', Object, pVersionSource,1); #Create views VIEWCREATE (Cub, object); VIEWSUBSETASSIGN (Cube, Object, 'Months', Object); VIEWSUBSETASSIGN (Cube, Object, 'Versions', Object); #Reestablish of presentation as a data source data source DATASOURCECUBEVIEW-Object; 18. Window looks like the following screenshot: 208 Chapter 6 Please refer to the online guide to TI features from the help menu for a variety of features, semantics and syntax. 19. In the script than we wrote in the Prolog tab, we have: Created a target look to zero out the data (and then destroyed it and its subset) Created a view to transmit data based on the source (and then destroyed it and its subsets) We usually added a subset of destruction to ensure that the subset is based on the input and cleaning of the system, so that there will be no public representations for users. There is no need for anything in the Metadata tab. Similarly, the data tab indicates the code that runs for each in the data source. We need to make sure that TM1 object that will be updated in this tab really exists and is already created. IF (Value_Is_String0); ----------- CellPUTS (Cube, Subsidiaries, channels, products, pTargetMonth, p VersionTarget, Sales_Plan_Measures); MORE; ------------Manme #Ignore values where the cell cannot be updated IF (CELLISUPDATEABLE (Cube, Subsidiaries, Channels, Products, pTargetMonth, pVersionTarget,Sales_Plan_Measures))0); POINTS MORE; CELLPUTN (Cost, Cube, Subsidiaries, Channels, Products, pTargetMonth, p VersionTarget, Sales_Plan_Measures); ENDIF; ENDIF; Means that the rest of the line is a comment and only applies to documentation. 209 Automation of data download processes 22 scripts. Conditional operators in the previous script will check whether the numerical data or lines are copied. Value_Is_String is a local TM1 variable to facilitate verification. 23. Now on the Epilog tab and enter the following code: #Delete view, if any VIEWDESTROY (Cube, object); #Delete old subsets, if any, in the sub-NETWORK (Months, Object); SUBSETSTROY (Versions, Object); The previous code is added to remove the time view and its subset, if any. Save the process, Transfer_Versions_Month and start the process. 26. When the process starts, it will request the parameters, as shown in the following screenshot: 210 Chapter 6 27. Please accept the defaults and click on OK. 28. Close Turbo Integrator. 29. In the Server Explorer window, double-click on the Sales_Plan Cube 30. Double-click on the version measurement to open in the editor's subset. 31. Click on all the icons, select Send version and click on OK. 32. Go back to Cube Viewer and click on Recalculate. 211 Automation of data download processes using scripts 33. Close Cube Viewer without saving. How it works... In the recipe, we copied the data to present a version for Jan using TI features. It's a good idea to go through the TI semantics and syntax features available in TI documentation in the Help menu and try to achieve the same functionality with different features. Creating and planning random work In this recipe, we will create a routine job of creating and filling the size of the product, and then create subsms of product type. How to prepare Make sure the TM1 Administrator service is running and the DEMOdsTM1 server is working. Open TM1 Architect from Start Menu. How to do it... 1. In the Server Explorer window, click the right button on Chores and create a new job. 2. Double click on CreateProductCSV and CreateProductType_subsets as shown in the following screenshot: 212 Chapter 6 3. Click on the next one and we'll be planning work on running after every seven days. Activate your routine, as shown in the following screenshot: 4. Click on the Finish button and save the routine CreateProducts_ProductTypeSubsets. 5. Here we have created a random work that creates and fills the size of products and then creates subsms of product type. Please note that work must be deactivated when changes are made to the core TI process or the routine itself. Nothing in TM1 stops this routine work or the core TI process without deactivating, but only for the aviod of other users to unknowingly do the work, while the chore or basic TI process is edited, it is recommended to disable it and then edit the related components. How it works... In this recipe, we enabled a random job to perform the TI process as scheduled. This is a common business requirement for schedules of cube renewal measurements during working hours with fixed time intervals. 213 7 Drilling Paths In this chapter, we will cover: ff Creating a drilling path to submission in another cube ff Creating a drilling path to the source of ODBC Introduction This chapter will explore methods for performing and implementing implementation TM1. A drill-through method used to navigate from a data point to other detailed information present in any other source (cube or ODBC). For example, if a cell shows revenue data for the current fiscal year, the next information that might be useful is the different product lines that contributed to the total revenue, and the specific data for each of those products. Such information should be available with one click on the main cell, which shows the total revenue and the path of drilling to be determined to navigate to detailed information specific to the product. There may be several drills across parts originating from the main data cell, a list of all available drills across parts should appear if more than one connected path is identified. So in this chapter we will see how to determine such drilling pathways from cell to more detailed, or to other detailed information. The TM1 drilling process can drill a cube view, an ODBC data source, or any other data source supported by Turbo Integrator. Setting up drilling paths Creating a drilling path to submission in another cube Creating the drilling steps demonstrated in this recipe. ff Identify the raw data from which the drilling/es process will be available. ff Identify target data that will move through the original data identified above. ff Identify the parameters by which the target data will be filtered so that the context is retained from source to goal. ff Linking all such drills through (Source Trust/Master Details) relationship with the source of the cell. Get ready to make sure tm1 Admin Server is up and running and the TM1 Server demo is working. Open TM1 Architect from the launch menu. How to do it... 1. Double-click Price_and_Cost cube in the Server Explorer window. The default view Price_Cost_Measures with a month's measurement. 3. In channel measurement, select ALL CHANNELS, and then select Budget Version 1 in Version Measurement. 4. Double click on the Month measurement, click on the All Select Total Year icon. Click on OK. In the subset of the editor, and 5. Double-click Price_and_Cost_Measures, Ctrl and click on the items selling price of the unit and unit value, and click on OK. 6. Tap the 216 recalculation icon in Cube Viewer. Chapter 7 7. Click on the file and select Save How to Save The View as PriceandCostDrillView. Don't check your personal box to keep the view as a non-private view. 8. Click on OK to close the view and return to the Server Explorer window. 9. In the Server Explorer window, press the right Sales_Plan button, point to the drill, and then click on the drilling process. 217 Setting up drilling tracks 10. Enter the setting value for each setting name on the first installation master screen drilling, as shown in the following screenshot: 11. On the next screen, select Save View and then click on View to select the destination cube view. 13. Under Select Cube box the demo: Price_and_Cost_cube, then in the select View box SelectPriceandCostDrillView, as shown in the following screenshot: 14. Click on the OK and then the finish button. 218 Chapter 7 15. When you request, save the process as SalesPlantoPriceandCost and click on OK to return to the Server Explorer window. 16. In the Server Explorer window, press the right button on the cube Sales_Plan click on the drill, then click on the destination rule to create a drilling destination to assign drill processes to the source cube. 17. This will open the editor of the expanded rules, where we will print the rules of destination. 18. Click on the bracket icon and then double Sales_Plan_Measures. 19. Click on the sale price of the unit and then click. Type S: 'SalesPlantoPriceandCost; As shown in the following screenshot: 21. This means that the specified drilling process will work when drilling from any cell in measuring the unit sale price. 22. Click on the save, close the rule editor and return to Server Explorer. 23. In Server Explorer, double-click Sales_Plan cube. 24. In the default view, the dual-click subsidiaries open in the subset of the editor. 219 Set up drilling tracks 25. Expand GO AMERICAS REGION and click on GO Americas, as shown in the following screenshot. 26. Under the channels click on the department store 27. Under products click on Cooking Gear 28. Click on OK to ensure Cube Viewer appears, as shown in the following screenshot: 29. Click on the recalculation and save the view as a non-private DrillView. 30. Right click on the unit sale price for January and click on the drill. 220 Chapter 7 31. It will open a new window showing PriceandCostDrillView, saved earlier and listed as a destination type, as shown in the following screenshot: 221 Rig 32. Here we can see the data for the department store and the Jan combination, which acts as a filter for the Sales_Plan and the data shown is relevant to this combination only. The original PriceandCostDrillView has default sizes for ALL CHANNELS and TOTALYEAR, and therefore shows complete data without any filter unless drilled from the parent view for a specific combination of measurements. 33. Close PriceandCostDrillView. 34. In Sales_Plan the cube with the right click on the number for January. Please note that the drill option is disabled here, as we have not made the drilling process available for items that are then the selling price of the unit. 35. Close all windows, do not make any changes if it was proposed. How it works... In this recipe, we created a drill process from parent cube to presentation We've also created a drill assignment rule that will be executed when the user clicks on any cell specified in the rule. There's more... In this recipe we saw an approach to drilling from cube to kind where the cube acts as a source and the representation of the cube acts as a destination. The following table shows other types of data sources that may act as a destination: Description of the ODBC drill destination from the cube of origin to the ODBC source. The ODBC source should be available from the computer where the TM1 server works. The cube is viewed from a cube of origin to a different kind of cube. We can drill any cube that is on the same server as the cube of origin. Other drills from Cube Origin to any data source Turbo Integrator supports. We have also written the drill destination rule, this is to link cubic cells to related detailed data that may be a representation of a cube, database source, or any other data source available through Turbo Integrator. We've seen an approach to write a drill destination rule in this recipe, where the right side of the expression refers to the drill process we created for the cube in TI, and the left side is the name of the cube. 222 Chapter 7 Another approach to creating a drill designation rule is to link every area of the cube that we want to use as a source with detailed data. Again, you can do this in the preliminary rules editor by clicking on the Insert Cube Reference icon to identify the area in the cube; in terms of the source of the cube, the measurement and the combination of items from which the user can drill up to the destination data source, which can be any of them, as mentioned in the previous table. Creating a drilling path to the ODBC source In this recipe, we will expand the drilling concepts by explaining the previous recipe, and create a path to the ODBC data source. Start Make sure the TM1 Admin Server service is up and running TM1 Server. Open the TM1 Architect tool from the launch menu. How to do it... 1. Tap the right button on the Sales_Plan and click on the Create drilling process button. 2. Click on the next button in the master installation of the drilling process. 3. For datasource type, select ODBC and click on View. 4. In odBC's data source list, select Sales_Plan and click on OK. 5. We have already created Sales_Plan ODBC in the previous chapter, which indicates Sales_Plan.xls, having a range defined by the name of sales. 223 Set up drilling tracks 6. Click on finish, save the process as sales, and then click on OK to return to the Server Explorer window. 7. In the Server Explorer window, tap the right button on the Sales_Plan, then from the Drill menu, click on the Drill process. 8. In select, salesplantosalesplanxls, as shown in the following screenshot: 9. Click on OK to reject the error message. 10. In the Turbo Integrator window, in the query box: Select from sales, where are the subsidiaries ?? Child Channels? and the type of product - ? Products?' and Version No ?? Version? 11. Click on the preview and 224 Chapter 7 12. The query columns on the left refer to the columns in the data source, while the links on the right refer to the TM1 measurement names in the cube. Click on the Save icon. 14. In the dialog box, make sure to keep all the variables selected and click on OK. 15. Close the Turbo Integrator window to return to the Server Explorer window, where there are the Sales_Plan button and click on the Drill menu for the editing destination rule. 225 Set up drill tracks 17. The previous step will open the Advanced Rules editor's window, as shown in the following screenshot: 18. On number 3: S: IF (ISLEAF-1, 'SalesPlanToSalesPlanXLS'; 19. Rule on Line 3 states that there is a pathway for Sales_Plan xls for all leaf level elements in Sales_Plan cube. Since the first rule already applies to the unit sale price, the drilling path from the unit sale price is different from that available from any other measure, such as quantity. 20 Click on Save and Close button to return to Server Explorer. 21. In Server Explorer, double-click Sales_Plan to open Drill View, created as part of a previous recipe. 22. Tap the right button on the cell corresponding to the type (January, Number), as shown in the following screenshot, and click on the drill. 226 Chapter 7 23. It will open a default review of the Price_and_Cost created earlier, as shown in the following screenshot. 24. Now we had clicked the right button Number for 1 quarter, the drill option would have been unavailable; No.1 defines the non-leaf level element, and the non-leaf drill is excluded in the rule itself. 25. Close all kinds of cube without saving anything. How it works... In this recipe we created a drill-through link from cube to ODBC data source. We have accordingly changed the definition of the TI process and changed the rules to disable the drill option from non-leaf elements. We intentionally clicked on a beam in a cube source for which the data does not exist, this is to show how the target view is filtered based on the choice in the cube source. 228 8 Using the rules for advanced modeling In this chapter, we will cover: ff Creating Spending Cube ff Exploring the Spread Profile Cube, Lookup Cube, and Virtual Cube ff Moving Balances from last month to next month's Introduction In this chapter, we'll be learning about virtual cubes, spread profile cubes, and Lookup cubes. We will demonstrate these concepts on existing TM1 Server demos. We'll start by creating a spending cube that we'll use in this chapter and beyond. Finally, we will move the balances from the past month, using the rules. Rules. Cube Costs In this recipe we will create a spending cube that will be partially populated by data from spreadsheets, rules and user input. Users will need to distribute data in order to project some overheads to different regions. Using the rules for advanced modeling is prepared to ensure the launch of tm1 Admin Server and the launch of the TM1 Server demo. Open TM1 Architect from start menu. How to do it... 1. Open Server Researcher at TM1 Architect. 2. Create Expenses.csv, as shown in the photo, and save it on C: Program Files TM1-Custom-TM1Data TI_Data. 3. Create a new Turbo Integrator process for the source, select the text, and provide the above path to Expenses.csv for the name of the data source. 4. Click on OK to close the warning and see the preview as shown in the following screenshot: 230 Chapter 8 4. Click on the Variable tab. 5. Rename the variable name and assign content, as shown in the following screenshot: 231 Using rules for advanced modeling 6. Click on the Maps and then the Dimensions tab to provide the values as shown in the following screenshot: 7. For the order of the items we clicked on the input, then in the order window of the measurement item we chose Automatic, and then Hierarchy to sort the elements of the level of the sheet automatically by hierarchy. 8. We also called measurement as expenses by typing this into the Measurement column. 9. In previous steps, we've created a sheet level element named Spending that will be populated by the vExpenses variable. 10. Now, in the Consolidation tab for the under same child variable click on vExpenses and select vExpenseCategory for the second row under the same child variable column as shown in the following screenshot: 232 Chapter 8 11. Click on the Advanced tab and then tab Prolog, Epilog, Metadata, and Data to create scripts. 12. Save the process as CreateExpenseCSV and execute the process. 13. Click on Yes to view the log file and then double-click on the first line. This tells you that the consolidated element for the three elements has not been found. This is obvious because we have not included consolidated elements for these child level elements in our Expenses.csv. 233 Using rules for extended modeling 15. It is still good with us as we will not use these three elements in our cube. Close Turbo Integrator and all error messages to return to the Server Explorer window. 16. Double click on the cost measurement to open in the subset of the editor. 17. We will now remove these elements from the subset, but they will remain part of the measurement as we remove them with a subset of the editor. If we remove items with dimension editor, they will be removed forever. 18. Choose three elements, as shown in the following and click on the Delete icon. 19. Save this as a public subset by default, the result should look like shown in screenshot: 234 Chapter 8 20. Close the editor's subset to return to the Server Explorer window. 21. In the Server Explorer window, tap the right button on sizes and click on the Create a New Dimension button. 22. Insert two new simple elements called Amount and Percentage into the measurement editor, as shown in the following screenshot: 23. Save the measurement as a cost-measure and close the measurement editor to return to Sever Explorer. 24. In the Server Explorer window, click the right button on Cubes and click on Create a new cube called Spending. 25. Double-click on the following measurements: Expense_Measures 235 Using the rules for extended modeling 26. The result is displayed on the OK on the Create Cube button to return to the Server Explorer window, where the new cube is now displayed under the name Spending. 28. Create a CSV called Ben Work Comp.csv to download data to a cube. Save the CSV file on C: Program Filescognos,TM1-Custom-TM1Data TI_Data. 236 Chapter 8 29. Create a new Turbo Integrator process to download text data from the above CSV, as shown in the following screenshot. Change the number of headline entries to 1. Click on the Variable tab and create a new formula. 237 Using rules for advanced modeling 30. Click on the Variable tab and create a new variable vMeasures string in the new formula. vMeasuresto 'Percent'; 31. Click on the score and then click. 32. Change the variable type for vMeasures per string. 33. Rename the variable name to other variables and install the content column as shown. Note that the Action column is as it is because we're not going to add new items to sizes. Click on the data tab to match the data to the items. 37. Click on all the tabs under the Advanced tab to create appropriate scripts. 38. Save the process as LoadBenWorkCompCSVPercent. 39. Click on Run and then click on OK. 40. Close Turbo Integrator to return to the Server Explorer window. 41. In the Sever Explorer window, double tap the spending cube and install the version in budget version 1. 239 Using rules for extended modeling 42. Click on Recalculate to show the downloaded data, as shown in the following screenshot: 43. Open the LoadBenWorkCompCSVAmount process, click on the file and save loadBenWorkCompCSVAmount to download another dollar values. 44. Click on the variable tab and click on the formula. Change the interest by the amount. 240 8 46. Click on OK. 47. Next to vVersion, vSocialSec and vHealth, content changes to be ignored. 48. Next to vWorkersComp change the content of the data. 49. Create a new variable called vExpense 'WorkersCompensation'; 50. Change it Bring the string and content to the item. 51. Click on the Maps and then on the Dimensions tab. 52. Map vExpense to expenses. 53. Since we only have expenses and it matches the element in our Measurement measurement, we should not have maps to have it manually. 54. On the extended tab and tabs underneath it to create scripts. 241 Using rules for extended modeling 55. Click on Save and Run. 56. Close to returning to the Server Explorer window. 57. Now recalculate the view in the cost cube to show both the amount and percentage of value downloaded, as shown in the following screenshot: 58. Save the default view and leave the view open in. 59. In the same Cube Viewer window, double tap the month-long measurement to open in the subset of the editor, expand No.1, click on January, and then click on OK. 60. Double click on the measurement of subsidiaries, in a subset of the editor expand GO AMERICAS REGION, click on GO America and then click OK. 61. Click on the recalculation and save the view as a form of GO Americas. 242 Chapter 8 62. The minimized view window has the right button on the spending cube and click on the creation rule to open the extended rule editor. 63. On line 1 of skipCHECK; and then, click Enter. 64. On the brackets and then double-click on the costs. 65. Click on the Commission and then click on OK. 66. Then the brackets, after the Commission, in the first amount and press the End key. 67. Go q:N and then click on the Insert Cube Link. In the Cube list, click on the Commission cube, and click on OK twice to return to the rule editor. 243 Using rules for extended modeling 70. In the rule editor type at the end, so code looks like the one below: SKIPCHECK; Commission, Summa and N:DB (Commissions, ! subsidiaries! months! Versions, Commission;; 71. Save the rule and click on the Recalculate GO Americas view. In previous phases, we have copied commission data from the Commission's cube to the spending cube. 73. Now that we are feeding the commission's types of expenditure data, we need to add a FEEDER statement in accordance with the Rules in the Commission's cube. We will explore more about SKIPCHECK and FEEDER statements in a later chapter on performance optimization rules. FEEDER pushes values to another cube, as well as a way of telling TM1 that the original cube where the operator is located, will act as a data source for the cubes mentioned on the right side of the FEEDERS statements; Statement. We will see more about these statements in later chapters. 74. Add the following FEEDER to the rules in the Commission's cube (n Server Explorer and clicking on the Editing Rules. Commission% DB ('Expenses', ! Versions! Months! 75. Because the Commission's cube is a source of data for Cube, feeder statement must be placed in the Commission's cube. 76. Save the rule and close the rule editor for both cubes. 244 Chapter 8 77. Double tap on code costs, click on Recalculate to view newly downloaded commission in costs derived from the Commission's cube. If the new data is not downloaded, it means that the Commission cube does not have commission data for Jan or GO Americas. 78. Leave Cube Viewer open and return to the Server Explorer window. On the spending measurements and click on the editing element attributes. For the amount, specify the currency as a format and click on OK. 81. In the Server Explorer window, open the spending cube rules editor by clicking on the Editing Rules. 82. Click on PENSION PLAN and OK. 83. Inside the bracket after PENSION PLAN, top the amount and then press the End key. 245 Using rules for extended modeling 84. Now we will include: N: AWAS, Summa and PENSION PLAN, Percentage; 85. Repeat the previous step for SOCIAL SECURITY and HEALTH INSURANCE to make the code appear, as shown in the following screenshot: 86. Save the rule and recalculate the GO Americas code of view to update the data, as shown in the following screenshot: 87. On Line 7, code looks like the following screenshot: FEEDERS; In cost cube: FEEDERS; PAHDAH, Summa; on. PENSION PLAN, Summa, SOCIAL SECURITY, Summa, HEALTH INSURANCE, Summa; 88. Rules, rules such as this cube, must now look as shown in the following screenshot: 246 Chapter 8 89. Save the rules and count the look of the GO Americas cube. The zeros in the view indicate a lack of data present in one of the CSV-related data. Users should make sure there is good data in CSVs before starting with recipes. 247 Using rules for advanced modeling 91 Recalculate and save the view after the GO Americal added. How it works... In this recipe we created a cube that contains expenses. Wage and benefit data comes from data in text files and through calculations, while data on other expenses will come from user input through distribution, as shown in the following recipes. There's more... Virtual cubes are special cubes that don't actually store data, but are mostly used to

combine data from other cubes to present aggregate data or other reporting requirements. Virtual cubes are entirely conditioned by the rules that are used to pull only the necessary data from, say, a very large cube for specific reporting requirements. We will review and use the virtual cube in the following recipe. 248 Chapter 8 Study Spread profile, Lookup cube and Lookup Virtual Cube are special category cubes used to view data in one column and return relevant data to another rule column. They're Them similar to using an inspection table to fill foreign keys in the fact sheet. Again, we'll look at them in more detail in the upcoming sections. It's a good idea to stick pre-pre-storage cubes with special names so that cubes of a similar purpose appear in the Server Explorer window. Extending data to sheet-level elements based on aggregated elements is a concept possible in TM1 using Spread Profile cubes. Relative distribution refers to the distribution of data between cells and their entry back into cubes based on data patterns of other cubes. The data is inserted into target leaf level cells based on the source cube, provided that there is a common measurement between the source cube and the target cube. The original cubes can be called spread profile cubes, which act as a cube for the relative distribution of patterns. Based on these patterns, the data is written back into the sheet level elements in the target cube. The only limitation is the presence of a common measurement between the distribution profile source cube and the Target cube. Get ready to make sure tm1 Admin Server is up and running and the TM1 Server demo is working. Open TM1 Architect from the launch menu. How to do it... 1. First, we'll manually add a new summary element to the cost measurement and add elements of its children that will be used in this recipe. 2. In the Server Explorer window, tap the right button on the cost measurement and click on the editing measurement structure to open the measurement editor. 3. Insert a consolidated element called TOTAL EXPENSES. 249 Using rules for extended modeling 4. Under TOTAL EXPENSES add baby elements, as shown in the following screenshot: 5. The resulting measurement structure should look like the following screenshot: 6. Click on OK to return to the Server Explorer window. Save changes in measurement when asked. 250 Chapter 8 7. In the Server Explorer window, double-click on the default subset to measure costs, as shown in the following screenshot: 8. In a subset, the editor clicks on the All icon. 9. Remove the pension plan, Social Security, and health insurance% by clicking on the Delete badge so that they are removed from the subset but remain in the measurement 10. The resulting subset looks as shown in the following screenshot 11. Click on OK to save the changes and return to Server Explorer. 12. In the Server Explorer window, tap the right button on sizes and click on the Create a New Dimension button. 13. Insert the following elements of the sheet: q apartment quarterly q 445 q Business 251 Using rules for extended modeling 14. Save the dimension as SpreadMethod and then close the measurement editor. The measurement acts as lookup. 15. In the Server Explorer window, click the right button on the cubes and then click on the Creation of a New Cube. 16. In the Cube Name field, Spread_Profiles. 17. Moving months and SpreadMethod sizes to a new cube. 18. Click on Cube to return to Server Explorer. 19. In the Server Explorer window, double-click on the Spread_Profiles cube. 20. Swap months and SpreadMethod measurements so that the first is in the line area. 21. Double click on the Month measurement and select all level 0 elements. 22. Click on OK to return to the Cube Viewer window. 23. Click on Recalculation to display. 22. Tap the right button on the cell corresponding (Flat, Jan), and from the data distribution menu click on Repeat... 252 Chapter 8 23. In the type 1 field, then click on the right, as shown in the following screenshot: 253 Using rules for extended modeling 24. Click on Apply. 25. You can see that the same cell 1 value is distributed across all the cells in this series. 26. Now enter the rest by hand. The cube currently contains weights that can be used to proportionally disseminate months measurement data in any other cube measuring the Months. 28. Click on the recalculation and save as a default public view. 29. Close cube viewer and return to Server Explorer. 30. The Server Explorer window overlooks GO Americas for a spending cube. 31. Swap measures of expenses and months. 32. Click on the count and then roll up all the sections. 33. Double click on the months and then in a subset the editor click on everything. 34. Ctrl-Click Total year and sheet items from months, as shown in the following screenshot, and click on OK. 254 Chapter 8 35. In Cube Viewer, click on Recalculate and save as a public view called GO Americas Expenses. 36. We will now try to distribute travel costs to North and North America under a 4 4 5 scheme, where they appear to be higher during the last month of the quarter. The travel budget should be 1,000,000 or less during the year. 37. Click on TOTAL COMPENSATION to roll it, as shown in the following screenshot: 255 Using rules for extended modeling 38. Click the right button on the cell (Travel, Total Year), and from the Data Distribution menu, click on the relative proportional spread, as shown in the following screenshot: 39. In the Select a Reference Cell select dialog, click on SpreadMethod Spread_Profiles size and select 4 4 5, as shown in the following screenshot: 256 Chapter 8 40. Click on Select and then for a type value of 1,000,000, click on Apply to go back to the Cube Viewer window. 257 Using rules for extended modeling 41. As shown in the following screenshot, $1,000,000 extends for months in the same proportion as the values in Spread_Profiles for travel expenses. Here we can manually write off travel data by spreading logic in a 4 4 5 ratio when the total travel budget is fixed. 42. Close Cube Viewer by saving GO Americas costs when requested and return to Server Explorer. 43. In the Server Explorer window, tap the right button on SpreadMethod and click on the editing measurement structure. 44. Click on business business and a new item called Child. 45. Save and close the dimension to return to Server Explorer. 46. In the Server Explorer window, click the right button on the cubes and click on the Create a New Cube. 47. Include subsidiaries and SpreadMethod in Cube 48. Name the cube as Spread_Profile_Subsidiary. 258 Chapter 8 49. Double click on the Spread_Profile_Subsidiary to open it in Cube Viewer. 50. Double-click the measurement of the subsidiaries, click Everything, and then click on the filter on the level icon. 51. Click 0 and OK to select only sheet level items, as shown in the following screenshot: 52. Click on OK to return to the Cube Viewer window. 53. Similarly, double tap the SpreadMethod measurement and then click on the All icon. 54. Click on a subsidiary and then on OK. 55. Click on Recalculation and save the view as the default public view. 56. Enter values for each subsidiary as shown to recalculate and close, saving any changes when caused. 259 Using rules for extended modeling 57. We can use this view to disseminate data to a subsidiary. However, this is a common requirement when each subsidiary has different monthly proportions; It is extremely important to have a method to combine 4 4 5 proportions with a subsidiary. We will demonstrate this with the third Spread Profile cube, which will combine the two criteria. 58. In the Server Explorer window, click the right button on Cubes and click on Create New Cube by the name Spread_Profile_SubsByMonth. 59. Turn on the three measurements for the cube, as shown in the following screenshot: 60. Create a public default view on the cube by changing the months to SpreadMethod. Click on your subsidiary. 62. Recalculate to expose the view, as shown in the following screenshot: 260 Chapter 8 63. Keep the view as the default public view and keep the view open. 61. In the Server Explorer window, create the following rule for subsByMonth Spread_Profile_; Subsidiary and DB ('Spread_Profile_Subsidiary', subsidiaries, 'Sub solitary') - DB ('Spread_Profiles', months, '4 4 5'); 65. Save the rule and close the rule editor. 261 Using rules for extended modeling 66. On the Spread_Profile_SubsByMonth show copied data from the two cubes that the rule refers to, as shown in the following screenshot: 67. Roll up both TOTAL COMPANY and Total Year values for months, in the server and they come up to 52 in both directions, meaning that 4 4 5 proportions have been distributed properly to the subsidiary. 68. Open go Americas Expenses cube. Cubes from combination of subsidiaries to display GO AMERICAS REGION, and then click on the recalculation. 70. Click click on the final year and premise, click on the distribution of the data and then the relative proportional spread. 262 Chapter 8 71. In the Cube list, select Spread_Profile_SubsByMonth. Under the dimensions click on SpreadMethod, select the child, and then click OK, as shown in the following screenshot: screenshot: Click on Select and in the 2,000,000-type field, as shown in the following screenshot, and click on Apply. 263 Using rules for extended modeling 73. The result is displayed on the following screenshot: 74. The result was divided into two dimensions, both months and subsidiaries. 75. Close Cube Viewer without saving any changes. How it works... In this recipe, we created three spread Profile cubes that can be used to spread the data to other cubes. These are dice lookup. We also created one virtual cube (Spread_Profiles_SubsByMonth) that distributes data from one cube (Spread_Profiles) to measure subsidiaries in another cube (Spread_Profiles_Subsidiary). There's more... Most distribution methods available in the Cube Viewer Spread Menu can also be applied through a special syntax and can be entered directly into Cube Viewer cells. The distribution of data syntax cannot be used for methods of relative proportional distribution, relative percentage correction, re-leaves and methods of equal distribution. The user interface should be used to apply any of these methods. A similar case where the user wants to spread to the chosen range of cells; the distribution of syntax also cannot be used in this case. Each syntax expression that distributes data consists of the following components: ff Method Code ff Data Action (optional) ff Direction Indicators ff Method Option 264 Chapter 8 Example will be S-100. In this statement, S is the method code - it's data action, direction indicators, and 100 is the method parameter. An example of a description of code one or two code characters for the method of data dissemination. S is a code method for the method of spreading equal distribution. Data Action indicates whether distribution values should be replaced, added, or deducted from existing cell values. Replacement - If we don't specify the action, TM1 replaces existing cell values with distribution values. Add - Plus sign adds spread values to existing cell values. Subtraction - Tilde (I) subtract spread values from existing cell values. Direction indicators indicate the direction of distribution of data relative to the insertion point. The cell from which we will initiate data distribution is always included in the distribution. We can use any combination of direction indicators in expression. Pipe (k) - Spread values below the insertion point. Caret (k) - Spread values above the insertion point. Right Arrow - Value Spreads to the right of the insert point. Left Arrow (Customers at the beginning of the period,' 'Jan'; Rate of exhaustion (%) (%) Exhaustion (numbers); Customers at the beginning of the period (CUSTOMERS EXPECTED TO BUY SPECIAL OFFER; Average purchase of $ per customer (PROJECTED REVENUE) FORECAST CLIENTS IN THE END PERIOD ('Customer_Churn', ATTRS ('MONTHS', !MONTH,'NEXT'), 'Customers' Customers The beginning of the period '); 40. In order to feed customers at the beginning of the period, we must place a marker in PROJECTED CUSTOMERS AT END OF PERIOD to advance to next month. 273 Using rules for extended modeling 41. A fragment of the code looks like the following screenshot:' 42. Save and recalculate the view. 43. We now want to adjust the rules so that opening and closing balances are not aggregated over time. 44. In Customer_Churn cube on Months to open in a subset of the editor. 45. Click on everything, then on the total year and then click on OK. 46. Click on the recalculation and then spend the entire year and No 1. 274 Chapter 8 47. Open the rules for Cutomer_Churn cube. 48. Replace the rule for customers at the beginning of the period with line number 2 as follows: Customers at the beginning of the period, January, 1, General Year n: Existing Customers (Pd1), January; 49 euros. Remove :N from line number 7 for customers at the beginning of the period. This will redefine aggregation, allowing customers to calculate at both the consolidated level and the baseline at the beginning of the period. Fifty years. Add the following rules before FEEDERS to set the year and quarter to the closing balance of the last month: PROJECTEDPROJECTED PROJECTED PROJECTED CUSTOMERS CUSTOMERS CUSTOMERS AT AT AT END END AND OF PERIOD', '1' PERIOD,' '3' PERIOD,' 3 PERIOD,' 51. Delete the last FEEDER statement as we removed:N from Customers at the beginning of the period on line number 7. This rule is now calculated for both consolidated levels and N. 275, using the rules for extended modeling 52. A snippet of the code now looks like the following screenshot: 53. Save and close the rule and view editor and go back to Server Explorer. 54. In Server Explorer, tap the right button Customer_Churn cube and click on The Unload Cube to unload the selected cube from the server's memory. 55. Open the default view Customer_Churn, click on the months, then everything, then ok, and swap months with Churn_Measures. Similarly, for Churn_Measures, click to open the subset editor and click on everything. Click on OK and then recalculate. 56. Close all open windows while saving the view as the default view. 276 Chapter 8 How It Works... In this recipe, we used attributes in the rules and used them along with TI functions to move balances between periods. To date, we have implemented a completed churn model using only a few rules and two attributes. We also discussed virtual cubes, Lookup cubes, and Spread Profile cubes and used them to move, type, and edit the data. 277 9 Currency Conversion In this chapter, we will cover: ff Creating currency measurement and attributes ff Currency Cube ff Filling currency attributes using cube management rules ff Creating rules for the application of exchange rates and calculation of calculation amount in target currency Introduction In previous chapters, we discussed various aspects of TM1 modeling and the rules to best analyze business data. Aside from the obvious business requirements, another issue that we have to deal with multiple currencies and have different reporting requirements. For example, our fictitious company has several subsidiaries that span several regions and continents. Each of them can have a different currency. I would like centralized organizational reporting to be conducted in the common currency of reporting. This requires us to solve the problem of the existence of several local currencies, but using a single currency reporting. Again, exchange rates can change over time, making it difficult to communicate permanently in the single currency. Converting currencies so in this chapter, we will demonstrate a combination of methods in TM1 that allows us to deal with non-homogeneous currency issues. These methods are primarily based on the following: ff Lookup Cubes ff Attributes ff Rules ff Rules Tracer ff Measuring sheets Some of them we've seen in previous chapters, and some we'll learn anew. By creating currency measurements and attributes In this recipe we will create a currency and currency type measurement for our model. We will add a currency attribute to existing subsidiaries and the size of ExpenseMeasures. How to prepare Make sure the TM1 Administrator server is running and the DEMOdsTM1 server is working. Open TM1 Architect from Start Menu. How to do it... 1. Open Server Explorer window for demodata TM1 server. 2. Expand the dimensions in the Server Explorer window, click the right button on the subsidiaries, and then click on the attributes of the editing menu. Select from the Editing menu in the attribute editor, click on Add New Attribute. 4. In the Name field, enter the currency and click on OK. 281 Currency Conversions 5. Similarly, add a currency attribute to the ExpenseMeasures dimension. 6. Go back to the Server Explorer window, tap the right button on the ExpenseMeasures measurement, and click on the editing measurement structure to open the measurement in the measurement editor. 7. Click on the Percentage element and then select the Insert Item from the Edit menu. 282 Chapter 9 8. Add the following elements: USD, JPY 9. Click on OK to show the measurement. 10. Save and close the measurement to return to the Server Explorer window. 11. In the Server Explorer window, tap the right button on the ExpenseMeasures measurement, and click on the editing measurement structure to open the measurement in the measurement editor, click on Create a New Dimension. 12. In the Edit menu measurement editor, click on Insert Element and add the following currency symbols: qBR' GBP GBP EUR, JPY sEK USD 13. Save the measurement and call it currency. 283 Convertible currencies 14. Close the measurement editor to go back to Server Explorer. 15. to create a new new with the currencyType measurement and consisting of the following elements: q reporting per year's spot rate q monthly rate 16. Now again, create a new dimension called CurrencyConvertTo with the following elements. The elements that we're going to include in this dimension are the same as the items we inserted into the Currency dimension, but since we can't use the same measurement more than once in the same cube, we create a copy. We can also create a dimension by performing Preservation on the currency dimension. BRL, 17 U.S. DOLLARS. Close the measurement editor and return to the Server Explorer window. How it works... In the previous recipe, we added currency attributes to the ExpenseMeasures and Subsidiaries measurements. This will associate the currency as a property of each measurement element. 284 Chapter 9 We have also added currency elements to the ExpenseMeasures (USD/JPY Report). Thus, the JPY reporting element will have reporting figures in the Japanese yen, and should have JPY as a currency attribute. Users can add similar elements to the ExpenseMeasures measurement specific to the desired currency, and the currency attribute for each of them must be set accordingly, for which we will write the rules in later sections. We have also added a currency and currencyConvertTo measurement that has all the desired currencies as elements. The currency dimension has all the desired underlying currencies, while CurrencyConvertTo will have targeted currencies. Therefore, if the user intends to convert THE USD into JPY, the currency dimension will point to USD, while CurrencyConvertTo point to JPY in this case. We will also need a rule to correctly establish currency attributes to measure subsidiaries. Thus, GO AMERICAS REGION and its children should have USD as an attribute of currency. We'll discuss this rule later. The design requirement is to have an amount element in the ExpenseMeasures measurement in the local currency, which depends on the subsidiary with which it is associated. Hence, for example, if the cell corresponds to GO Americas (the rule sets the currency attribute for GO Americas as USD) and the amount, the base currency will be USD (the amount is interpreted as in USD). Such a cell would have an appropriate value for the JPY Amount element (having a currency attribute set on the JPY using the rule), and should also be calculated after converting from a base currency (USD in this case) to a target currency (JPY in this case), again by the rule (CurrencyConvertTo point to JPY in this case). We'll discuss these rules in the following sections. By creating a currency cube Now in this recipe we will create a currency cube to store currency rate data, which is supposed to be updated monthly. We assume that the business wants updated fares on a monthly basis for simplicity. In real life it can vary, and sizes, sizes and patterns may change accordingly, but the basic process remains the same. If a business wants to apply new rates on a daily basis, then the currency cube should include measuring the time, having details, up to the daily level. In our case, we use the MONTHS measurement for the time aspect and therefore assuming that the business is interested in tracking the updated exchange rate on a monthly basis. How to prepare Make sure the TM1 Administrator Server is up and The TM1 data server is running. Open TM1 Architect from Start Menu. 285 Currency Conversion How to do it... 1. In the Server Explorer window, create a new cube with the name zRate and consisting of the following dimensions: Months CurrencyType CurrencyConvertTo 2. Create a cube to return to Server Explorer. 3. Double-click the zRate cube to open it in Cube Viewer. 4. Double click on the measurement months and click on everything in the subset of the editor. 5. In the fall for the currency type, click on the reporting. 6. In the fall to measure the months in Cube Viewer, select January and click on Recalculate. 286 Chapter 9 7. Save the view as the default view. 8. Minimize the Cube Viewer window and create an Excel file to load exchange rates in the cube. 9. Name the Excel CurrencyRates.xls file with the data shown in the following screenshot: 290 Converting Currency 11. Select all the cells in Cube Viewer and paste. 12. Click on the automatic conversion icon and copy the cells for each month in the same way that each month will have the same exchange rates. We have to copy the exchange rates for each month at a time, since the viewer cube is two-dimensional and we need currency and CurrencyConvertTo two dimensions. A small rule can also be written in the fashion we described earlier to ensure that diagonal elements are always equal to one. Similarly, cells below the diagonal axis will be 1/x, where x are cell values above the diagonal axis. To make it simple, we update the data manually from the Excel sheet. 13. Close Cube Viewer to return to Server Explorer. How it works... In this recipe, we added a zRate cube to hold exchange rates for various base and target currency combinations that can be updated monthly. We can add different rules here. So instead of manually filling in all of today with Excel, the rules can be written to download currency exchange data, which would be less tedious. To make it simple, we showed the data manually entered. 288 Chapter 9 Filling currency attributes using management cubes In this recipe we will create rules to fill the attributes of the currency for ExpenseMeasures and Subsidiaries. Get started, make sure TM1 Admin Server Server and the demodata TM1 server works. Open TM1 Architect from Start Menu. How to do it... 1. In the View server explorer, click on display controls. This will allow you to put control cubes in the Server Explorer window, which are used to store information about the application, i.e. metadata, including attributes. We are mainly interested in the child ElementAttributes_ control cube, which is used to store the attributes of items to measure subsidiaries. We're going to write a rule on the cube to make the currency attribute service automatic. We will add a rule on the application of the maternal currency to your children. 289 Convertible currencies 2. Click the right button ElementAttributes_Subsidiaries click on the creation icon to open the extended rule editor. The rule uses the following features: ELPAR ELPAR Notes Syntax (measurement, element, index) Returns the parent of the item in the specified dimension. The index refers to the measurement hierarchy index, which is usually 1 if there is no more than one hierarchy in the measurement. For IF (expression, true_value,false_value) returns the true value if the logical expression is correct, otherwise it returns a false value. 4. In the Rules Editor, enter the following rule: Currency (S:IF (ELPAR), Subsidiaries! subsidiaries,1) 'GO AMERICAS REGION', 'USD', continued:; The rule states that for the currency, refer to the parent element. If the parent is GO AMERICAS REGION, the currency will be USD, otherwise continue. 6. Continued application allows a lot of rules over the same area and we will use STET at the end to allow cells not covered by this function to be entered manually. 7. Save the rule and return to the Server Explorer window. 8. Double click on the cube ElementAttributes_Subsidiaries and count. 9. Now add to the cube the following rules: Currency (S:IF (ELPAR),subsidiaries! Currencies and S:IF(ELPAR),'Subsidiaries,' subsidiaries,'1)'GO EUROPE GMBH', 'EUR', continued); 10. Save the rule and recalculate the view as shown in the following screenshot. As previously stated, the rule will assign currency attributes to each subsidiary, but in many real-world scenarios the currency for each subsidiary is loaded from the source file itself through the TI process. 290 Chapter 9 11. Close the rule editor and view without retaining the view. 12. In the Server Explorer window, tap the right button on the control cube called ElementAttributes_ ExpenseMeasures and recalculate the view. We have applied formatting for the amount already with a dollar sign, but that does not mean that it is in U.S. dollars. The amount is intended for local currency and the $ sign simply means any currency symbol by Issue. 291 Currency Conversion 13. In the Server Explorer window, press the right button ElementAttributes_ExpenseMeasures and on the Creation Rule to open an extended rule editor. Now we will assign currency attributes to ExpenseMeasures. We can also code them hard, but we'll use the rules to make it more flexible, which can be useful in real-world scenarios. 14. In this rule, we will use the SUBST function, which returns the subcharo of the line. Its syntax is: SUBST (string, beginning_position, length) 15. Enter the following rule: 'Currency' and S:IF (SUBST (! ExpensesMegna,1,9) 'Reporting', SUBST (! ExpensesMe, 11,3), STET); 16. Save the rule and recalculate the view, as shown in the following screenshot: 17. The rule refers to the name of the item to determine the value of the reporting currency. If we add a new reporting currency, according to the naming convention applied to the previous element, the rule will automatically update the currency attribute. In the case of hard coding, we have to change the currency manually. For example, if a user adds a usd reporting GBP, the rule will automatically keep the currency attribute up to GBP. No need to manually go and update the attribute, just follow the naming convention when adding a new measurement item. 292 Chapter 9 How It Works... In this recipe, we have two main cases of uses. First, fill in the currency attribute for each item in the measurement of subsidiaries. We wrote our first rule for ElementAttributes_ for this. Second, we want to provide flexibility for users so that they can add currency measurement elements such as USD reporting, JPY Reporting (which have already been added) and so on. Currency attributes for these items must be populated by default based on the last three characters of the items. For example, if a user adds a GBP report, the rule should fill in the currency attribute for an item with GBP. We discussed this rule in the second part of the recipe. By creating rules for the application of exchange rates and the calculation of the equivalent amount in the target currency In this section, we will write the rules for applying conversion based on zRate. We will use the currency attribute and previously created measurement. Start Make sure the TM1 Admin Server service is up and running the demodataTM1 server. Open TM1 Architect from Start Menu. How to do it... 1. In the Server Explorer window from the View menu, click on display controls to disable the control cubes display. 2. In the Server Explorer window, double tap the spending cube and create a new look called ReportingCurrencies. 293 Convertible currencies 3. In Cube Viewer, double tap on ExpenseMeasures and in a subset of the editor, click on everything and then on OK. 4. In the Cube Viewer window, click on Recalculate to update the view. 294 Chapter 9 5. Add a spending cube to the rules, the right button on the on and then choose the creation rule in Server Explorer window. 6. We will now multiply the dollars by the exchange rate that will be extracted from the zRate cube using the currency listed as an attribute in the measurement of the subsidiaries and the TO currency specified as an attribute in the ExpenseMeasures measurement. 7. Enter the following snippet of code shortly before FEEDERS statement: USD Reporting and N: Sum DB ('zRate', ! Months, 'Reporting', ATTRS ('Subsidiaries', Subsidiaries,' Subsidiaries, 'Currency') ATTRS ('ExpenseMeasures',',' !Commits, 'Currency')); 8. In the previous rule, we inserted a cubic link to the zRate cube, which can also be inserted into a piece of code by clicking on the Insert Cube link in the rule editor. Thus, in the previous rule, we calculated the usd amount and assigned it to USD (it has USD as a currency attribute defined by the ElementAttributes_ExpenseMeasures rule). The base currency will be derived from the currency attribute in the child dimension. This attribute is again defined by the rule we wrote on ElementAttributes_Subsidiaries. 9. In the received dialogue for Cube specify zRate and the subset icon in Help, the Report must be selected from the subset of the cube. 295 Convertible currencies 10. The ATTRS function is used to obtain the currency attribute of the measurement of subsidiaries for the current subsidiary. 11. The code will look like the following screenshot with a newly added part: 12. Now add the feeder, as shown in the next line of the cube: Sum (THE USD Report); 13. The code will look like the following screenshot: 14. Copy the rule at number 8 and change for EUR and JPY, as shown in the previous screenshot. Instead of copying and embed, the assignment to the items can also be made using a single line of code, using the following syntax: 'USD Reporting', 'Reporting JPY', 'Reporting EUR'N:... We use a copy of the pasta for the sake of simplicity, so it's easier for readers to understand. JPY and N Reporting: Amount ('zRate', ! Months,'Reporting', ATTRS ('subsidiaries',! subsidiaries, 'Currency), ATTRS ('ExpenseMeasures','! Reporting EUR - N: Sum DB ('zRate', ! Months,'Reporting', ATTRS ('subsidiaries,' ! subsidiaries, 'Currency), ATTRS ('ExpenseMeasures', ! 296 Chapter 9 15. Change the relevant FEEDER statement, as shown in the following line of code: Sum ('gt,' 'Reporting USD,' 'Reporting EUR','Reporting JPY';; 297 Currency Conversion 17. Save the rule and recalculate the submission 18. Close all open opinions and the rule editor. How it works... In this recipe, we wrote the rules for converting the currency from the base currency to the target currency. The rules inhabit currency-specific measures (USD reporting, JPY reporting and reporting for each subsidiary. The underlying currency is determined by using the ATTRS function in the measurement of subsidiaries. The target currency is again determined by the ATTRS function in the ExpenseMeasures measurement. Thus, if a user adds an item to ExpenseMeasures with the name Reporting GBP, their currency attribute is set on GBP. When the rule applies on a cell, for example, at the intersection of GBP and GO Central Europe, the ATTRS function on subsidiaries will return EUR, which will be the target currency. Thus, the zRate cube will have a currency like EUR, CurrencyConvertTo as GBP, and the recovered and multiplied by the base amount and result stored in the GBP report. 298 10 Modeling for various financial requirements In this chapter, we will cover: ff Adding a Year of Measurement ff Creating a Continuous Time Model Introduction to any BI/DW implementation, time measurement always plays a crucial role to the extent that with the clean and accurate implementation of time measurement has become necessary. You can include the time aspect in TM1 to facilitate time-based data analysis. So in this chapter we will focus on creating and maintaining the measurement of time. This approach is similar to that of which we approach other dimensions. Before you start by measuring time, it's important to determine the level of detail that a business needs to have to analyze data and the existing detail in the source that transmits the data to the TM1 cubes. This chapter will discuss two main implementations of time measurement in TM1. These are: ff Discrete time dimension ff Continuous time measurement Modeling for different fiscal requirements Discrete time refer to the simplest form of implementation, which stores individual periods of implementation. They are easier to maintain and intuitive to users. However, it is not recommended where rolling predictions should be made. Adding a year of measurement In this recipe, we're going to create a year of measurement as well as months. The year should contain three years, starting in 2008, and next year we will download data for 2008. How to prepare Make sure that TM1 Server Server Service is running and the DEMOdsTM1 server is working. Open TM1 Architect from Start Menu. How to do it... 1. In Server Explorer, create a new dimension with basic-level elements as follows: q 2008 q 2009 q 2010 2. Save the dimension as years and close the viewer dimension to return to Server Explorer. 3. Create a new cube called Franchise_Revenue2 with the following sizes included: 300 subsidiaries of the month of the version of Chapter 10 4. Cube displayed on the server server window, as shown in the following screenshot: 5. Create Franchiserev.CSV to download data in Franchise_Revenue2 as shown in the photo. The data in MS Excel for 2008 and the month of the column in the sheet has a d-mm format. Thus, the first row has data for January 11, 2008. 6. Place .csv on C: Cognos TM1Tm1Data CustomTM1Data TI_ data. 301 Modeling for different fiscal requirements 7. From the Server Explorer window, create a new TI process with a previous file listed as the data server name and the number of title entries listed in 1. Click on the preview to show the sample data present in the file. 8. Click on the Variable tab. Variable names and maps, as shown in the following screenshot: 9. On the same tab, create a new variable called vDate with the following formula: vDate-SUBST (vMonth,4,3); 10. The previous line code will extract the subchar, starting from position 4 to three characters and uploading months to the vDate variable. 302 Chapter 10 11. For the vDate in Variables tab, under the variable type, the line must be specified and under the content, click on the item, as shown in the following screenshot: 12. On the same variable tab, create another variable called vYear with a variable type of string and content as an item. Bring the following formula: vYear '2008'; We only use the TI process to download data for 2008, so we rigidly coded vYear until 2008. As mentioned earlier, the Month column in the MS Excel sheet has a d-mmm format that has a day and monthly portion. Part of the year is supposed to be 2008 as a sheet designed for this year alone. If we had data for another year in the same spread sheet, then we would have to use the SUBST feature to extract the year just as we did for vDate. 303 Modeling for various financial requirements 13. The completed Variables tab now looks like the following screenshot. 14. Now click on the Map tab. Click on the Cuba update and for Cube Name to specify Franchise_Revenue2. 15. Click on the Size tab and the variables with the sizes they download, as shown in the following screenshot: 16. Click on the Data tab to indicate the displays to measure the items, as shown in: 304 Chapter 10 17. Click on the extended tab and all the tabs at the bottom to create common scripts. 18. Save the process as LoadFranchiseRevenue2CSV and start the process. Ignore the message by clicking on OK. 19. Close Turbo Integrator and open Franchise_Revenue2 cube. 20. When viewed by default, swap months and subsidiaries, and then months and versions. 21. Double click on the months to open in a subset of the editor. Click on everything, Ctrl-Click on No.1 and No.2, as shown in the next screenshot, and click on OK. 22. Drag the years into the column area (left months) to add up the sizes. In the list of versions, choose the budget version1. 305 Modeling for various financial requirements 24. Click on Recalculation update the view with the data, as shown in the following screenshot: 25. Save the view as the default public view and close the view to go back to Server Explorer. 26. The resulting cube is useful for comparing the same months or quarters over time. If a user needs more detail or more time-specific information, such as a comparison of weekends and weekdays, and so on, continuous time measurement can serve as the purpose discussed in the following recipe. Years and months, on the previous screenshot, generally differ in size. Therefore, if we look at months or quarters, then we should have a year on the columns to provide context; otherwise the numbers will be incorrectly added together, that is, Ian will show a total of January 2008 and January 2009 and January 2010. How it works... In this recipe, we assumed that we are interested in a monthly level of detail while we analyze the data. Thus, we have created a time of measurement of the Months with the years at the highest level, preceded by quarters and months. We also uploaded 2008 data to the cube and saw how you can create time-based data views, hence providing time for business data when doing the analysis. 306 Chapter 10 Creating a continuous time model Continuous time measurement is realized by creating a time cube that allows the user to compare the current and previous periods for current as well as previous years. This provides more flexibility in supporting forward-looking applications that cover the year boundaries. Thus, the size of continuous time provides more flexibility, but they are difficult to maintain. In this recipe, we implement a continuous time measurement model and demonstrate the flow in a cube called Franchise_Revenue. How to prepare Make sure that TM1 Server Server Service is running and the DEMOdsTM1 server is working. Open TM1 Architect from Start Menu. How to do it... 1. Open the Server Explorer window and create a new cube, call it Franchise_ Income with the following sizes: the subsidiaries of the months of the version 2. Please note that the cube will be loaded from the previously created Franchiserev.CSV. 3. In the Server Explorer window, under the processes open LoadFranchiseRevenue2CSV and save it as LoadFranchiseRevenueCSV. 4. In the existing process under the Variable tab, remove the vYear variable tab so that the Variables tab now looks like the following screenshot: 307 Modeling for various financial requirements 5. Under the Map tab, change the name Cuba to Franchise_revenue cube. 6. The Size tab should be updated as follows: 7. Pay attention to the Data tab as shown in the following screenshot: 8. Save the process and run it to fill the cube. 9. TI process and go back to the Server Explorer window. Double-click on the Franchise_Revenue to open the default view, as shown in the next screenshot. 10. Changing the default view for as follows: 308 Chapter 10 11. Save the view as the default public view. 12. Now we will create a continuous measurement of time with Turbo Integrator. 13. In Server Explorer, right click on the processes and click on creating a new process a turbo integrator process for the same. 14. Now we're going to create a SLTime.csv file that consists of three years of data to create a measurement. 15. Notice the .csv structure as shown in the following screenshot 309 Simulation for various financial requirements 16. Note that the previous CSV has 36 lines of data and the front row as a title reload. Thus, .csv has three years of data on monthly detail. While the first three columns will be displayed on items (simple and consolidated), the last three are just attributes. These csv files can be downloaded from the PACKT website. 17. Place CSV on C: Cognos TM1 Custom TM1Data program TI_Data. The data will make it easier for the user to view the cube Franchise_Revenue with a continuous period of time, which spans three years, starting on January 1, 2008. 19. Another version of the Franchise_Revenue will be created, which should allow the user to compare data for the current and previous periods, both this year and last year. 20. Now we will continue to create measurements using SLTime.csv and the Turbo Integrator process. 21. In the Turbo Integrator window you're already open, include the name of the data source as SLTime.csv with the number of title entries listed as 1. 310 Chapter 10 22. Click on the Variable tab. Include the entries shown in the following screenshot: 23. Click on the Map tab and then tab sizes to match the variables with the sizes. 24. In the Measurement column for Mo, hang SL_Time and then click on the entrance. 25. Click on the automatic, click on the hierarchy, and then click on OK. 26. The resulting Size tab looks like the following screenshot: 27. Note that the item type is listed as Numeric. 28. Now click on the Consolidation tab and provide a display for the consolidated items, as shown in the next screenshot. 29. On the child's variable cell for the quarter, select Mo, and then click on OK. 30. Now, for the Yr variable cell, select a quarter and then click on OK. 311 Modeling for various financial requirements 31. The results are as follows: 32. Click on the Attributes tab to indicate the attributes display. Set a variable element for Mo for all three attributes. Now for the Attribute column, include the following: MoYear: MonthYear Mo01: M00'MonthLongName: M00 LongName. Name 34. For the Attribute Type column, hang the following: Alias Mo01: Text monthLongName: Text 36. As a result, the panel looks like the following screenshot: 312 Chapter 37. Click on the extended tab, and then all the tabs under it will generate automated scripts. Scripts. Save the process as CreateSLTimeCSV and then run it. 39. Close the Turbo Integrator process to return to the Server Explorer window. 40. Double click on the SL_Time and the result is as follows: 313 Simulation for various financial requirements 41. In the Subset editor, click on the use alias icon shown in the following screenshot and view the changes as 42. Now close the subset of the editor. In the next steps, we will create a time navigation measurement consisting of the following elements: Prior_Period Next_Period Same_Period_LY Same_Period_LY Prior_Period_LY Same_Period_NY Next_Period_NY 44. In the Server Explorer window, create a dimension with the name Time_ and insert previous time elements. 314 Chapter 10 45. Now we will create and populate the time navigation cube. 46. In the Server Explorer window, double-click on the zTime_Navigation to open the default view. 48. Click on the SL_Time measurements, and in a subset, the editor clicks on the All icon on the All items in the view. 49. Click on the recalculation and save the view as a public view by default. 315 Modeling for various financial requirements 50. Populate the cube through the view manually by entering the data in the cells, as shown in the following screenshot: 51. Save the view as the default public view. 52. Close the view and return to the Server Explorer window. 53. In the Server Explorer window, create a new dimension with the name Franchise_Revenue_Measures consisting of the following elements: 316 Current period, the previous period ended the next period ended. Save the size and close the measurement editor to get back into the Server Explorer window. 55. In the Server Explorer window, create a new cube called Franchise_Revenue3 and consists of the following dimensions: subsidiaries SL_Time q Versions Franchise_Revenue_Measures 56. Double tap the cube in Server Explorer to open the default view. 57. Arrange the cube, as shown in the following screenshot: 58. Click on the SL_Time to open a subset of the editor. On button Number 1, M1, M2 and M3, and then from the View menu, click Expand Below. 59. Save the view as the default public view and close the view. 60. Open the LoadFranchiseRevenue.csv process from server Explorer's process menu. 317 Modeling for various financial requirements 61. In the Variable tab, add a new variable named vMeasures. Apply the following formula to the variable: vMeasures'Current Period'; Please note that the type of new variable will be string, and the content will be set on the item, as shown in the previous screenshot. Thus, the MMM part vMonth (January rated from January 11, i.e. January 11) will be concatenated to -08 (2008) to arrive at vDate in the required format (January-08), which will be hard-coded for 2008 as we downloaded data from .csv, which has data for 2008 only. vDate-SUBST (vMonth,4,3) -08'; 64. Click on the Map tab and change the name Cuba to Franchise_Revenue3 by selecting it from the cube list. Keep a Cube action set to update the cube. 65. Click on the data tab and bring in variable data on budget version 1 and budget version 2, as shown in the following screenshot: 318 Chapter 10 67. Click on all the tabs under the Advanced tab to create scripts. Save the process as LoadFranchiseRevenue3CSV and start the process. 68. Close to returning to Server Explorer. 69. Recalculate the default view Franchise_Revenue3 to make sure that the current period currently has data inhabited, as shown in the following screenshot: 70. Now the real issue is that we would like to write rules for calculating the dates for Franchise_Revenue3 cube. 319 Modeling for various fiscal requirements 72. Enter the following piece of code: SKIPCHECK; End of the previous period - N: DB ('Franchise_Revenue3', ! subsidiaries, DB ('zTime_Navigation', !SL_Time, 'Prior_Period'] , ! Versions, Current Period); 73. In the previous rule for each cell of the previous period ending in the cube Franchise_Revenue3, the corresponding pre-season looks from the cube zTime_Navigation, and the value of the current period from the cube Franchise_Revenue3 is copied to the cell. 74. For example, for M2-2008 it will look for a cube zTime_Navigation and will return the M1-2008 as the previous period. The current period value for the returned M1-2008 is then copied to the end of the previous M2-2008 period, which is the required behavior. 75. Add after FEEDER at the end. FEEDERS; Current Period ('Franchise_Revenue3', DB ,'zTime_Navigation', !SL_Time, 'Next_Period') , ! Versions, 'Prior Period Ending); 320 Chapter 10 76. Save the rule and close the editor to return to Server Explorer. 77. Recalculate the view of the Franchise_Revenue3 and check if the data is currently inhabited for the pre-end period as well. 78. Close Cube Viewer. How to do it... In this recipe, we implemented a continuous time measurement model and received to extract the previous specified in the zTime_Navigation cube. There's more... We can expand the recipe that it is easier for users to compare data for this year and last year. To do this, you need to add calculations for the same (or current) period of last year's balance. We have already created a time navigation cube for these calculations. To do this, we need to do this: 1. Add calculations for the same LY period and before the end of the LY 2 period. AND add FEEDERS We need to add rules to the Franchise_Revenue3 in the extended rule editor, as shown in the following piece of code: SKIPCHECK; End of the previous period - N: DB ('Franchise_Revenue3', ! subsidiaries, DB ('zTime_Navigation', !SL_Time, 'Prior_Period'] , ! Versions, Current Period); Same period ending LY' N: DB (Franchise_Revenue3', ! Subsidiaries, DB ('zTime_Navigation', !SL_Time, 'Same_Period_LY'] , ! Versions, Current period; 'Prior End Ending LY' N: DB ('Franchise_Revenue3', ! Subsidiaries, DB ('zTime_Navigation', !SL_Time, 'Prior_Period_LY'], ! Versions, 'Same Period Ending LY'), DB ('Franchise_Revenue3', ! Subsidiaries, DB ('zTime_Navigation', !SL_Time, 'Next_Period_NY'], ! Versions, 'Previous Period Ending LY; 322 Chapter 10 Previous convertibility shows a revised piece of code that is viewed by the rule editor on Franchise_Revenue3 cube. This should be the same period ended LY and the previous LY ending period as well, allowing the user to compare between the current year's data and last year. This can be verified by checking the LY values for 2009. 323 11 Optimization Of Performance Rules In this chapter, we will cover: ff Adding SKIPCHECKS and FEEDERS ff Rule TroubleShooting and Feeders Introduction So Far, We've seen how the rules play a crucial role in implementing even the simplest business-specific solutions in TM1. An additional consideration may be the performance of these rules when it comes to billions and billions of cells in any decent cube size. Business definitely doesn't want to wait hours and hours until cubes are created because of the huge amounts of data. Room crunch and analysis should be quick and accurate. With this on the cards, the TM1 engine was designed to optimize performance in different ways. Some require the user to do the configuration, and some just happen in the background without even knowing it. In this chapter, we will look at such concepts to be able to use TM1 in the most effective way. We'll look at: ff Consolidation and sparsity ff Using SKIPCHECKS and To improve performance Optimization Rules Consider a typical business scenario where we have three regular sizes, sizes, measurements and two measurement elements. So we have 100 items for product, region and customer, and we're interested in two years' worth of data with daily detail. Daily detail for two years will have at least (365 x 2 and 730) points. So our cube will end up with (730 x 100 x 100 x 100 x 2) cells, which still is a conservative estimate on the amount of data that we have in a real, decent sized organization. When one customer buys one product in the region on a given day, the consumption point of of 1,460 million possible intersections will evaporate. Thus, most of the intersection will be zero or empty. Now, if the previous data is say, 1% of values in non-zero and zero, then it is much faster and more efficient to do consolidation only on that 1% and then spend resources on other 99% zeros and zeros. In any practical business scenario, it's common to have over 80% values like zeros and zeros, and we don't want the consolidation engine to waste time on those while

rolling. Moreover, rolling these zeros and zeros will lead to more time of such values, which will unnecessarily lead to an explosion of the size of the cube, which we do not want. To avoid such situations, the TM1 consolidation engine automatically misses zero and zero values, consolidating and therefore saving a lot of resources. When we write a rule that is being implemented, it also affects the aforementioned consolidation process. Once the rule is added to the cube, TM1 checks each cell to see if the rule applies to it. If so, it is rated non-zero. TM1 then consolidates only non-zero values. Cells that are now populated by rules are seen as having no values in the consolidation engine. The above rule check occurs as soon as the rule file is tied to the cube, even if it does not contain rules. This can significantly increase the time it takes to aggregate data when consolidates. We can disable this check by using a SKIPCHECK statement in the rule file. Now, in the continuation section, we will expand the same idea of using SKIPCHECKS to optimize the performance of the rules. SKIPCHECKS are added to the top of the rule file to skip automatic verification of all cells. This will allow you to correctly calculate the values at the base levels, but the figures at the consolidated levels will be zero if the baseline is obtained by the rules. This is because the consolidation engine considers everything calculated by the rules to be zero and therefore it misses it when performing aggregation. Adding SKIPCHECK will eliminate automatic cell verification if it is rated to non-zero values and therefore zeros at consolidated levels (if the cells concerned were obtained by the rule). 326 Chapter 11 In general, as a direct consequence of consolidation only on the and non-zero values, storage space is retained as the cube stores only non-zero and non-zero values. Time is another resource that is preserved due to this economical behavior of the TM1 consolidation engine. Thus, to sum up: the TM1 consolidation engine only takes into account non-zero and non-zero values when aggreging. This saves time and storage space used by the cubes. When the rule applies to the cube, a rule file is generated that is checked by the TM1 engine, even if it does not contain a single rule. ff Each cell is evaluated by the TM1 engine and checks whether the rule applies to that cell. If so, is it valued at non-zero values? Consolidations are then performed on non-zero and non-zero values. ff Adding SKIPCHECKS at the top of the RULE file will miss this check by the TM1 engine and save time and storage. As a result, all consolidated-level data that is obtained using the rules will have zeros, as cells that obtained zero values were not calculated correctly. As a direct consequence of missing cells, we end up seeing incorrect zero values in consolidated cells, even if the base cells correctly inhabited non-zero values calculated by the rules. We are looking at the following scenario to highlight the problem. We assume that the overall year is consolidated into 1 and 2 quarters separately, not in No. 1 and No. 3 and No.4. Nos. 1 and 2 are not consolidated, but are calculated using rules. Here in the previous scenario, we have the last two columns that have calculations and therefore the overall product column ignores the values in them. To fix this problem, we write to FEEDERS to tell TM1 which calculated cells will receive non-gain values through the rules. This will ensure that TM1 will not miss calculated cells obtained by the rules only if they contain non-zero and non-zero values. These non-zero and non-zero values are then consolidated. Thus, it increases the speed while maintaining accuracy at the same time. FEEDERS are usually written at the end of the rule file to indicate which cells will contain the values used in the rules and which N-level cells should be calculated TM1. For each set of values inhabited by the rule, feeders are usually written to optimize performance rules. When writing in the rule file at the bottom of the rule, he tells TM1 which elements on the right side of the rules will determine if there is no zero, rather than zero value to the left side of the rule. For example, the following rule: Income (N: Number); The number determines whether the value will be non-zero and not zero in Income, and therefore for this rule written a FEEDER statement Written after FEEDERS; Statement at the bottom of the rule file: Revenue; It clearly tells TM1 that Eats quantity; therefore, place an internal marker in the Income cell if there is a value for the amount that is considered by the consolidation engine when processing values for the Income Rule. Feeders are activated at first loading of the cube in memory, and then at zero value in the cube. On the contrary, the rule is activated whenever the user asks for a value. When we feed the cell, this cell holds a small marker that takes up a small amount of memory. This will result in TM1 reviewing any rule applicable to that cell and reviewing it in consolidation, even if that cell eventually returns a zero value. Therefore, we need to be careful when writing a FEEDER statement, as unnecessary feeders will be additional overheads for processing time as well as storage. This overhead is greater when the cube is first loaded into memory, as at the moment the processor has to evaluate all feeders. After that, this burden is less, as TM1 needs to be evaluated by the feeders only when the value changes from zero to non-zero for any fidels that are associated with the changed value. Thus, overfeeding will cause performance bottlenecks because it effectively brings us back to a state that was before skipCheck was added. Typically, feeders should only be applied to simple cells that are calculated using the rule. For example: ff We write a feeder for: X N: 1; ff We don't write feeders for: X (X) C: I; We do not feed the rules that apply to consolidated cells unless we use zero suppression. When multiplying and dividing, we feed using the least amount of data, as shown: Income = Number (Price); Number (Income; 328 Chapter 11 Also, subtraction, or logic, feed with each section: HalfYear (HalfYear) N: 1 2; (1)> HalfYear;; (2) > HalfYear;; This is usually a better idea to overfeed than to feed, underfed calculated cells that may actually have non-zero values that would lead to incorrect consolidation, as there would be no certain cells being treated as zero, even if the calculation could lead to non-zero values. We may also have to feed both consolidation and feed values when users turn on zero to view. Suppressing zeros hides all the values that show only zeros in the entire line or column. If basic and consolidated levels are not calculated, Suppress nos can hide columns or lines containing calculations. We have seen before that the rules can also pull data from other cubes. In such cases, the feeders place the marker in the original cells and push it towards the settlement cell in the target cube. While usually in the target cube, feeders usually in the cube of the source. From the fashion designer's point of view, if the original cells are in a different cube, the FEEDER statement should also be there. We usually use Application for fire rules applied to line cells.when: ff Rule pulls a string into another cube ff Rule fills the selection list ff Target uses zero suppression to ensure string cell feeding, we need to insert a FEEDSTRINGS declaration with FEEDSTRINGS; statement as the first line of the rule. FEEDER statements are then placed under the FEEDERS declaration after statements about the rules. Once the FEEDSTRINGS declaration is accepted, only then will we be able to set up feeders for the line cells in the cube view and rely on a line that is available for other cells, even if the view is zero suppression. Adding SKIPCHECKS and FEEDERS The purpose of this recipe is to improve the performance of computing in Price_and_Cost using SKIPCHECKS and FEEDERS. Get ready to make sure tm1 Admin Server is up and running and the TM1 Server demo is working. Open TM1 Architect from start menu. 329 Optimize Performance Rules How to Do It... 1. Start DemoData and open Server Explorer. 2. In Server Explorer, open the default view for Price_and_Cost and expand CAMPING EQUIPMENT. 3. Open the rules editor for Price_and_Cost cube. 4. Insert a new line at the top and enter SKIPCHECK; 5. Save the rule and recalculate the default view for Price_and_Cost cube. 330 Chapter 11 6. Consolidation no longer calculates the average because TM1 does not see calculated values in N: UnitPrice_Hold and UnitPrice_Count. They contain calculations that don't know that they contain values for calculation and are considered as 0 when consolidated values are aggregated. 7. We have to feed N: level calculations, so that the values for these cells can be used in other calculations. 8. In the part of the code shown in the following screenshot, we will feed N: level calculations for UnitPrice_Hold and UnitPrice_Count using the unit spice, so they are used to calculate sales price at consolidated levels. 331 Performance Optimization 9. Now add FEEDERS, as shown at the bottom of the rule: FEEDERS; The sale price of a unit UnitPrice_Hold, UnitPrice_Count; 10. Save the rules and recalculate the view. This will be updated as shown in the following screenshot: 11. Close the Rules Editor and Cube Viewer. How it works... In this recipe, we improved performance by adding SKIPCHECKS to the rules. We have also ensured that the consolidated elements are calculated correctly by adding FEEDERS. There's more... When we feed the consolidated element, all children are fed; while when we start feeding from the consolidated cell, we feed from each child implicitly. 332 Chapter 11 We is also worth exploring the idea of a persistent feeder that improves the time of recharging cubes with complex There is a configuration option, PersistentFeeders, that can be set on on (T) to store calculated feeders in the .feeders file. Any installation over a server load time of more than five minutes can probably improve their performance with this option. When this option is set up to T and the server collides with a permanent feed file, it downloads the stored feeders, which reduces the time normally typed to recalculate those feeders. Feeders are stored when data is heli or rule editing is edited. We must not explicitly keep the feeders. Thus, for installations with many complex feed calculations, the remaining feeder and then restarting them when the server starts will improve performance. Rules Tracer rules and feeders are a feature provided by TM1 to troubleshoot rules and feeders. They are usually accustomed to: ff Trace calculations ff Trace feeders ff Check feeder rules tracer has two glasses: ff Top Glass shows the current definition of the cell and calculations ff Lower Glass shows the components of the calculations and feeders the user can right click on any of the cells and choose the tracer calculation to trace it to the base level or lead the elements level. Tracing feeders is another utility that is only enabled at the base or cell sheet level and checks how the selected cell feeds other cells. If the cube contains a rule with SKIPCHECK and FEEDERS statements, the Rules tracer can be used to verify whether all consolidation components have been filed or not. If the Tracer panel is empty, it means that consolidation is served; Otherwise a red message is displayed for all the leaf level cells that need to be fed. Get ready to make sure tm1 Admin Server is up and running and the TM1 Server demo is working. Open TM1 Architect from start menu. 333 Optimize Performance Rules How to Do It... 1. Open the Server Explorer window for the DemoData server that has already been launched. 2. Open the AverageRule view on the cube Price_and_Cost as shown in the following screenshot: 3. Right click on CAMPING EQUIPMENT for the Unit Price cell and then click on Trace Calculation. 334 Chapter 11 4. The top panel shows the calculation (consolidation), and the bottom panel shows the values that make up the calculation above. 5. We can double-click on the value in the bottom panel to trace it. 6. In the previous window, double-click on the first line in the bottom bar and under the tracing dashboard it shows the path we're tracking. 7. We can double-click the expression in the tracing calculation bar to return to the previously traced expression. 335 Optimization of Performance Rules 8. At the bottom most of the items are displayed with a gray bullet to indicate that there is nothing to trace and we are already at the base level of the element. 9. Click on the file and then exit to close the window. 10. Now we'll try Feeders utility, right clicking on CAMPING EQUIPMENT/Unit Sales Price Cell in Cube Viewer as On the next screenshot: 11. The resulting window in the Tracer Rules does not show anything except a calculation that tells us that the consolidation was filed properly and is the desired result. 336 Chapter 11 12. If FEEDER operators not properly used in this rule, we would see the elements, make up this consolidation and not fed properly. We can only check FEEDERS for a cell once per TM1 session. The FEEDERS validation actually powers the consolidation components. Any subsequent FEEDERS test does not produce accurate results. If we want to test FEEDERS for a cell more than once, we need to recycle (close and restart) the TM1 session. 13. The Trace Feeder option can be used to show the exact cells that feed, they are displayed in the bottom panel, fed to the top panel. 14. The Trace Feeder option is only available on the basic level elements and is disabled for consolidated items. How it works... In the next recipe we have: ff Used the Rules tracer to review the calculations ff Verified sheet level elements, Eating other computing with Trace Feeder ff Verified that the calculations feed on the correct base cells using Check Feeders 337 12 Working with managed planning applications In this chapter, we will cover: ff Installation and Setting IBM CognosTM1 Author components ff Installation Apache Tomcat 6.0.18 for IBM Cognos1 Author ff Installation IBM CognosTM by Tomcat Server ff Setting IBM CognosTM1 Contributor with Microsoft IIS FF Launch IBM CognosTM1 Contributor for the first time ff Installation IBM CognosTM1 Contribution Administration Tool ff Data Promotion for Managed Application Planning ff Introducing IBM Co gnosTM1 Contribution Work Process Screen ff NavigationTM1 WorkSpace Investor ff Opening node , Editing and Distributing Data ff Data Review ff Creation and Deployment Managed Planning Application in Web ff Security Setting and Access Rights ff Security Destination for Managed Application Planning Working with Managed Application Planning Introduction Through previous chapters we have gone through the various OBJECTS TM1 that are at the heart of the TM1 planning application. These include sizes, cubes, rules, TI processes, views and responsibilities. As we learned, these objects are created with TM1 Architect and are located on the TM1 server. The managed planning app contains an additional layer of application that makes it easier for users to access the core components of TM1, analyze and input data. The application layer includes the following additional components that TM1 Contributor needs to install and customize properly. Notice the typical architecture of managed apps The previous chart is an additional level 1 component of THE TM1 Contributor, which has web clients and an administration tool installed and configured. They will be detailed later as the chapter becomes available. The second level is Web Server (Web Sphere or Tomcat) and Microsoft IIS, which are necessary to install and customize The Contributor. The third level, as we learned earlier, has one or more TM1 servers that hold TM1 data and objects to plan the application (demos in our case) and TM1 Admin Server. TM1 Admin Server is a process that tracks all TM1 servers running on the network. 340 Chapter 12TM1 Contribution communicates with the TM1 admin server to determine which TM1 servers are available online, how everyone running TM1 Server must register with the TM1 Server Administration. In our case, each of these components is on the same computer and therefore one computer installation. TM1's contribution combines the power of IBM Cognos TM1 with the capabilities of IBM Cognos's enterprise planning tool. Contributor is a web planning platform that allows hundreds of users from multiple locations to contribute planning data to the central repository, which in turn acts as a single source of accurate planning data. Once the member app is built, users can access the web grid to enter the data via intranet or secure Internet connection. When users log into a contributor's web application, they see a graphic overview of all the areas for which they are responsible and the state of the data. The user who logs in can only enter the data to which he is authorized. The contribution also allows you to build complex calculations within the model itself, so users only need to enter the data they know. Users can enter relevant data through the grid web interface or through the Excel interface. THE author includes: ff TM1 Contribution web client ff TM1 Adisyers TM1 Author web client used to view and contribute data to the PLANNING app TM1. TM1 Contributor Administration is a customization, design, and management tool used by administrators to create planning and management applications. 341 Working with managed planning applications and customizing IBM CognosTM1 Contributor components In this recipe, we'll install and customize IBM CognosTM1 Contributor Version 9.5.1/9.5.2 and customize it to work with the existing DEMOdata TM1 server. Preparing Here we will assume one computer installation of the contributor and its components. Take note of the installation steps in sequence. Note that the 9.5.2 installation steps are the same as the 9.5.1. There are small differences in the user interface that we later, but now we can take the next installation at 9.5.1/2 depending on what is available to you. How to do it... 1. Microsoft installation .NET .NET Sp1 frames. 2. Set Microsoft Internet Information Services (IIS) (ASP) 32 bits /64 bits. 3 Install Java SE Execution Environment (JRE) version 6 for Windows. 4. Install one of the following java servers: IBM Web Sphere Application Server Community Edition (CE) V2.1.1.2 Apache Tomcat 6.0.X 5. Install TM1 Contributor using TM1 Installation Master. Determine the security authentication mode for use. 7. Deploy TM1 Contributor on a Java server. 8. Run and set up TM1 Contributor. 9. Installing the TM1 Depositors Administration Tool. 10. Set up additional TM1 servers if necessary. When you run TM1 Contributor, the platform versions must be consistent. For example, if you're using a 64-bit version of JRE, you should use the same version of Apache Tomcat (64 bits). The same would be the case with 32 bit versions. Here we will use Apache Tomcat as a web server. However, IBM Web Sphere Application Server Community Edition (CE) V2.1.1.2 can be used. While the initial steps are simple, installing Java servers requires more attention and will therefore be discussed in the next recipe. 342 Chapter 12 Installation Apache Tomcat 6.0.18 for IBM CognosTM1 Contributor In this recipe we will be installing Apache Tomcat 6.0.18. As mentioned before, you need to install a web server to make the TM1 Contributor components work. How to do it... 1. Download and install Apache Tomcat with site. 2. On the download page for Tomcat 6.0, go to binary distributions, and then in the Core sub-distribution select the .exe Windows service installer, as shown in the following screenshot: 3. Make sure Apache Tomcat Encoding is installed on UTF-8. 4. Make sure that the web server we install does not use the same TCP port number as any other app on the same computer. We follow the one installing your computer on Windows XP for all the recipes in the book. 5. The steps above will add a record for Apache Tomcat 6.0 to the start menu after a successful installation. 6. Check out the documentation available download-60.cgi for more information. 343 Working with managed planning applications There's more... We can also use IBM Web Sphere Application Server Community Edition (CE) V2.1.1.2 as a web server with TM1 Contributor. In this book we use Apache Tomcat 6.0.X and therefore discussed installing the same above. Check the documentation on . boulder.ibm.com/infocenter/ctm1/v9rm5m0/index.jsp?topic=%2Fcom.ibm. swg.im.cognos.tm1_rdm.9.5.2.doc%2Fm1_rdm_id48installing.html to install Web Sphere Application Server Community Edition (CE) V2.1.1.2 steps. Installation IBM CognosTM1 Contributor This recipe describes the installation steps required for the TM1 contributor. TM1 Contributor and all his can be installed with TM1TM1 Master. TM1 Contributor and its components can be installed using the same wizard by selecting the latest option (TM1 Contributor) on the Select a Product to Install screen, which installs everything (TM1 Server and Clients, TM1 Web and TM1 Contributor along with its components), as shown in this recipe. How to do it... 1. Start setting up to install TM1 and respond to introductory hints. 2. If we're doing a fresh TM1 installation, choose TM1 Contributor. The next picture is a second option (TM1) that will only install TM1 Server and its Customers. In the context of this recipe, we must choose a fourth option (TM1 Contributor) that will install TM1 Contributor and its components in addition to TM1 Server and customers. 344 Chapter 12 3. Click on the next after choosing the last option. 4. If we install a contributor on an existing TM1 installation, change the existing setting and select TM1 Contributor and other components, as shown in the previous screenshot. The rest of the steps are the same as explained in Chapter 1. So if you are interested in installing an additional component of the TM1 Contributor on top of the existing installation, in our case. Thus, we will change the existing setting, as shown in the following screenshot: 345 Working with managed planning applications Deployment IBM CognosTM1 Contributor on Tomcat Server Now after installing TM1 Contributor, we will be rolling out the TM1 Contribution app on the web server. In this recipe, we'll deploy the TM1 Contributor app that we just installed on Apache Tomcat Server. How to do it... 1. We have successfully installed a web server and TM1 Contributor, and now we need to manually deploy the Contributor app to the web server. 2. To deploy TM1 Contributor on the Java web server, we will use the TM1 Contributor web application archive called pmpsvc.war, which is in the following catalog: C: Cognos-TM1Cadmin Program FilesCadmin In our case, we will deploy the WAR file on Apache Tomcat Server, as it is our web server. Please follow the steps below to deploy the member application on the Tomcat server. 3. Stop the Apache Tomcat web server. In Windows, click on the Beginning of the Program At the Beginning of the 6.0 Set Up Tomcat. The Apache Tomcat Properties dialog window opens. Click on the overall tab to Stop. A text editor, open the Apache Tomcat-users.xml file. This file is usually found here: C: Apache Software Foundation,Tomcat 6.0' Conf In Windows, click on the Start button of the Program.com.au Apache Tomcat 6.0 Set Up Tomcat. On the General tab, click Start. Chapter 12 6. Open it Tomcat. In Windows, click Start Apache Programs 6.0 Manager Tomkat. When requesting, enter the actual username and password that exists in the tomcat-users.xml file. This file is usually at: C: Program FilesApache Software Foundation,Tomcat 6.0' conf q q0: If you're editing tomcat-users.xml, you have to stop and restart the Tomcat web server to apply the changes. Once you've successfully logged in, the tomcat Web Application Manager page opens. 7. In Tomcat Manager, scroll down to the Deployment section and find a WAR file to deploy the subsazed section. 8. Click on the view, find and select the TM1 Contributor Web app file archive, pmpsvc.war. The typical location of this file is C: Cognos)TM1 Cadmin 9. Click on Open after selecting pmpsvc.war. 10. In Tomcat Manager, click on the deployment. 11. Tomcat extracts, installs and launches the TM1 Contributor web app. This process can take a few minutes. 12. Once completed, TM1 Contributor is listed as /pmpsvc in the Tomcat Manager App section. 13. When the deployment is complete, we can log in to TM1 Contributor, details of which are provided in later sections. There's more... Contact the documentation at the following link to deploy the TM1 Contributor app on the IBM Web Sphere Application Server Community Edition: infocenter/ctm1/v9rm5m0/index.jsp?topic-%2Fcom.ibm.swg.im.cognos.tm1_ rdm.9.5.doc%2Ftm1_rdm_id48installing.html In this recipe we explained the steps with Tom Apachecat Server, as we use this for our setting. Now in the next recipe we will set up TM1 Contributor with another necessary component, which is the Microsoft IIS server. 347 Working with managed planning applications that set up IBM Cognos TM1 Contributor with Microsoft IISTM1 Contributor, uses Microsoft Internet Information Services (IIS) information services to launch TM1 contributor. We use tm1 Contributor Client to view and edit app planning data in a network format. In this recipe, we learn how to set up TM1 Contributor with Microsoft IIS to launch customer-contributor. How to do it... 1. When you install TM1 Contributor, the necessary files for the TM1 installation site. This is usually the place: C: Inetpub wwwroot-TM1Web. The application file for the TM1 contributor is a contributor. aspx, which is present in the previous location. 2. We need to set up the URL of the TM1 web client when you set up TM1 Contributor to point to the contributor.aspx file at that location. For example: . Please note the exact steps discussed below. 3. Use the TM1 Contributor Configuration page to customize the URL of the TM1 web client: under TM1 Contributor for the first time, use the Configuration page, which opens when the program starts. For more refer to the next section, which discusses the launch of IBM CognosTM1 Contributor for the first time. If you're already using TM1 Contributor, you can re-open the configuration page by clicking on the Administer IBM CognosTM1 Contributor button on the toolbar of the TM1 Deposit portal page. 4. In the TM1 web client URL box, enter the location of the URL of the contributor.aspx file. Launching IBM CognosTMTM1 Contributor for the first time In this recipe, we will determine the launch link for TM1 Contributor depending on which web server it runs and how it is configured. Then we'll try to work out the TM1 for the first time and then log in for TM1 members. 348 Chapter 12 How to do it... 1. A typical link for TM1 Investor works on IBM Web Sphere Application Server :PortNumber/pmpsvc, for example, https:// localhost:8443/pmpsvc. 2. Similarly, for Apache Tomcat link will be :PortNumber/ pmpsvc, for example, . 3. The WebServer option in the link may be one of the following: the keyword localhost if you are currently logged on the web server that runs TM1 Contributor. The machine name or domain name of the web server that hosts the TM1 Contributor web app. IP address of the web server that receives the TM1 Contributor web application. 4. PortNumber depends on the actual port number you set up with IBM Web Sphere or Apache Tomcat. IBM Web: Click on the Web Server link in the Web Sphere administrative console to view and edit port settings. Apache Tomcat: Open the Apache Tomcat server.xml file at the following place to view and edit port settings: C: Apache Software Foundation Files, Tomcat 6.0'conf'server.xml. 5. Now we will be working TM1 Contributor for the first time. In our case, we use Apache Tomcat and therefore the URL to run the Contributor app http:// localhost:8080/pmpsvc 6. As previously reported, the port number is taken from the server.xml file, which is in the following place: C: Apache Software Foundation Apache Software Foundation Tomcat 6.0'conf 349 Working with managed planning 7 applications The TM1 server must be listed before we forget THE TM1 Contributor. For the first time the TM1 Contributor is launched, the program offers the following configuration information: q TM1 Administrator Host's Server Name TM1 Web Client URL 8. When we launch TM1 Contributor for the first time, the configuration page opens and the necessary configuration information should be entered as suggested. Field Description TM1 Administrator Host Include the name of the computer or IP address of the Host Administrator on which the TM1 Administrator Server works. Note: The TM1 Admin Host and Server Name fields are displayed empty if we don't run the tm1 Admin Server and at least one TM1 server. Server Sets the name of the TM1 server for use with TM1 Contributor. For example: Example Of Planning, Click on the Update button to update the list of available servers. The URL of the TM1 web client specify the location of the URL of the contributor.aspx file. TM1 Contributor uses this file along with Microsoft Internet Information Services (IIS) to display data in grid and chart format. This URL points to the TM1 web server. For example: IBM Cognos 8 Gateway URI These options are only displayed if we use IBM Cognos 8 TM1 Contributor security. IBM Cognos 8 Dispatcher URI 9. Click on OK to continue. 10. Once correct enter the configuration information is saved and the saver works a second time, this time the user will not be asked to enter the information again. 11. After entering the information enter the deposit using the username and password. 12. In our case, we will use the demos as a TM1 server and therefore the username and password in our case will be the administrator for use and we leave the password blank. 350 Chapter 12 13. If we need to edit these settings in the future, click on the Administer IBM CognosTM1 Contributor button on the toolbar of the TM1 Deposit Portal page. 14. TM1 servers can be added using the same screen by clicking on Add Below Server Name: Panels. All TM1 servers added here must use the same security authentication and include the same administrator username and password. After adding multiple TM1 servers, they are available when we use the TM1 Contributor Administration tool to develop planning applications. 351 Dealing with managed planning applications 15. Every time we log in to a member, we'll use a username and password. For this recipe and for all future recipes we will use the installation of demodata as a TM1 server and therefore as explained earlier the username for the application will be the administrator and for the password we leave the text box blank and press the input button. 16. Once you log in and start using TM1 Contributor, the app may require the installation of the IBM Cognos Rich Client Framework. This structure provides the basis and support files for the TM1 Contributor web app. TM1 Contributor users who have admin rights can automatically install TM1 Contributor Administration and the required foundation on your computer by clicking on the Design an Application button for the first time on the TM1 Deposit portal page. 352 Chapter 12 Installation of the IBM CognosTM1 Contributors Deposit Administration ToolTM1 Contributor users with admin rights can automatically download and install the TM1 Contributor Administration tool on their computer using the following steps, depending on which web browser they use. We will install the tool with Internet Explorer in the recipe. Installation with other browsers can be transferred to the online documentation TM1 9.5.2, available by . ibm.com/infocenter/ctm1/v9r5m0/index.jsp?topic=%2Fcom.ibm.swg. im.cognos.tm1_rdm.9.5.2.doc%2Fm1_rdm_id48installing.html. How to do it... 1. Start and log into IBM CognosTM1 Investor with Microsoft Internet Explorer. The page of the TM1 contributors portal opens. 2. Click on the App Design button. Position - IBM CognosTM1 Author page appears and you are asked to install the IBM Cognos Rich Customers Framework. 3. Click on the set now. The A File Download dialog window is displayed for the CognosRCP.msi file. 4. Click on Run to install the CognosRCP.msi file. 5. If you see a security dialog, click on Run to check and continue installation. 6. Once the installation is complete, close and then restart the web browser. 7. Log back to the TM1 contributor. 8. Click on the App Design button. A Progress dialog appears that automatically loads and installs the necessary components for the TM1 deposit management tool. As this process is completed, the WINDOWS of the Contributors Administration tool opens. 9. IBM Cognos Rich's customer base and IBM Cognos TM1 Contributor Administration tool are currently in place. There's more... The TM1 contribution can also be configured to use IBM Cognos 8 security. The exact steps can be found in the user manual for IBM Cognos TM1 9.5.1/9.5.2. Finally, we also discussed how additional TM1 servers can be added to the existing setup in the following section. 353 Working with managed planning applications In upcoming recipes we use the INSTALLATION TM1 Contributor, which we have prepared to explore the capabilities of the tool and how the entire planning application works. Contributing data to a managed planning application In previous sections, we've already installed and set up TM1 Contributor, which is a web portal that allows end users to input data into application planning. In this section, we'll use TM1 Contributor, installed and configured above, to contribute to the plan in the existing managed planning application. People who build apps are called TM1 deposit administrators. TM1 Deposit Administrators Use Contributors Portal for: ff Creating and Maintaining Applications ff Rights Management to Secure Applications ff Import and Export Applications ff Activate and Deactivate Applications existing application (test in this case) is opened for the first time, there is a workflow screen that contains a tree and table table Shown in the following screenshot: The following screenshot shows the Test app, which details who is the author of the data, who are the reviewers of the data, and the status of the tasks assigned to each of them: 354 Chapter 12 ff Tree Hierarchy displays the areas in which the registered user is responsible for promoting and analyzing the data. The ff Corresponding table refers to information about each area, such as the state of the workflow, the current owner, the current reviewer, and when the data was last made. We logged in as an admin user; hence, we can see the full application and all areas. Depending on the security settings, the specific user will be responsible for a particular area as a contributor, reviewer, or both. So he has to complete a certain task, and it's a workflow that can be in different states depending on if he started his task (contribution, review, or both), is in the middle of a task not running at all, or completed a task. In the previous screenshot the item is called the node, hence the UK, Germany, PacRim are different nodes. Depending on security privileges, the user may be a participant, reviewer, or both, and therefore see either or both trees accordingly. When you click on the node on the left side tree, the relevant information will be presented on the right side table. Tapping the site in the right side table will open the data for the site in the web client. The web client presents the data in the grid as an interface that primarily allows the user to enter and edit the data. Details of this will be considered in later sections. The hierarchy of statements considered by the tree directly displays one of the subms of the model specified by the application designer, depending on the approval hierarchy in the organization. In the previous example, we used a subset that has nodes for different business units (Europe, UK, Germany, North America, and so on). This should be consistent with the organization's approval hierarchy. In any planning process, input and data analysis are two activities performed on nodes. Depending on how far the user has gone in terms of tasks (review of data, editing data, or both assigned to him/she, the state of the workflow of the site concerned may change accordingly. Consider a scenario where a user has just logged in and the screen shown him the various nodes for which he/she needs to contribute the data. The initial state of the nodes is not running here, as the data has not been saved until now. Once the user enters the data, they can either save it for later additional work or send it for review. Once a participant submits their contribution the reviewer reviews it and then can either send it to the next level, reject it or edit it if the reviewer has the right to edit. The contributions displayed on the left sidebar are directly displayed on one or more types of cube from the model. 355 Work with managed planning The view between views and contributions, subsigms, and reviews is determined by the Administrator. He/she also defines security policies in terms of which user and group play the role of contributor and reviewer and for which nodes. The TM1 Deposit Administrator is responsible for creating and maintaining tm1 applications. The role of the Administrator includes: Explaining the task Of Identifying views Choosing public views from the model, include in the application and establish their properties Definition of the Approval Hierarchy Select subsets of measurements from the model, which reflects the organization's approval hierarchy for determining the workflow for the App Deployment application, making the app available to users on the IBM CognosTM1 Contributor portal Security Definition Security Definition to determine which users play the role of contributors and reviewers. They can only enter/edit data for sites for which they have security privileges defined by the Administrator. Once everything is done with data entry, savers can save the data to the server so that it is available to other users and eventually submit the data. Once the data is presented, it cannot be edited unless the reviewer rejects it. Reviewers approve contributions submitted by the authors. Once the data is sent, the reviewer can reject, edit, or submit the data. Editing is only allowed by the reviewer if the administrator allows it by defining security policies. There may be several reviewers and nodes required for approval and presented by lower-level of reviewers, depending on the hierarchy of the statement. The node, depending on what the contributors/reviewers did or did not do, can take on different states of the workflow, as explained in the following table: 356 Chapter 12 Not Launched (V 9.5.1)/Available (V 9.5.2) The site was not opened and the data was not changed or saved Work in Progress The User took responsibility but did not submit the blocked data were submitted and waiting to receive an overview. It only reads and the state returns to work in progress only if the node is rejected. Incomplete applies to review nodes that means that at least one child node of this parent node is not up and at least one more child node of this parent node is ready. All nodes of the child of this parent node are locked ready. This parent node is ready to be introduced to the next level in the hierarchy. Version TM1 9.5.1/ Version 9.5.2 Tm1 Version 9.5.1/ 9.5.2 The following recipe will show different sections on the workflow screen. Introducing THE IBM CognosTM1 Author's workflow screen This recipe describes different sections of the on-screen workflow. We'll create a small example of an application based on the existing TM1TM1 server which we've been following so far in the book. How to prepare Make sure that TM1 Server Server Service is running and the DEMOdaTM1 server is working. Running TM1 Architect from the starter menu. Make sure Apache Tomcat Server is up and running by clicking on the Configure Tomcat from the Start menu of Apache Tomcat 6.0. 357 Working with managed planning applications How to do it... 1. Open Franchise_Revenue and create a new subset as part of the measurement of subsidiaries, making Saving the existing measurement of subsidiaries. 2. Name the new subset as a child statement, as shown in the following screenshot: 3. Create a new species on the cube Franchise_Revenue by the name Of Entry Income, as shown in the following screenshot: 4. Open TM1 Contributor using a link from the previous LAUNCH of the IBM CognosTM1 Recipe for the first time, for example in our case it is: http:// localhost:8080/pmps. 358 Chapter 12 5. Enter login credentials as an administrator with an empty password, just like what we used for the demo data application in TM1 Architect. Please note that the administrator is an admin user, and all TM1 servers hosted on the member must have the same credentials for the application. 6. This should open THE IBM Cognos TM1 Contributor, as shown in the following screenshot. This is where the Administrator can create and manage planning applications. New TM1 servers and web customers can be added from the same interface. 7. Click on the icon to open the IBM Cognos TM1 Contributor Configuration page. Here you can view existing TM1 Server connections and add new TM1 Server connections. 8. In the previous screenshot, we see that two TM1 servers have now been added, which are demodan and a model of planning. First, these are the demos that we create in the previous chapters, and we build on. Second, it's a planning sample that comes with the default TM1 installation package. Should be started as a Windows service item 9. There is a separate customer bar: add one or more web customers. A web client is a grid that looks like an interface through which you can add/edit your planning data. 10. We have one web client already listed there by default. 359 Dealing with managed planning applications 11. Now go back to the homepage and click on the Design A Application icon, which should open IBM CognosTM1 Contributor Administration, the interface for the author of the planning application. 12. To create a new app, click on New from the file menu. 13. Create a new app called DemoContr1. 14. The new app will based on our Demodata TM1 Server. 15. Alternatively, planning a TM1 Server sample could also be Choosing from falling down, as shown in the following screenshot. Thus, our application would be based on the planning of the TM1 Server sample (Cubes, Dimensions and other Objects available on this server). At this point we will go with the demodata TM1 server. 360 Chapter 12 16. This will open THE TM1, defined in the TM1 Server demos and the copyright panel, as shown in the following screenshot: 17. As shown in the previous screenshot of the top most left glass has two folders, defined by default. First, there are views in which you can learn multiple views of the cube to identify the nodes in which the data needs to be entered. The second Approval folder represents a hierarchy of approval measurement must be identified by resetting a single subset. The subset must define the hierarchy of the organization's approval. 361 Dealing with managed planning applications 18. Drag Income Entry Cube View Views folder views in the design panel as shown in the following screenshot. A subset of Drag-and-drop Subsidiary Approver in the Approval folder, as shown in screenshot: 19. Here, as an example, we have made the hierarchy of subsidiaries a hierarchy of approval, while users contribute data for franchise revenue. Users can be created and assigned to groups of users. In this way, the data entry nodes created are assigned to users for analysis. 20. Save the app and check by clicking on 21. Deploy the app by clicking on the icon from the toolbar. Icon. 22. After a successful check and deployment, you can exit. 23. Go back to the IBM Cognos TM1 Contributor page to see the new DemoContr1 app. Here we need to activate the app by clicking on the icon, which is in the far right section of DemoContr1. Once the app is activated, click on the app. 362 icon, from the same section so open chapter 12 25. This will open a newly created app in IBM Cognos TM1 Contributor. The layout of this type of tree table is now familiar to us, as we have seen before. 26. The screen looks different in TM version 9.5.1 and version 9.5.2. The content remains the same, but the layout is different, as shown on the previous table screen of the tree layout, which is at 9.5.1 and below the screen, which is (in 9.5.2. Aside from this screen, other UIs don't have many changes. The rest of the recipes will based on version 9.5.2 until specified. 27. The location of the tree table at 9.5.2 looks as shown in the following screenshot: 28. Based on security assignments and the role identified in the application, the contribution hierarchy will show who can contribute to the planning process and where. In our case, users need to contribute data to the plan based on the hierarchy to which they belong, so users belonging to GO Americas can contribute planning data to GO AMERICAS REGION. Similarly, users assigned to GO Accessories GmbH, GO Central Europe can contribute data for GO EUROPE GMBH, and Next. 29. In our example we have not yet established any security privileges and we logged in as an admin user as visible in the upper right side corner of the window. 30. Through security assignments into any of the nodes, the state of the workflow appears as not started. The appropriate terminology used in 9.5.2 is available, but the icons remains the same as before. 363 Dealing with managed planning applications 31. In the deposit tree click on THE GO of Central Europe At the bottom of the table now shows the details for GO Central Europe, as shown (in version TM 9.5.1) in the following screenshot: 32. The state is stated above in TM Version 9.5.2. Current state is not running/available. A specific user assigned to GO Central Europe must take responsibility for the plan and begin the planning process. The property column will then show the correct data. GO Central Europe reviewers can accept or reject planning data. He/she can also edit the data if allowed. So far we haven't created users and just play around with the help of user admin. 34. Don't close the app and keep the windows open. 364 Chapter 12 How It Works... In this recipe, we created a planning app and introduced TM1 Workflow Screen. We'll see how to apply security in later sections. Navigation Software TM1 Contributor Workspace In this recipe we will navigate and explore different options in the different UIsTM1 contributor. Get ready to make sure tm1 Admin Server is up and running. Start the Apache Tomcat server and make sure the TM1 Server demo is working. We will use IBM CognosTM1 Contributor screens that are still active under the previous recipe. How to do it... 1. Click the right button on GO Central Europe and select Open TM1 Web Client. 2. This will open the grid-like interface that IBM CognosTM1 Contribution Web Client used to enter/edit the data. 365 Dealing with managed planning applications 3. The depositor's web client window is opened by data related to Central Europe in a grid similar to the interface. 4. We have correctly clicked on GO Central Europe and therefore the same table is displayed in the web client. Note the network interface that makes it easier to enter and update data. 5. On version 9.5.2 the same menu is displayed as shown in the following screenshot: Click on Open TM1 Web Client from the menu to display the following screen: 6. Now we will have a closer look at the TM1 Contributor web interface of the customer itself. We will consistently follow the TM1 version of 9.5.2. We'll go to the workflow screen, rightclick on GO EUROPE GMBH and open that into a web client. The TM1 Contributor web client must now display combined data for all four subsidiaries. 366 Chapter 7 7. Notice the grid symbol in the top left corner that displays the app's name. The grid format is more or less similar to the cubic viewer in TM1 Architect, with strings, columns and falls Data. The central grid makes it easier to enter and update data. In the TM1 Contributor grid, we can: a few views/tabs within the common window of the Move Move The size of the nest is applied by filters to create and edit subs extent 8. We can also add diagrams and be able to view the grid, view the chart, or view both the grid and the chart together. Users familiar with Cognos analysis and studio queries know that functionality is fairly common for use in them. Most of the things in the investor's web client are intuitive and flexible to the extent that In which user can use: Stack and reorganize the views to reset the grid of drag-and-drop views to create desired grid layouts, like in the view cube in TM1 Architect's Move and reorder tabs to change the type, color, and legend of the diagrams to change other chart properties, such as 3D appearance, X/Y axis, and so on. Previous pointers are just a few things from the loads of options provided in the portal's contribution. Different options can be tried out by clicking on the various icons available in the toolbar. 10. Exporting data to Excel and PDF is also available at the click of the toolbar. 11. Now we'll show you some functionality with the existing DemoContr1 app we created on the demo. As mentioned earlier, we will use the latest version of TM1 available, which is 9.5.2. 367 Working with managed planning applications, opening a site and changing the viewIn this recipe we will perform some basic tasks in the DemoContr1 app. This will further strengthen the usage that can be achieved with TM1 Contributor. How to prepare Make sure that TM1 Server Service Service Administrator and Apache Tomcat server are launched. Make sure the TM1 Server demo works. How to do it... 1. Go back to the workflow screen from the IBM Cognos Contributor page by clicking on the DemoContr1 link directly or to the right of DemoContr1. 2. The screen is opened by executing the URL and logging in as an administrator with an empty password. 3. This should open the workflow screen with the location of the tree table. 4. Click the right button on GO EUROPE GMBH and select Open TM1 Web Client. 5. This will open GO EUROPE GMBH on the TM1 web client network in a separate window, as shown in the following screenshot: 368 Chapter12 6. Click on the right on the top that displays the current view name. If there's more than one view in the app, you can switch views by clicking on the grid icon. 7. In the measurement bar, click on the measurement of months and lower under the rows. 8. Similarly, drag and drop auxiliary measurement approval in the column area. 9. Click on the recalculation icon for an update 10. In measuring the bar under the strings, click on the months of February measurement, Mar using the Ctrl key. Choose and count. 11. Click on the swap-series and columns icon and select the Jan icon to swap lines and columns. 369 Work with managed planning applications 12. Click on suppression zero zero icon, and then on the recalculation icon. 13. Now again we will introduce back all 12 months in submission, hence click on Months in the Law Stand of Measure, select subset Months in Fall Down, Click OK and then on Recalculate. 14. Click on the January column to open the filter settings, as shown in the following screenshot: 15. Click on Advanced ... Open advanced filter settings that allow the user to install filters and apply. 370 Chapter 12 16. Apply the filter, as shown in the previous screenshot, and click on Recalculate to view the updated output. 17. Click on January again and click on the remove filter entry. 18. Recalculate and view the updated issue. 371 Dealing with managed planning applications 19. On the toolbar, click on the view chart icon. 20. Tap the property icon chart and select bar 21. Click on the viewing chart and grid 22. Click on the View grid to view the chart and grid. 23. On the toolbar, click on the

export. 24. Export Slice to Excel maintains a dynamic relationship with TM1, while the export shot in Excel is not. Export to PDF is also an option. 25. Click on Snap for Excel. A new window will open that will allow the user to select the number of rows and measurement names for export. It will also tell the user the number of sheets that will be created. 372 Chapter 12 26. Click on OK to select the default settings and view the data in Excel. Adjust the width of the column to accommodate the data. Cells store actual values, not formulas that bind cells to TM1, so the data is static. In Export Slice to Excel, cells are linked to TM1 using the DBRW formula. 27. Now we will reset this to the original by clicking on The Reset Current View icon. 373 Dealing with managed planning applications 28. We'll use another view, which is the default view Sales_Plan cube by including this in our DemoContr1 app. We'll combine these two views in Contributor Web Client. 29. Close the current window of both the web client and the workflow. 30. Open the Demods app architect in TM1 and save the default view on the Sales_ Plan cube as a public view, Sales_Plan_V as shown in the following screenshot: 31. Go to the IBM Cognos TM1 Contributor page and click on the app update: DemoContr1 icon, right of DemoContr1. This should open the app on the workflow screen. 374 Chapter 12 32. Drag the view Sales_Plan_V a Sales_Plan cube and lower it under the existing Views folder in the design area, as shown in the following screenshot: 33. Save the app. Check and deploy. 375 Work with managed planning applications 34. workflow screen to go back to the IBM CognosTM1 Contributor page, open the app and run web Client for TOTAL COMPANY. 35. Now we see two points of view: that is, entry into income and Sales_Plan_V which can be combined in one window. 376 Chapter 12 36. Click on the Revenue Record tab to make it a current view. Now click Sale_Plan_V tab and drag it to the bottom of the grid. Grid. will change to several folders. Continue to drag the tab until the drop area and arrow pointing to the tab placement are highlighted. The tabs are now vertically displayed. This way, you can track both views and lime/update the data so that it can be kept in sync if necessary. Assuming that these two opinions have a field in the column, the changes in one view to that area would be reflected in the other. Now we see both views and tabs by clicking on views and tabs. icon and reset selection as 377 Work with managed 40 planning applications. Consolidated cells are displayed in bold. When they are changed, the new values are changed, the margins value the value for (TOTAL COMPANY, Jan) to 51,000 by clicking twice on the cell and entering a new value. Click Enter to commit. The child's respective values are distributed, as shown in the following screenshot: 41. Here, TM1 used a proportional distribution method to distribute the modified consolidated value to the child's values. We can also specify a custom spread that will be discussed later. 42. In the same Income Entry view, double tap any child's cell, typedit the value, and click Enter to commit. For example, to represent income input, change value for (GO Central Europe, February) to 1000 and click Enter. Cells displayed in white cells can be edited. The values of the gray cell (reading only) cannot be changed for one of the following reasons: the user has not taken over the item calculated 44. Therefore, the user must take responsibility for the cube before he can edit the values. Possession cannot be taken for a disabled cell. 45. Now close all portals without data saving if asked. Entering, editing and distributing data can be entered into the grid-like interface as soon as the user has entered the TM1 Contributor web client. The methods of data entry are the same as for other TM1 components. Thus, the data can be edited/introduced: ff typing directly into the cells ff Using shortcuts 378 Chapter 12 ff Use of data distribution ff Simple insert copy data can be entered/edited into consolidated cells using one of the distribution methods provided by TM1. Once the data is entered into TM1, it is automatically stored in the user's personal view of the data, which is called a sandbox. It does not contain actual data, but only changes that are made to existing values. The administrator can turn on a few sandboxes user, but by default there is only one per user. To store data in the database, the user needs to make data. As soon as the user/contributor sends the plan, the specific node is locked. When you manually enter the data, the color of the text changes depending on the state of processing. Black indicates that the text is saved. Blue indicates that the user has pressed enter Enter text typing. Green indicates that the user typed the text and used the Tab, arrow, or mouse key to navigate the grid. The color of the code helps to distinguish between the data that entered the grid, but not the perfect (blue, green) and the data that is stored in the database and therefore contributed (black). The color scheme described above is the default behavior and can be configured by the administrator. When a user registers a web client, these data from a database that is basic data. When the data has been entered/edited by the user, it is stored in that user's sandbox, which is their personal area. This can only be seen by the user. When a user commits, the sandbox data is stored in the database. The user can still continue to work after the commit, as the site is still in the process. Thus, while the commit simply saves the sandbox data back to the database, submit actually blocking the node in addition to saving back into the database, and therefore the user is unable to edit the data anymore unless it is rejected by the reviewer. Data, commit, and send settings apply to the entire grid, not just the current tab that is being viewed. When you contribute to a plan, the user can update the data displayed in the view, with the latest changes stored on the server at any time. It is important to understand that the commit simply stores the user's personal data in a public database, so that changes can now be viewed by other users. The user who made the data will continue to work on the data. When a user sends a plan, they set up the entire plan in the database, and the user can no longer edit any part of the grid. The data is only read, and the status of the site changes from process to blocked. 379 Work with managed planning applications until the user has ownership of a particular site, they will not be able to make or submit data. The icons to make and send will be disabled for the non-owner. You can take possession of the site by clicking on the web client. The icon shown in Contributor When a user takes responsibility for a site, the state of the site's workflow changes in Work In Progress, as shown in the next workflow screen: a user with the relevant rights can take ownership of the site from the current owner while it is edited. This is important if the current user is unavailable or if multiple people are responsible for the same site. Losing ownership of someone else does not result in data loss even when the grid is updated, as everything goes into the sandbox. Now we look at the practical steps in How to prepare Make sure that TM1 Server Server Service is launched and as Apache Tomcat Server. Make sure the TM1 Server demo works. Enter the IBM Cognos TM1 Contributor page. How to do it... 1. Enter the DemoContr1 app, click the right button on TOTAL COMPANY and select Open in TM1 Web Client. 380 380 12 2. We logged in as administrators. Click on the icon on the toolbar to take responsibility for the site, TOTAL COMPANY. Notice the changing workflow states 3. Also, pay attention to changes in the toolbar of the contributor's web portal, as shown in the following screenshot: 4. Please note that take responsibility for committing and submit the icons gets disabled for the user administrator and the icons get turned on. 381 Dealing with managed planning applications 5. The state rack at the bottom of the window changes to show the current owner and the current property node. 6. Now that we've taken responsibility for the site from the admin user, let's change the value of your child's cell data, for example, click on a cell (GO Southern Europe, Jan. Tap Tab without clicking Enter and one of the text turns green. The data is currently in the grid, but not stored in the database. 7. Click Enter and the color of the text changes to blue, indicating that the values are not yet stored back into the database. The color change indicates that although the values have not been stored back into the database, they are stored in the sandbox. The Sandbox data is private to the user and is not visible to other users Once they have been presented to the database, they have also been made public to other users. However, when data is stored only in the sandbox, it is available for other tabs/views open to the same user, as the sandbox is specific to the user. When new sandboxes can be added by the user or the existing sandbox may be removed depending on the rights of users specified by the administrator. Take note of the icon on the toolbar for this. 8. Now we will try to change the data for the consolidated cell using one of the distribution methods. 9. In the same grid click on GO EUROPE GMBH, December) and then the right button to open the following menu options: 382 Chapter 12 10. Data Spread submenu shows the different options that TM1 provides to spread the consolidated value entered into the child's cell. 11. Here we click on the first option, which is a proportional spread to open the submenu, by which we can specify the intended value for the consolidated cell and how we want to distribute the value proportionally. 383 Dealing with managed planning applications 12. Here we want to spread 20,000 down and we want to replace existing values. Choose the options you need and click on Apply. Take note of the changed values in the blue of the text. In the same way, we may use other options in accordance with the A detailed definition of each distribution method and its parameters is available in the Help server menu, which is available from the toolbar as shown in the following screenshot. Note that distribution is not dynamic (rules are not calculated). Only a one-off. 15. There are various shortcuts to quickly enter and edit data without passing or updating each value. These shortcut functions should be hired in and the data is automatically entered/introduced in the specified direction (left, right, up, down) in the required way (decrease, increase, % increase, % decrease, and so on). Documentation of these shortcut features is available in the same help menu. The user may decide to enter the data step by step, as shown above, or these shortcut features can also be used conveniently. 16. If at any point in time the user is not satisfied with the input/edited data, he/she can roll back the changes or even reset the view. The Redo option is also available when you run the cancel. 18. Once the values are met, the user needs to click on the commit icon to keep the data back in the database. Now after the commit, the data is publicly available and available to other users as well. After the commit, the color of the text for all values changes to black, as shown in the following screenshot: 384 Chapter 12 19. Go back to the Workflow screen to show the Last Commit field. The state of the children's workflow has been changed to Reserved, which means that the data has been replaced for these nodes but has not yet been submitted. The owner can edit or send the site in this state. Parent nodes are approval nodes and are in a Work In Progress state that only applies to review approval elements. This state indicates that items belonging to this item are not available, but not all are blocked. The data in this state was aggregated. Now, if we are satisfied with the data, we will submit the data. A user can send the site to the next reviewer in the hierarchy if they are satisfied with the data they contain. Once the user has submitted the site, it is blocked and no further changes to the data can be made. To submit the data, the user must have the right to submit. If the administrator has turned on several sandboxes, the user cannot send the site from the workflow page. If multiple sandboxes are used, the user must choose the sandbox they want to present to TM1 Contributor. 385 Dealing with managed planning applications 22. Depending on the current site the user is working with and the rights granted to the user for that site, they can send one piece of data here, multiple sheet nodes, or a consolidated node. 23. We can click on the icon to present a consolidated node or one node of the sheet or icon to represent all the nodes of the sheet under the consolidated node. 24. For this recipe, we are logged in as administrators and we submitted the data of all nodes, we will click on the icon on the toolbar to present all the nodes of the sheet consolidated node, which is TOTAL COMPANY in our case, as shown in the following screenshot: 25. Once sent, the grid becomes only read. The grid has been blocked until the reviewer accepts or rejects the plan. 26. Return to the workflow screen to see changes in workflow states. Please note that we have now logged in as an administrator who introduced as well Rights. We've also set up an option that allows the reviewer to edit the data in the administrative console, which we'll see later. 386 Chapter 12 27. Since we logged in as an administrator who is also a reviewer, on the workflow screen we can see options for sending/accepting or rejecting. For the average user who does not have the right to approve, the web client-contributor's grid would be read only. 28. On the workflow screen, all elements of the child's level are currently locked, which means that the data has been submitted and the approval element has been blocked. The data in this state is only readable. The re-enter the system as an administrator, review the plan that was submitted, edit the plan if required, then either accept it or reject it. In our case, we have not created any additional user and have not assigned any rights to any user specifically. In our case, the administrator plays the role of administrator, understanding all nodes and the reviewer in all nodes. As we continue we will see how we can create users and assign them different rights and privileged right to contribute or review or both over one or more nodes. The following recipe will examine the review process in detail. Checking the data after the data is presented by the participants, it should be reviewed by reviewers. Administrators need to determine which users and groups play the role of participants, reviewers, or both. Whether the reviewer can edit the data is determined by the administrator during the design of the application. 387 Working with managed planning applications We'll see how the administrator assigns different privileges in later sections. Let's take a look at the following recipe to understand the review process. We will follow the same ContrPerson1 application that we configured in as an administrator and presented the plan he was exposed to. Now we'll see how the same Administrator user can view, edit, and accept/reject the plan. How to prepare Make sure that TM1 Server Server Service is launched and so is Apache Tomcat. Make sure the TM1 Server demo works. How to do it... 1. Open the IBM CognosTM1 Contributor page as an administrator to see the DemoContr1 app. 2. Open DemoContr1 app as admin by clicking (2107-12-108). 3. Notice the workflow screen, which now shows the updated status of the application after we have introduced the administrator as a user. These plans are ready for consideration now. In our case, we only use one user who is an administrator and acts as both a contributor and a reviewer. We also have editing rights assigned to the reviewer, which is the default setting. 4. Now, as shown in the GO AMERICAS REGION workflow screen, GO ASIA ASIA THE REGION and GO EUROPE GMBH are on standby while GO AMERICAS REGION is made up of a Go Americas children's node that is currently locked. Thus, other participants cannot edit its data. As a reviewer who is currently registered to an admin user, can edit, view, accept/ send or reject plan data. 7. Click on the Go Americas link to open your data to a web client's contributor. Since the editing rights have been assigned to the reviewer, we can edit the data on the grid, otherwise it would only be read for viewing. 8. Please note that we have an icon other than the Go Americas link to reject the data directly from the workflow screen. We also have a deviation icon in the contributor's web client for children's sites. 9. The web client screen shows data only for the current site that we clicked that Go Americas. We can view the data, and if we are not satisfied, we can directly reject it from the Contributor's web client. 10. We can also edit data in the contributor's web client. 389 Dealing with managed planning applications 11. Now close the window and go back to the workflow screen. Note that the deviation icon is only for sheet/node-level items/ nodes. However, we can approve from a web client contributor when a consolidated level. On the GO AMERICAS REGION icon to open it in a web client. 12. Thus, here we do not have a deviation icon that can only be made from sheet level items from the workflow screen or the contributor's web portal. We have an send icon that allows the user to accept/submit data for the current consolidated site. The user can view the data and edit and if satisfied to submit/take the data to transfer that to a higher level if applicable, depending on the hierarchy displayed on the workflow screen. Here, the next level of approval is at total COMPANY, which is currently in the Work In Progress state, as seen on the workflow screen, as the lower levels have not been represented/accepted by reviewers. 13. Once the review accepts/presents data for lower levels that are displayed below in a state of readiness on the workflow screen, a higher TOTAL COMPANY also change in Ready State. 14. Close the web client-contributor to return to the workflow screen. Click on the Reject icon for GO Southern Europe to find out that the reviewer is not satisfied with the data related to the site. 390 Chapter 12 15. Notice the changes in workflow states that are visible on the workflow screen. 16. GO Southern Europe has changed again from Blocked to Reserved, so that a user who has acted as a contributor can now log in and make the necessary changes. The state of GO EUROPE GMBH has also changed at Work In Progress as one of the nodes are not ready to be viewed and are still in the process of being updated. States for all other knots remain as they were before. In a nutshell, all elements of the sheet level should be reviewed by the reviewer and may be rejected if the plan data for the site concerned is not satisfactory. When the reviewer is satisfied with all the elements of the sheet level, he can approve/submit at the approval level that is at the consolidated level. Approval at one level will change the state of the next higher level from Work In Progress to Ready (for review), which again needs to be reviewed, and so on, until the plan passes the full hierarchy and is submitted/accepted. 18. Until this happens elements of the flip-flop sheet level between the blocked and reserved state, depending on if the saver submitted the data and the reviewer rejected or the contributor did not submit the data. 19. Changing the State level at a lower level will change the state of the immediate higher level accordingly. 20. At the end of the recipe, try submitting data for GO ASIA PACIFIC REGION by opening it in a web client and clicking on the Dispatch button. 391 Work with managed planning applications 21. This will provide data for the current site, which is GO ASIA PACIFIC REGION. Note the changes in workflow states for GO ASIA PACIFIC REGION, which is now locked and read only as the data for that site has been completed, submitted, reviewed, and accepted. 22. THE State FOR TOTAL COMPANY is still in the process of working because GO AMERICAS REGION has not been considered and data from the rest of the children's elements of GO EUROPE GMBH, which is GO SOUTHERN EUROPE, have been rejected. 23. Once the data on these two are completed and submitted for GO ASIA PACIFIC REGION, the total COMPANY status will change to Ready (for approval). It is currently in a state of progress. There's more... In the following recipe, we'll focus on building Master managed planning applications at IBM CognosTM1 Contributor and take a closer look at creation and privilege. Creating and deploying managed planning applications in Web In the recipe we discuss in detail: ff The purpose and benefits of a managed planning application ff Creating a managed planning application ff Security Application Security application to the managed planning application 392 Chapter 12 During previous sections we have used IBM Cognos TM1 Contributor to create, deploy access and manage planning applications. This is called IBM CognosTM1 Contributor Administration. IBM CognosTM1 Contributor Administration used to: ff Build managed planning application ff Maintenance managed Planning ff Activate and deactivate managed planning application ff Assign security rights and privileges ff Identify and verify the workflow, contributors and reviewers ff Import and Export Applications As a rule, we build and maintain applications in the IBM Cognos TM1 administration. We select app content from IBM Cognos TM1TM1 Contributor Administration tool. Similarly, the same interface of web customers should be defined. We've seen it before. Once we're done identifying TM1 servers and web client, a managed app needs to be created. The TM1 objects included in the TM1 servers identified at the aforementioned stage are presented as potential content for a managed planning application. Only public views and subsms identified in TM1 can already be selected as content in administration. Several public views can be selected and included in the app. This shapes the content of the app. We can view content twice by clicking on views. The relevant data is presented in a reading-only format (grey background) and is available for slice and bone. Please note that submissions are created in TM1 and made public before selecting them as a contributor. 393 Dealing with the structure of managed planning applications is defined by selecting a public subset from available TM1 objects that forms the application approval hierarchy. All planning applications have one and only one statement hierarchy that cannot be divided between applications. A hierarchy is usually an organization chart, an account chart, a list of products, or a geographical representation of some important aspects of a company, such as sales regions. The hierarchy is represented by a subset of public measurement, and each measurement element is a node in the planning application. The node is assigned to a user who may be a member or reviewer, depending on security assignments. Thus, each site is a deposit entry point where each user, depending on the privileges, can view, edit, view, or send the data. Users take responsibility for the site and then can enter the data. Each item of the sheet level should have only one parent, which is only one top most knot. Note that a participant can remove any existing item level security in the measurement of the statement hierarchy and then apply their own item level security in place. The next step is to valid, deploy, and protect the application in the context of IBM Cognos TM1 Contributor Administration. Thus, the four steps needed to create a managed Planning: ff Choice of Public Views that provide a master of data measurement ff Selecting, a measurement of the approval that provides the ff Deployment of the application ff Purpose Security App Prepare Make sure that the TM1 Admin Server service is up and running and so Apache Tomcat Tomcat Make sure the TM1 Server planning sample works as a window service, as shown on the website. The TM1 Server planning sample comes as an example with the TM1 installation package. If Planning Sample TM1 is running, log in to TM1 Architect and open the Planning Sample app in the TM1 Server Explorer window. Please note that the user ID has been changed to Admin with an empty password to make it compatible with existing TM1 servers per contributor (demos share the same password and all TM1 servers defined by the saver must have the same user credentials). 394 Chapter 12 How to do it... 1. In TM1 Architect click on the cubes to expand and double click on the plan_BudgetPlan to open in Cube Viewer, as shown in the following screenshot: 2. In the Select View list click on the budget input Detailed and click on the recalculation. 395 Dealing with managed planning applications 3. This view will be used by participants for their budget and planning applications. 4. Double click on the UK to open a subset of the editor. 5. Plan_business_unit reflects the hierarchy of the approval process in this application. 6. Click on OK to close the editor's value. Close Cube Viewer and TM1 Architect without saving any changes. 7. Now we will open the TM1 Contributor Administration tool. 8. Open the browser and enter the address page to open the log on the page for TM1 Contributor Administration. Enter the user ID as an administrator with an empty password. 9. Click on OK for a message on the demodataTM1 server can not be achieved as we have not yet started the demodata TM1 server, but previously determined that the console administrator. We may not run TM1 servers that we don't use, even if they were present in the Admin console. 10. On the IBM CognosTM1 (2107-12-131) to see which TM1 servers and web customers are identified. 396 Chapter 12 11. Click on OK to come back without changing anything. 12. From the planning application toolbar on the IBM Cognos TM1 Contributor page, click on the app icon. 13. This will open IBM CognosTM1 Investor Administration tool 9.5.2. 14. According to the file menu, click on the new one. For the type of app name, Budget_Plan 1. Note that the TM1 server scheduling sample is listed in the TM1 Server box. Thus, the application will use the TM1 objects identified on the PLANTM1 planning server. 17. In this way, we can see THE1 objects available for use on the PLANNING of the TM1 Server sample. 18. Now we'll select a few views of TM1 cubes and include them in the app. 397 Dealing with managed planning applications 19. In the lower left table window TM1 Plan_BudgetPlan Cubes (plan_BudgetPlan) Views click on budget input Detailed view, as shown in the following screenshot. This is the kind of cube in the app. BudgetPlan we saw in the above steps in TM1 Architect. 20. Drag and drop vision in design design under Budget_Plan_1's views. 21. Similarly, Ctrl'Click select the following views and drag in the viewing area in the design window. ff 398 A Budget Input Total Goal FY 2004 Budget Line Input q Detailed Cost Sales Analysis' Detailed Expenditure Analysis Detailed Revenue Analysis Goal Detailed Accountant's Schedule goal of Entering Chapter 12 22. We now choose a public subset that contains the structure of approval. 23. In TM1 Objects panel to expand dimensions (en) plan_business_unit (plan_business_unit) Subsms and select all business units, as shown in the following screenshot: 24. Drag all business units of the subset into the Approval folder in the design panel. 25. Click on Yes to use the subset as a measure of approval. Please note that when deployed, the current security of the item level in the approval measurement will be removed and replaced with the security we will identify in later sections. From the file menu, click on Save How to Save the app by the name of Budget_ Plan_1 on C: CognosTM1T1DataPlanSamp. 28. It persists as .XML file. From the app's menu, click on the check and deployment. 399 Dealing with managed planning applications 30. From the file menu, click on to Close IBM Cognos TM1 Contributor Administration. 31. In the IBM CognosTM1 Contributor window, click on the update app. The icon to display the following sections will now focus on assigning security privileges and will use the same app created above, hence keep the IBM CognosTMTM1 Contributor open. Installing Security Rights and Access Rights can be explicitly applied to certain nodes in the appropriate approval hierarchy, instead of using either the native IBM Cognos or the security of IBM Cognos 8. If the rights are directly applied to the parent node, the child's node inherits these rights. The child may have a different set of privileges than the parent, but in no case may these rights exceed the rights of the parents concerned. At any given time, only one user has exclusive access to the record or ownership of a particular site. Various rights that can be assigned to IBM CognosTM1 Contributor: Access type Description View Read only access to the site. Can't take responsibility for the knot. Edit there are editing rights and can take responsibility for the site. The send can take values and send a site to view. Can reject the view from the children's nodes. The review can edit or send its own nodes. You can view and reject the children's nodes presented. When reviewer editing is enabled, users can take responsibility any children's node that has not been submitted and send a knot. There are two important settings when managing the rights to the app that are useful. These are the depth of the view and the depth of the view. We'll see them along with the appointment above users' rights in one of the recipes later Now we will look at the value of these two parameters in theory. The review depth option is only enabled when you choose the right to consider or submit. The depth of the review determines how many levels below the current site to be seen by the user group. For example, if we want members of a user group to be able to view only the current site and its immediate children, we need to select one (1). Setting up the depth of a review can never be more than setting the depth of the view. Users must have access to the model before the site security is assigned to IBM CognosTM1 Contributor. Typically, users are given access to the TM1 server and assigned to groups. Teams are then given access to various TM1 objects, such as cube elements and sizes. These users and groups can be identified in Cognos 8 or IBM native security, but in our example we will create users and groups manually in TM1 using TM1 security. Once users are assigned to groups, the group is then given one of the following TM1 object privileges, to TM1 Architect. The privilege of a READ Description See it not to change is WRITE Write to LOCK data permanently blocks it unless the user unlocks his ADMIN can do anything. Edit, create, delete and so on no one can do anything RESERVE Temporarily block it until the serve is reset or the administrator or user opens it Let's see it all in detail, in the recipe for assigning security to managed planning. By assigning security to managed planning applications In this recipe, we will assign security to our previously created planning application. This will be based on the planning of the TM1 Server sample we've seen before. Get ready to make sure that TM1 Admin Server and service sample planning are up and running. The Apache Tomcat server is to be launched. Open TM1 Architect from the Start Menu and enter the demodata server. 401 Working with managed planning applications How to do it... 1. Click the right button on the planning example in TM1 Architect: Explorer Server and click on the security of Customers/Group. 2. The resulting screen shows all users and groups related to the planning of the TM1 Server sample, as well as their access rights to TM1 sites. 3. Users are shown in rows. The security settings appear in the first four columns, and the groups are listed along the columns. 4. ADMIN, DataAdmin, SecurityAdmin are the (groups are listed along the columns) are determined by an administrator or a fashion designer. 6. Users are assigned to groups by clicking on the intersection of users' and groups. 402 (2107-12-144) in Chapter 12 7. Customer menus can be used to add new users. 8. 8. The menu is used to add new groups. 9. Take note of the groups of BUDGET_PLANNER and BUDGET_REVIEWER who should have access to the cubes in our managed planning application (Budget_Plan_1 in the previous recipe). 10. We will use TM1 Contributor to assign groups to access nodes. Thus, item level privileges will be specified using TM1 Contributor. 11. Close the window without saving anything to return to Server Explorer. 12. Tap the right button on the cubes and click on the security tasks. 13. In the previous cube window, just along rows and groups of users along the columns. Thus, cube privileges can be defined for groups of users by clicking on the intersecting cell and clicking on the privilege. 10. In our application (Budget_Plan_1) we use plan_BudgetPlan and BUDGET_REVIEWER. BUDGET_PLANNER has written access to the cube. Close the window without saving any changes. 15. Minimize TM1 Architect. 16. Now we need to activate our newly created managed planning app, which Budget_Plan_1 in TM1 Contributor. 17. Make sure Apache Tomcat Server is launched and log into TM1 Contributor. 403 Dealing with managed planning applications 18. In IBM CognosTM1 Contributor click on the activation button Budget_Plan_1. 19 per Budget_. To Budget_Plan_the app, click on The Rights Management for the app. This will open the interface to assign security to the element/node level to users and groups as explained. From the Add Rights section, select Node displays a hierarchy of statements defined as part of the application. We choose Select Group, which has access to these sites. Please note that these groups were identified in TM1 and assigned access to these items by determining security on sizes in TM1 Architect. 22. Typically, we give access to them Item/Node in Contributor 23. Now under the Select Node panel choose North America, which is the consolidation of Canada and the US. In the Select Group field next to it, in the Find Group BUDGET REVIEWER text box type. 24. According to the definition of security box select Review on the right: drop down the list. Leave the default for depth of view: and view the depth:. Click on add. 404 Chapter 12 25. Thus, we have determined that BUDGET_REVIEWER, defined in TM1, has the rights to review the North American site and, therefore, its children in the United States and Canada. The result is shown in the top glass. 27. Now select the Canada node bar and then click on Find Node. 28. In the Select Group panel, bring BUDGET REVIEWER and click on Find Group. 405 Dealing with managed planning applications 29. Click on BUDGET PLANNER and in the Define Security panel, click on Dispatch on the right: Drop List. 30. Leave the default values for the depth of the view and the depth of view. Click on the Add button. 31. Then, the Canadian default site inherits BUDGET REVIEWER as a reviewer from north American parents. In addition, BUDGET PLANNER introduced rights clearly defined by the Canadian node/element. 32. On the toolbar click on Save and then on return. 33. Please note that since we have not yet started the TM1 demos, the author will be throwing a warning that TM1 Server (demodata) cannot be reached. Click on OK to reject the warning every time it appears. 34. From the magazine from IBM Cognos TM1 contributor. 35. In TM1 we have a user called Howell assigned to the BUDGET PLANNER group, but not to the BUDGET REVIEWER group, as shown in the TM1 Architect window, which we have seen before as well. 406 Chapter 12 36. Please note that we now have limited functionality because we have logged in as a user, we are not an administrator. 38. Click on to open the IBM CognosTMTM Contributor server workflow. 39. Please note this as a BUDGET ORGANIZER, Howell is only eligible to be shipped to Canada. Click on Canada in the left glass under the Budget_Plan_1Workflow, click the right button and select Open in TM1 Web Client. Notice the initial status of the site, which is now available without the owner. The TM1 Contributor 9.5.1 status would not have been launched instead of available, but the semantics are the same. 407 Work with managed planning applications 40. So, as a result of the screen in the web client, we can see that the selected views represented tabs at the top. The plan_business_unit also reflects the Canadian knot. The grid can now be used to transmit data across Canada and send the results for approval. Close all the windows without saving anything. How it works... This marks the end of a section at the end of the section in which we've already seen the basic concepts regarding managed application planning, and now we need to play around in more detail. 408 Chapter 13 WorkFlow Definition In this chapter, we'll review: ff Adding users and groups to TM1 Security ff Installation IBM CognosTM1 Workflow ff Adding a new process and task using IBM Cognos TM1 WorkFlow ff Review presented Tasks Introduction In the previous chapter, we reviewed various aspects of managed planning. We created a variety of TM1 objects and used them as a contributor as part of our first managed planning web application. We made extensive use of the contribution that was previously part of IBM's Cognos Enterprise Planning Suite and integrated with IBM CognosTM1 later. In this chapter, we'll talk about another such component, TM1 Workflow, which was managed the planning manager before TM1 9.4. This component is quite old and has been virtually replaced when CognosTM1 Contributor. Therefore, readers may skip this chapter if TM1 Workflow has nothing to do with them. We'll start by installing the TM1 Workflow and can a Cases. We'll also look at how we've already seen discussing managed planning applications in the previous chapter. Determining the workflow before installing and using TM1 Workflow, TM1 should be configured as follows: ff User, groups and roles must be defined. ff Cubes contains a version measurement that reflects the structure of the task and the review. The workflow will create elements in the measurement of the version that reflect the structure of the task and the organization's review. The measurement should be called the version. As mentioned earlier, a measurement that reflects the structure of tasks and a review of an organization may include a region, subsidiaries, accounts, or a combination of these aspects. In our case, the child will be a measurement that reflects the task and structure of the review. Users will be responsible for one or more tasks identified as part of the workflow. This requires TM1 security, allowing the user access to any related items. In the next recipe, we'll focus on TM1 Security. By adding users and groups to TM1 Security Now after we've learned the basic and advanced features of TM1 objects, we'll look at applying basic security to them. We are now familiar with different terms and terminology, as well as with the main cases of use, and therefore in a much better position to understand how, when and why to put an additional layer of TM1 Security in place. In the recipe we will: ff ff Creating users and groups. Assign access to TM1 objects at the cube, size, and element level. TM1 provides security: ff To create users who can access the server. ff Determine the number of connections to the server allowed for each user. Users are then assigned to one of the user groups. User groups then give access to individual TM1 objects and give privileges such as: ff ff ff ff ff 410 Admin Read Write Lock Reserve No chapter 13 Security defined in TM1 Contributor will redefine any other element level security settings defined in TM1 Architect as we are about to see in the following sections. We will demonstrate previous security concepts in this recipe, which is based on the TM1 Server demos we follow. Get ready to make sure tm1 Admin Server is up and running. Make sure the demodata TM1 server works. Open TM1 Architect from start menu, and log into the demo tm1 server with an admin user and a blank password. How to do it... 1. In Server Explorer right click on the demod server TM1, point to security and then click on customers/groups. 2. By default, the admin user is created and assigned to the ADMIN group. 411 WorkFlow definition 3. We will now add users and groups from the Customer's menu, as shown in the Screenshot: 4. Add a user named Fiona. 5. Similarly add a few more users such as Nick, Joy, Sam, Troy, and Isha. 6. Now let's add a group from the group menu, as shown in the following screenshot: screenshot: Add a CFO, a manager and a group manager. 7. They appear as columns at the end of the same window. 9. We will now assign users to groups by selecting intersection cells between users and groups. 412 Chapter 13 11. Similarly, we define Nick and Joy as managers and the rest as managers. 12. Click on OK to close the window. We will now determine the level of security of the items for the children. 14. As shown in the previous screenshot, we recently added groups that appear along columns and measurement elements displayed as strings. Each cell displays the type of security assigned to that intersection, which can be changed by pressing the radio button at the bottom. 16. Assign access privileges to elements, as shown in this matter, to the security team of CFOs, managers and managers. Obviously, the CFO has the right to write for each child and the parent subsidiary. The executive has a Read privilege for a separate subsidiary, but has access to Write for the entire region. The individual manager has the rights to write individual subsidiaries, but only read their rights to the consolidated group. 17. Click on OK to close. 18. Before the data can be edited or entered from MS Excel Perspectives, in Cubes, make sure that the user groups we have identified have the necessary rights to the appropriate cubes and sizes. Therefore, cube values should allow users to enter data, and sizes should be readable from UIs. 414 Chapter 13 19. If we wanted to enter data only for cube expenses, through groups of CFOs, executives and managers, we would give the privileges of Write only on this cube. The remaining cubes would not be available for entry (and access privileges established for None). 20. Similarly in Server Explorer, the right click on the dimensions and ensure Reading privileges are given to our groups on appropriate measurements, as shown in the following screenshot: 21. Therefore, whatever exercises we want to perform, we will only give the necessary privileges to TM1 sites. 415 Determining How it works... We created users and groups on TM1 Server demos and assigned them to certain elements for certain privileges. These users will now be assigned tasks related to their role in the budgeting and forecasting process. Install IBM Cognos TM1 Workflow In this recipe we will install IBM CognosTM1 Workflow and get that working. We will use the same INSTALLATION TM1 Workflow later in the recipe. Get ready to Close TM1 Data Server, saving changes if asked. With the control panel, open Add/Remove and remove TM1 Workflow if it's already installed. Reboot the machine and then make sure that the TM1 Server Service is running. How to do it... 1. Double click on the settings file for IBM Cognos Cognos Workflow 9.5.2 and follow simple instructions. 2. Installation consists of: TM1 web toolbar on Microsoft's Excel Toolbar web server and add-ons of TM1 Control Cubes in the TM1 Server data catalog Once installed, restart the machine and follow these steps to attach the workflow to the demodataTM1 server. 3. Copy all files on C: Cognos TM1 T1Data TM1.1 q2 planning manager to copy all installation workbook. 4. Insert all files and folders into C: Cognos,TM1 Custom TM1DataTM1DataDemo Data, which is a catalog of data for the TM1 Server demo sits. 5. Now start tm1 Server demos in Server Explorer. Enter the TM1 Server demo, click the right button with the help of an admin user. 6. Now go to IBM Cognos TM1 from the launch menu and click on The Prospects for MS Excel. 416 Chapter 13 7. It will open up perspectives for MS Excel, which is another customer through which users can access TM1 objects through MS Excel. It is installed with TM1 Server, but requires existing Microsoft Excel installed on the workstation. 8. Click on Turn On Macro when starting Perspectives for MS Excel. Note that the MS Excel toolbar has additional additions for TM1 and TM1 Workflow. 9. Under the TM1 Workflow tab, click on the load toolbar: TM1 Workflow 10. This will allow you to connect to the TM1 server. Select demos and log in as an administrator with an empty password. 417 WorkFlow definition 11. We are now connected to the TM1 Server demodancing via TM1 Perspectives for MS Excel and TM1 Workflow is available to the user administrator. How it works... The concept is the same as we've seen in previous sections about the IBM CognosTM1 contributor. In the next recipe we will see detailed information about IBM Cognos TM1 Workflow in particular. Depending on the availability of tools, you can use either IBM Cognos TM1 Contributor or IBM Cognos TM1 Workflow. By adding a new process and task using the IBM Cognos TM1 workflow, as previously noted, the workflow process represents a number of challenges that represent the business process. It consists primarily of a task and an overview of a structure that is similar to what we have at IBM CognosTM1 contributor. Tasks are assigned to the owner, who is reviewed by the reviewers. In this recipe, we will use TM1 Server demos and use TM1 Perspectives for MS Excel as the main interface. We will also create another cube called ExpenseDetails and attach its presentation to the workflow process so that the data can be entered, presented, and reviewed. Get ready to make sure TM1 Admin Server is up and running. Run tm1 Server demos and log in to the architect TM1. How to do it... 1. In Server Explorer, tap the right button on the cubes and create a new cube named ExpenseDetails, as shown in the following screenshot: 418 Chapter 13 2. Create and save a public view called ExpenseDetails, shown in the following screenshot: 419 Working Workflow 3. Now click the right button on From Server Explorer and click on the creation of a new app. 4. Rename the newly created app as ExpenseDetails and make it public, as shown in the following screenshot: 5. Close Server Explorer and keep the demodable server running. 6. Turn on Macros on request. Click on the TM1 tab and tell Connect. 420 Chapter 13 7. Sign in as an administrator on the demodata server. 8. Once connected, open Server Explorer. 9. It will pop up TM1 - Perspectives: Server Explorer shows a similar interface as TM1 Architect, as shown in the following screenshot: 10. Under the cubes are the view of the ExpenseDetails cube, as shown in the following screenshot: 11. On Cube Viewer, click on the Slice icon. 12. He will open the current Cube Viewer in TM1 Perspectives for MS Excel. 421 Workflow definition 13. Rename the sheet to ExpenseDetails, as shown in the following screenshot: 14. Name the range as ExpenseDetails. 422 Chapter 13 15. Apply any formats you need to use MS Excel and TM1 options where applicable. Save the Excel sheet as ExpenseDetails.xls in the following places: C: Program FilescognosTM1Custom-TM1Data-PDataC: Program Filescognos TM1Custom-TM1DataDemoData Data 16. While the first is the TM1 Admin Server data catalog, the second is the tm1 Server data catalog. From the MS Excel interface, you can also save the Excel sheet on tm1 Server (menu TM1) Save then, and download the view application file to TM1 server. 17. Now from the TM1 menu, click on the ExpenseDetails app folder. 18. Click on OK and from TM1 - Perspective: Server Explorer, make an Excel sheet as public. So: join changes to 423 WorkFlow Definition 19. Now close the work book and TM1 - Perspective: Server Explorer. From IBM CognosTM1 Perspectives for MS Excel, go to the TM1 Workflow tab. Make sure the admin user is still connected. 20. We will now determine the process of workingflow to send, send, and approve 12 months of expense data based on the ExpenseDetails sheet. The data will be fed to ExpenseCube through perspectives for MS Excel and TM1 Web Interface. We'll be looking at the TM1 web interface in later sections. 21. In the prospects for MS Excel, from the TM1 Workflow tab, click on the administrator icon. 424 Chapter 13 22. To create a new workflow will be a pop-up new window , Process Wizard. 23. On the first screen of Process Wizard, which is Select Process Dimension, we have options to either use the existing process or create a new process. Make sure that the version measurement is chosen to reflect the current budget process measurement. We are therefore ready to create a new workflow. For measurement a new Budget 3 element with the alias ExpenseDetails should be used. The inputs will be available for the budget version 3 in the version measurement. 25. Click on the next button. The next window will be a master of the process - Creating a task and reviewing the hierarchy that will have the creation of a task and a review of the template. It is divided into two glasses. Left glass linen allows the user to specify sizes and subsms that should reflect the organizational structure. This is the same as the reviewer's measurement that we discussed in the previous chapter on IBM CognosTM1 Contributor. The only difference is that multiple measurements should be used to create a workflow review structure. 425 Workflow definition 27. In the task selection area template in the left side window for Dimension, click on the subsidiaries. This determines the structure of the organization's review and approval. Click on the TOTAL COMPANY element in the left side window, drag it and lower it to the right side glaze, as shown in the following screenshot: 29. So we've defined the task

and review template for this process. We can add or remove subsms from multiple dimensions, unlike IBM CognosTM1 Contributor, where we can only select one dimension for task structure and review. Thus, the TM1 workflow is more flexible, so elements and subsms can be added, removed, renamed, created, and edited from one or more dimensions. Click on. 30. In the process Master - Appoint a responsibility box, expand the group of CFOs, choose Fiona and drag on top of TOTAL COMPANY. 426 Chapter 13 31. Now TM1 user Fiona is responsible for the TOTAL COMPANY data. 32. Repeat the above step to assign users, as shown in the following screenshot: 427 WorkFlow Definition 33. Click on. 34. In the Process Wizard - Set Task Attributes window, select GO Americas and scroll down to the Name attribute. There are a number of attributes for each task that include the due date, the owner, the owner group, and the TI post Action process that can be performed as the task progresses. 36. Scroll down to send an object and click on the ellipses next to it. On the type of theme line, as shown in the following screenshot: 428 Chapter 13 37. Now that the chosen task is presented, an email will be sent to the reviewer showing the subject in the subject line. %TaskName% indicates a variable that is updated depending on the task that is being updated. Click on OK. 38. On the master of the process - to initiate the workflow, click on the security and navigation button. 39. It will reveal the masters of security and navigation, as shown in the following screenshot: 429 Defining WorkFlow 40. In this window, we will assign a work book that will be used for all of these tasks. 41. Select the Allow Multiple Assignments field in the bottom left corner of the window. 42. Select checkboxes for TOTAL and all its children, as shown in the following screenshot: 43. Click on the Workbook tab. 430 Chapter 13 44. Select an icon to select the working path book, as shown in the following screenshot: 45. Click Close to return to the Master process - initiate initialize Window. 46. In the Master process - initiate a workflow window other than the deadline for the process to increase the current month by one. 431 Defining workflow 47. Select the process hierarchy seen in the TM1 Admin Group. 48. Click yes to attach the level of valid processes. Click on the next review of the details. 432 Chapter 13 Create a new task and template review based on the existing process measurement: Versions Create a New Process: Budget Version 3 With a pseudonym: ExpenseDetails DETAILS Status for this process fill be set: In the progress security settings: No with start date: Thursday, July 07, 2011 With due date: Monday, August 08, 2011 Notes: 50. Click on the Finish button without notifying users and click on Close. 51. From an MS Excel interface perspective, click on the administrator from the TM1 Workflow tab. 433 Defining workflow 52. Expand your versions to see the CostDetails process you've just created. 53. Close the TM1 Workflow management console and prospects for MS Excel. Make sure the demo data server works. 434 Chapter 13 54. Open TM1 Architect and log in as an admin user. Make sure the following safety assignments are in place. 55. Tap the right button on the version measurement and go to item security destinations. 435 Workflow definition 56. The new Budget Version 3 element was created, as shown in the following screenshot: 57. Please note the privileges of security. 58. Now come out as a user administrator, close the TM1 Architect window and open TM1 Perspectives for MS Excel from the Start menu. 59. In TM1 Perspectives for MS Excel, click on the icon under the TM1 Workflow tab. 60. Connect to the demodancing tm1 server with the username listed as Isha. 61. Click on the select section and select the ExpenseDetails process. 436 Chapter 13 62. Click on Select Challenge and select GO America, which is currently in progress. The previous window shows a view of the data input created in the ExpenseDetails cube. Because Isha is responsible for typing data for a subsidiary of GO Americas, it has the very interface where it has access to data entry features similar to what we saw in the IBM Cognos TM1 Contributor web client. 64. Now we will see how to enter data into these cells and what different options provided by Isha to enter data for the GO Americas subsidiary it is responsible for. 65. Right to click on the Travel cell for January, point to the distribution of data, and then click on the growth%. 437 Workflow definition 66. Set in such a way that the data is distributed to the right, starting with 50,000, and then increases by 3%, replacing the existing values, as shown in the following screenshot: 438 Chapter 13 67. manually upgrade the cells for insurance, Yang up to 60,000 and do an equal spread to the right. 68. We will now submit the budget to everything that has been completed so far, to the next level of the hierarchy, which MOVE AMERICA'S REGION. Joy is responsible for GO AMERICAS REGION and all the subsidiaries under it; hence, he will be the reviewer of the task presented by Isha. 69. Now we will present the numbers by clicking on isha's login. (2107-13-59) icon from 439 Defining WorkFlow 70. It will open a activity confirmation field that allows the task presented by the user to update the sending actions with comments and other necessary information. 71. We would also send emails with comments, added attachments, and so on. Now click on the All Tasks icon. 72. The previous screenshot noted that Isha had just presented a task for the GO Americas region, while the other two tasks were still under consideration. 73. Close the spreadsheet and TM1 Prospects for MS Excel without saving any changes. 440 Chapter 13 Review presented tasks In this recipe we will see how the task presented can be considered through: ff TM1 Excel Perspectives ff TM1 Web Getting Ready We will use the same sampling process we created in the previous recipe. Make sure TM1 Admin Server is up and running demodataTM1 Server. How to do it... 1. Log up to TM1 Perspectives for MS Excel with the username as a joy. 2. Go to the TM1 Architect tab and click on the load icon. 3. Choose the ExpenseDetails task and that will fill out an overview of the tasks assigned to the joy. In the fall down, we see a list of tasks from which GO Americas task is in the presented state. Let's pick this and see what data has been presented. 441 Workflow definition 4. So Joy can now see the data presented, and it can approve it by clicking on the icon on the toolbar. 5. It can also reject and cancel a task by clicking on one of the options, as shown in the following screenshot: 6. Close TM1 Perspectives for MS Excel without saving any changes. 7. Now let's look at the problem with TM1 Web at the following link. 442 Chapter 13 8. It will open the IBM CognosTM1 web login screen, as shown in the following screenshot: 9. Login in the DEMOs TM1 Server as Joy, shown in the picture above. 10. Choose an ExpenseDetails process similar to what we did in TM1Perspectives for MS Excel. Again he will settle all the tasks assigned to Joy. 11. Just as we did when we researched TM1Perspectives for MS Excel, click on GO Americas, which is currently in submission. 443 Determining the workflow due to the smaller column width, the data in several cells is not properly visible. Select these cells and click on the width icon of the selected Autofit column to adjust the width of the cells so that the data is visible. 444 Chapter 13 12. Now click on the fall down action as shown to approve, reject recall the data entered. 13. Click on Reject and enter the following comments, as shown in the following screenshot: 445 WorkFlow Definition 14. Click the Confirm button to send comments after the task is rejected so the sender can make changes and send again. Operator detail the data before the reviewer takes any action (Approval/Rejection/Review). 15. Now log in and log in to TM1 Perspectives for MS Excel again with Isha as a username. 16. After downloading the task, please note that the GO Americas task has been rejected, as shown in the following screenshot: 17. Click on the All Tasks icon below the screenshot: 446 (2107-13-74) under the Add-Ins tab, as shown in chapter 13 of 18. Click on GO America and then click on the Details button. 19. He will open another new window and will show the details along with the Reject Comment sent by Joy. Close all remaining windows and get out of the spreadsheet. There's more... The TM1 contribution was added to TM1 much later and comes from the IBM Cognos Enterprise Planning package, which is another Cognos planning and budgeting tool similar to TM1. Prior to integration, TM1 had TM1 Workflow, Perspectives for MS Excel and TM1 Web Client, exclusively for managing user groups, identifying user interfaces for the app, and playing with data. TM1 Architect remains the main component that comes from TM1, and is used to model business data in the form of various TM1 objects. So now we can have: ff IBM CognosTM1 Architect as a modeling tool to create TI cubes, sizes and processes. ff either or as IBM CognosTM1 Contribution web client or IBM CognosTM1 web client as an interface to enter, edit, review and submit data over the Internet. ff IBM CognosTM1 Perspectives for MS Excel do higher features through the Microsoft Excel interface. ff or both IBM CognosTM1 Workflow or IBM CognosTM1 Contributor Workflow to create and manage a workflow planning and determination application based on the organizational structure of the organization. Both components of the workflow have an administrative console available to the app designer. Which components to use actually depends on the cases of business usage and available licenses. In the next chapter, we'll deal with integration points between IBM CognosTM1, IBM Cognos Enterprise Planning and IBM Cognos BI (starting with the 8th year version). It may or may not be useful for most readers, but it's just nice to know. 448 14 Integration with IBM Cognos BI In this chapter we will cover: ff Integration With IBM Cognos BI In this chapter we will same Cognos BI Version 8 in this chapter. However, the same steps are good for the latest version of Cognos BI, which is version 10. ff IBM Cognos Corporate Planning tool of similar planning and tool like IBM CognosTM1. It existed as part of the planning and budgeting of the Cognos proposal. Later, Cognos took over Applix and therefore TM1. (TM1 was originally a planning and budgeting tool from Applix prior to acquisition.) We will discuss in detail the integration of IBM Cognos 8 BI. However, the basic knowledge of Cognos 8 BI is assumed throughout the chapter. Integration with IBM Cognos BI We've already studied and seen every way we can build and manage complex planning applications. This is the following: Component name Using the case of IBM CognosTM1 Architect Creating sizes, cubes and TI processes. Identify users, groups, and roles. Determining access rights to Cubes, Dimensions, Elements, and even cell level security can be identified here. Comments from IBM CognosTM1 Web Data input, review and submit via web interface. IBM CognosTM1 Data Entry Perspectives, Review and Submit through the Microsoft Excel interface. IBM CognosTM1 Administration and WorkFlow Create a workflow, define the organizational structure, and therefore review the hierarchy. Users enter data, groups and roles, and assign access rights to various business views. IBM CognosTM1 Administration Of Contributors and WorkFlow Create a workflow, define the organizational structure, and therefore review the hierarchy. Users enter data, groups and roles, and assign access rights to various business views. Users and groups can also be identified along with access rights. They will take precedence over the security determined by #1. Previously, part of the company's planning. Now integrated with TM1. It has a better user interface, but is functionally similar #4. IBM CognosTM1 Contribute web data to enter, review and submit through the web interface. Previously, part of the company's planning. Now integrated with TM1. It has a better user interface, but is functionally similar #2. Note that depending on business requirements, the user can choose a custom installation that can be a single computer (as shown in the book) or a distributed installation. Users can also choose between components, such as IBM Cognos Contributor components may not be required at all. The same infrastructure can be used to continue working with existing IBM Cognos BI components or planning and budgeting applications where possible. 450 Chapter 14 However, it is recommended that BI Server and TM1 Server be separated for performance and memory requirements at TM1. If We will discuss BI-TM1 in this chapter, although it is not absolutely necessary and also needs a prior understanding of the concepts of BI that every reader may not have. Integrating TM1Enterprise planning will be possible this chapter will not be discussed in this chapter; although, please keep in mind that TM1 Cubes can be used in enterprise applications as well as integration concepts revolve around the same core that we will discussion on TM1-BI integration. Before you dive into the details, look out for the following points: ff TM1 was originally an Applix product that merged with Cognos and is therefore now called Cognos TM1, followed by IBM CognosTM1 after IBM acquired Cognos. ff Enterprise Planning (EP) is a cognos-like planning and budgeting tool similar to TM1 in functionality. After the merger of Applix with Cognos and Cognos with IBM, we now have two popular planning and budgeting tools, EP and TM1. ff Contributor is the main component of the EP, which has an intuitive user interface and is now integrated with TM1, so that users can have the best of both worlds. They can have a quick customer number crunching the TM1 engine combined with the user's intuitive and jazzy interface to input the workflow and input the web client. ff Cognos BI is a cognos performance management tool that, after acquiring IBM's Cognos, is referred to as IBM Cognos BI in this book. It is a reporting tool, analysis, MOLAP and event management. It has a modeling tool called Framework Manager and Studios to create, view and distribute reports and cubes. These four studios are Report Studio, Request Studio, Studio Analysis and Event Studio. Integration between Cognos BI and planning apps (EP and TM1) is possible in cognos version 8. Thus, it has become possible to have different tools for different business usage cases, and each of these tools talks to others in a seamless manner, some of which we explain in this chapter. Now we will focus on integrating IBM Cognos TM1 with IBM Cognos 8 BI. However, to be fully familiar with IBM Cognos 8 BI's aspects, tools and procedures. As a summary, let's look at the Cognos BI components in a succinct manner. 451 Integration with IBM Cognos BI IBM Cognos 8 BI is a set of following tools; Component Name Component Type Using Access Type Framework Manager metadata modeling tool. It is used to import metadata from various data sources, establish links between different database objects, and publish the resulting package to connect to the connection for use in authorised reports in one of the design studios. On the desktop and will be installed for each developer of the metadata model. The Cognos Connection web interface used to host and access metadata models and reports. The metadata model (package) published from the Framework Manager to the cognos web portal, where users can log in. Depending on user privileges, they can access packages and reports and create more reports in the various studios below. Web access after server or distributed installation of the Cognos BI server. The Report Studio web interface used to generate reports. A web interface in which packages published through the Framework Manager can be opened and can be used to create complex reports. Web access after a single server or distributed installation bi Server Cognos. The web interface of the company used to create reports. A web interface in which packages published through Framework Manager can be opened and metadata can be used to generate special queries and quickly view data in a simple way. Similar to Report Studio, but designed for more naive users. Web access after a single server or distributed installation of BI Server Cognos. 452 Chapter 14 Component Name Component Type Use a type of Event Studio web interface used to identify events that may act as triggers for various pre-defined actions. A web interface in which packages published through Framework Manager can be opened and metadata can be used to process conditions and triggers to automate pre-defined event-based activities. Web access after a single server or distributed installation of BI Server Cognos. Integration of IBM Cognos TM1 with IBM Cognos 8 BI Before we begin the actual steps of the recipe, we will take note of the following integration considerations: ff Measured measurement in the TM1 cube must be clearly identified. If TM1 is on another server on the network, we will provide an IP address or host name in TM1. ff Data Source should be created in IBM Cognos Connection, which points to CUB TM1. A new data source can also be created from IBM Cognos Framework Manager, but for the sake of simplicity we will create that from IBM Cognos connecting itself. The data source created is used in the IBM Cognos Framework Manager model to create a metadata package and publish it in IBM Cognos Connection. The metadata package can be used to generate reports, generate requests, cut and dice, or manage events with one of the design studios available at IBM Cognos BI. We will focus on each of the above steps in this recipe, where we will use one of the cubes created as part of the TM1 Server demos, and we will use the cube as a data source in the IBM Cognos BI layer. Get ready to make sure tm1 Admin Server is up and running and the TM1 Server demo is working. We must have IBM Cognos 8 BI Server running and IBM Cognos 8 Framework Manager installed. 453 Integration with IBM Cognos BI How to do it... 1. Open the Architect's TM1 and press the right button Sales_Plan Cuba. 2. Click on Properties. In the Measurement Field, click on the button and then click on Months. 3. Please note that the previous step is a must if we want to use the The cube as a data source for the BI layer. We need to clearly define the size of the measures and the measurement of time. 4. Click on OK and minimize TM1 Architect, keep the server running. 5. Now, from the Start menu, open IBM Cognos, which is a desktop tool used to create metadata models. 6. Creating a new project from IBM Cognos 8 Framework Manager. 454 Chapter 14 7. Enter the project name as Demodata and provide the location where the model file will be located. Please note that each project generates a .cpf file that can be opened by ibm's Cognos framework manager. 8. Provide valid user credentials so that IBM Cognos Framework Manager can be linked to the IBM Cognos BI Server. Users and roles are defined by the IBM Cognos BI administrator. Choose English as the author's language when select Language is included. This will open Masters Metadata - Choose the source of metadata. We use Metadata Masters to create a new data source or point to an existing data source. 9. In Master Metadata, make sure the data sources are selected and click on the next button. 10. On the next screen, click on the new TM1_Demodata_Sales_Plan name button. create a new data source for IBM Cognos BI 11. This will reveal a new master of the data source, where we have to specify the name of the data source. 12. On the next screen, it will ask for the type of data source for which we will point TM1 from falling down as we want to create a new data source based on TM1 Cube Sales_Data. 456 Chapter 14 13. On the next screen, specify the settings of the connection. For the Host administration, we may provide a name or localhost, depending on the name of the server. In our case, we listed the name of the server as ankitgar, so we use the actual name instead of the local hosting. If TM1 is on another server on the network, we will provide an IP address or host name in UNC format. 14. Check the connection to see if the connection to the TM1 cube is successful. 15. Click on the close and continue. Click on the Finish button to complete the data source creation. 457 Integration with IBM Cognos BI 16. A new data source has been created on the Cognos 8 server and can now be used by anyone with valid privileges given by the administrator.com.au. It's simply a Sales_Plan TM1 cube, which can now be used to create metadata models and therefore reports and queries perform the various functions proposed in previous sections. 17. It will now return to Metadata Wizard, as shown so far, with a new data source appearing with a list of data sources already in place. 18. Click on the newly created data source and the next button. 19. He display all available Cubes on DemoDataTM1 Server, the name of the machine is the name of the server (localhost/ankitgar). 20. Click on the Sales_Plan and then the next. 458 Chapter 14 The next screen allows users to choose locales. We don't have such considerations, so go ahead by clicking on the next button. 22. Uncontrollable create the default package box and click on the Finish button. 23. Now this will open the Cube in the IBM Cognos Framework Manager tool. Now we'll create a new metadata package that will include a cube. 24. Right click on the package icon and in the Create Package master give a name to create a new package named TM1_Demodata_Sale_Plan. The Create package master pops up when we click on the packages, click on the Create Package button. 459 Integration with IBM Cognos BI 25. Now we've created a TM1_Demodata_Sales_Plan package and we want to publish it on IBM Cognos BI Server so that it's available to users to handle reports and queries. 26. In the publication of The Master, do not stop the checkbox to include the model version that is used to maintain different versions of the same model. Click on the next button. 27. On the next screen, determine the security of the metadata package if applicable. In our case, we will not specify any additional package level security and so click on the Next button. 28. Publish the package by accepting the default settings and click on the publication button. 460 Chapter 14 29. So now we've successfully published the TM1_Demodata_Sales_Plan Connection package on the IBM Cognos BI server. Click on the finish and save the model. 461 Integration with IBM Cognos BI In THE IBM Cognos Framework Manager tool we can only access cubes, we can not edit them. 30. Now open the IBM Cognos Connection page by clicking on the URL to access IBM Cognos's BI server. Typically, installations have URLs in the following format ;machine_name/cognos8. 31. This is provided by the IBM Cognos Administrator as soon as the IBM Cognos BI Server installation is done and security has been created. The IBM Cognos Framework Manager tool is then configured for time by talking to IBM Cognos BI Server via THE IBM Cognos Configuration, which is desktop-based and contains connection settings with IBM Cognos BI Server. We will use a similar IBM Cognos 8 installation; however, configuration details have been missed and we will focus directly on the use and use of the recently published package. 33. Sign in to IBM Cognos Connection by clicking on the URL. Provide login credentials, and we can now view all the packages we've published, as well as TM1_Demodata_Sales_Plan and TM1 Cube. We access this through a supported web browser as suggested in the IBM Cognos 8 BI documentation. We use IE in this recipe, but other supported browsers can also be opened in a similar way. 34. Now click on the TM1_Demodata_Sales_Plan and then click on the launch menu. 462 14 35. Меню отображает список доступных дизайнерских студий </machine_name> </machine_name> Here Request Studio and Report Studio are available to us. Depending on security privileges, we may be given access to one or more studios. Here, for our users, Analysis Studio and Event Studio are not visible and therefore not available to us. We will try to open the package in Report Studio and create a report from it. 36. Select The Report Studio option and the pop-up will open a studio where the report can be authored on the basis of the package and on our case based on the TM1 Sales_ the cube plan. IBM Cognos BI has no means of recording back into the database and therefore the data cannot be updated into the cube through the BI layer. You can simply read it based on what is written through TM1. 463 Integration with IBM Cognos BI 37. In the Reporting Studio, The Left Side Glass Insertable Objects shows a package we just published that features objects from the Sales_Plan TM1 Cube. Items can be dragged and dropped to the right side of the authorship panel to create the report. The report can be executed and saved on the server. Reports can be stored on a server from which they can be accessed by special form to business users or can be scheduled to run at certain intervals and distributed to users via email in different formats. The previous screenshot shows a newly created and saved report on IBM Cognos's BI server. As and when we make changes to the data in Sales_Plan, they will be reflected in the report in real time. 464 Chapter 14 How It Works... In this recipe, we've seen how we can use TM1 Cubes as data sources to report to IBM Cognos BI. The authorship of the report at IBM Cognos BI and the use of different features depending on different business usage cases is a completely different topic of discussion and goes beyond the scope of this book. Here the goal is to show how IBM CognosTM1 and IBM Cognos BI layer talk to each other. Detailed discussion of the author's reports at IBM Cognos BI can be found in IBM Cognos 8 BI Cookbook from Packt Publishing. TM1 Cubes can also be found in IBM Cognos 8 BI Cookbook from Packt Publishing. TM1 Cubes can also be used in IBM Cognos Enterprise Planning applications in a similar way. 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