

The Kugar Handbook

Alexander Dymo and Phil Thompson



The Kugar Handbook

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Abstract

Kugar is a template based XML report engine. Kugar Report Designer is a flexible GUI report template designer for Kugar report engine.

Chapter 1

Introduction

Kugar is a report creation tool for Qt™ and KDE. It includes a GUI report template designer, a report engine, a Konqueror part for easy report preview and a set of examples.

The Kugar Report Designer is a report template creation tool for the Kugar report engine. The Kugar report engine uses an XML based report template file (which can be created by hand or with Kugar Report Designer) and a data file (also in XML format) to create reports. To get more information on Kugar Report Designer refer to the [Report Template Designer Manual](#).

See [The KugarTemplate Document Type Definition](#) for an overview of the template's DTD (file format), [KugarData Document Type Definition](#) and [Tutorial](#) for a step-by-step explanation on how reports can be created.

Programmers should also refer to the [Programmer's guide](#) to find information about using Kugar in their own applications.

Chapter 2

Tutorial

Alexander Dymo and Phil Thompson This tutorial attempts to be a brief introduction to Kugar.

You will create a sample report template with Kugar Report Designer, a sample data file and finally generate a complete report.

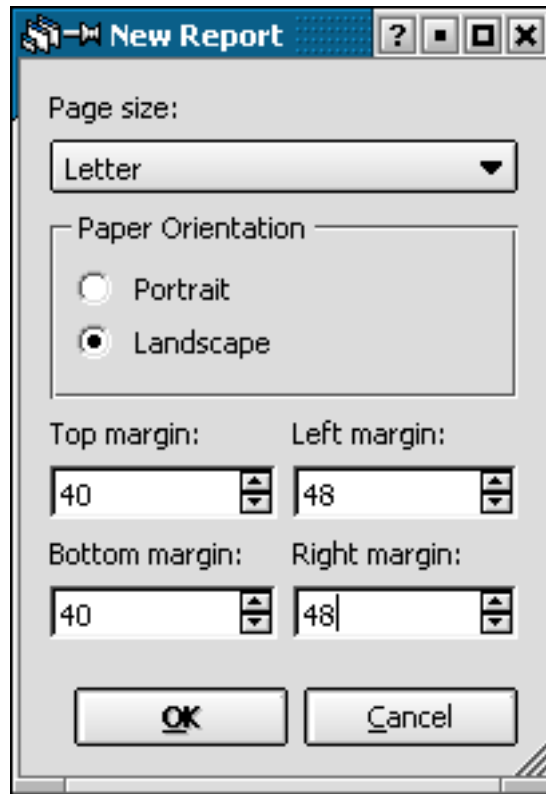
The source code for sample templates and data files can be found in `sample1-.ktf` and `sample1.kdf` that are distributed with Kugar.

2.1 Creating the report template with Kugar Report Designer

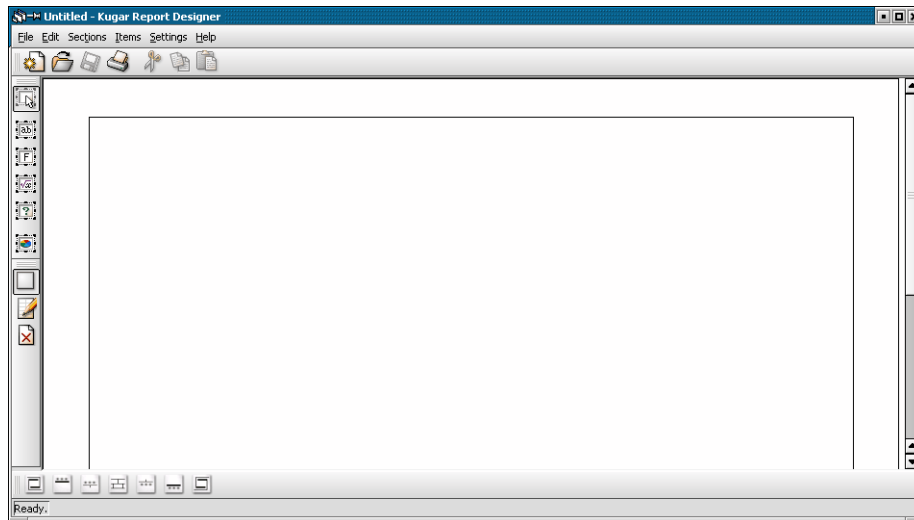
Run Kugar Designer by typing `kudesigner` in the shell.

After you start the designer, choose File|New and set the page size to Letter and paper orientation to Landscape. Set the left and right margins to 48, top and bottom margins to 40. All dimensions in Kugar Report Designer (page margins, sizes, positions, etc.) are measured in millimeters.

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A new report is now created and all buttons on the Items Toolbar and Sections Toolbar are now enabled (the corresponding menu items from Items and Sections are also enabled).

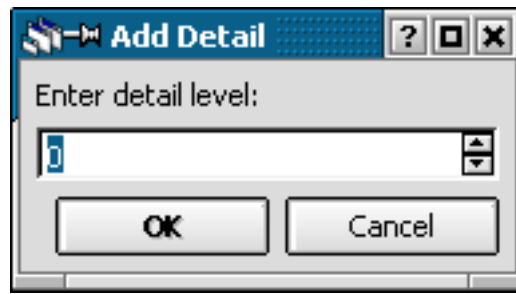


Now it is the time to add some sections to the report and determine their sizes.

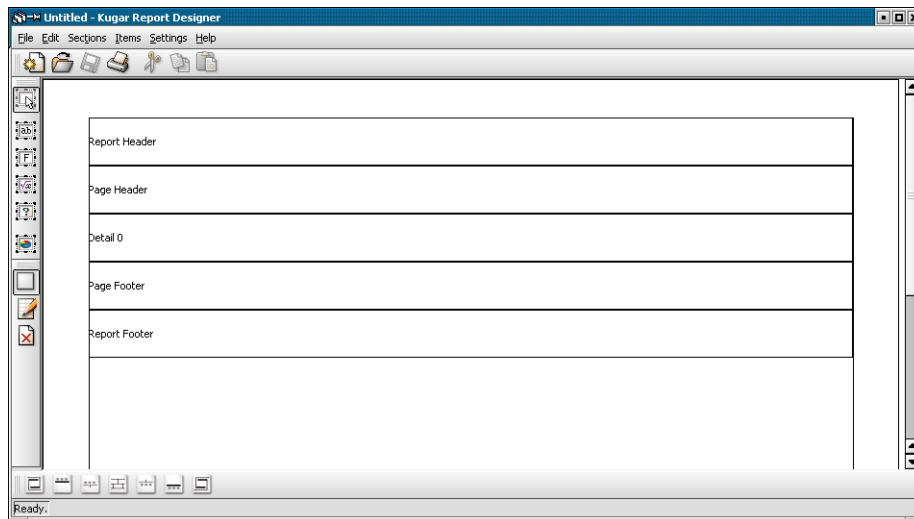
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We will add [report header and footer](#), [page header and footer](#) and a single [detail](#) section. Report headers and footers are printed on the first page and on the last page of the report before and after any other report data accordingly. Report footers are good places for [calculated fields](#). Page headers and footers are printed at the top and bottom of each page. Our report will have one detail section with level 0. This means that all our data rows have identical structure (i.e. fields). If the data structure is more complex or it is organized according to a master-detail relationship, more detail levels should be created. See `sample3.ktf` and `sample3.kdf` for an example of how that can be done. Refer to the [template elements descriptions](#) for additional information.

Sections are added by using Sections menu or a Sections Toolbar. Now add a report header and footer, a page header and footer and then a detail section. When adding a detail section, set its level to 0 as shown on the screenshot below.

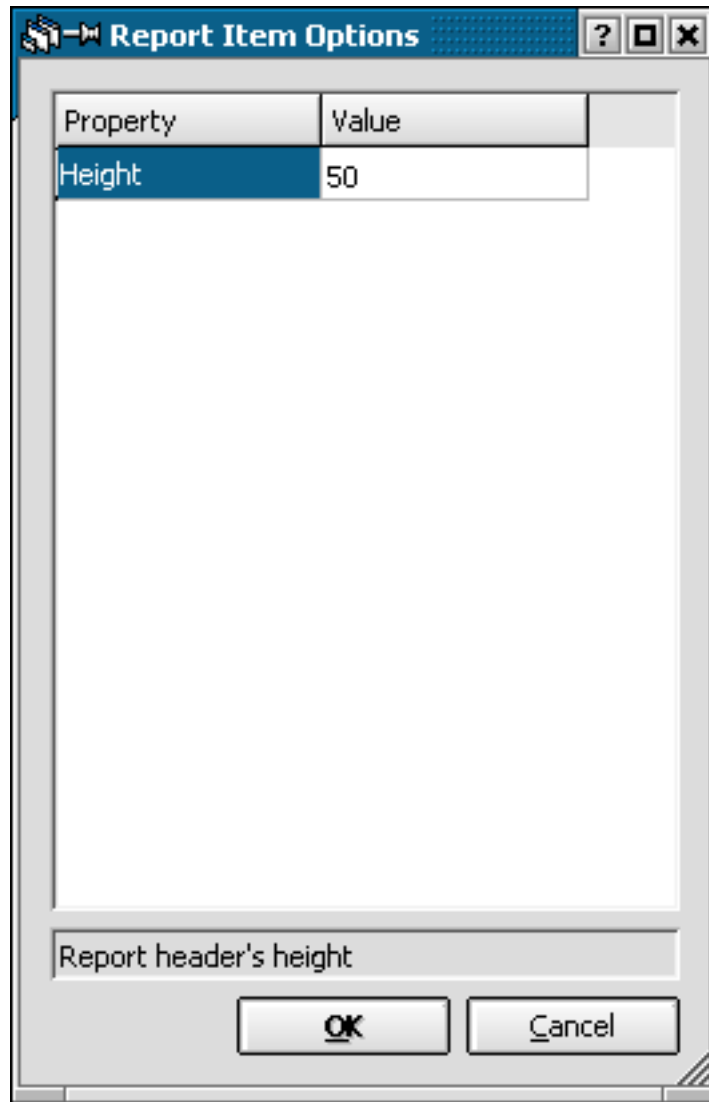


Our report should now look like this one in the screenshot.



All our sections have a predefined height - 50mm. Let's change it. To do this right mouse button click on the Report Header section or click the Edit Properties button on the Edit Toolbar and then choose a section. The Properties window should be shown.

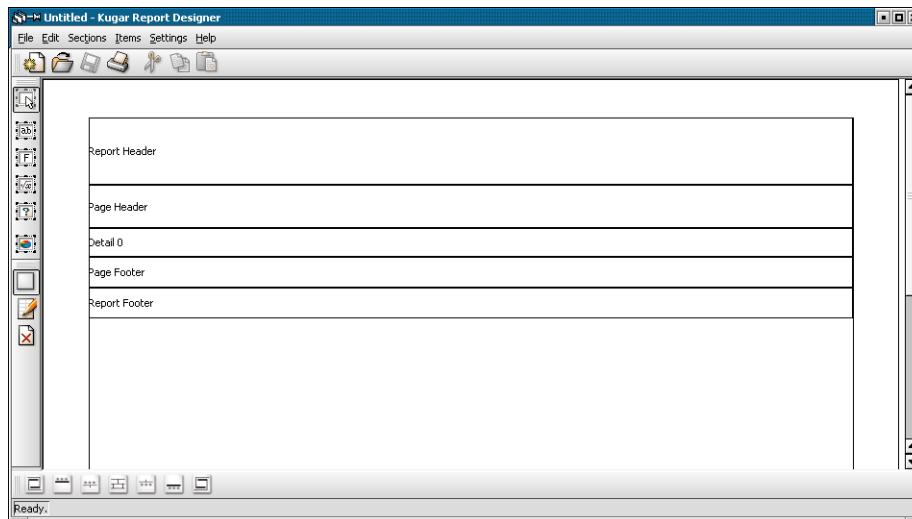
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Now set the Report Header's height to 70. Let's perform that procedure for all other sections. Set the Page Header's height to 45 and the Detail's to 30. The Page and Report Footers should be 32 mm in height.

A report template with properly sized sections is ready to be filled with report items.

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You can now add items to the sections on the report. Five different types of items can be added to the report. **Label** is a rectangular area that can have borders and can be filled by any kind of textual data. The Label's foreground and background colors, as well as fonts, can be changed. Border line types and line colors are also customizable. **Fields** can be placed on to a detail section. Fields represent data fields; their values will be collected from a data file while generating a report. Counts, sums, averages, etc. for field values can be printed on the report by means of **Calculated Fields**. **Specials** are labels with predefined text, such as current date or page number. The general report appearance can be refined with **Lines**.

To add a report item click the corresponding item button on the Items Toolbar and place (click) it on the section. The chosen item will be placed on the selected section with the upper left corner at the given coordinates. Other properties are set to default values and can be changed with the Report Item Options dialog (the same way we used to change the section's height).

So, let's add labels to the report header and page header as shown on the screenshot below. Note that the 'Mutiny Bay Software' label has its Border-Style and BorderWidth set to 0 and 'Software Inventory Report' - 1mm. Any colors are set as a combination of three values (RGB - red,green,blue) separated by commas.

We will also add field elements to the detail section. Just assume we have four fields - title, version, platform and copies. So, four Field elements should be placed and their Field properties set. Note that Text property is automatically set to '[field_name]'.

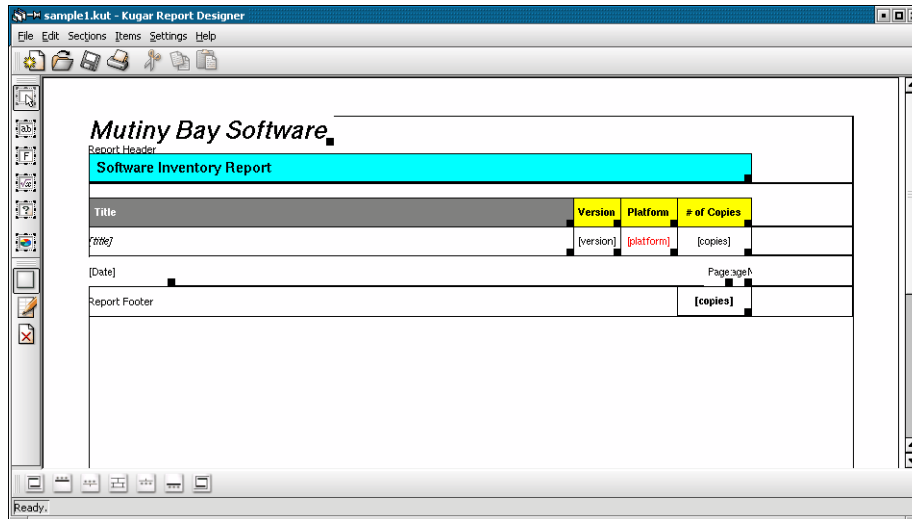
Our page footer is a good place to show the current date and page number, so add two special fields and set their Type properties to 0 and 1. A special with Type=0 will represent date and one with Type=1 - page number. Note that special's Text property is changed automatically.

The last element to be placed is a Calculated Field for the 'copies' field. To

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acquire a sum (copies) set the calculated field's Field property to 'copies' and CalculationType to 1 (sum function).

Finally, our report template should look like this:



2.2 Creating the report data file

Generally speaking, data files may be created in several ways. Some will use xsl transformation tables to generate proper XML from another XML document (like a KSpread spreadsheet); others will use their own program to fetch data from a database and fill the data file. In this tutorial we will simply create it by hand. The source code for the example can be found in file `sample1.kdf` or copied from the example below.

```
<?xml version=1.0 encoding=UTF-8?>

<!DOCTYPE KugarData [
  <!ELEMENT KugarData (Row* )>
  <!ATTLIST KugarData
    Template CDATA #REQUIRED>

  <!ELEMENT Row EMPTY>
  <!ATTLIST Row
    level CDATA #REQUIRED
    title CDATA #REQUIRED
    version CDATA #REQUIRED
    platform CDATA #REQUIRED
    copies CDATA #REQUIRED>
]>
```

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```
<KugarData Template="sample1.ktf">
  <Row level="0" title="  BRU" version="15.0" platform="x86 ←
    " copies="1"/>
  <Row level="0" title="  Caldera Open Linux" version="2.2" ←
    platform="x86" copies="3"/>
  <Row level="0" title="  K Desktop" version="1.1.1" ←
    platform="x86" copies="1"/>
  <Row level="0" title="  Netscape Communicator" version ←
    ="4.6" platform="x86" copies="10"/>
  <Row level="0" title="  Redhat Linux" version="5.0" ←
    platform="x86" copies="11"/>
  <Row level="0" title="  Redhat Linux" version="5.1" ←
    platform="x86" copies="12"/>
  <Row level="0" title="  Redhat Linux" version="5.2" ←
    platform="x86" copies="14"/>
  <Row level="0" title="  Redhat Linux" version="6.0" ←
    platform="x86" copies="15"/>
  <Row level="0" title="  Star Office" version="5.0" ←
    platform="x86" copies="1"/>
  <Row level="0" title="  Star Office" version="5.1" ←
    platform="x86" copies="3"/>
  <Row level="0" title="  Microsoft Windows NT" version ←
    ="3.1" platform="x86" copies="1"/>
  <Row level="0" title="  Microsoft Windows NT" version ←
    ="3.51" platform="x86" copies="1"/>
  <Row level="0" title="  Microsoft Windows NT" version ←
    ="4.0" platform="x86" copies="1"/>
  <Row level="0" title="  Microsoft Windows NT" version ←
    ="5.0" platform="x86" copies="1"/>
  <Row level="0" title="  Sun Solaris" version="2.5" ←
    platform="Sparc" copies="1"/>
</KugarData>
```

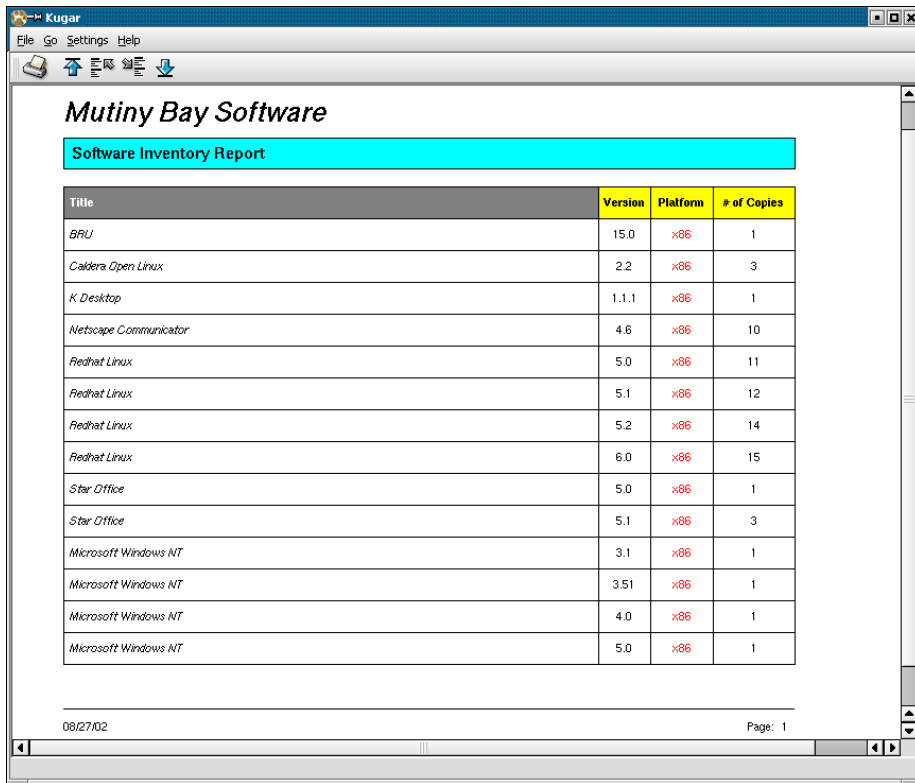
2.3 Generating the report

At this moment we have a report template (`sample1.ktf`) and a report data file (`sample1.kdf`).

To generate a report, type the following command in the shell: **kugar -r *sample1.ktf* -d *sample1.kdf***

This will bring up a Kugar shell window with the report generated.

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The screenshot shows a window titled "Kugar" with a menu bar (File, Go, Settings, Help) and a toolbar. The main content area displays "Mutiny Bay Software" and a "Software Inventory Report" table. The table lists software titles, versions, platforms (all x86), and the number of copies. At the bottom, the date "08/27/02" and "Page: 1" are visible.

Title	Version	Platform	# of Copies
<i>BRU</i>	15.0	x86	1
<i>Caldera Open Linux</i>	2.2	x86	3
<i>K Desktop</i>	1.1.1	x86	1
<i>Netscape Communicator</i>	4.6	x86	10
<i>Redhat Linux</i>	5.0	x86	11
<i>Redhat Linux</i>	5.1	x86	12
<i>Redhat Linux</i>	5.2	x86	14
<i>Redhat Linux</i>	6.0	x86	15
<i>Star Office</i>	5.0	x86	1
<i>Star Office</i>	5.1	x86	3
<i>Microsoft Windows NT</i>	3.1	x86	1
<i>Microsoft Windows NT</i>	3.51	x86	1
<i>Microsoft Windows NT</i>	4.0	x86	1
<i>Microsoft Windows NT</i>	5.0	x86	1

Chapter 3

Starting Kugar and Kugar Report Designer

Alexander Dymo and Phil Thompson The Kugar program takes two command-line arguments:

```
kugar [-d Kugar data file] [-r Kugar template file]
```

For example, **kugar** -d *sample1.kdf* -r *sample1.ktf*

The Kugar Report Designer program can be started with no arguments or with a report template file name as an argument:

```
kudesigner [template.ktf]
```

Chapter 4

Report Template Designer Manual

Alexander Dymo and Phil Thompson Kugar Report Designer allows interactive creation and modification of report templates, and placement of report sections and section items onto a report.

Kugar Report Designer is a WYSIWYG application. Report page size defines the report dimensions on the screen. At the present moment, the scale is set to 100% automatically and cannot be changed.

EVERY REPORT TEMPLATE MAY CONTAIN THE FOLLOWING REPORT SECTIONS:

- Report Header
- Page Header
- Detail Header
- Detail
- Detail Footer
- Page Footer
- Report Footer

REPORT SECTIONS MAY CONTAIN THE FOLLOWING REPORT ITEMS:

- Label
- Field
- Calculated Field
- Special Field
- Line

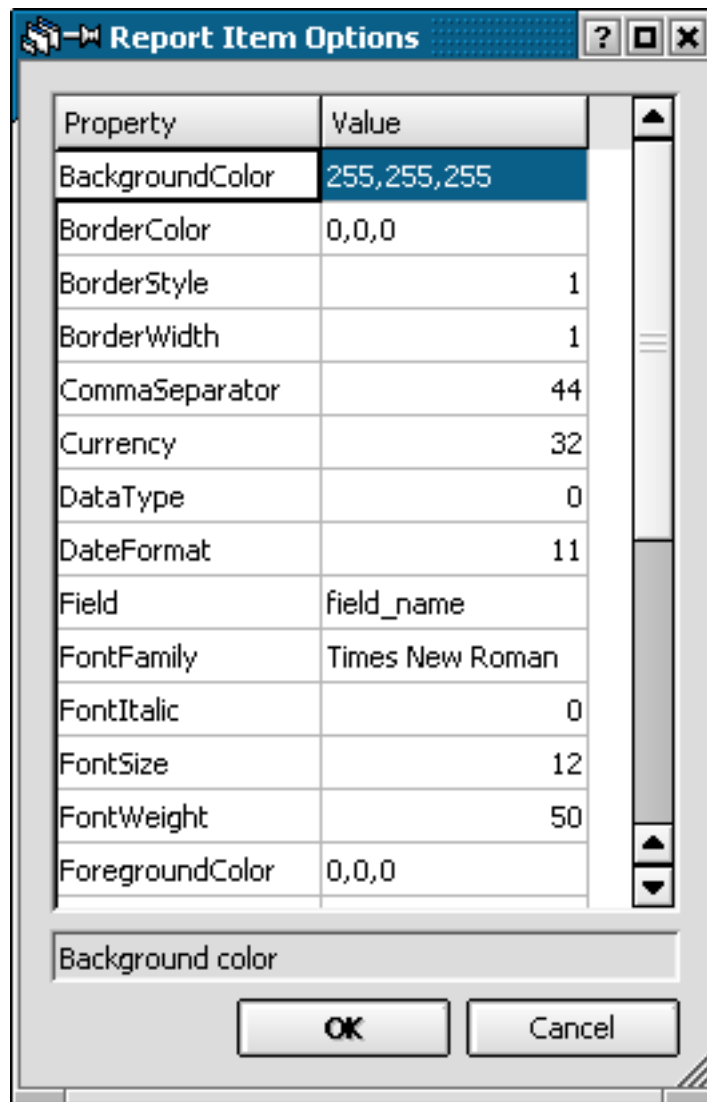
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Report sections and items can be placed onto the report template by using menus or toolbars.

Every element, such as a report template, a report section or an item has its own properties. These properties define geometrical, textual and any other parameters. Every time an element is placed, a set of default properties is applied. For example, when Label is placed, its Text property value is set to 'Text'.

To change properties, use the Report Item Options dialog. This dialog can be called by right mouse button clicking on an item or with an Edit Properties button in the Edit Toolbar. See screenshot below (properties for a Field item):

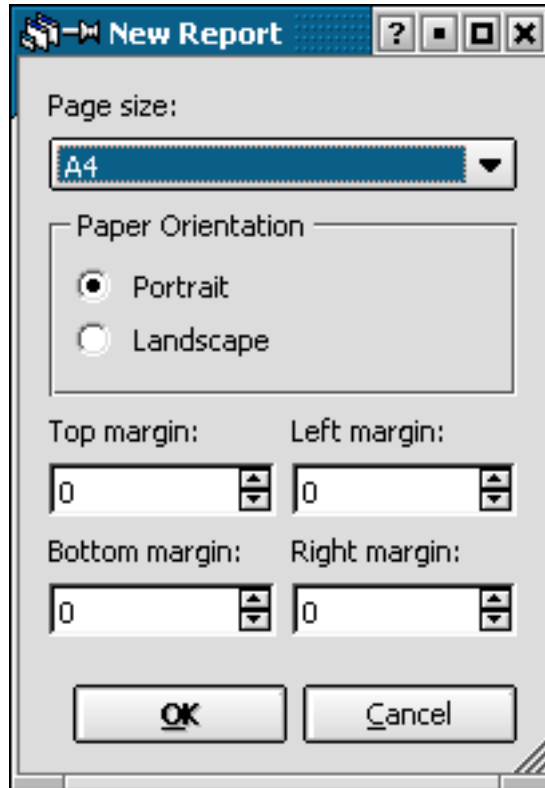
To delete an item, middle mouse button click on it or use the Delete button in the Edit Toolbar.



THE KUGAR REPORT DESIGNER MENU REFERENCE

File → **New (Ctrl+N)** Bring up the New Report dialog to create a new report template.

As seen on the screenshot, the report page size, orientation and margins must be set before the report can be created.



File → **Open... (Ctrl+O)** Open the previously saved report template.

File → **Open Recent** Display a list of recently opened templates. Select a file to open it.

File → **Save (Ctrl+S)** Save the current report template into a text file in XML format.

File → **Save As...** Save the current report template into a file and give it another name.

File → **Close (Ctrl+W)** Close the current report template.

File → **Print (Ctrl+P)** Print... the current report template as text in XML format.

File → **Quit (Ctrl+Q)** Quit the program.

Edit → **Clear Selection** Cancel any edit action, so no properties will be edited or items deleted.

Edit → **Edit Properties** Edit properties of the selected item.

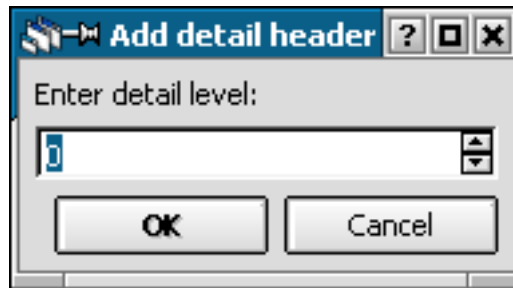
Edit → **Delete** Delete the selected item.

Sections → **Report Header** Place the Report Header section onto the report template.

Sections → **Page Header** Place the Page Header section onto the report template.

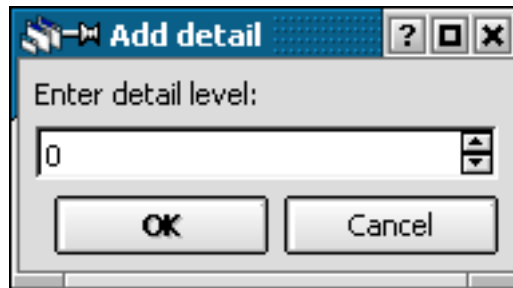
Sections → **Detail Header** Place the Detail Header section onto the report template.

Before placing the section, the Add Detail Header dialog will be shown to specify the detail level. The Detail header will be added to the detail section of the given level.



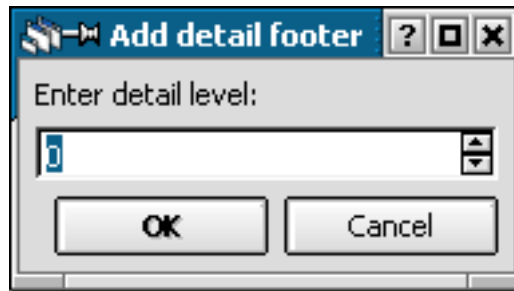
Sections → **Detail** Place the Detail section onto the report template.

Before placing the section, the Add Detail dialog will be shown to specify the detail level.



Sections → **Detail Footer** Place the Detail Footer section onto the report template.

Before placing the section, the Add Detail Footer dialog will be shown to specify the detail level. The Detail footer will be added to the detail section of the given level.



Sections → **Page Footer** Place the Page Footer section onto the report template.

Sections → **Report Footer** Place the Report Footer section onto the report template.

Items → **Clear Selection** Clear item selection, so no report item will be added to the section.

Items → **Label** Place the Label element onto the section.

Items → **Field** Place the Field element onto the section.

Items → **Calculated Field** Place the Calculated Field element onto the section.

Items → **Special Field** Place the Special Field element onto the section.

Items → **Line** Place the Line element onto the section.

Chapter 5

Programmer's Guide

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5.1 How to use Kugar for reporting in your own programs

THERE ARE SEVERAL WAYS TO USE KUGAR

- Create a temporary file and fill it with data, organized according to the [KugarData Document Type Definition](#). Then call the **kugar** shell command (`kugar [-d Kugar data file] [-r Kugar template file]`) to preview and print the report. See [Using Kugar shell for previewing reports](#) for a detailed description.
- Use Kugar directly in the application's code. See [Using Kugar classes for reporting](#) for a detailed description.
- Create a Qt™ designer plugin, use it to build the application GUI in the designer and link it to the program dynamically. See [Creating a Qt designer plugin](#) for a detailed description.

The last two ways are acceptable for Qt™ and KDE developers; but Kugar is designed to be a report generator, independent from a programming language and/or IDE. It uses XML format for describing report templates and data files. So any program can produce output in Kugar data file format as described in [KugarData DTD](#) or even a report template file format (see [KugarTemplate DTD](#)). Kugar shell (report viewer) can be used to preview and print the generated report.

5.2 Using Kugar shell for previewing reports

THE WAY TO CREATE AND PREVIEW (PRINT) A REPORT IS:

1. Create a report template file with Kugar Report Designer
2. Create a data file with column values for detail bands of the report. Use [KugarData DTD](#) to produce correct data files.
3. Run Kugar shell to preview and print a report. For example, to do this, in C or C++ languages call:

```
system("kugar -r template_file.ktf-d data_file.kdf").
```

Don't forget to include `stdlib.h`.

5.3 Using Kugar classes for reporting

The Kugar library includes two widgets for use.

The `KReportViewer` class is designed for KDE developers. It supports a KDE printing system and UNIX® localization via `i18n()` calls.

The `MReportViewer` class is designed for Qt™ developers and provides real crossplatforming. It can be used not only on UNIX® platforms, but also on Windows® and Mac® OS.

In order to build a program that uses the Kugar library, it should be linked with `libkugar.so` shared library, which is provided with the Kugar distribution on all UNIX® platforms.

Include files are `kugarqt.h` and `kugar.h` for Qt™ and KDE programs respectively.

For a detailed example of how Kugar classes can be used, look in the `/shell` folder in the Kugar sources.

`MReportViewer` (and `KReportViewer` too) contains several public methods that can be used.

void `renderReport`(void);

Renders the report onto a screen.

void `printReport`(void);

Calls the print dialog to print the report.

void `clearReport`(void);

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Clears the report on a screen and frees report data.
Call this before opening the new report.

```
bool setReportData(const QString &data_file_name);
```

Sets report data from data_file_name file.

```
bool setReportData(const QIODevice &data_io_device);
```

Sets report data from data_io_device file.
IO device can be any successor of the QIODevice class.
For example, to fetch records directly from the database,
create a QIODevice successor and redefine all necessary
functionality.

```
bool setReportTemplate(const QString &template_file_name);
```

Sets report template from template_file_name file.

```
bool setReportTemplate(const QIODevice &template_io_device);
```

Sets report template from template_io_device file.
IO device can be any successor of the QIODevice class.
For example, to obtain a report template from network storage or database,
create a QIODevice successor and redefine all necessary functionality.

5.4 Creating Qt™ designer plugin

This is the example code of how a designer plugin is created. The code below creates a plugin for a KDE KReportViewer widget.

If a Qt™ widget is desired, replace KReportViewer with MReportViewer and kugar.h with kugarqt.h in the plugin code.

5.4.1 Plugin usage

The designer plugin will allow the usage of Qt™ Designer to place a KReportViewer widget onto a window and preview it correctly.

Programs that make use of this plugin must be linked dynamically with it. The corresponding library is called libkugar_plugin.so. Widgets or dialogs that include KReportViewer widget must include <kugar.h> in implementation and have a forward declaration of class KReportViewer. Includes can be done with Qt™ Designer's Object Explorer (Source tab).

To build the plugin run:

```
qmake [kugar_plugin.pro]
make
```

5.4.2 Plugin code

The plugin code consists of three files:

kugar_plugin.h: A header file for the KugarWidgetPlugin, QWidgetPlugin successor;; *kugar_plugin.cpp*: A source file for the KugarWidgetPlugin, QWidgetPlugin successor;; *kugar_plugin.pro*: A project file for the QMake utility.

5.4.2.1 kugar_plugin.h

```
#include <qwidgetplugin.h>

class KugarWidgetPlugin:public QWidgetPlugin
{
public:
    KugarWidgetPlugin ();

    QStringList keys () const;
    QWidget *create (const QString & classname, QWidget * ←
        parent =
            0, const char *name = 0);
    QString group (const QString &) const;
    QIconSet iconSet (const QString &) const;
    QString includeFile (const QString &) const;
    QString toolTip (const QString &) const;
    QString whatsThis (const QString &) const;
    bool isContainer (const QString &) const;
};
```

5.4.2.2 kugar_plugin.cpp

```
#include "kugar_plugin.h"
#include <kugar.h>

static const char *kugar_pixmap[] = {
    "22 22 127 2",
    ".d c #000000",
    ".c c #131313",
    ".b c #282828",
    ".a c #434241",
    ".e c #4e463a",
    ".# c #595551",
    ".G c #66553b",
    "#F c #68635f",
    "#R c #6b4f23",
    "#q c #6e6862",
    "#M c #6f5229",
```

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```
".n c #6f6146",
".w c #735310",
".V c #755c2a",
".I c #775f34",
".0 c #77694a",
"#n c #7e6434",
".o c #806f50",
"#C c #835d2d",
".P c #837c75",
"#B c #85653a",
"#k c #85827e",
".x c #866d46",
".U c #877967",
".X c #888888",
".F c #89724d",
"#x c #8b6d2a",
".S c #8d7759",
".z c #8e733b",
"#L c #906e49",
"#Q c #947b56",
".r c #948058",
".J c #957844",
".4 c #987736",
".q c #998969",
".k c #999897",
".R c #9a8a75",
"#i c #9f8348",
"#I c #a37c4b",
".u c #a38d66",
".E c #a58558",
"#A c #a8834b",
".s c #a9967a",
".t c #aa9467",
".C c #ae9f8d",
"#6 c #afa49d",
"#5 c #afa9a4",
"#W c #b18e4d",
".K c #b1935a",
".B c #b39660",
"#V c #b49866",
"#a c #b49d6c",
"## c #b49d72",
".j c #b5b4b4",
"#0 c #b7a597",
".O c #b9b1a9",
".L c #bb9c61",
".M c #bb9e6b",
".A c #bca778",
"#j c #bea46b",
".T c #bf37d",
```

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```
".v c #c0b391",  
".W c #c3a262",  
".i c #c4c4c4",  
"#m c #c5b7aa",  
"#8 c #c69f80",  
".D c #c6b79b",  
"#3 c #c7a589",  
".7 c #c7a76c",  
"#u c #c7bbaf",  
".6 c #c8ad74",  
"#7 c #c8b7a9",  
"#r c #c8beb5",  
".m c #c8c8c8",  
"#U c #cbad96",  
"#f c #ccb681",  
"#h c #cdac6c",  
"#P c #cdb49f",  
"#X c #cdb8a6",  
"#H c #ceb7a4",  
".y c #ceb892",  
".N c #cecac3",  
"#Z c #cfb16f",  
"#O c #cfbdad",  
".Z c #cfc7c0",  
"#w c #d0bcab",  
".5 c #d1ad6b",  
"#s c #d1bfb1",  
".h c #d5d5d5",  
"#l c #d6cdc6",  
"#D c #d8b36e",  
".H c #dac592",  
"#t c #dbb977",  
".g c #dcdcdc",  
".l c #e0dcc1",  
".f c #e0e0df",  
"#1 c #e3c8b1",  
"#S c #e4cdb9",  
".3 c #e4d9a3",  
"#4 c #e6c1a1",  
"#2 c #e7c4a5",  
"#K c #e9c179",  
"#g c #e9c47e",  
"#Y c #e9c8ac",  
".2 c #eae6c0",  
"#T c #ebcdb3",  
".Q c #ebd4b9",  
"#E c #ecca87",  
"#z c #ecd799",  
".l c #ececeb",  
"#G c #efd7c2",
```

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```
"#e c #efe3ab",
".8 c #efe8e3",
"#v c #fldcca",
"#. c #f2e2d4",
".p c #f4f4f4",
"#y c #f5daa0",
"#J c #f6cf7f",
".9 c #f7ede4",
"#p c #f9d995",
".Y c #fcf9f6",
"#d c #fefcc5",
"#c c #fefdda",
"#b c #fefee1",
"#N c #ffd685",
"#o c #fff0a9",
"Qt c #ffffff",
"QtQtQtQtQtQtQt.#.a.a.a.b.b.b.c.c.d.d.dQtQtQtQtQt",
"QtQtQtQtQtQtQt.e.f.g.g.f.g.g.h.i.j.d.k.dQtQtQtQt",
"QtQtQtQtQtQtQt.a.gQtQtQtQtQtQtQt.l.f.c.m.k.dQtQtQt",
"QtQtQtQtQtQt.n.n.n.n.n.o.g.pQtQtQt.l.bQt.m.k.dQt",
"QtQtQt.q.q.r.q.s.t.r.q.u.u.g.pQt.a.fQt.m.k.d",
"QtQt.s.s.v.w.x.y.y.t.z.A.t.B.i.p.#.a.b.c.d.d",
"Qt.C.C.D.E.F.G.A.H.F.I.J.K.L.M.i.p.l.N.O.P.d",
"Qt.s.v.Q.q.R.S.T.A.R.U.V.L.W.W.X.g.Y.f.Z.k.d",
".0.s.t.Q.1.U.R.2.3.S.U.4.5.6.6.7.j.8.9#.O.d",
".G##.V#a#b.1#c#c#d#e#f#g#h#i#j.W#k#l.9#.m.d",
".G.4.F#n#c#c#c#d#d#o#p#g.x#w#i.L#q#r#.#.s.d",
".e.J.J.I.3#d.H#j.6#f#p#t#n.w.E.L#q#u#.#v#w.d",
".G.A#x.z#y#z#A#B#B#C#D#E.4.4.6#h#F#m#v#G#H.d",
".o.s.A#j#E#t#I#I#I#C#A#J#p#p#K#t#F#m#v#G#H.d",
"Qt##.A.6.7#I#I#A.E#L#M.W#N#J#K.a.U#O#G.Q#P.d",
"Qt#a.M.L.J#A#I.4.E#Q.x#R#D#J#g.#.C#S.Q#T#U.d",
"QtQt#V.K.z#Q.s.S.x.S#B#M#W#E.a.U#X.Q#T#Y#U.d",
"QtQtQt.M#i#B.r#Q#Q.r#Q.z#Z.a#q#0#1#T#Y#2#3.d",
"QtQtQtQtQtQt#j.L.L.W.5#t.a.#.U#0#1#T#Y#2#4#3.d",
"QtQtQtQtQtQt.d#F#q#q#q.P.C#O#S.Q#T#Y#2#4#3.d",
"QtQtQtQtQtQt.d#5#5#6#6#0#7#w#H#P#U#U#3#3#8.d",
"QtQtQtQtQtQt.d.d.d.d.d.d.d.d.d.d.d.d.d.d.d.d.d"
};

KugarWidgetPlugin::KugarWidgetPlugin ()
{
}

QStringList KugarWidgetPlugin::keys () const
{
    QStringList list;
    list << "KReportViewer";
    return list;
}
```

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```
QWidget* KugarWidgetPlugin::create (const QString & key, ←
    QWidget * parent,
                                   const char *name)
{
    if (key == "KReportViewer")
        return new KReportViewer (parent, name);
    return 0;
}

QString KugarWidgetPlugin::group (const QString & feature) ←
    const
{
    if (feature == "KReportViewer")
        return "Display";
    return QString::null;
}

QIconSet KugarWidgetPlugin::iconSet (const QString &) const
{
    return QIconSet (QPixmap (kugar_pixmap));
}

QString KugarWidgetPlugin::includeFile (const QString & ←
    feature) const
{
    if (feature == "KReportViewer")
        return "kugar.h";
    return QString::null;
}

QString KugarWidgetPlugin::toolTip (const QString & feature) ←
    const
{
    if (feature == "KReportViewer")
        return "Kugar report viewer widget";
    return QString::null;
}

QString KugarWidgetPlugin::whatsThis (const QString & feature ←
    ) const
{
    if (feature == "KReportViewer")
        return "A widget to view xml reports";
    return QString::null;
}

bool KugarWidgetPlugin::isContainer (const QString &) const
{
    return FALSE;
}
```

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```
}  
Q_EXPORT_PLUGIN( KugarWidgetPlugin )
```

5.4.2.3 kugar_plugin.pro

```
SOURCES += kugar_plugin.cpp  
HEADERS += kugar_plugin.h  
  
DESTDIR = $(QTDIR)/plugins/designer  
TARGET = kugar_plugin  
  
target.path=${$plugins.path  
isEmpty(target.path):target.path=${$QT_PREFIX}/plugins  
PROJECTNAME = KugarPlugin  
TEMPLATE = lib  
CONFIG += qt warn_on_release plugin  
unix:LIBS += -lkugar  
LANGUAGE = C++
```

Chapter 6

Credits and License

Kugar

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Appendix A

Document Structure

A.1 The KugarTemplate Document Type Definition

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE KugarTemplate [
  <!ELEMENT KugarTemplate (ReportHeader, PageHeader, DetailHeader*, Detail*, DetailFooter*,
  <!ATTLIST KugarTemplate
    PageSize          CDATA #REQUIRED
    PageOrientation   CDATA #REQUIRED
    TopMargin         CDATA #REQUIRED
    BottomMargin      CDATA #REQUIRED
    LeftMargin        CDATA #REQUIRED
    RightMargin       CDATA #REQUIRED>
  <!ELEMENT ReportHeader (Line*, Label*, Special*)>
  <!ATTLIST ReportHeader
    Height            CDATA #REQUIRED
    PrintFrequency    CDATA #REQUIRED>
  <!ELEMENT PageHeader (Line*, Label*, Special*)>
  <!ATTLIST PageHeader
    Height            CDATA #REQUIRED
    PrintFrequency    CDATA #REQUIRED>
  <!ELEMENT DetailHeader (Line*, Label*, Special*)>
  <!ATTLIST DetailHeader
    Height            CDATA #REQUIRED
    Level             CDATA #REQUIRED>
  <!ELEMENT Detail (Line*, Label*, Special*, Field*)>
  <!ATTLIST Detail
    Height            CDATA #REQUIRED
    Level             CDATA #REQUIRED>
  <!ELEMENT DetailFooter (Line*, Label*, Special*)>
  <!ATTLIST DetailFooter
    Height            CDATA #REQUIRED
    Level             CDATA #REQUIRED>
  <!ELEMENT PageFooter (Line*, Label*, Special*)>
  <!ATTLIST PageFooter
    Height            CDATA #REQUIRED
    PrintFrequency    CDATA #REQUIRED>
  <!ELEMENT ReportFooter (Line*, Label*, Special*, CalculatedField*)>
  <!ATTLIST ReportFooter
```

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```

        Height          CDATA #REQUIRED
        PrintFrequency  CDATA #REQUIRED>
<!ELEMENT Line EMPTY>
<!ATTLIST Line
  X1          CDATA #REQUIRED
  Y1          CDATA #REQUIRED
  X2          CDATA #REQUIRED
  Y2          CDATA #REQUIRED
  Width       CDATA #REQUIRED
  Color       CDATA #REQUIRED
  Style       CDATA #REQUIRED>
<!ELEMENT Label EMPTY>
<!ATTLIST Label
  Text        CDATA #REQUIRED
  X           CDATA #REQUIRED
  Y           CDATA #REQUIRED
  Width       CDATA #REQUIRED
  Height      CDATA #REQUIRED
  BackgroundColor CDATA #REQUIRED
  ForegroundColor CDATA #REQUIRED
  BorderColor CDATA #REQUIRED
  BorderWidth CDATA #REQUIRED
  BorderStyle CDATA #REQUIRED
  FontFamily  CDATA #REQUIRED
  FontSize    CDATA #REQUIRED
  FontWeight  CDATA #REQUIRED
  FontItalic  CDATA #REQUIRED
  HAlignment  CDATA #REQUIRED
  VAlignment  CDATA #REQUIRED
  WordWrap    CDATA #REQUIRED>
<!ELEMENT Field EMPTY>
<!ATTLIST Field
  Field        CDATA #REQUIRED
  Text         CDATA #REQUIRED
  X            CDATA #REQUIRED
  Y            CDATA #REQUIRED
  Width        CDATA #REQUIRED
  Height       CDATA #REQUIRED
  BackgroundColor CDATA #REQUIRED
  ForegroundColor CDATA #REQUIRED
  BorderColor  CDATA #REQUIRED
  BorderWidth  CDATA #REQUIRED
  BorderStyle  CDATA #REQUIRED
  FontFamily   CDATA #REQUIRED
  FontSize     CDATA #REQUIRED
  FontWeight   CDATA #REQUIRED
  FontItalic   CDATA #REQUIRED
  HAlignment   CDATA #REQUIRED
  VAlignment   CDATA #REQUIRED
  WordWrap     CDATA #REQUIRED
  DataType     CDATA #REQUIRED
  DateFormat   CDATA #REQUIRED
  Precision    CDATA #REQUIRED
  Currency     CDATA #REQUIRED
  NegValueColor CDATA #REQUIRED
  CommaSeparator CDATA #REQUIRED>
<!ELEMENT CalculatedField EMPTY>
<!ATTLIST CalculatedField
  CalculationType CDATA #REQUIRED
  Field           CDATA #REQUIRED
  Text           CDATA #REQUIRED
  X              CDATA #REQUIRED

```

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```
Y                CDATA #REQUIRED
Width            CDATA #REQUIRED
Height          CDATA #REQUIRED
BackgroundColor CDATA #REQUIRED
ForegroundColor CDATA #REQUIRED
BorderColor     CDATA #REQUIRED
BorderWidth    CDATA #REQUIRED
BorderStyle    CDATA #REQUIRED
FontFamily      CDATA #REQUIRED
FontSize       CDATA #REQUIRED
FontWeight     CDATA #REQUIRED
FontItalic     CDATA #REQUIRED
HAlignment     CDATA #REQUIRED
VAlignment     CDATA #REQUIRED
WordWrap       CDATA #REQUIRED
DataType       CDATA #REQUIRED
DateFormat     CDATA #REQUIRED
Precision      CDATA #REQUIRED
Currency       CDATA #REQUIRED
NegValueColor  CDATA #REQUIRED
CommaSeparator CDATA #REQUIRED>
<!ELEMENT Special EMPTY>
<!ATTLIST Special
  Type      CDATA #REQUIRED
  Text      CDATA #REQUIRED
  X         CDATA #REQUIRED
  Y         CDATA #REQUIRED
  Width    CDATA #REQUIRED
  Height   CDATA #REQUIRED
  BackgroundColor CDATA #REQUIRED
  ForegroundColor CDATA #REQUIRED
  BorderColor CDATA #REQUIRED
  BorderWidth  CDATA #REQUIRED
  BorderStyle  CDATA #REQUIRED
  FontFamily   CDATA #REQUIRED
  FontSize    CDATA #REQUIRED
  FontWeight   CDATA #REQUIRED
  FontItalic   CDATA #REQUIRED
  HAlignment   CDATA #REQUIRED
  VAlignment   CDATA #REQUIRED
  WordWrap    CDATA #REQUIRED
  DateFormat  CDATA #REQUIRED>
]>
```

A.2 KugarTemplate element

The `KugarTemplate` element defines report attributes relating to page size, orientation, and margins.

```
<!ELEMENT KugarTemplate (ReportHeader, PageHeader, DetailHeader*, Detail*, DetailFooter*, PageHeader*)>
<!ATTLIST KugarTemplate
  PageSize      CDATA #REQUIRED
  PageOrientation CDATA #REQUIRED
  TopMargin     CDATA #REQUIRED
  BottomMargin  CDATA #REQUIRED
  LeftMargin    CDATA #REQUIRED
  RightMargin   CDATA #REQUIRED>
```

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Elements The `KugarTemplate` element contains the following elements:

ReportHeader The `ReportHeader` element defines report sections that are usually printed at the beginning of the report.

PageHeader The `PageHeader` element defines report sections that are usually printed at the top of every page of the report.

DetailHeader The `DetailHeader` element defines report sections that are printed before details of a given level on the report.

Detail The `Detail` element defines the report section that contains the report data. The report can have an unlimited number of details.

DetailFooter The `DetailFooter` element defines report sections that are printed after details of a given level and below on the report.

PageFooter The `PageFooter` element defines report sections that are usually printed at the end of every page in the report.

ReportFooter The `ReportFooter` element defines report sections that are usually printed at the end of the report.

Attributes

PageSize Sets the size of the report page. The following values are available:

Value	Page Size
0	A4
1	B5
2	Letter
3	Legal
4	Executive
5	A0
6	A1
7	A2
8	A3
9	A5
10	A6
11	A7
12	A8
13	A9
14	B0
15	B1
16	B10
17	B2
18	B3
19	B4
20	B6
21	B7
22	B8

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23	B9
24	C5E
25	Comm10E
26	DLE
27	Folio
28	Ledger
29	Tabloid
30	NPageSize

PageOrientation Sets the report page orientation.

Value	Orientation
0	Portrait
1	Landscape

TopMargin Sets the top margin of the report page.

BottomMargin Sets the bottom margin of the report page.

LeftMargin Sets the left margin of the report page.

RightMargin Sets the right margin of the report page.

A.3 KugarTemplate template elements

Section bands	Section elements
ReportHeader	Line
PageHeader	Label
DetailHeader	Field
Detail	CalculatedField
DetailFooter	Special
PageFooter	Page Footer
ReportFooter	Report Footer

A.3.1 ReportHeader and ReportFooter sections

The `ReportHeader` and `ReportFooter` elements define report sections that are usually printed at the beginning and end of the report.

```
<!ELEMENT ReportHeader (Line*, Label*, Special*)>  
<!ATTLIST ReportHeader
```

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```
Height          CDATA #REQUIRED
PrintFrequency CDATA #REQUIRED>

<!ELEMENT ReportFooter (Line*, Label*, Special*, CalculatedField*)>
<!ATTLIST ReportFooter
  Height          CDATA #REQUIRED
  PrintFrequency CDATA #REQUIRED>
```

Attributes

Height Sets the height of the report section. If you don't want this section, set this value to 0.

PrintFrequency Set the print frequency of the section.

Value	Print Frequency
0	First Page
1	Every Page
2	Last Page

A.3.2 PageHeader and PageFooter sections

The `PageHeader` and `PageFooter` elements define report sections that are usually printed on every page of the report.

```
<!ELEMENT PageHeader (Line*, Label*, Special*)>
<!ATTLIST PageHeader
  Height          CDATA #REQUIRED
  PrintFrequency CDATA #REQUIRED>

<!ELEMENT PageFooter (Line*, Label*, Special*)>
<!ATTLIST PageFooter
  Height          CDATA #REQUIRED
  PrintFrequency CDATA #REQUIRED>
```

Attributes

Height Sets the height of the report section. If you don't want this section, set this value to 0.

PrintFrequency Set the print frequency of the section.

Value	Print Frequency
0	First Page
1	Every Page
2	Last Page

A.3.3 DetailHeader and DetailFooter sections

The `DetailHeader` and `DetailFooter` elements define report sections that are printed before and after details of a given level and below on the report.

```
<!ELEMENT DetailHeader (Line*, Label*, Special*)>
<!ATTLIST DetailHeader
    Height CDATA #REQUIRED
    Level  CDATA #REQUIRED>

<!ELEMENT DetailFooter (Line*, Label*, Special*)>
<!ATTLIST DetailFooter
    Height CDATA #REQUIRED
    Level  CDATA #REQUIRED>
```

Attributes

Height Sets the height of the report section. If you don't want this section, set this value to 0.

Level Set the hierarchy level of the section. Sections with higher levels will be printed before sections with lower ones. Level can be any number beginning from 0.

A.3.4 Detail section

The `Detail` element defines the report section that contains the report data. The report can have multiple details, which are accessed by the detail's `Level` attribute.

```
<!ELEMENT Detail (Line*, Label*, Special*, Field*)>
<!ATTLIST Detail
    Height CDATA #REQUIRED
    Level  CDATA #REQUIRED>
```

Attributes

Height Sets the height of the report section. If you don't want this section, set this value to 0.

Level Set the hierarchy level of the section. Sections with higher levels will be printed before sections with lower ones. Level can be any number beginning from 0. This is an attribute of a row element in a data file.

A.3.5 Line

The `Line` element defines a report object used to draw lines on a report.

```
<!ELEMENT Line EMPTY>
<!ATTLIST Line
  X1      CDATA #REQUIRED
  Y1      CDATA #REQUIRED
  X2      CDATA #REQUIRED
  Y2      CDATA #REQUIRED
  Width   CDATA #REQUIRED
  Color   CDATA #REQUIRED
  Style   CDATA #REQUIRED>
```

Attributes

- X1** Sets the starting x coordinate (relative to the section's upper left corner) for the line.
- Y1** Sets the starting y coordinate (relative to the section's upper left corner) for the line.
- X2** Sets the ending x coordinate (relative to the section's upper left corner) for the line.
- Y2** Sets the ending y coordinate (relative to the section's upper left corner) for the line.
- Width** Sets the width of the line.
- Color** Sets the color of the line. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.
- Style** Sets the drawing style for the line.

Value	Line Style
0	No Pen
1	Solid
2	Dash
3	Dot
4	Dash Dot
5	Dash Dot Dot

A.3.6 Label

The `Label` element defines a report object used to draw fixed text on a report.

```
<!ELEMENT Label EMPTY>
<!ATTLIST Label
  Text      CDATA #REQUIRED
  X         CDATA #REQUIRED
  Y         CDATA #REQUIRED
```

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```
Width           CDATA #REQUIRED
Height          CDATA #REQUIRED
BackgroundColor CDATA #REQUIRED
ForegroundColor CDATA #REQUIRED
BorderColor     CDATA #REQUIRED
BorderWidth    CDATA #REQUIRED
BorderStyle    CDATA #REQUIRED
FontFamily     CDATA #REQUIRED
FontSize       CDATA #REQUIRED
FontWeight     CDATA #REQUIRED
FontItalic     CDATA #REQUIRED
HAlignment    CDATA #REQUIRED
VAlignment    CDATA #REQUIRED
WordWrap      CDATA #REQUIRED>
```

Attributes

Text Sets the label's text.

X Sets the x coordinate (relative to the section's upper left corner) for positioning the label.

Y Sets the y coordinate (relative to the section's upper left corner) for positioning the label.

Width Sets the width of the label.

Height Sets the height of the label.

BackgroundColor Sets the background color of the label. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

ForegroundColor Sets the foreground color of the label. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

BorderColor Sets the border color of the label. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

BorderWidth Sets the border width for the label.

BorderStyle Sets the border style for the label.

Value	Border Style
0	None
1	Solid
2	Dash
3	Dot
4	Dash Dot
5	Dash Dot Dot

FontFamily Sets the font family for the label's text.

FontSize Sets the font size for the label's text.

FontWeight Sets the font weight for the label's text.

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Value	Font Weight
25	Light
50	Normal
63	Demi Bold
75	Bold
87	Black

FontItalic Sets the font italic flag for the label's text.

Value	Italic
0	False
1	True

HAlignment Sets the label's horizontal text alignment.

Value	Horizontal Alignment
0	Left
1	Center
2	Right

VAlignment Sets the label's vertical text alignment.

Value	Vertical Alignment
0	Top
1	Middle
2	Bottom

WordWrap Sets the word wrap flag for the label's text.

Value	Word Wrap
0	False
1	True

A.3.7 Field

The `Field` element defines a report object used to draw data on a report.

```
<!ELEMENT Field EMPTY>
```

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```
<!ATTLIST Field
  Field          CDATA #REQUIRED
  Text           CDATA #REQUIRED
  X              CDATA #REQUIRED
  Y              CDATA #REQUIRED
  Width          CDATA #REQUIRED
  Height         CDATA #REQUIRED
  BackgroundColor CDATA #REQUIRED
  ForegroundColor CDATA #REQUIRED
  BorderColor    CDATA #REQUIRED
  BorderWidth    CDATA #REQUIRED
  BorderStyle    CDATA #REQUIRED
  FontFamily     CDATA #REQUIRED
  FontSize       CDATA #REQUIRED
  FontWeight     CDATA #REQUIRED
  FontItalic     CDATA #REQUIRED
  HAlignment     CDATA #REQUIRED
  VAlignment     CDATA #REQUIRED
  WordWrap       CDATA #REQUIRED
  DataType       CDATA #REQUIRED
  DateFormat     CDATA #REQUIRED
  Precision      CDATA #REQUIRED
  Currency       CDATA #REQUIRED
  NegValueColor  CDATA #REQUIRED
  CommaSeparator CDATA #REQUIRED>
```

Attributes

Field Sets the data field for the object. This is an attribute of a row element in a data file.

Text Not used.

X Sets the x coordinate (relative to the section's upper left corner) for positioning the field.

Y Sets the y coordinate (relative to the section's upper left corner) for positioning the field.

Width Sets the width of the field.

Height Sets the height of the field.

BackgroundColor Sets the background color of the field. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

ForegroundColor Sets the foreground color of the field. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

BorderColor Sets the border color of the field. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

BorderWidth Sets the border width for the field.

BorderStyle Sets the border style for the field.

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Value	Border Style
0	None
1	Solid
2	Dash
3	Dot
4	Dash Dot
5	Dash Dot Dot

FontFamily Sets the font family for the field's text.

FontSize Sets the font size for the field's text.

FontWeight Sets the font weight for the field's text.

Value	Font Weight
25	Light
50	Normal
63	Demi Bold
75	Bold
87	Black

FontItalic Sets the font italic flag for the field's text.

Value	Italic
0	False
1	True

HAlignment Sets the field's horizontal text alignment.

Value	Horizontal Alignment
0	Left
1	Center
2	Right

VAlignment Sets the field's vertical text alignment

Value	Vertical Alignment
0	Top
1	Middle
2	Bottom

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WordWrap Sets the word wrap flag for the field's text.

Value	Word Wrap
0	False
1	True

DataType Sets the field's data type.

Value	Data Type
0	String
1	Integer
2	Float
3	Date
4	Currency

DateFormat Sets the field's date format. For this to work, the format of the date from the data document must be in the format mm/d-d/yyyy or mm-dd-yyyy, otherwise the original date format is used. If the data type is other than date, set this to 0.

Value	Date Format
0	m/d/yy
1	m-d-yy
2	mm/dd/yy
3	mm-dd-yy
4	m/d/yyyy
5	m-d-yyyy
6	mm/dd/yyyy
7	mm-dd-yyyy
8	yyyy/m/d
9	yyyy-m-d
10	dd.mm.yy
11	dd.mm.yyyy

Precision Sets the field's numeric precision. If the data type is other than a numeric type, set this to 0.

Currency Sets the field's currency symbol. If the data type is other than currency, set this to 36 (\$). The value is a number representing a Unicode character.

NegValueColor Sets the color for negative numeric values. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255. If data is other than a numeric type, set to 255,0,0.

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CommaSeparator Sets whether commas are used in numeric fields. If the data type is other than a numeric type, set this to 0.

Value	Comma Separator
0	False
1	True

A.3.8 CalculatedField

The `CalculatedField` element defines a report object used to draw calculated values on a report.

```
<!ELEMENT CalculatedField EMPTY>
<!ATTLIST CalculatedField
  CalculationType CDATA #REQUIRED
  Field           CDATA #REQUIRED
  Text           CDATA #REQUIRED
  X             CDATA #REQUIRED
  Y             CDATA #REQUIRED
  Width         CDATA #REQUIRED
  Height        CDATA #REQUIRED
  BackgroundColor CDATA #REQUIRED
  ForegroundColor CDATA #REQUIRED
  BorderColor   CDATA #REQUIRED
  BorderWidth   CDATA #REQUIRED
  BorderStyle   CDATA #REQUIRED
  FontFamily    CDATA #REQUIRED
  FontSize      CDATA #REQUIRED
  FontWeight    CDATA #REQUIRED
  FontItalic    CDATA #REQUIRED
  HAlignment    CDATA #REQUIRED
  VAlignment    CDATA #REQUIRED
  WordWrap      CDATA #REQUIRED
  DataType      CDATA #REQUIRED
  DateFormat    CDATA #REQUIRED
  Precision     CDATA #REQUIRED
  Currency      CDATA #REQUIRED
  NegValueColor CDATA #REQUIRED
  CommaSeparator CDATA #REQUIRED>
```

Attributes

CalculationType Sets the calculation type for the field.

Value	Calculation
0	Count
1	Sum
2	Average
3	Variance
4	Std Deviation

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Field Sets the data field for the object. This is an attribute of a row element in a data file.

Text Not used.

X Sets the x coordinate (relative to the section's upper left corner) for positioning the field.

Y Sets the y coordinate (relative to the section's upper left corner) for positioning the field.

Width Sets the width of the field.

Height Sets the height of the field.

BackgroundColor Sets the background color of the field. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

ForegroundColor Sets the foreground color of the field. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

BorderColor Sets the border color of the field. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

BorderWidth Sets the border width for the field.

BorderStyle Sets the border style for the field.

Value	Border Style
0	None
1	Solid
2	Dash
3	Dot
4	Dash Dot
5	Dash Dot Dot

FontFamily Sets the font family for the field's text.

FontSize Sets the font size for the field's text.

FontWeight Sets the font weight for the field's text.

Value	Font Weight
25	Light
50	Normal
63	Demi Bold
75	Bold
87	Black

FontItalic Sets the font italic flag for the field's text.

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Value	Italic
0	False
1	True

HAlignment Sets the field's horizontal text alignment.

Value	Horizontal Alignment
0	Left
1	Center
2	Right

VAlignment Sets the field's vertical text alignment.

Value	Vertical Alignment
0	Top
1	Middle
2	Bottom

WordWrap Sets the word wrap flag for the field's text.

Value	Word Wrap
0	False
1	True

DataType Sets the field's data type.

Value	Data Type
0	String
1	Integer
2	Float
3	Date
4	Currency

DateFormat Sets the field's date format. For this to work, the format of the date from the data document must be in the format mm/d-d/yyyy or mm-dd-yyyy, otherwise the original date format is used. If the data type is other than date, set this to 0.

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Value	Date Format
0	m/d/yy
1	m-d-yy
2	mm/dd/yy
3	mm-dd-yy
4	m/d/yyyy
5	m-d-yyyy
6	mm/dd/yyyy
7	mm-dd-yyyy
8	yyyy/m/d
9	yyyy-m-d
10	dd.mm.yy
11	dd.mm.yyyy

Precision Sets the field's numeric precision. If the data type is other than a numeric type, set this to 0.

Currency Sets the field's currency symbol. If the data type is other than currency, set this to 36 (\$). The value is a number representing an unicode character.

NegValueColor Sets the color for negative numeric values. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255. If data is other than a numeric type, set to 255,0,0.

CommaSeparator Sets whether commas are used in numeric fields. If the data type is other than a numeric type, set this to 0.

Value	Comma Separator
0	False
1	True

A.3.9 Special

The **Special** element defines a report object used to draw page numbers and the current date on a report.

```
<!ELEMENT Special EMPTY>
<!ATTLIST Special
  Type          CDATA #REQUIRED
  Text          CDATA #REQUIRED
  X             CDATA #REQUIRED
  Y             CDATA #REQUIRED
  Width        CDATA #REQUIRED
  Height       CDATA #REQUIRED
```

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BackgroundColor CDATA #REQUIRED
ForegroundColor CDATA #REQUIRED
BorderColor CDATA #REQUIRED
BorderWidth CDATA #REQUIRED
BorderStyle CDATA #REQUIRED
FontFamily CDATA #REQUIRED
FontSize CDATA #REQUIRED
FontWeight CDATA #REQUIRED
FontItalic CDATA #REQUIRED
HAlignment CDATA #REQUIRED
VAlignment CDATA #REQUIRED
WordWrap CDATA #REQUIRED
DateFormat CDATA #REQUIRED>

Attributes

Type Sets the type of special object.

Value	Type
0	Current Date
1	Page Number

Text Not used.

X Sets the x coordinate (relative to the section's upper left corner) for positioning the field.

Y Sets the y coordinate (relative to the section's upper left corner) for positioning the field.

Width Sets the width of the field.

Height Sets the height of the field.

BackgroundColor Sets the background color of the field. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

ForegroundColor Sets the foreground color of the field. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

BorderColor Sets the border color of the field. The color is defined as an RGB (Red Green Blue) value (r,g,b). r, g and b must be in the range 0..255.

BorderWidth Sets the border width for the field.

BorderStyle Sets the border style for the field.

Value	Border Style
0	None
1	Solid
2	Dash
3	Dot
4	Dash Dot
5	Dash Dot Dot

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FontFamily Sets the font family for the field's text.

FontSize Sets the font size for the field's text.

FontWeight Sets the font weight for the field's text.

Value	Font Weight
25	Light
50	Normal
63	Demi Bold
75	Bold
87	Black

FontItalic Sets the font italic flag for the field's text.

Value	Italic
0	False
1	True

HAlignment Sets the field's horizontal text alignment.

Value	Horizontal Alignment
0	Left
1	Center
2	Right

VAlignment Sets the field's vertical text alignment.

Value	Vertical Alignment
0	Top
1	Middle
2	Bottom

WordWrap Sets the word wrap flag for the field's text.

Value	Word Wrap
0	False
1	True

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DateFormat Sets the field's date format. For this to work, the format of the date from the data document must be in the format mm/d-d/yyyy or mm-dd-yyyy, otherwise the original date format is used. If the data type is other than date, set this to 0.

Value	Date Format
0	m/d/yy
1	m-d-yy
2	mm/dd/yy
3	mm-dd-yy
4	m/d/yyyy
5	m-d-yyyy
6	mm/dd/yyyy
7	mm-dd-yyyy
8	yyyy/m/d
9	yyyy-m-d
10	dd.mm.yy
11	dd.mm.yyyy

Precision Sets the field's numeric precision. If the data type is other than a numeric type, set this to 0.

A.4 KugarData Document Type Definition

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE KugarData [
  <!ELEMENT KugarData (Row*)>
  <!ATTLIST KugarData
    Template CDATA #REQUIRED>
  <!ELEMENT Row EMPTY>
  <!ATTLIST Row
    level CDATA #REQUIRED
    col1 CDATA #IMPLIED
    col2 CDATA #IMPLIED
    ..: CDATA #IMPLIED
    coln CDATA #IMPLIED>
]>
```

A.5 KugarData element

The `KugarData` element defines a report's data source. The basic structure is a collection of rows and columns. This document does not define data types and their attributes. The report template defines column data type information.

The document creator can apply an XSL style sheet to an existing document to convert it to this format. If XSL is used, the creator can apply custom macros using XSL for column calculations, sorting, etc..

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```
<!ELEMENT KugarData (Row*)>
<!ATTLIST KugarData
  Template      CDATA  #REQUIRED>
<!ELEMENT Row EMPTY>
<!ATTLIST Row
  level         CDATA  #REQUIRED
  col1          CDATA  #IMPLIED
  col2          CDATA  #IMPLIED
  ..           CDATA  #IMPLIED
  coln          CDATA  #IMPLIED>
```

A.5.1 Kugar data element

The `KugarData` element contains zero or more `Row` elements. A `Row` must contain one level attribute with a value corresponding to detail level in the template. Other attributes represent data columns.

The value of the `Template` attribute is the URL of the report template used to format the data.

A.5.2 Row element

Attributes

level The attribute value indicates which detail in the report template is used to display data. Rows can contain various column sets for various levels, so any attribute except `level` should be stated as `#IMPLIED`.

column The name of the attribute is the column name, and uses the format as given in the `KugarData` definition. The attribute name is used in the report template to bind the data to the report fields.

Appendix B

Installation

Kugar is part of the KDE project <http://www.kde.org/> .

Kugar can be found in the koffice package on <ftp://ftp.kde.org/pub/kde/> , the main FTP site of the KDE project.

In order to compile and install Kugar on your system, type the following in the base directory of the Kugar distribution:

```
% ./configure
% make
% make install
```

Since Kugar uses **autoconf** and **automake** you should have no trouble compiling it. Should you run into problems please report them to the KDE mailing lists.