

Contents of Commercial portfolio:

GE Project

1. Centricity RIS/PACS 3.0 CE (Market-oriented: Japan & Korea)
2. Tel-Medicine Program (China & India)

Siemens Project

3. User-oriented Navigation UI System R & D (Germany)

GE Project

1. Centricity RIS/PACS 3.0 CE (Market-oriented: Japan & Korea)

1.1 Introduction

1.2 GUI Guideline manual

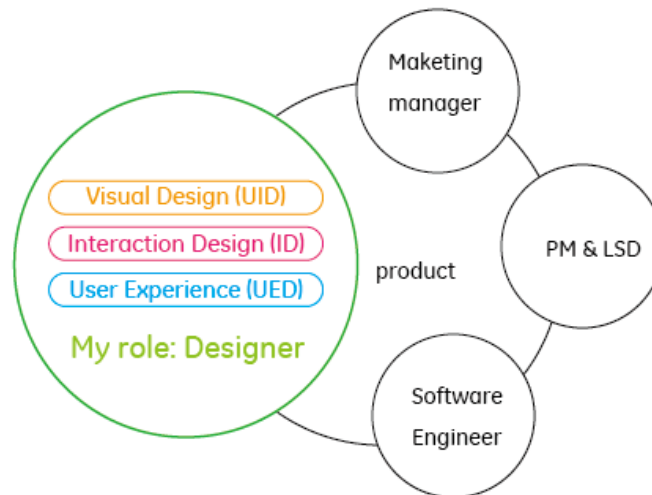
1.3 Design Research

Multi-resolution's solution

UE Patent & Concept Design—Panel Controller

1.4 Usability evaluation and survey

Introduction -- My design role in IITS Team



Introduction -- Workflow

- **Analysis (UED)**

Understanding user behaviour / User requirement
 use case & task flow: how people use products
 Contextual inquiry/ Focus group

- **Interaction Design(ID)**

Concept solutions
 User operate task analysis
 Interactive communication design / Design the flash interactive demo

- **Visual Design\Prototype (UID)**

Producing innovative, visually appealing human interface designs and creating design prototypes, working with developers to make designs a reality

Visual Design and Prototype

Information Architecture
 UI Wireframe and layout
 UI interface Design

GUI Guideline: share the manual for all members in IITS team, make all the engineer follow the basic design principles of GUI Guideline throughout the release cycle of the product to keep the consistence of vision, interaction and user experience.

- **Usability Evaluation (UED)**

Evaluation Design
 Heuristic evaluation (Cognitive Walkthrough\ Heuristic evaluation) ;
 Empirical Testing (Usability Testing\Questionnaire \Interview)

GUI Guideline

For RIS CE / I3

IITS, China, 2008

Zhao weixuan

2008-06-10

Revision History

Revision #	Date		Person Updating
1	2008.05.02		Zhao Wei Xuan
1.0	2008.06.10		Zhao Wei Xuan

Sections Changed	Description of changes
2.2.1 Fonts	Font_ Text size
2.2.2 Colors	COL_ Rich table
	COL_ Font normal1
	COL_ Icon hover/select background
	COL_ Message box
2.2.3 Icons	ICON_ size/ color/ appearance
3.4 Cotrols	Control_Menu bar
	Control_Rich table
	Control_Spin box
4. Typical UI scenarios	UI Scenarios_ appearance : Window control buttons Rich table Font color and size Function buttons and text edit icons GE logo color Message box
5.Multi-resolution's solution	Multi-resolution's solution
7 Appendix	Controls

Open Issues

Section	Owner	Resolution Date	Description

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1 Introduction

The specifications define the general and a (enhanced) standard look and feel of the RIS\CE 3.0. The UI specifications in this document are mainly for client applications.

The document contains three major parts. In a first part, visual style and general appearance elements (includes fonts\color\graphics) of the RIS\CE 3.0 are defined; in the second part, the basic elements of the RIS\CE 3.0 (frame application, workstation navigator, etc), the controls and the look of the common controls in the new design are presented; in the third part, typical UI scenarios are presented.

This document is targeted toward the UI designer and engineers developing the RIS\CE 3.0 and its corresponding application. It mainly documents general visual treatments. The detail definition will be refined further based on iterative user evaluation and eng adjustment.

2 Visual Style of RIS\CE 3.0

2.1 Visual Theme

A unique visual design should promote corporate identity and improves usability. Our new RIS\CE 3.0 UI-Design hope to meets both goals. It is clearly visible that our design is an important step beyond the existing RIS platforms, equally from GEHC global. The new” RIS\CE 3.0 Look” is clear, modern, but still with a human touch, also follow the basic design principles used by GEHC

On the other hand, our design improves usability by...

- Reducing visual “noise” by introducing a flat design.
- Creating a clear visual language by reducing the color scheme to some important hues
- Establishing visual connections and creating clear and logical visual hierarchy between all kinds of information group and level.

2.2 Appearance Elements

2.2.1 Fonts






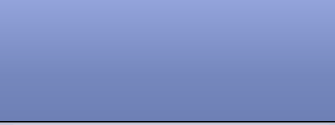

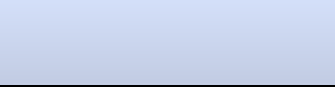




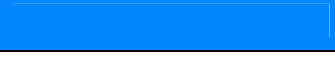



The following table shows the fonts used in the RIS\CE 3.0. All fonts in the figures refer to this table. The GE fonts in this table are used exclusively by the RIS\CE 3.0 applications and should not be accessible to other windows applications.

Due to technical problems during the conversation to a font suitable for small screen text, the GE Sans font is not available in the moment. Therefore Tahoma is used as “Bread and butter” font on the screen, because it delivers the far best readability within the set of windows core fonts. If GE Sans is available in a satisfactory quality, Tahoma will be replaced by GE Sans.

Name	Font	Size	Theme symbol	Col	Example
Font_ Text normal1	Regular Tahoma	13pt	Body text		Normal text
Font_ Text normal2	Regular Tahoma	13pt	Body text		Normal text
Font_ Text disable	Regular Tahoma	13pt	Body text		Normal text
Font_ menu bar	Regular Tahoma	15pt	Menu		Menu
Font_ Patient name	Regular Tahoma	30pt	Body text		Name
Font_ Patient banner bar	Regular Tahoma	16pt	Body text		Patient
Font_ Button normal	Regular Tahoma	16pt	Button		Button
Font_ Button disable	Regular Tahoma	16pt	Button		Button
Font_ GE logo	Regular GE Inspira	22pt	GE logo		Health

Table 3.2.1 Fonts

2.2.2 Colors

Name	R	G	B	Color
Main color				
COL_ Background	190	198	229	
COL_ Navigation bar	224	230	249	
	255	255	255	
COL_ Title	125	145	196	
	153	171	227	
COL_ Workspace	227	229	241	
	232	233	243	
COL_ Banner	69	82	138	
	99	110	166	
COL_ Menu bar	110	128	181	
	117	135	189	
	155	171	227	
COL_TAB	199	201	219	
	207	209	224	
	243	244	249	
COL_ Column header	194	204	227	
	212	224	250	
COL_ Rich table roll normal 1	255	255	255	
COL_ Rich table roll normal 2	227	232	252	
COL_ Rich table roll hover	184	201	255	
COL_ Rich table roll select	79	102	179	
COL_ select	3	133	252	
COL_ white	255	255	255	
COL_ Button				
COL_ Button background normal	217	219	235	
	243	244	249	
	223	225	238	
COL_ Button background select	184	201	249	
	211	221	251	
	196	210	250	

COL_ Button font disable	178	178	178	
COL_ Button font normal	61	76	130	
COL_ Font				
COL_ Font disable	190	198	229	
COL_ Font normal1	16	39	104	
COL_ Font normal 2	255	255	255	
COL_ Icon				
COL_ Icon normal background	217	219	235	
	243	244	249	
	223	225	238	
COL_ Icon normal	181	199	240	
	89	110	189	
	191	209	245	
COL_ Icon hover background	197	218	255	
COL_ Icon select background	128	147	210	
COL_ message box				
COL_ message box _ Question /Information	255	255	255	
COL_ message box_ Fail	168	0	17	
	217	0	32	
COL_ message box_ Warning	240	224	65	
	224	158	0	
COL_ message box_ Success	74	143	235	
	176	209	255	
COL_ message box _ Security shield blue	0	246	055	
	3	0	194	

2.2.3 Icons

2.2.3-1 Text edits icons

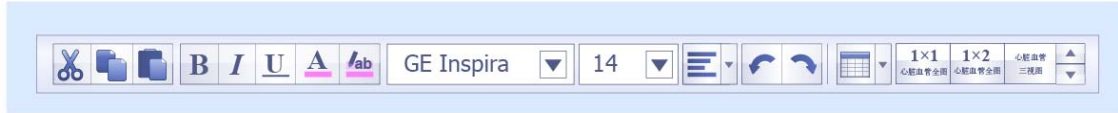


Figure 3.2.2-1 Text edits icons overview

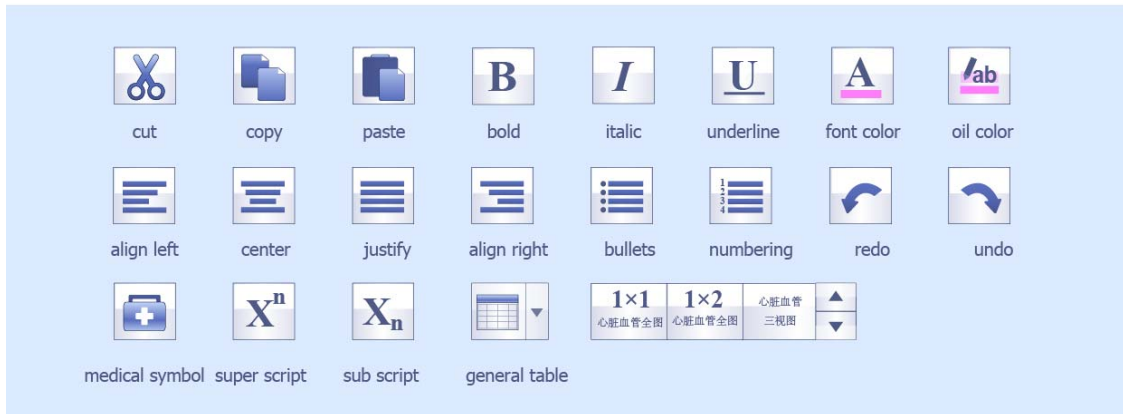


Figure 3.2.2-1 Text edits icons details

2.2.3-2 Function tools icons



Figure 3.2.2-2 Function tools icons overview

2.2.3-3 Icons

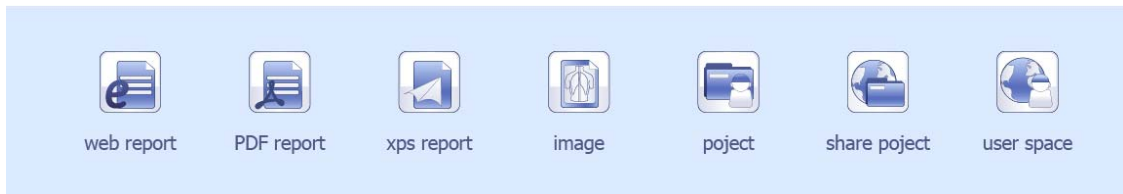


Figure 3.2.2-3 Status icons overview

Measurements

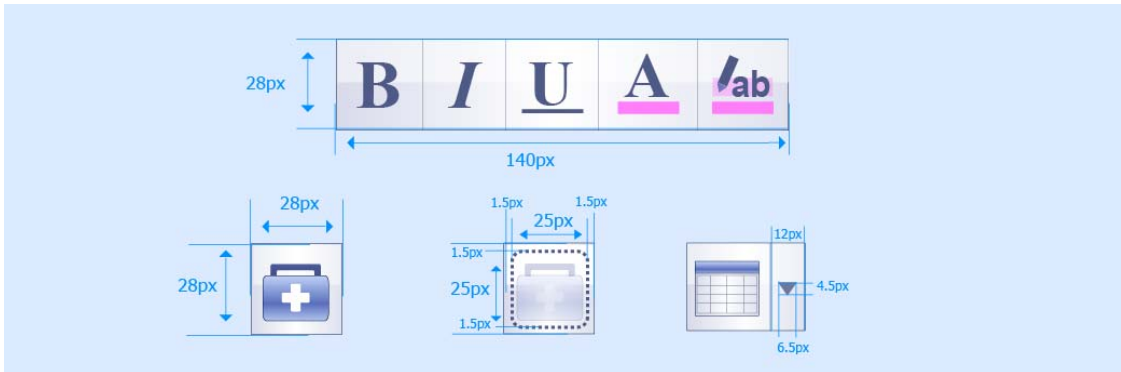


Figure 3.2.2-3 Text edits icons measurements

Colors

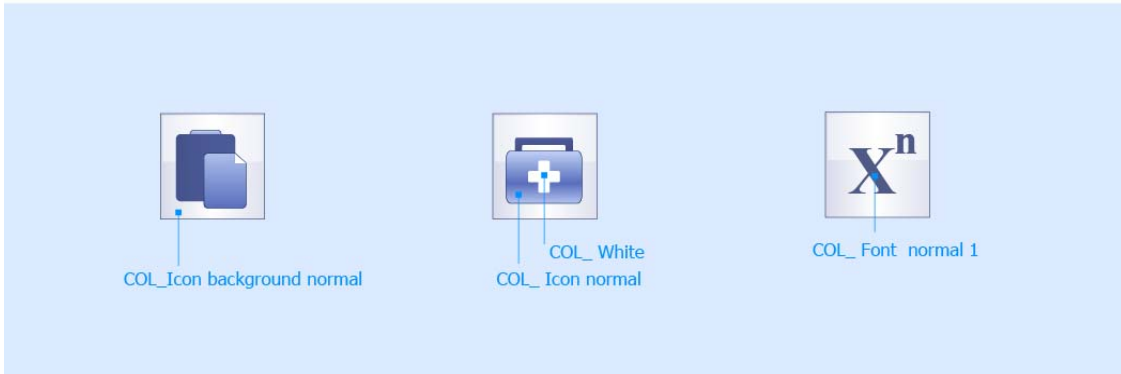


Figure 3.2.2-3 Text edits icon colors

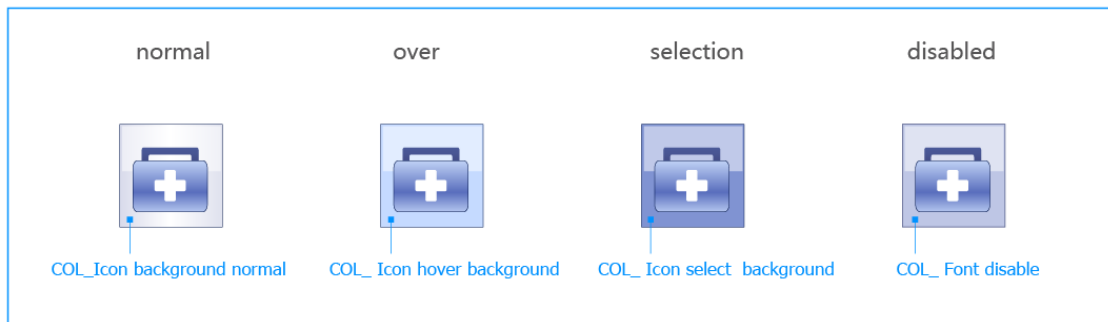


Figure 3.2.2-3 Text edits icon colors

2.2.3-4 Status icons

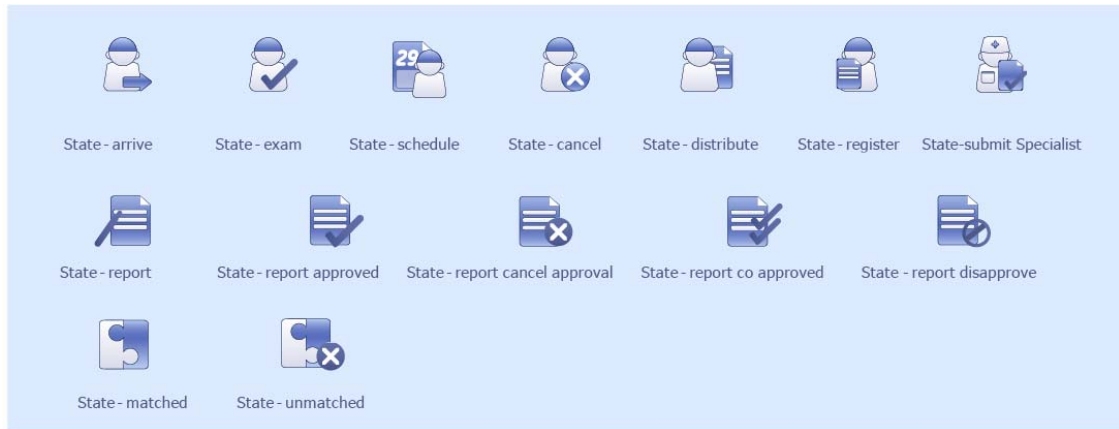


Figure 3.2.2-4 Status icons overview

Measurements

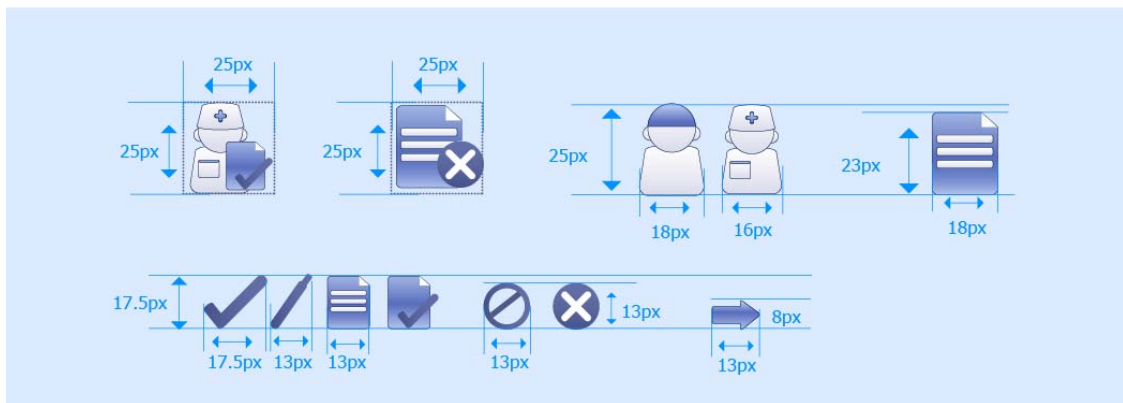


Figure 3.2.2-4 Status icons measurements

Colors

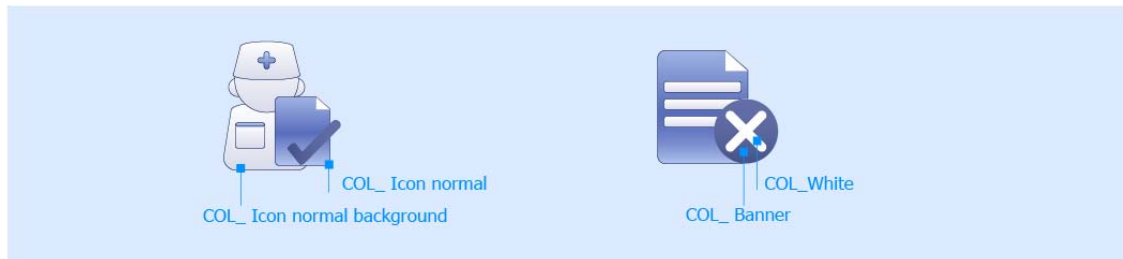


Figure 3.2.2-4 Status icons colors

2.2.3-5 Window Icons

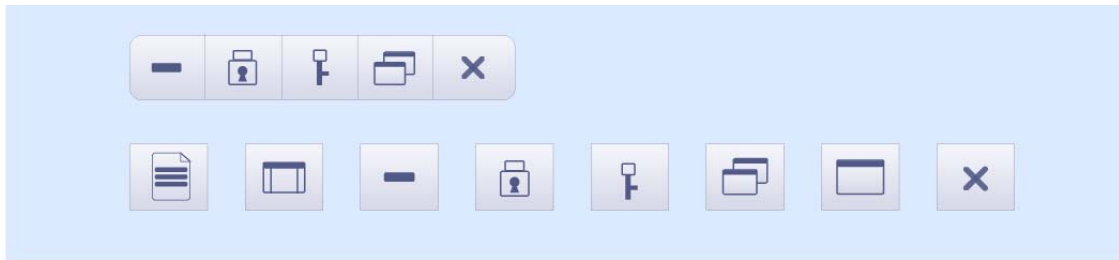


Figure 3.2.2-5 Icons overview

Measurements

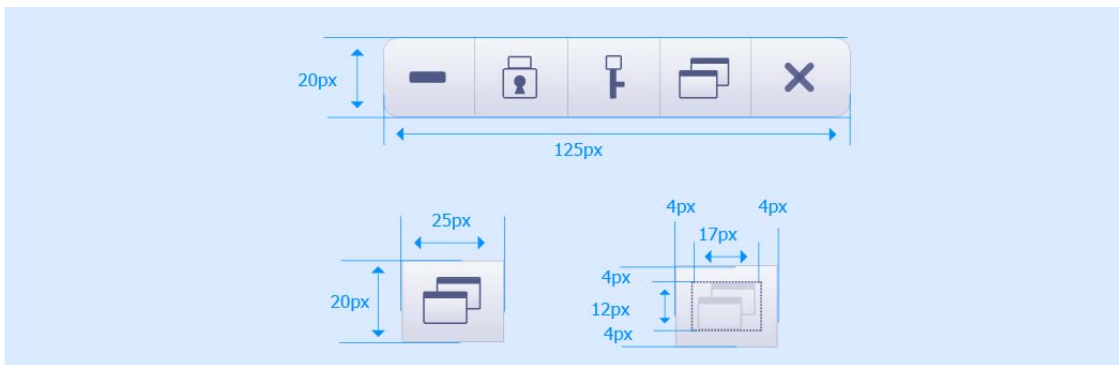


Figure 3.2.2-5 Icons measurements

Colors

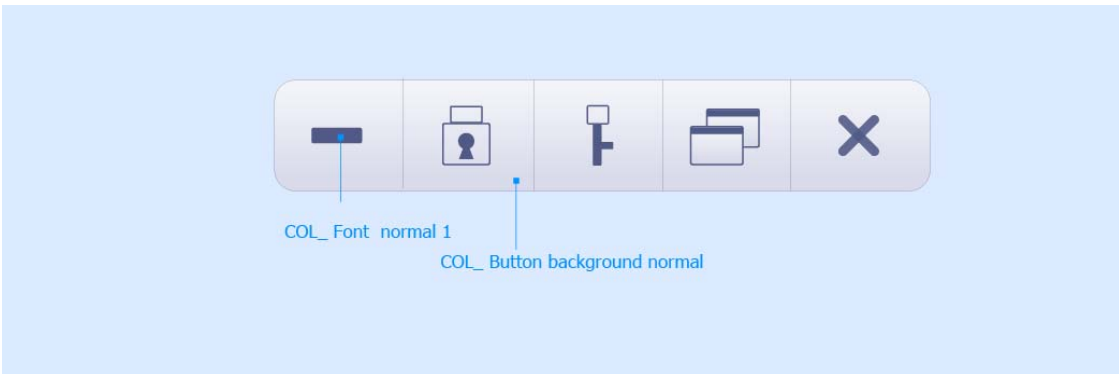


Figure 3.2.2-5 Icons colors

2.2.4 General spacing and position

2.2.4-1 General spacing

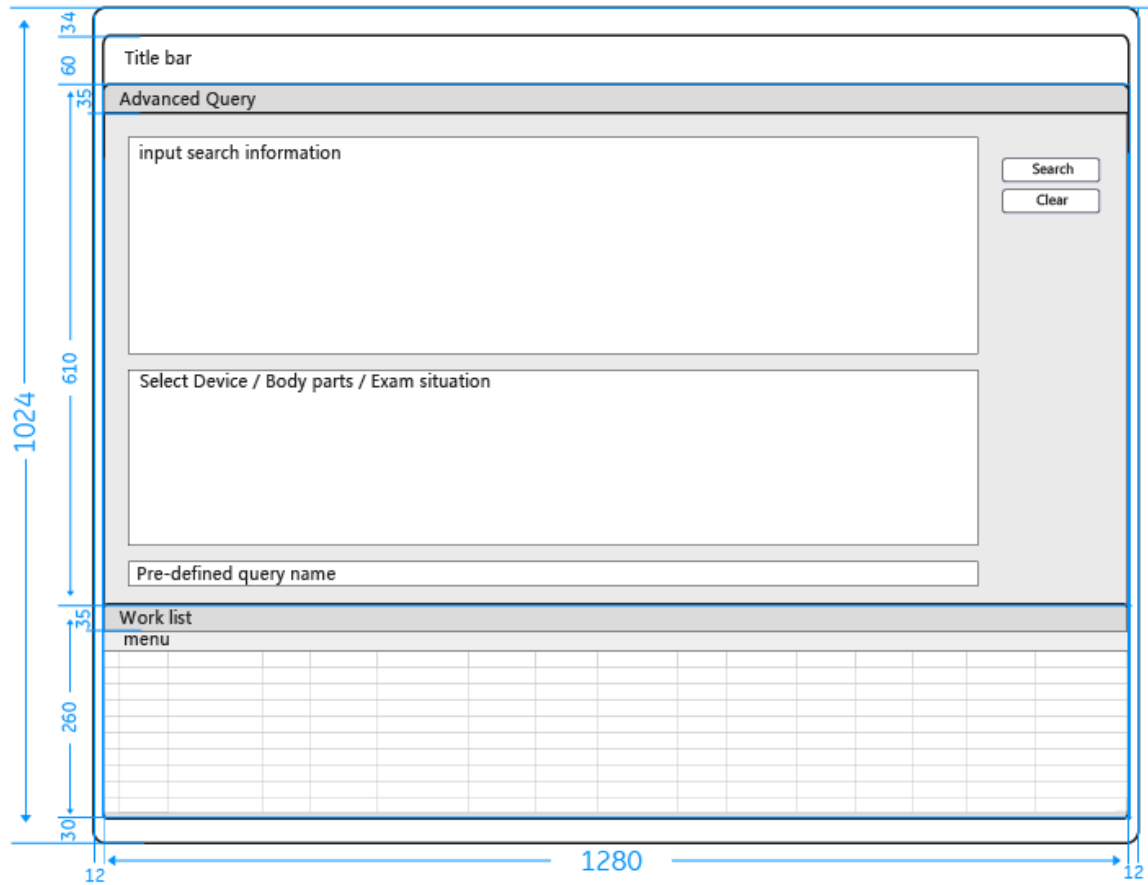


Figure 3.2.4-1 general spacing of Work list

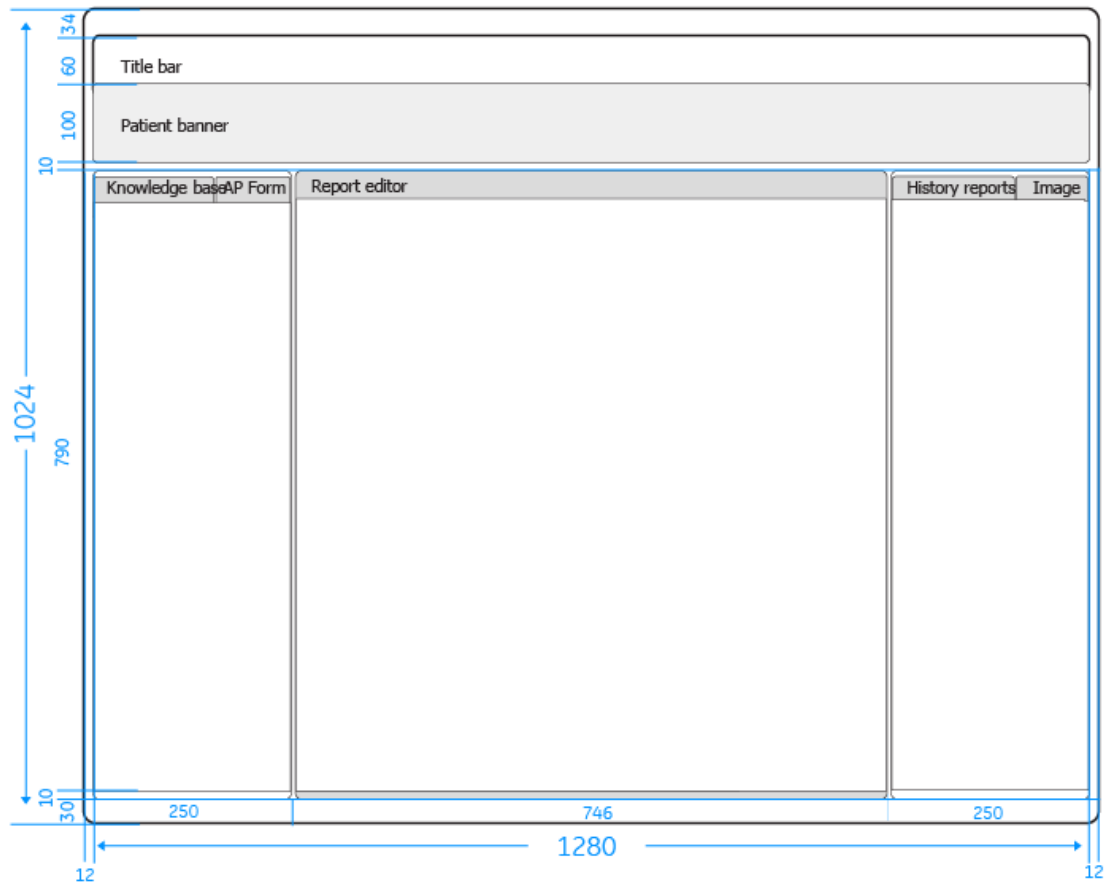


Figure 3.2.4-1 general spacing of Report

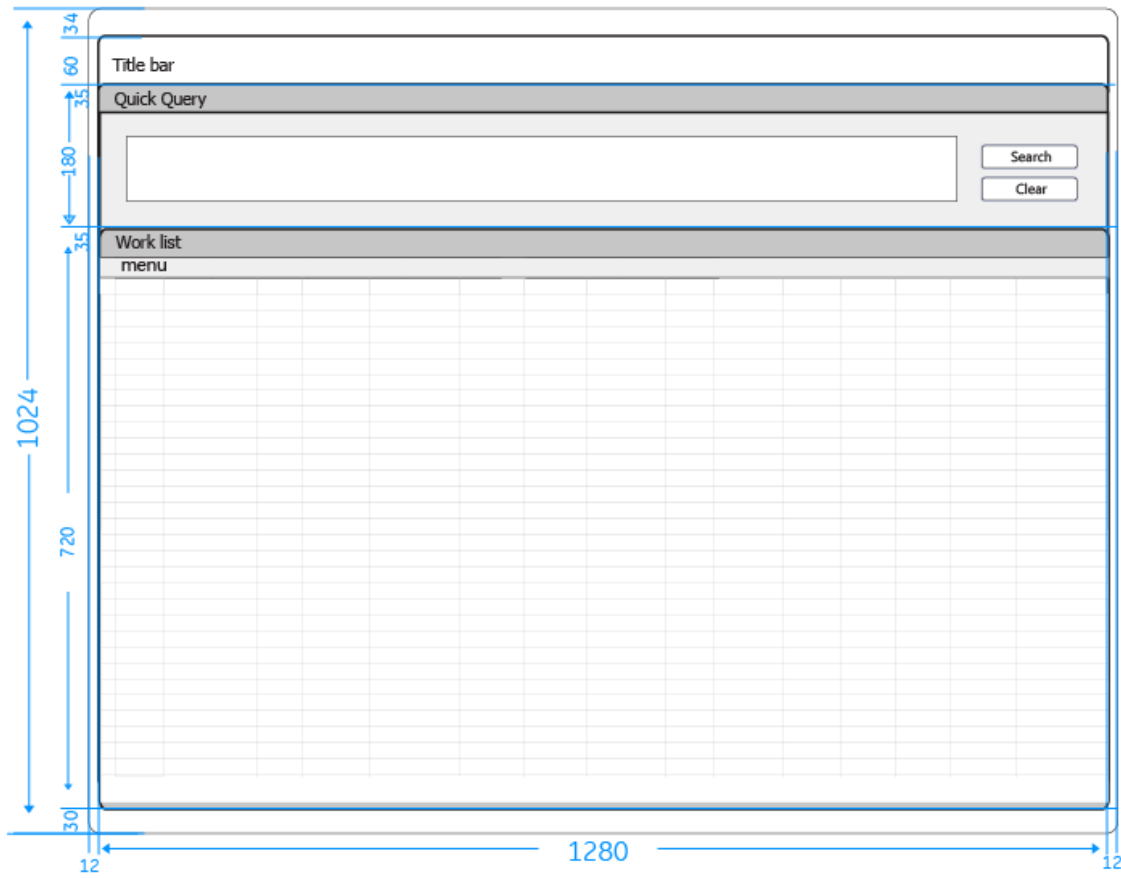


Figure 3.2.4-1 general spacing of quick query

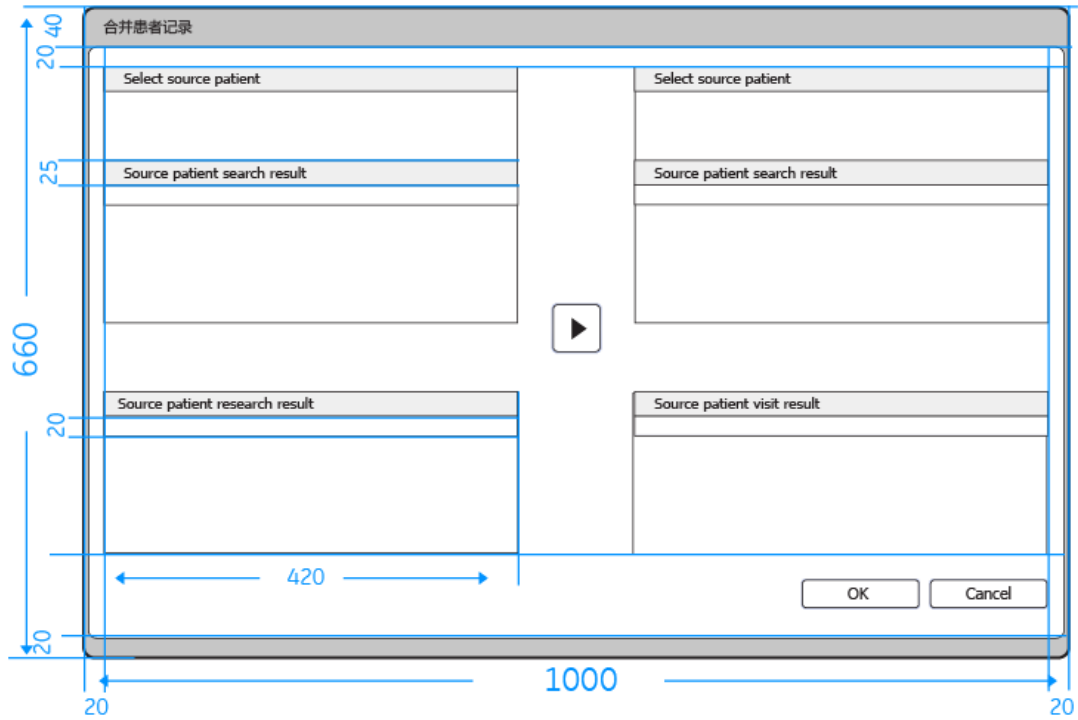


Figure 3.2.4-1 general spacing of patient merge

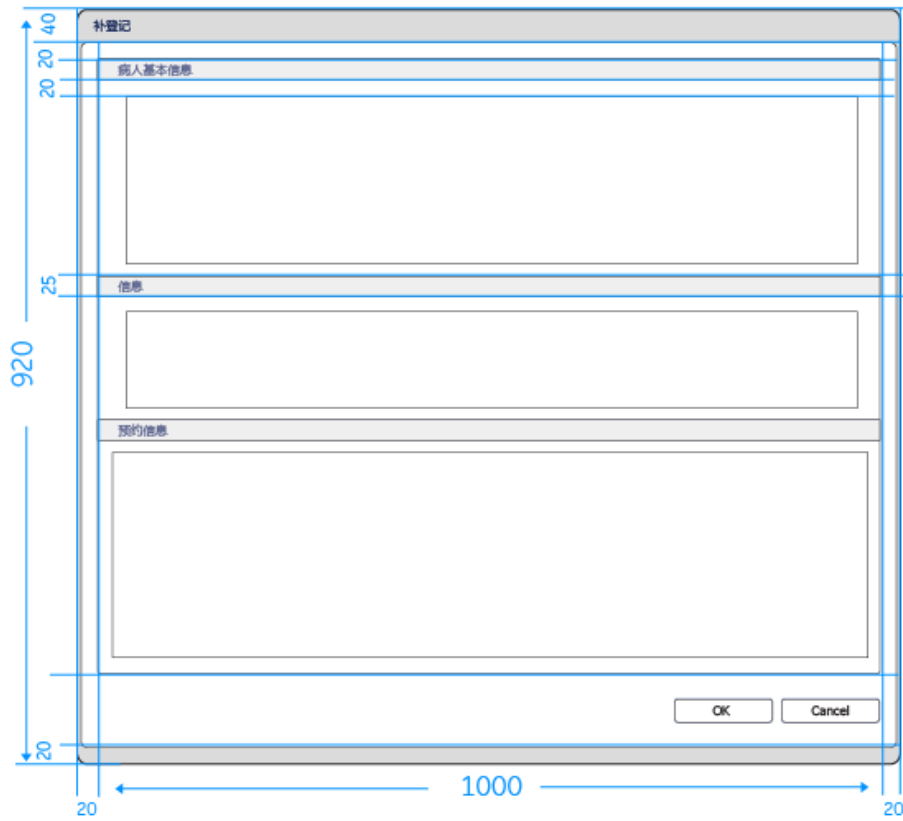


Figure 3.2.4-1 general spacing of registration

2.2.4-2 Detail layout

Title Bar



Figure 3.2.4-2 Detail layout of title bar

Patient banner

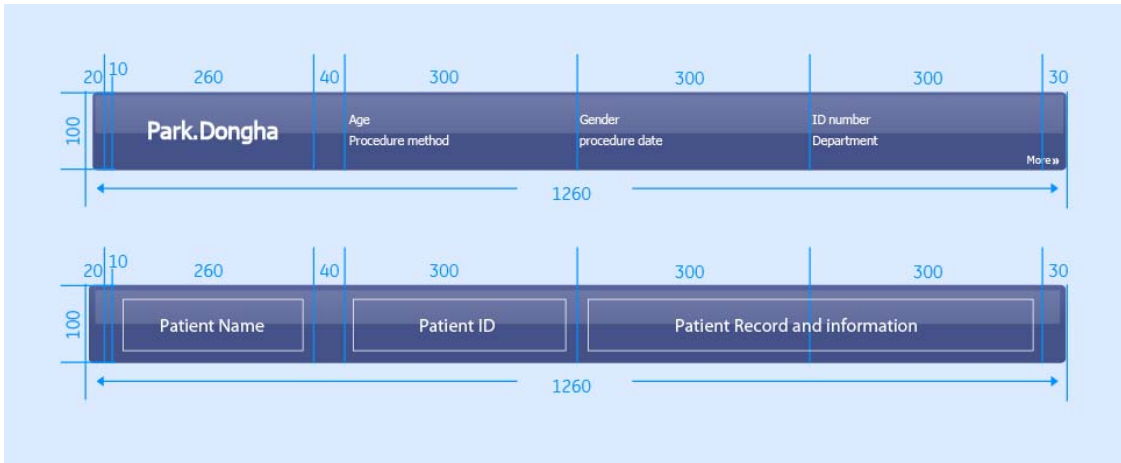


Figure 3.2.4-2 Detail layout of patient banner

Menu



Figure 3.2.4-2 Detail layout of menu

Content area

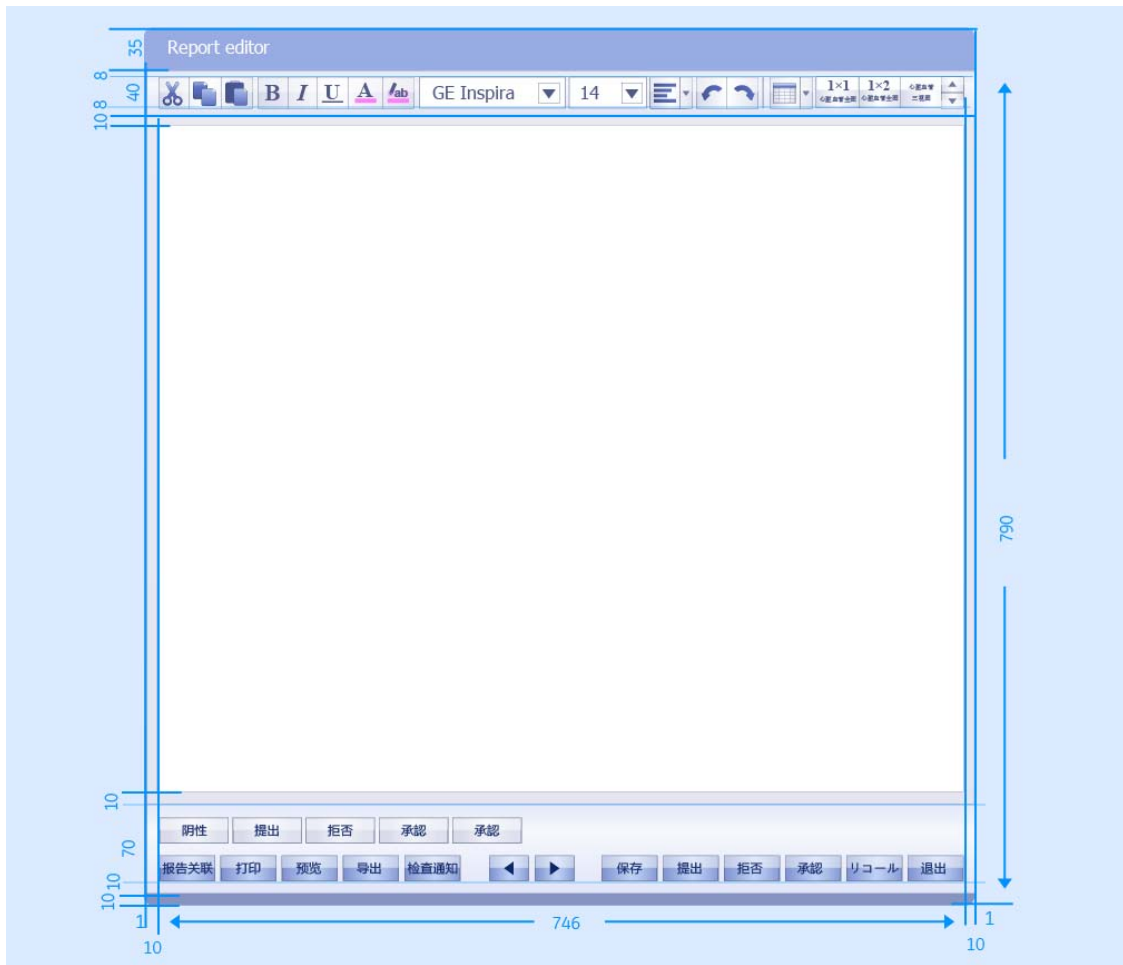


Figure 3.2.4-2 Detail layout of content area

Left panel

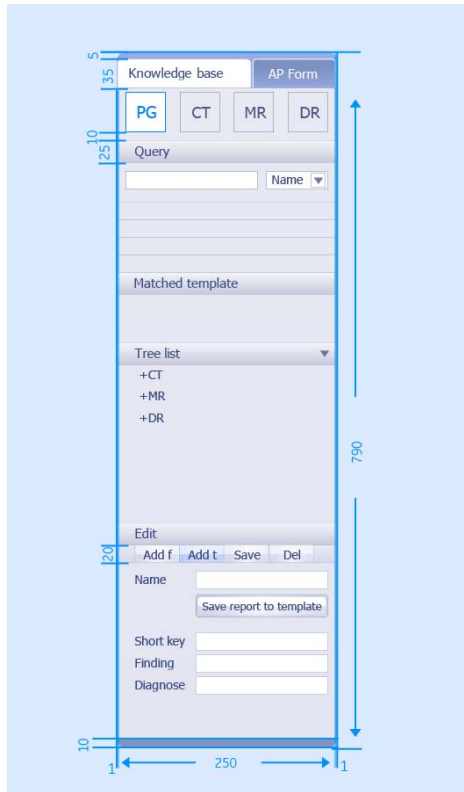
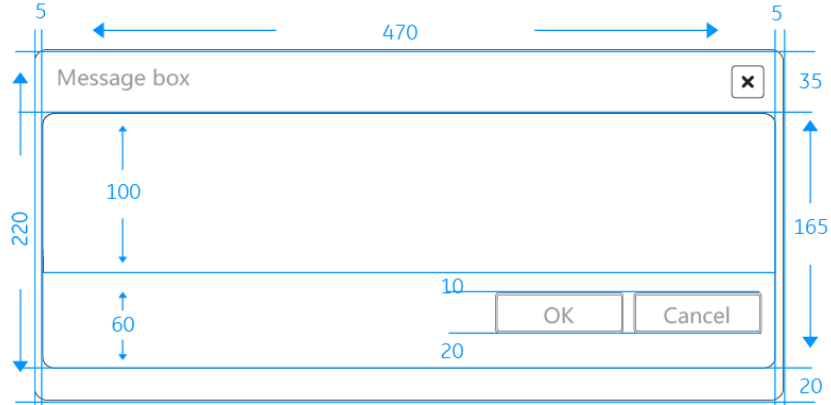


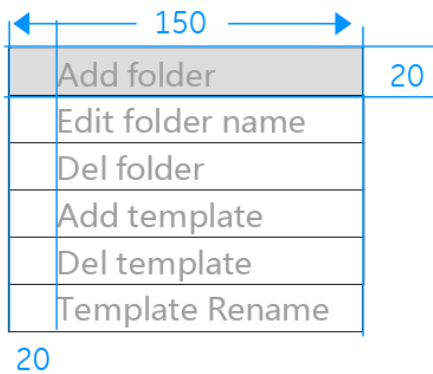
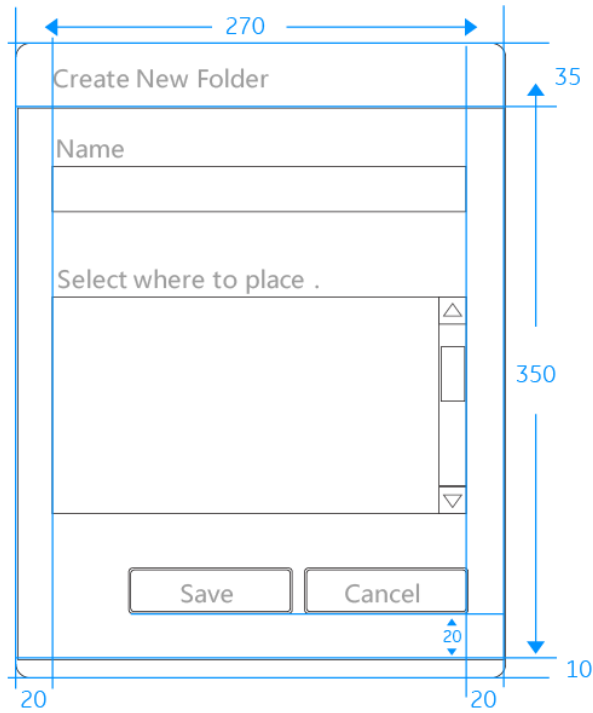
Figure 3.2.4-2 Detail layout of left panel

2.2.4-3 pop up window layout

Message box layout



Pop up window layout



2.2.5 Alignment

2.2.5-1 General layout of Alignment

Left alignment

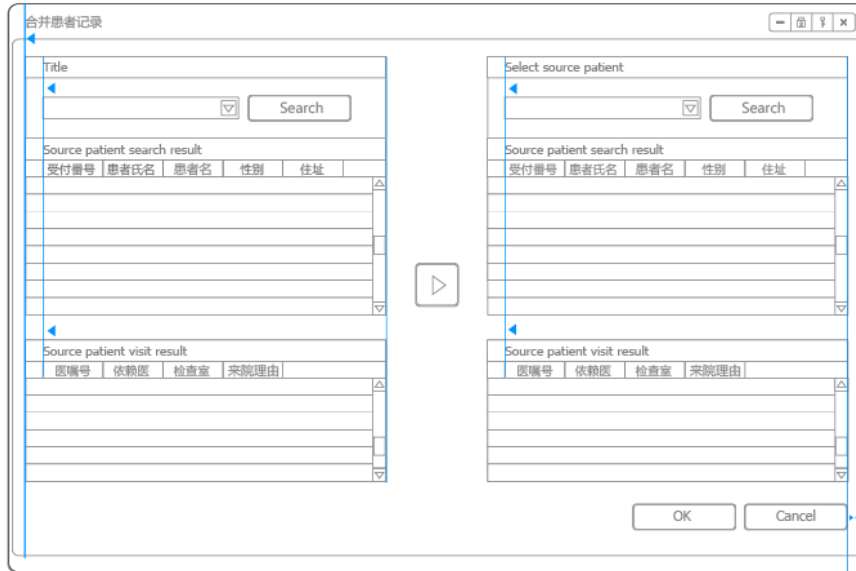


Figure 3.2.6-1 General layout of alignment

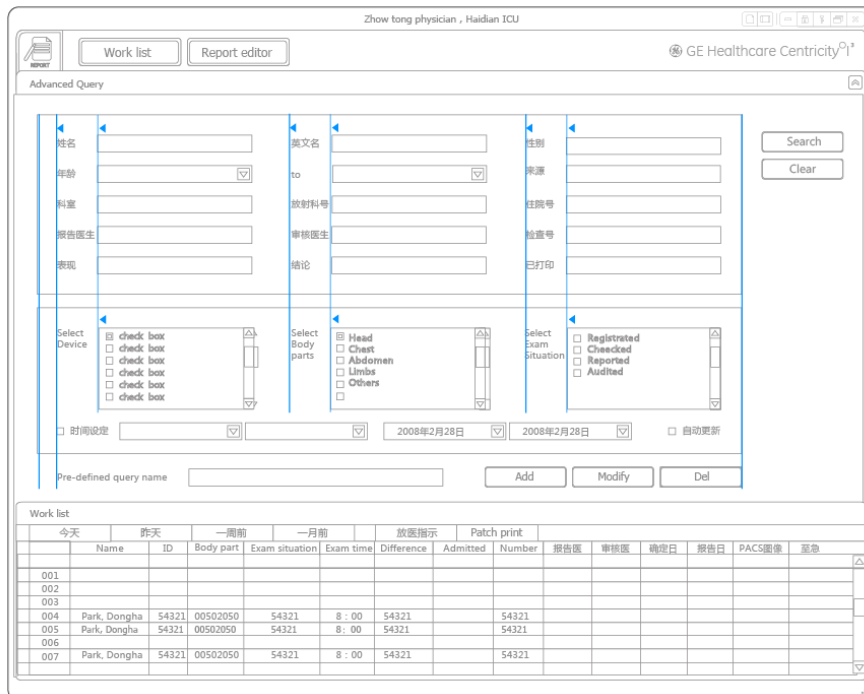


Figure 3.2.6-1 General layout of alignment

2.2.5-2 Detail layout of Alignment

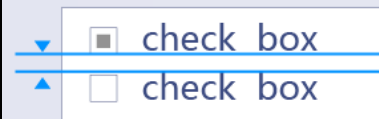


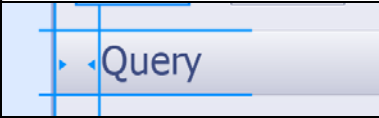
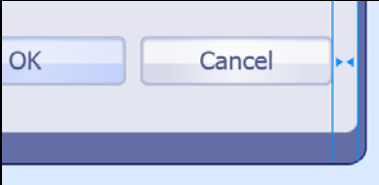
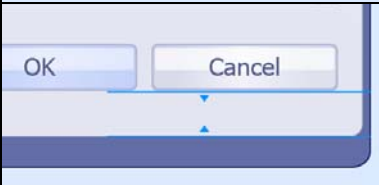
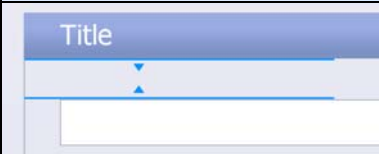
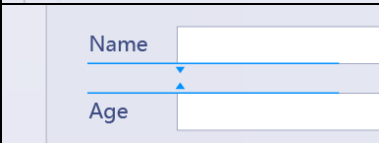

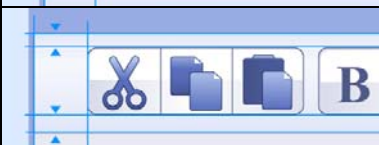
Example	Item	Pixels
	Between related controls	5px
	Between horizontally or vertically arranged buttons	10PX
	Between paragraphs of text	10PX
	From a left edge of a title	20PX
	From a right edge of a button	20PX
	From a bottom edge of a button	30px
	From a title to next line	20PX
	Between related input area	20PX
	From a left edge of an icon	20PX
	From a top edge of an icon	10PX

Table 3.2.6-2 Detail layout of alignment

3 Elements of the User Interface

3.1 Main frame

3.1.1 General layout

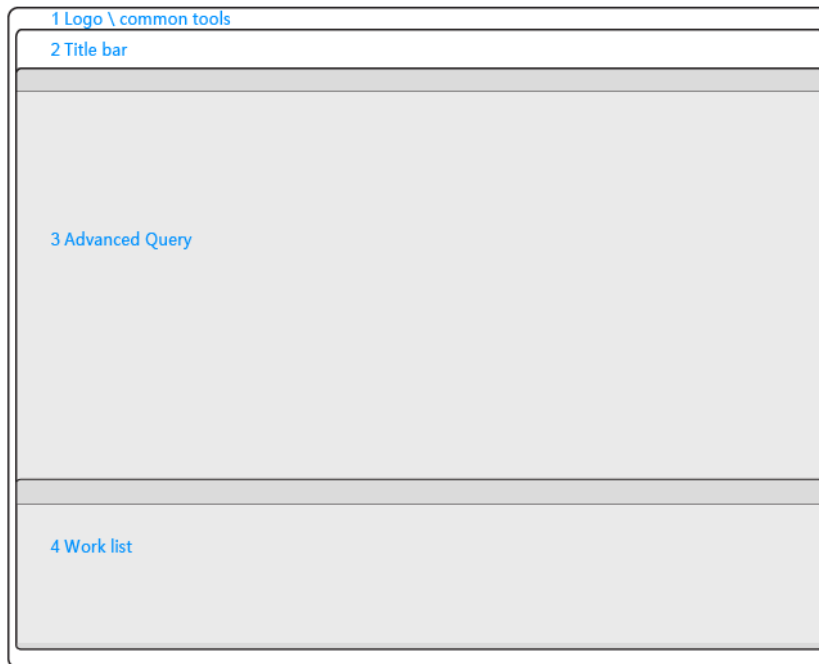


Figure 3.1.1-1 General layout of worklist

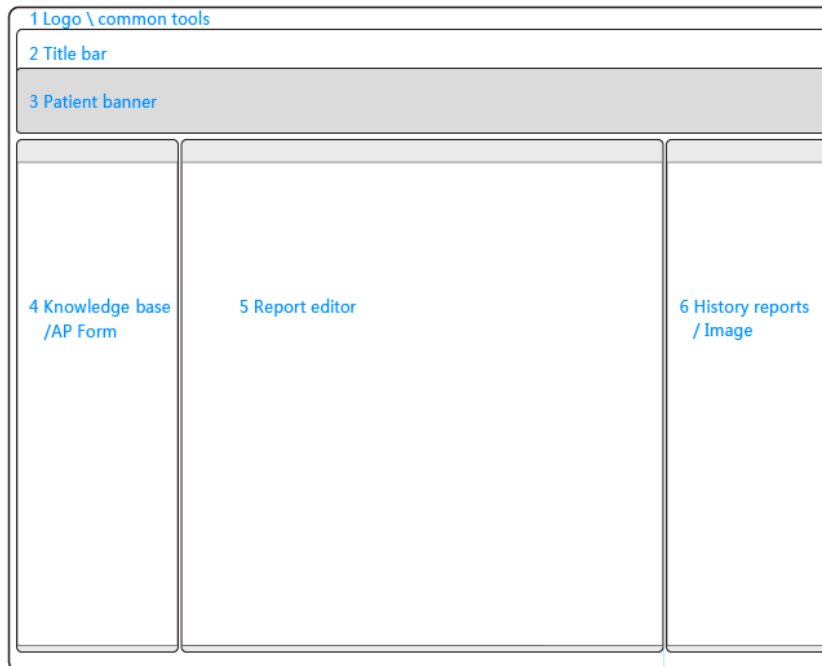


Figure 3.1.1-1 General layout of Report

3.1.2 Workstation navigator and workstation

3.1.2-1 Choose workstations after log on



Figure 3.1.2-1 clicking the floating license button

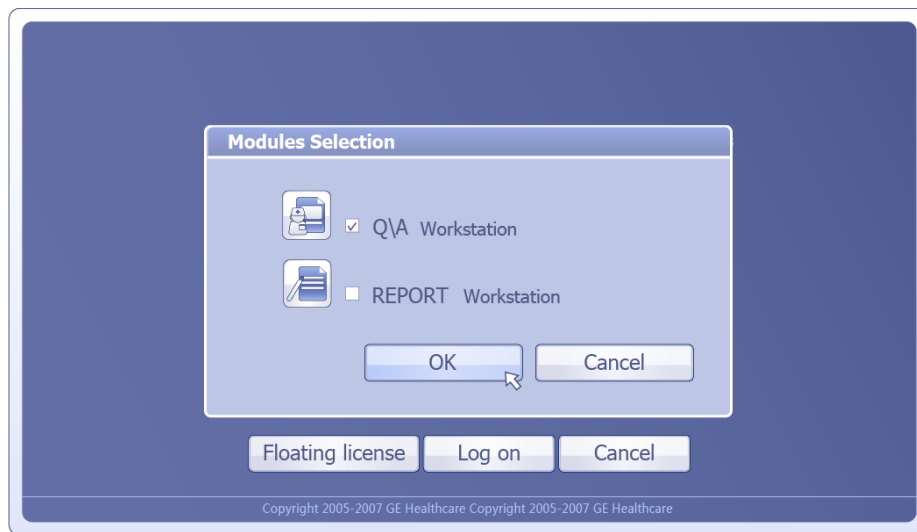


Figure 3.1.2-1 Licenses selector

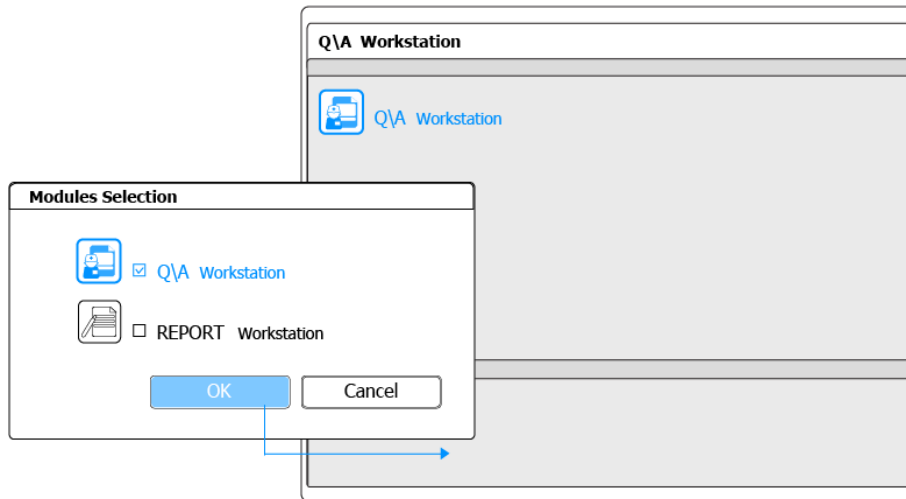


Figure 3.1.2-1 Choose Q/A Workstation

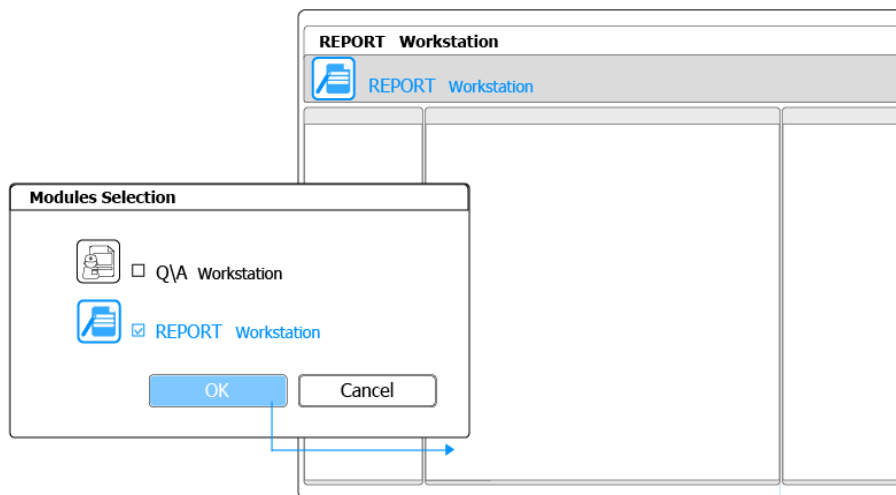


Figure 3.1.2-1 Choose Report Workstation

3.1.2-2 Choose workstations anytime by using workstation navigator

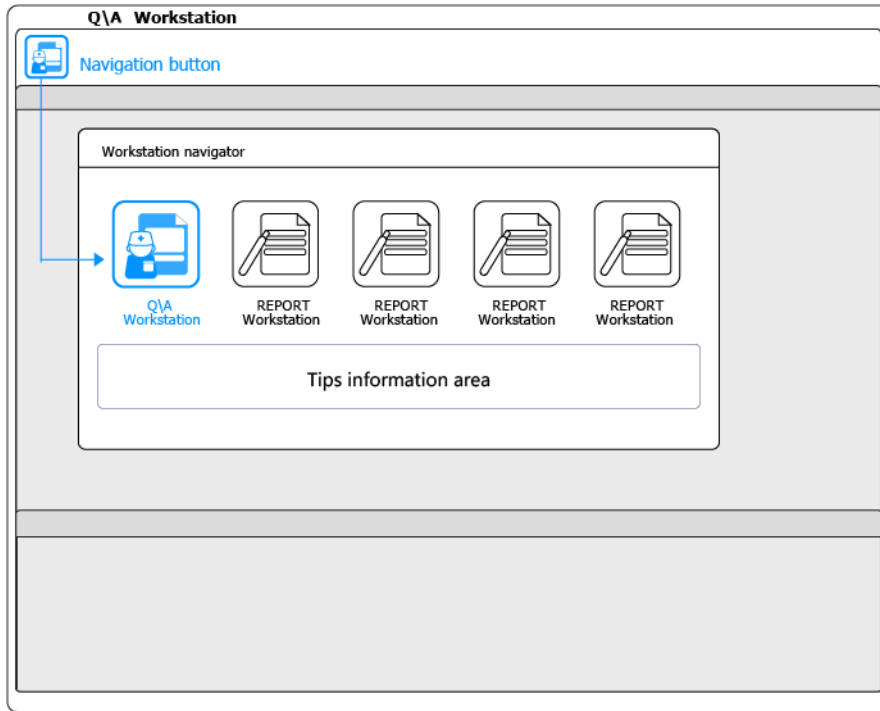


Figure 3.1.2-1 Choose Q/A Workstation

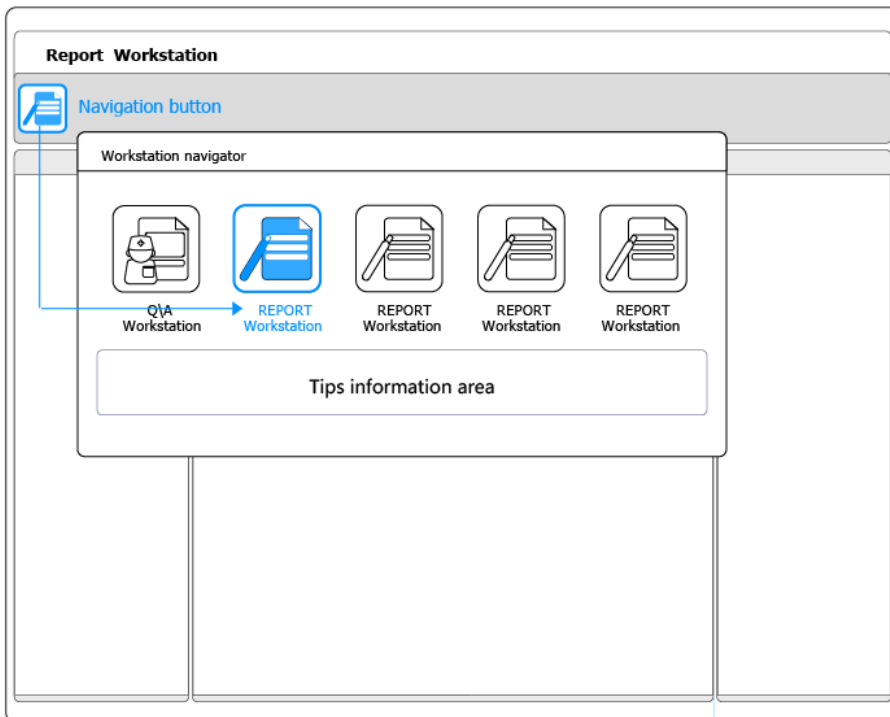
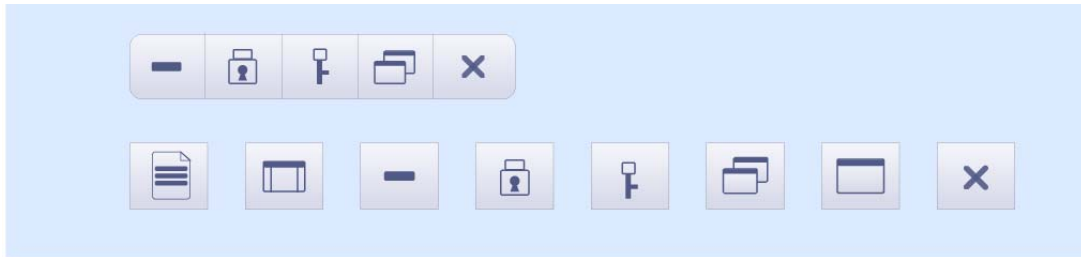


Figure 3.1.2-1 Choose Report Workstation

3.1.3 function buttons

3.1.3-1 Window control buttons



3.1.3-2 Command buttons



3.4. Controls

3.4.1 Label

Purpose: Text labels are used to display static text

Properties: Font, font color and background color can be set, the default are shown below

3.4.1-1 Visual design

Colors: The default text colors are shown below, the default background color is transparent.

Labeling

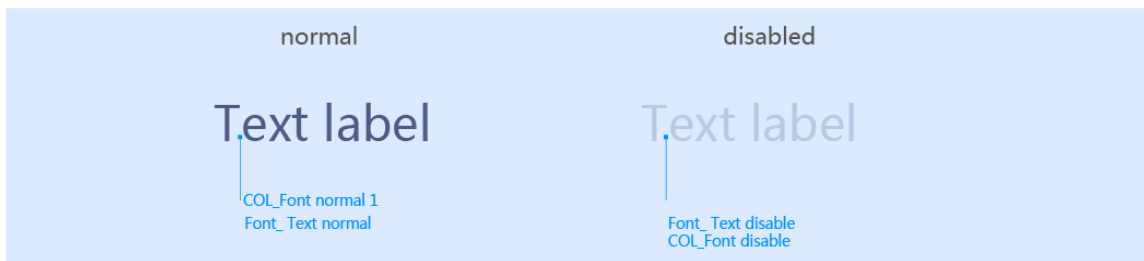


Figure 3.4.1 Label

User interaction: For the label, there is no interaction.

3.4.2 Button

Purpose: Buttons are used to invoke commands or to switch states.

Properties: Text color, text font, text alignment, width, height. The default are shown below

3.4.2-1 Visual design

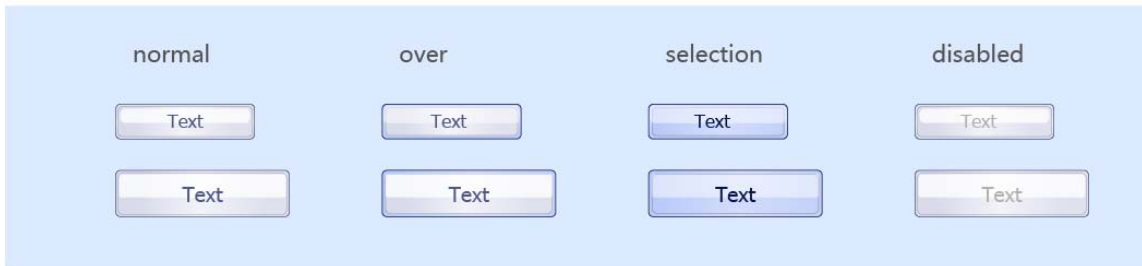


Figure 3.4.2 Button, overview

Measurements

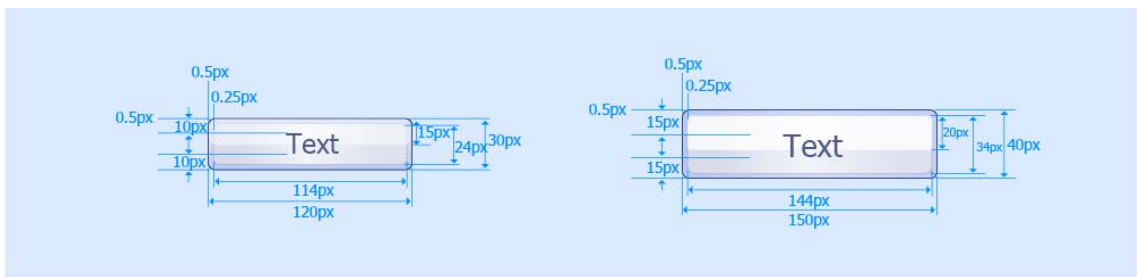


Figure 3.4.2 Button, measurements

Colors

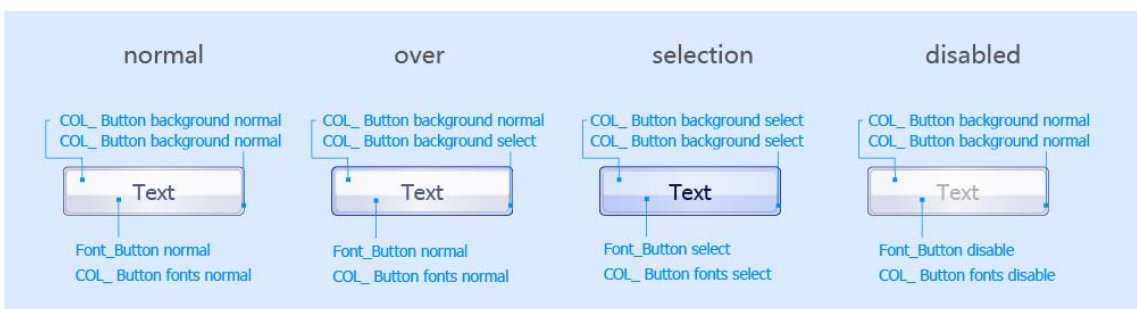


Figure 3.4.2 Button, color

Labeling

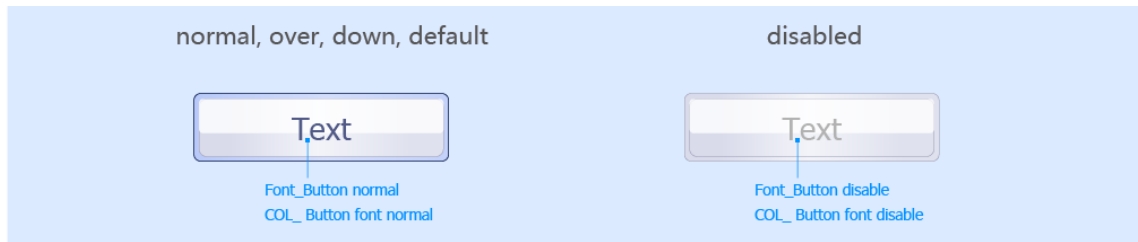


Figure 3.4.2 Button, labeling

3.4.3 Check Box

Purpose: check boxes are used to offer independent or non – exclusive choices within a fixed set of options. They have the advantage of showing all available options, which makes it easy to visually scan the choices fast and easily.

A check box can have one of three states:

Checked- the associated value or property is set.

Cleared or unchecked- the associated value or property is set.

Mixed value- the associated value is set for some, but not at all, elements of the selection

Properties: Background color, label color, label font, label alignment (right, left), label width, label height. The default are shown below

3.4.3-1 Visual design

	normal	over	focus	disabled
unchecked	<input type="checkbox"/> checkbox	<input type="checkbox"/> checkbox	<input type="checkbox"/> checkbox	<input type="checkbox"/> checkbox
checked	<input checked="" type="checkbox"/> checkbox	<input checked="" type="checkbox"/> checkbox	<input checked="" type="checkbox"/> checkbox	<input checked="" type="checkbox"/> checkbox
mixed	<input checked="" type="checkbox"/> checkbox	<input checked="" type="checkbox"/> checkbox	<input checked="" type="checkbox"/> checkbox	<input checked="" type="checkbox"/> checkbox

Figure 3.4.3 Check box overview

Measurements

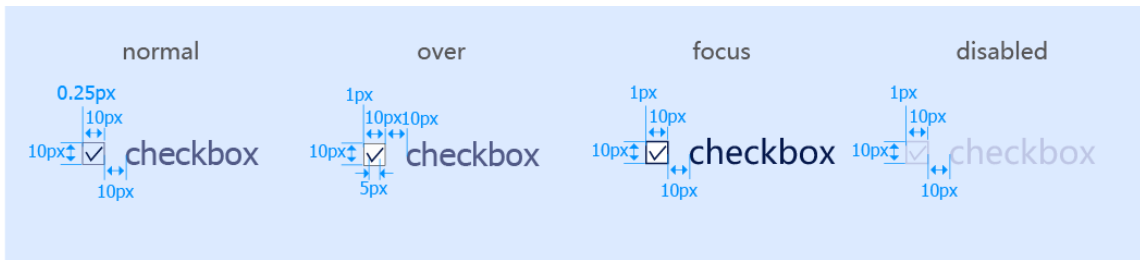


Figure 3.4.3 Check box measurements

Colors

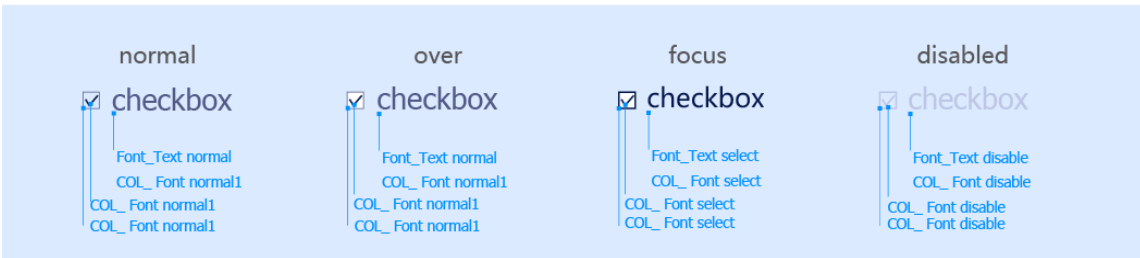


Figure 3.4.3 Check Box colors

3.4.4 Drop down list

Purpose: like radio buttons drop down lists are used to offer 1 out of N choices within a fixed set of options. The advantage of taking less screen real estate is paid with reduced speed and convenience during operation.

Properties: Background color, text color, text font, width, height. The default values are shown below.

3.4.4-1 Visual design

1) Closed drop down list

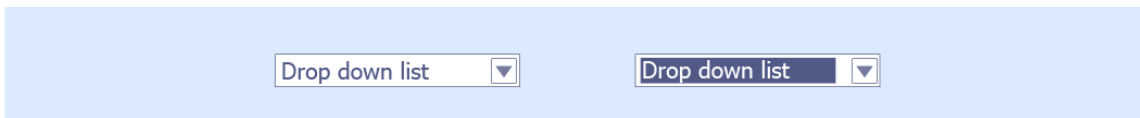


Figure 3.4.4-1 Drop down list overview

Measurements



Figure 3.4.4-1 Drop down list measurements

Colors

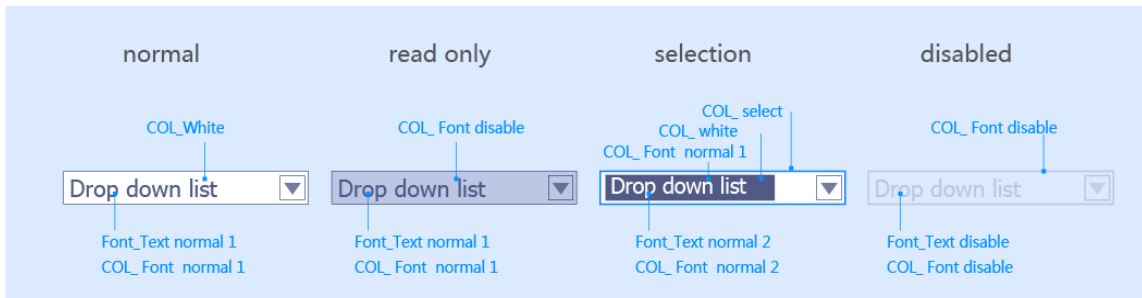


Figure 3.4.4-1 Drop down list colors

2) Open drop down list

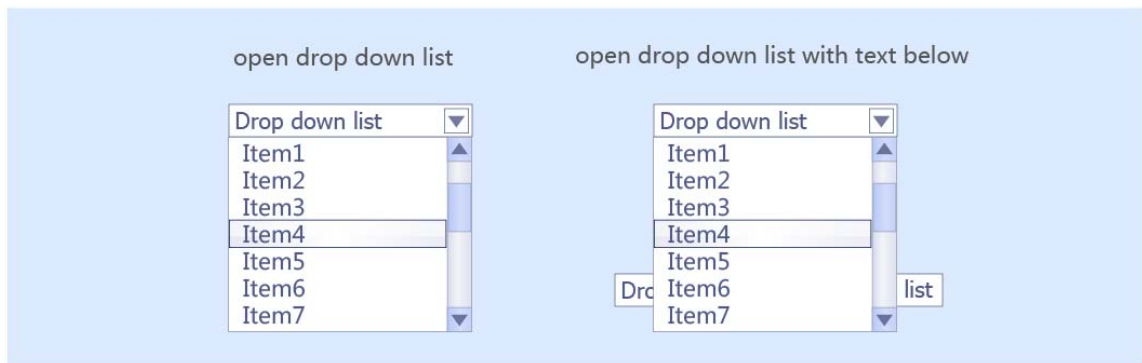


Figure 3.4.4-2 Open Drop down list overview

Measurements

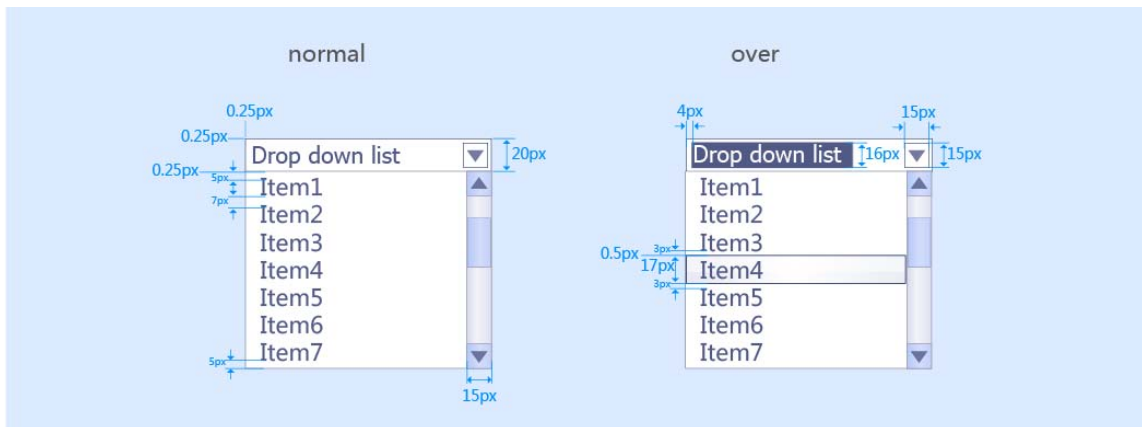


Figure 3.4.4-2 Open Drop down list measurements

Colors

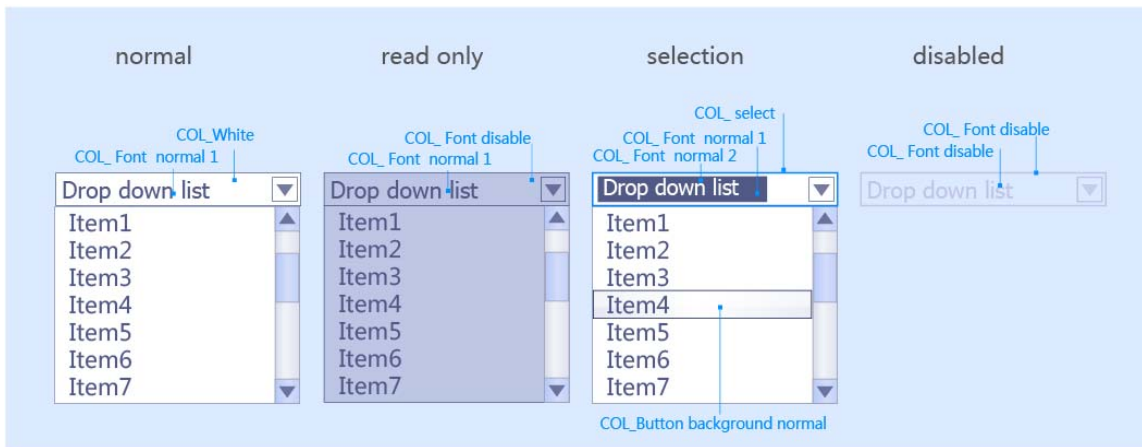


Figure 3.4.4-2 Open Drop down list colors

3.4.5 Combo Box

Purpose: combo boxes combine a text entry field with a fixed drop down selection list to allow the user select among the options or to type in a new entry.

Properties: Background color, text color, text font, width, height. The default values are shown below.

3.4.5-1 Visual design

1) Closed combo box



Figure 3.4.5-1 Combo box overview

Measurements

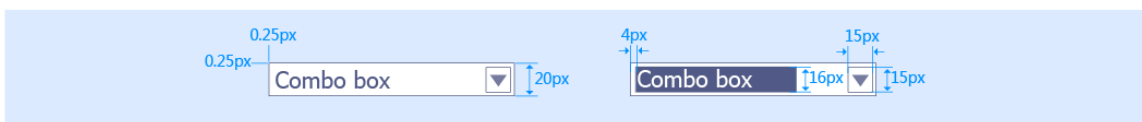


Figure 3.4.5-1 Combo box measurements

Colors

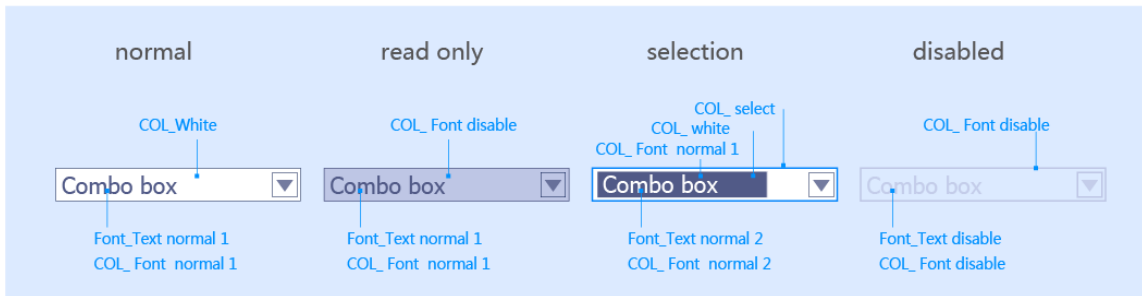


Figure 3.4.5-1 Combo box colors

2) Open drop down list

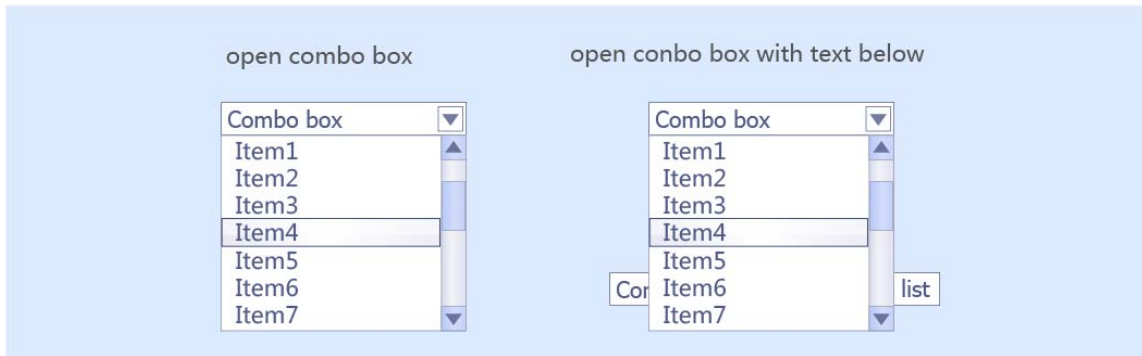


Figure 3.4.5-2 Combo box overview

Measurements

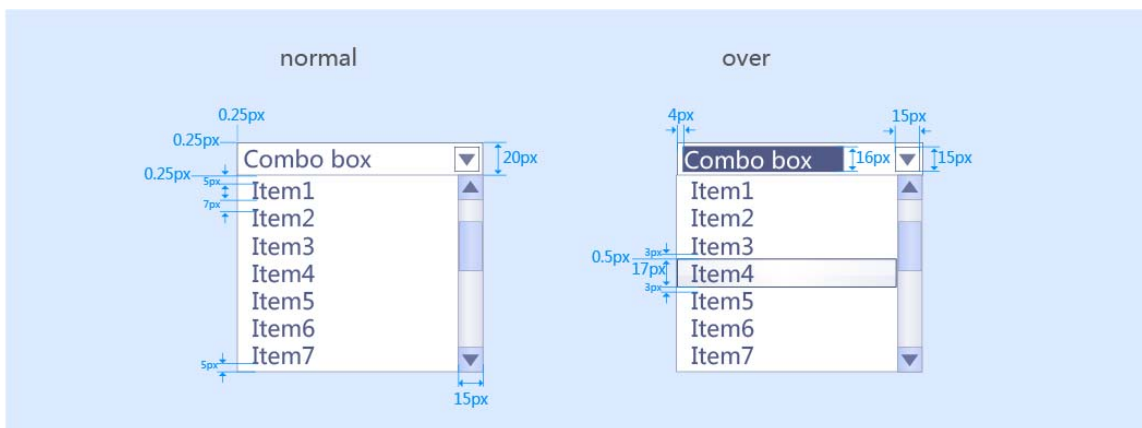


Figure 3.4.5-2 Combo box measurements

Colors

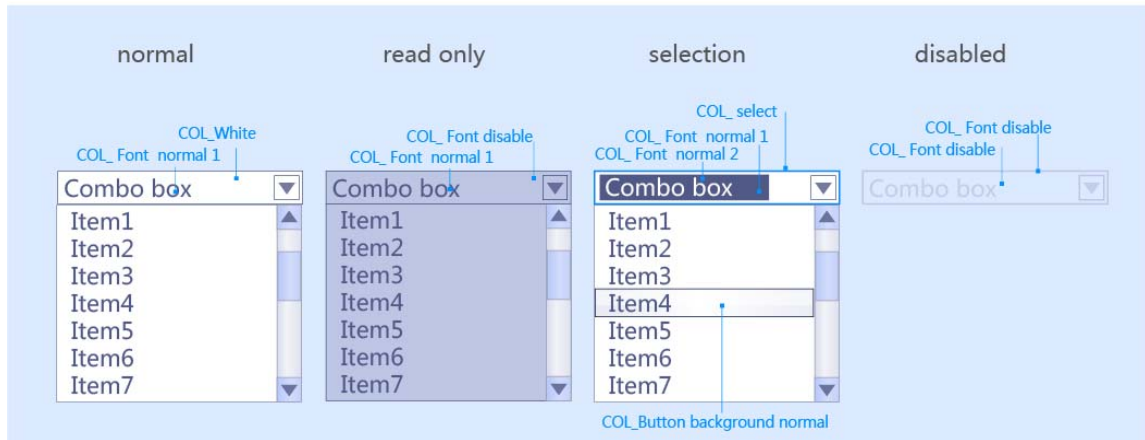


Figure 3.4.5-2 Combo box Colors

3.4.6 Text Box

Purpose: A text box is a rectangular control where the user enters or edits text. It can be defined to support a single line or multiple lines of text. The text box control provides basic text input and editing support. Editing includes inserting and deleting characters and the option of text wrapping. Although individual font or paragraph properties are not supported, the entire control can support a specific font setting.

Properties: Background color, text color, text font, width, height. The default values are shown below.

3.4.6-1 Visual design



Figure 3.4.6 Textbox overview

Measurements

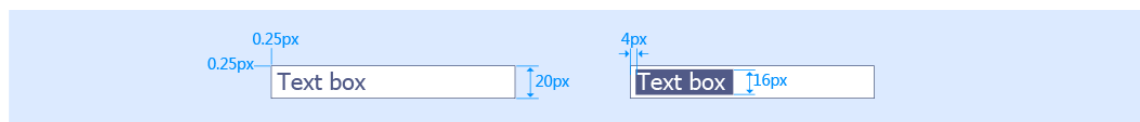


Figure 3.4.6 Textbox measurements

Colors

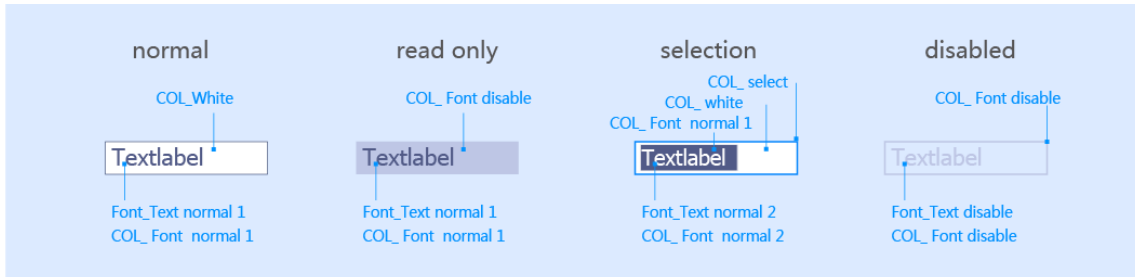


Figure 3.4.6 Textbox colors

3.4.7 List Box

Purpose: A list box is designed for selecting only one item in a list. Therefore, the control provides a mutually exclusive operation similar to a group of option buttons, except that a list box can handle a large number of items more efficiently. There is also a variant of the list box with icons

Properties: Background color, text color, text font, width, height. The default values are shown below.

3.4.7-1 Visual design

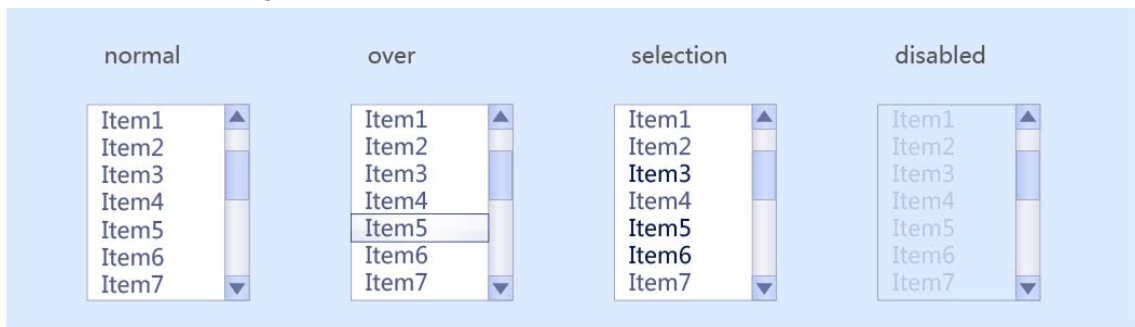


Figure 3.4.7 list box overview

Measurements

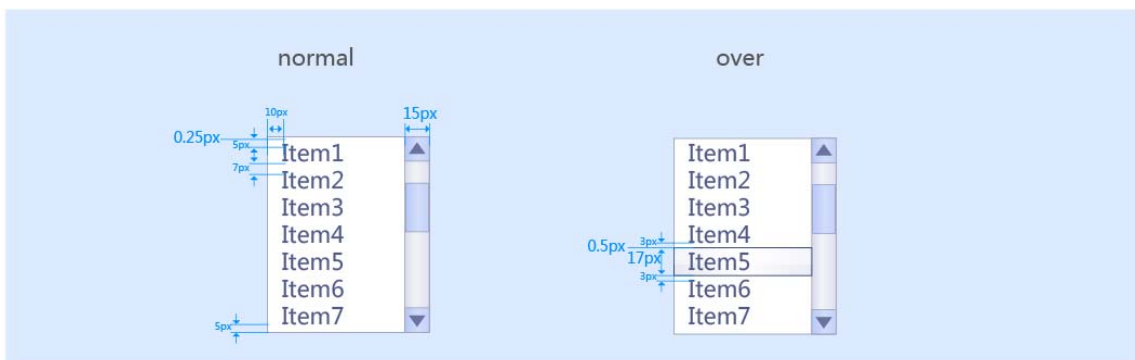


Figure 3.4.7 list box measurements

Colors

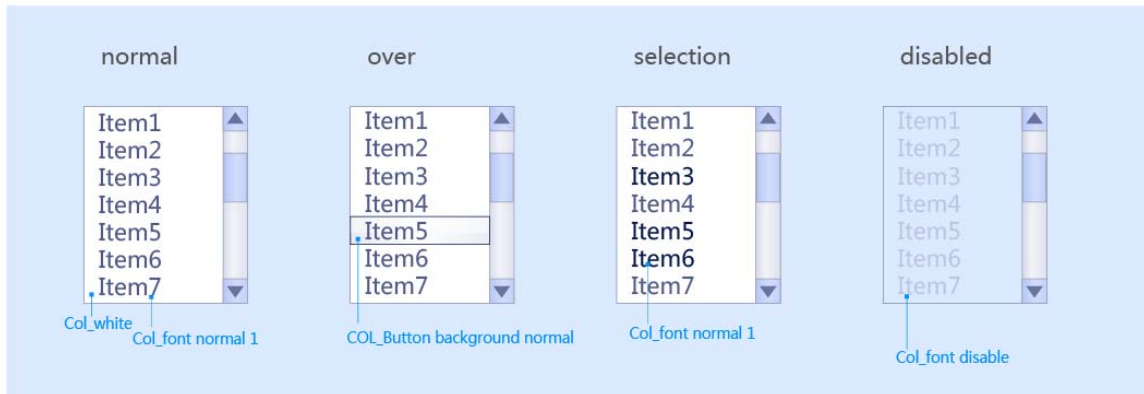


Figure3 .4.7 list box colors

3.4.8 Checked List Box

Purpose: Although most list boxes are single-selection list, some contexts require the user to choose more than one item. Checked list boxes support this functionality. There is a variant of checked list box with icons.

Properties: background color, text color, text font, width, height. The default values are shown below.

3.4.8-1 Visual design

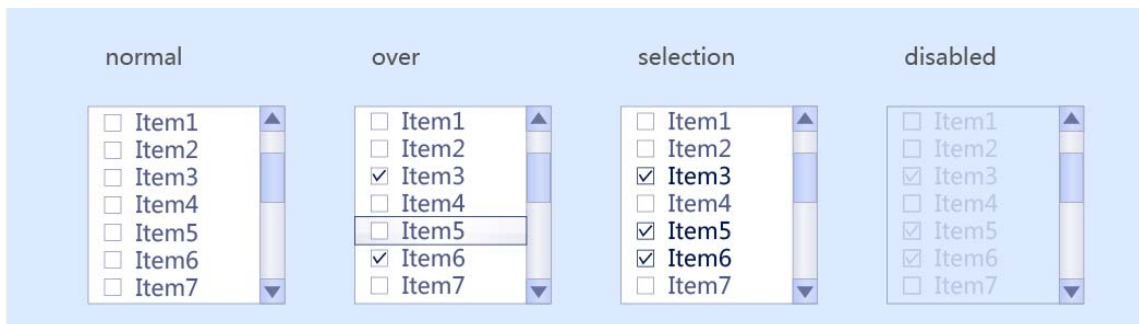


Figure 3.4.8 Checked list box overview

Measurements

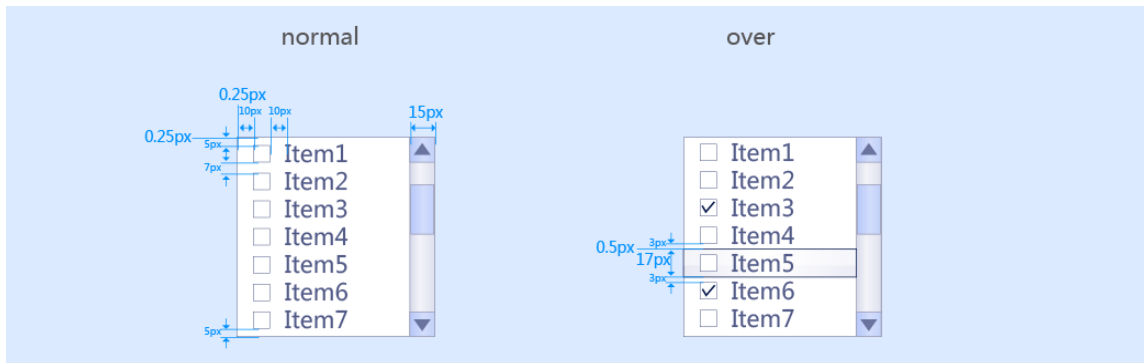


Figure 3.4.8 Checked list box measurements

Colors

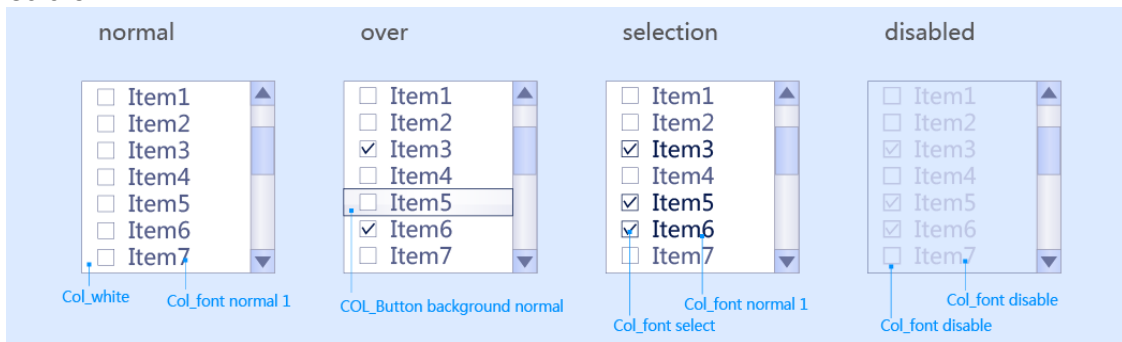


Figure 3.4.8 Checked list box colors

3.4.9 Scrollbar

Purpose: Scroll bars enable the user to view portions of the object that are not currently visible in a window or inside a control. Scrolling typically does not affect the input focus or selection in the window.

Properties: background color, text color, text font, width, height. The default values are shown below.

3.4.9-1 Visual design

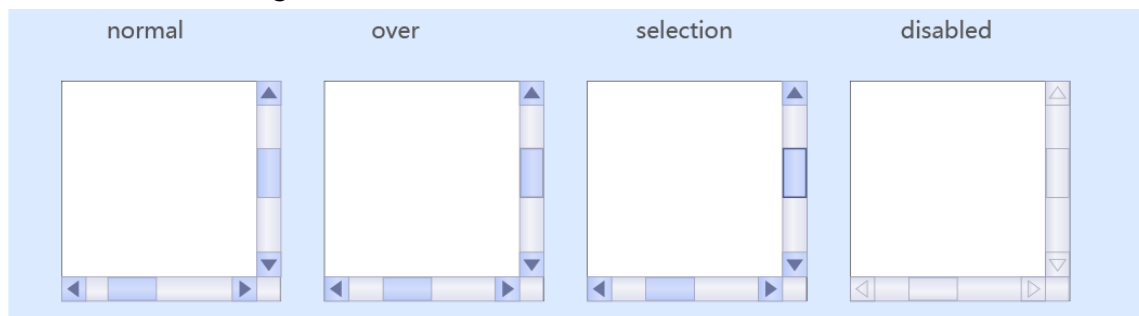


Figure 3.4.9 Scrollbar overview

Measurements

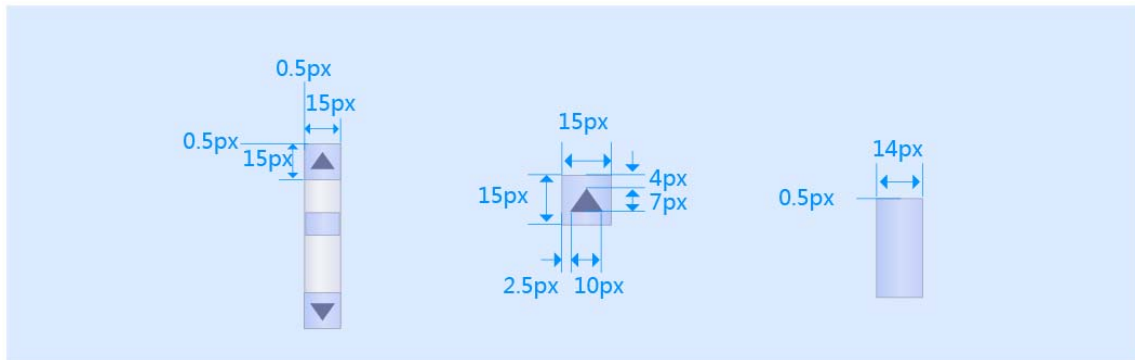


Figure 3.4.9 Scrollbar measurement

Colors

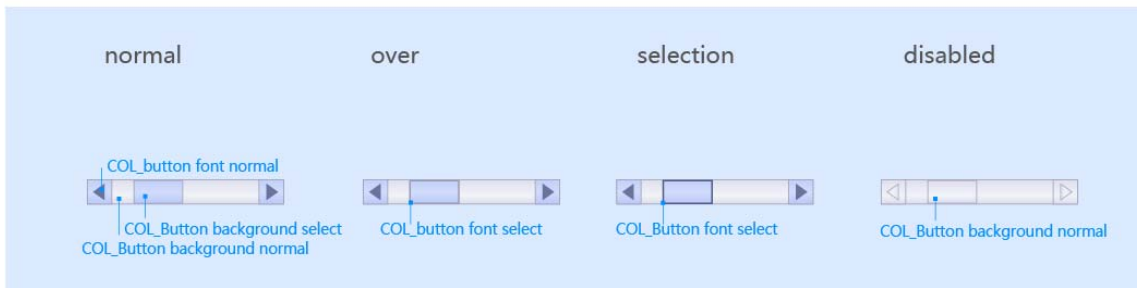


Figure 3.4.9 Scrollbar colors

3.4.10 Dialog window

Purpose: Dialog window (also referred as secondary windows) are used to support and supplement a user’s activities in the primary windows. Typical types of dialog windows are property, dialog boxes and message boxes.

3.4.10-1 Visual design



Figure 3.4.10 Dialog window overview

Dialog window elements:

A dialog window is composed of several elements. Typically it includes a title bar and window frame. If the content of the window is dynamic regarding required screen space the window can also include a size grip, which is used to resize the window.

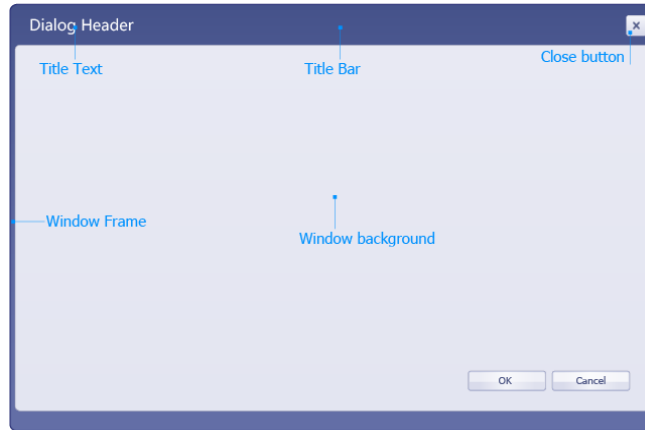


Figure3.4.10 Dialog window elements

Measurements

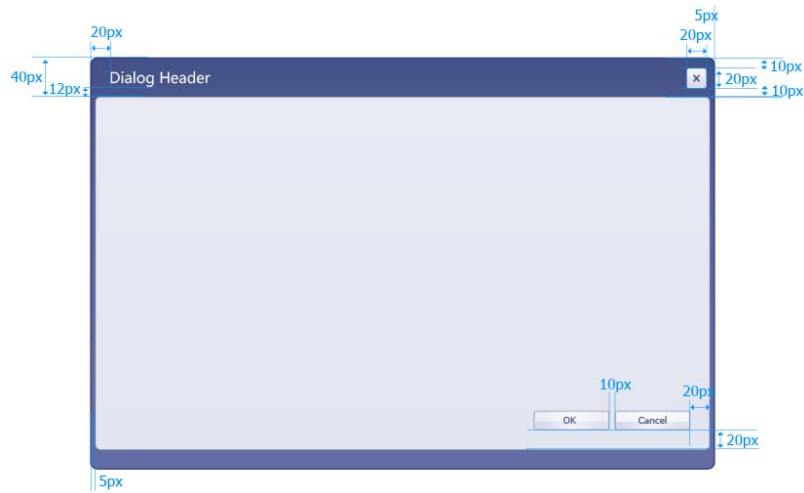


Figure 3.4.10 Dialog window measurements

Colors

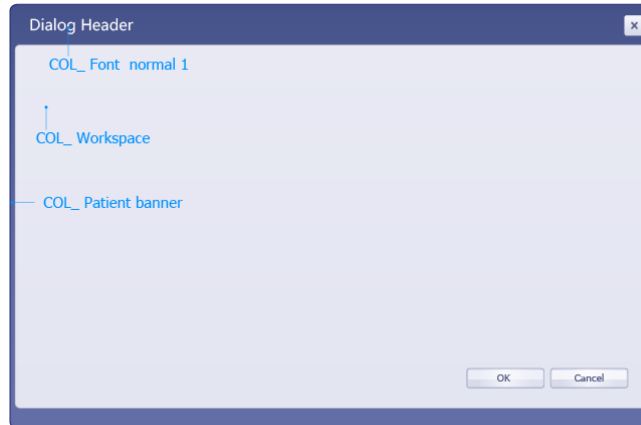


Figure 3.4.10 Dialog window colors

3.4.11 Tree structure

Purpose:

Properties: background color, text color, text font, width, height. The default values are shown below.

3.4.11-1 Visual design

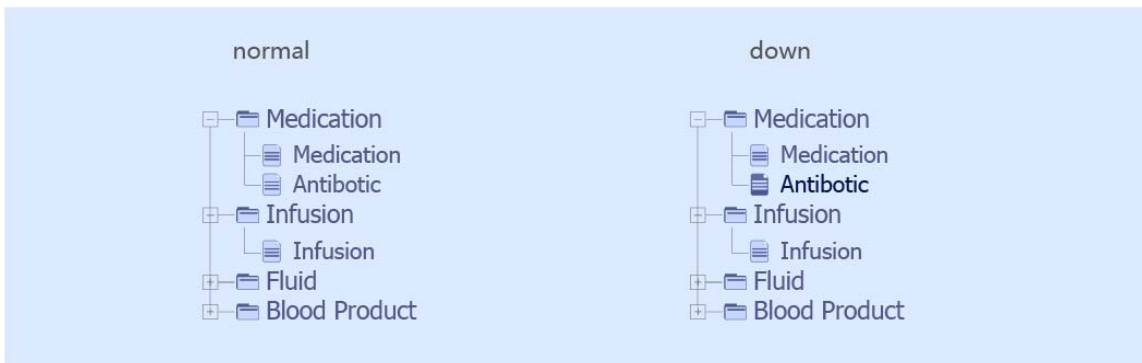


Figure 3.4.11 Tree structure overview

Measurements

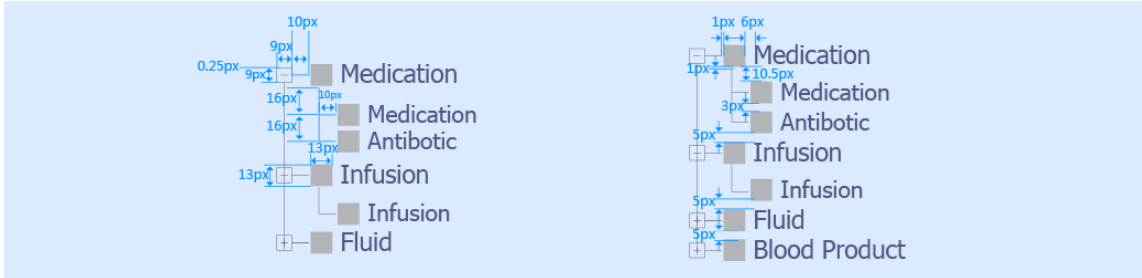


Figure 3.4.11 Tree structure measurements

3.4.12 Menu bar

Purpose:

Properties: background color, text color, text font, width, height. The default values are shown below

3.4.12-1 Visual design

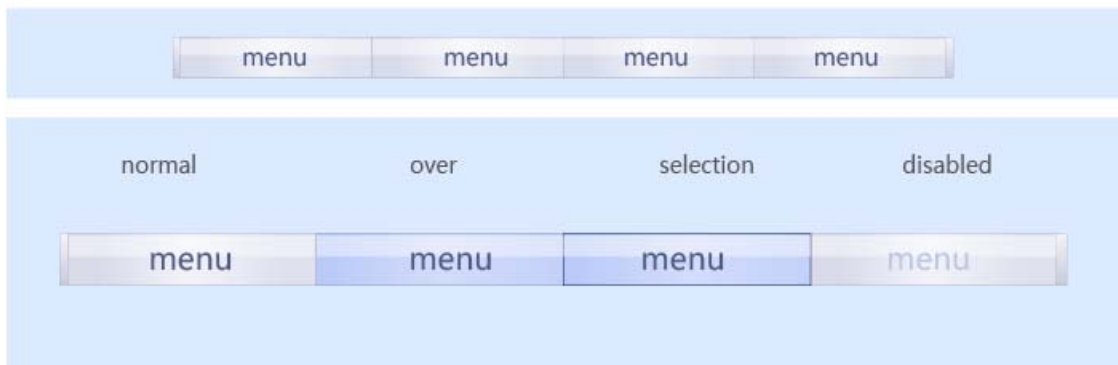


Figure 3.4.12 Menu bar overview

Measurements

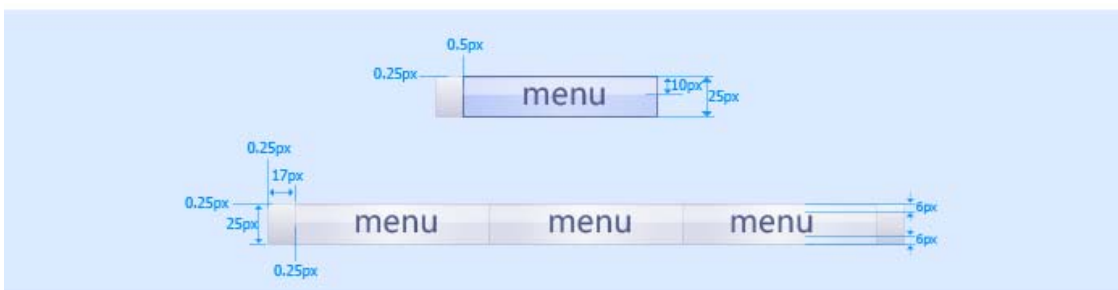


Figure 3.4.12 Menu bar measurements

Colors

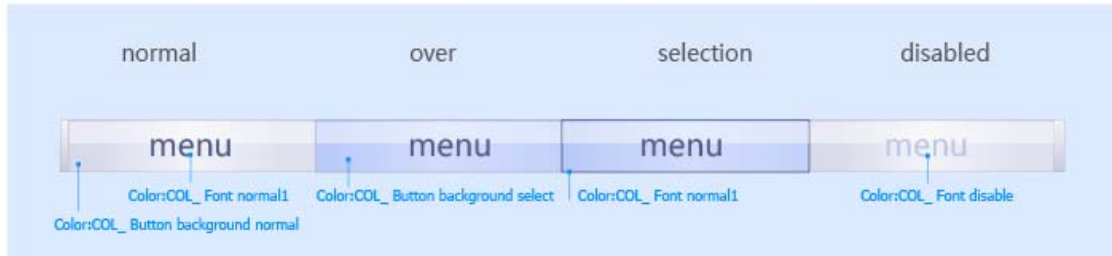


Figure 3.4.12 Menu bar colors

3.4.13 Rich table

Purpose:

Properties: background color, text color, text font, width, height. The default values are shown below

3.4.13-1 Visual design

		1	2	3	4	5	6	
normal								
		54321	00502050	54321	00502050	54321	00502050	54321
		54321	00502050	54321	00502050	54321	00502050	54321
		54321	00502050	54321	00502050	54321	00502050	54321
		54321	00502050	54321	00502050	54321	00502050	54321
normal 1								
	normal 1	001						
	normal 2	002						
	over	003						
		004	00502050	54321	00502050	54321	00502050	54321
	selection	005	00502050	54321	00502050	54321	00502050	54321
		006						
disabled	007	00502050	54321	00502050	54321	00502050	54321	

Figure 3.4.13 Rich table overview

Measurements

	1	2	3	4	5	6
54321	00502050	54321	00502050	54321	00502050	54321
54321	00502050	54321	00502050	54321	00502050	54321
54321	00502050	54321	00502050	54321	00502050	54321
54321	00502050	54321	00502050	54321	00502050	54321

Figure 3.4.13 Rich table measurements

Colors

	1	2	3	4	5	6
001						
002						
003						
004	00502050	54321	00502050	54321	00502050	54321
005	00502050	54321	00502050	54321	00502050	54321
006						
007	00502050	54321	00502050	54321	00502050	54321

Figure 3.4.13 Rich table colors

3.4.14 Spin box

Purpose:

Properties: Spin boxes are text boxes that allow the user to move, or spin, through a fixed set of ascending or descending values such as times or dates. A spin box is a combination of a text box and a special control that incorporates a pair of buttons (also known as an up-down control).

3.4.14-1 Visual design

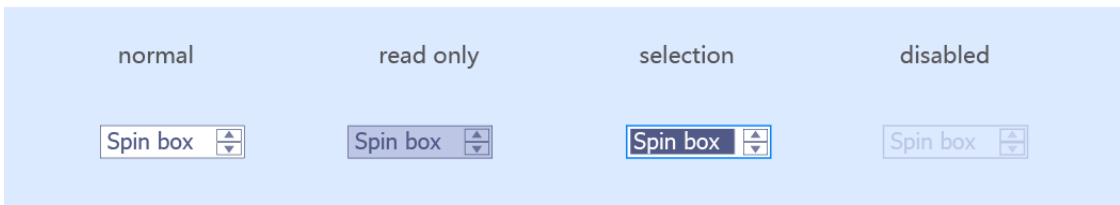


Figure 3.4.14 Spin box overview

Measurements

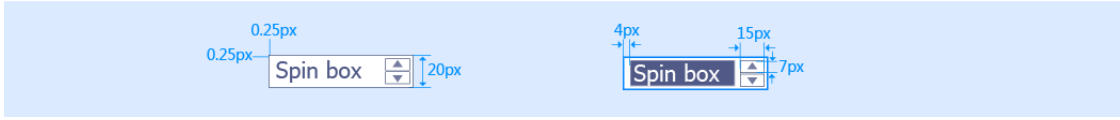


Figure 3.4.14 Spin box measurements

Colors

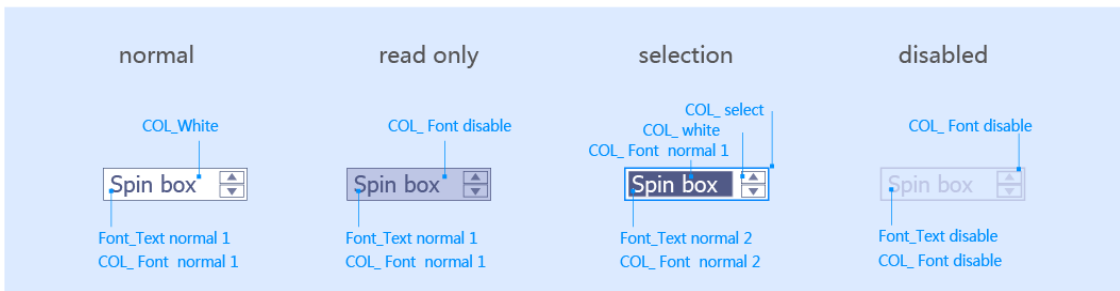


Figure 3.4.14 Spin box color

4 Typical UI scenarios

4.1 Log on

Log on



The screenshot shows the log on interface for GE Healthcare Centricity I3. It features a dark blue background with the GE logo and the text "GE Healthcare Centricity[®] I³" at the top. Below the logo, there are two input fields: "User name:" and "Password:". The "Password:" field includes a small icon of a person with a key, likely representing a password hint or help function. At the bottom of the form, there are three buttons: "Floating license", "Log on", and "Cancel". A copyright notice "Copyright 2005-2007 GE Healthcare Copyright 2005-2007 GE Healthcare" is visible at the very bottom of the screen.

Figure 5.1 Log on

Change password



The screenshot shows a "Change password" dialog box overlaid on the log on screen. The dialog box has a title bar that says "Change password". It contains four input fields: "User name:", "Old password:", "New password:", and "Confirm:". Below these fields are two buttons: "Change password" and "Cancel". At the bottom of the dialog box, there are three buttons: "Floating license", "Log on", and "Cancel". A copyright notice "Copyright 2005-2007 GE Healthcare Copyright 2005-2007 GE Healthcare" is visible at the very bottom of the screen.

Figure 5.1 Change password

4.2 Workstation Navigator

Workstation Navigator



Figure 5.2 workstation Navigator

4.3 QA workstation

QA workstation

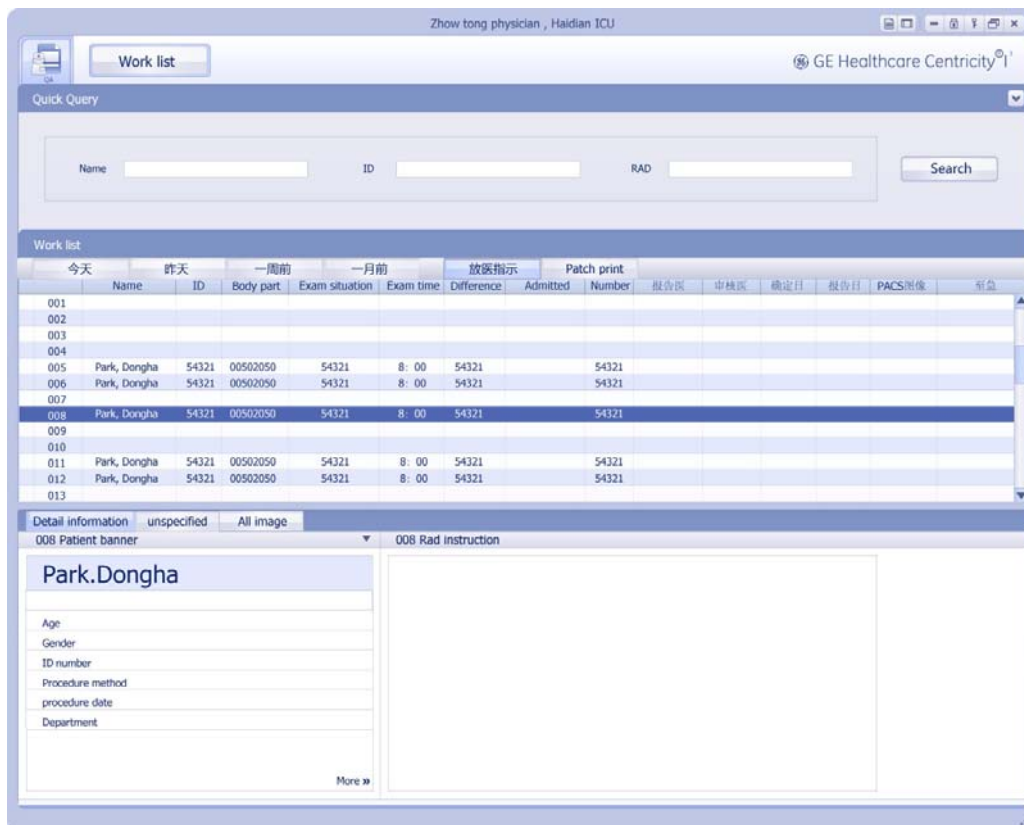


Figure 5.3.1 QA Workstation

Patient merge

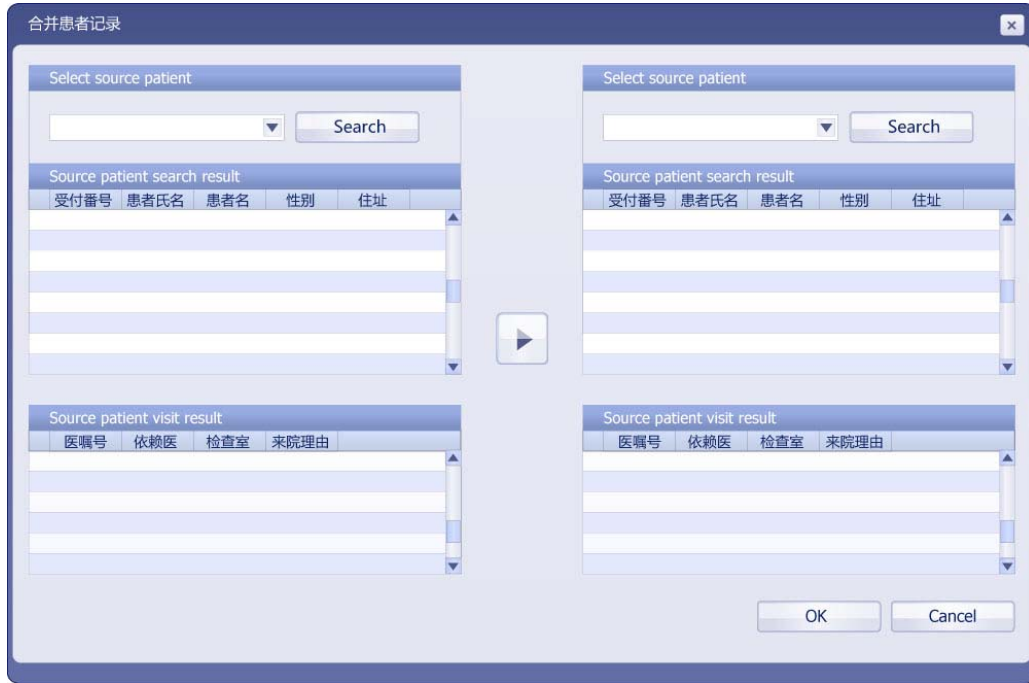


Figure 5.3.2 Patient merge

Post-Registration

补登记

病人基本信息

姓名 英文名 体重 身高

出生日期 年龄 传染病 孕否

性别 电话 用药史 过敏史

地址 体内医疗装置

病人ID号 残疾 禁用药物

信息

放射科号 病房 患者来源 科室

症状特征 申请医师 紧急 其它意见

检查内容 检查目的

预约信息

快速查找 Search

CT室 MR室 X-Ray室

Select Device

- CT1
- CT2
- CT3
- MR1
- MR2
- DR1

Select Body parts

- Head
- Chest
- Abdomen
- Limbs
- Others

Select Exam Situation

- Registered
- Checked
- Reported
- Audited

时间预约

日期

起始时间

终止时间

Add Del Change

已选

颅脑平扫 CT1)
2008 -01 -
01 10:28 10:58

颅脑增强 CT1)
2008 -01 -
01 13:30 -13:50

OK Cancel

Figure 5.3.3 registration

4.4 Report Workstation

Report workstation

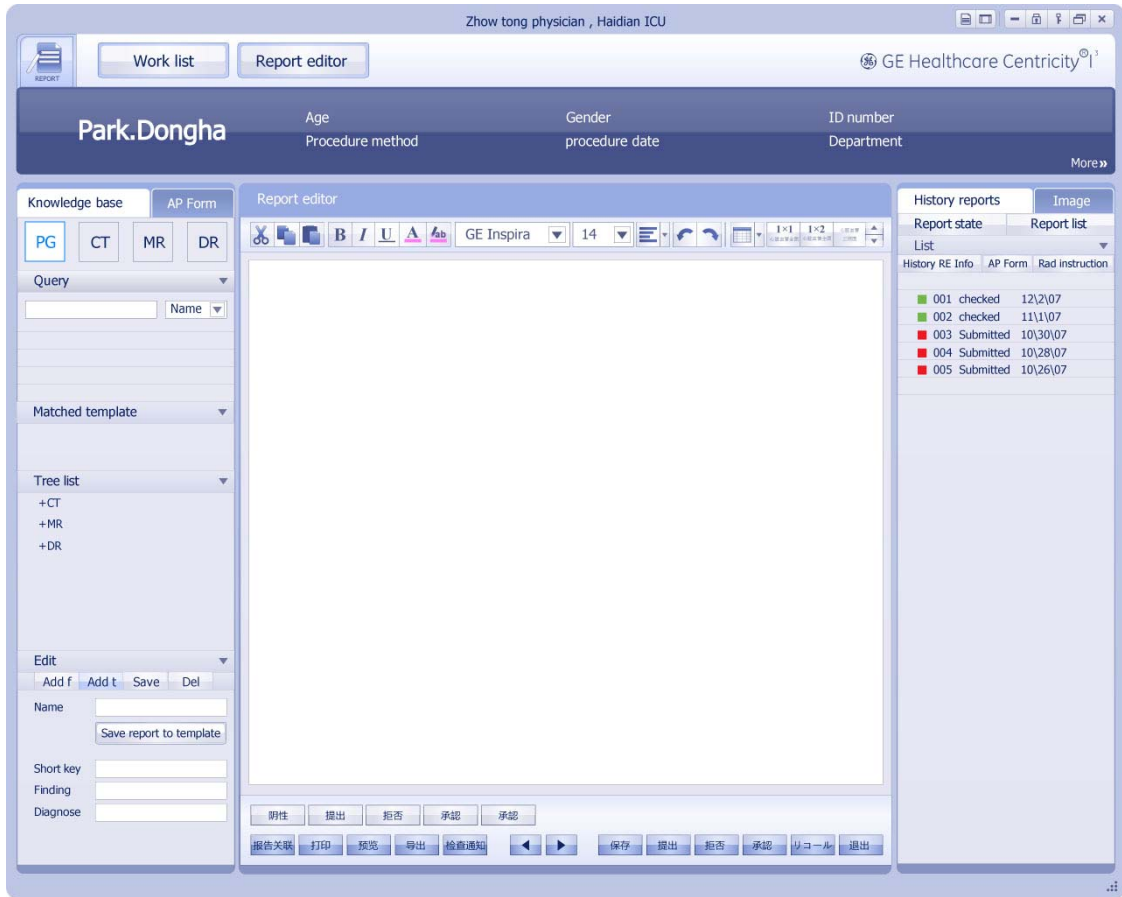


Figure 5.4.1 Report Workstation

Report workstation

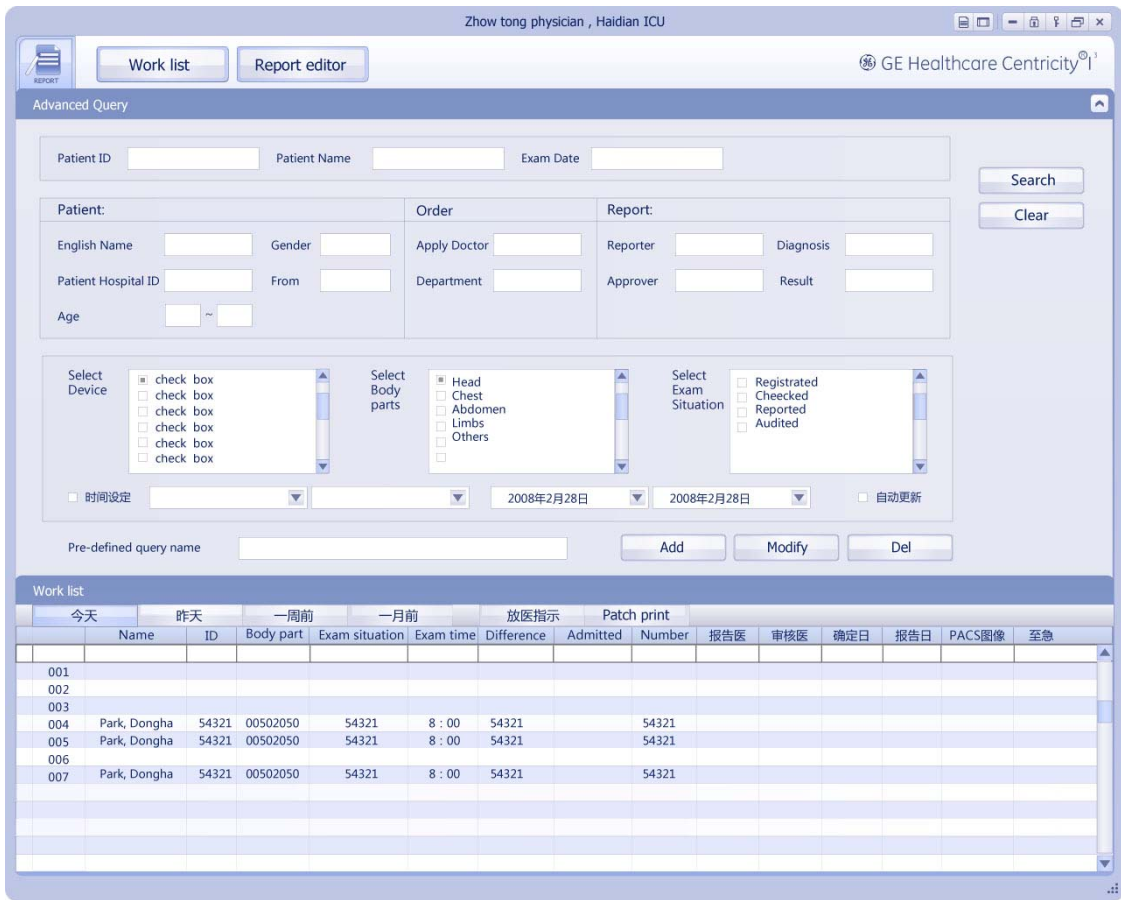


Figure 5.4.2 Report Workstation

4.5 PS workstation

Ps workstation

Work list

	Pre-defined1	Pre-defined2	Pre-defined3	Pre-defined4	Print & Distr	Print film	Set priority		
	Name	Distribution N/A	Print N/A	TEST ID	Order ID	Print time	Print error	Print film	film situation
001									
002									
003									
004									
005									
006									
007	Park, Dongha	54321	00502050	54321	8 : 00	54321	54321		
008	Park, Dongha	54321	00502050	54321	8 : 00	54321	54321		
009									
010	Park, Dongha	54321	00502050	54321	8 : 00	54321	54321		
011									
012									
013									
014									
015									
016									
017									
018									
019									
020									
021									
022									
023									
024									

Description

Figure 4.5 PS Workstation

Ps advanced query

The screenshot shows the 'Advanced Query' window with the following sections:

- 快捷查询条件名称:** A dropdown menu, a checkbox for '失效后移除', and buttons for 'Add', 'Modify', and 'Del'.
- 基本信息设置:** A grid of input fields for:
 - 姓名 (Name), 英文名 (English Name), 性别 (Gender)
 - 年龄 (Age), to (Age range), 科室 (Department)
 - 来源 (Source), 放射科号 (Radio Dept No), 住院号 (Inpatient No)
 - MR号 (MR No), CT号 (CT No), XRay号 (XRay No)
 - 报告医生 (Reporting Doctor), 审核医生 (Reviewing Doctor), 检查号 (Exam No)
 - 影像学表现 (Imaging Manifestation), 影像学结论 (Imaging Conclusion), 需要打印 (Need Print)
 - 当班医生 (On-duty Doctor), 当班技师 (On-duty Technician), 以分发 (Distribution)
 - 检查分组 (Exam Group), 已打印 (Printed), 所有者 (Owner)
- 检查设备设置:**
 - CT室, DSA室, MR室, X-Ray室 (Room selection)
 - CT 1, 全选 (Checkboxes)
- 检查分组设置:**
 - 多部位 CT, 腹部 CT, 脊柱 CT, 盆腔 CT (List of exam groups)
 - Buttons for 'Add' and 'Del'.
- 日期设定:**
 - 检查日期 (Exam Date), 过去一周 (Last week), 从 (From), 到 (To)
 - Example: 从 2008年2月28日 到 2008年2月28日
- 检查状态设置:**
 - 已登记, 已预约, 已到检, 已检查, 已取消
 - 已报告, 已审核, 已拒绝, 已提交专家审核, 全选
- 打印状态:**
 - 已选片, 开始打印, 正在打印, 暂停打印, 打印错误
 - 取消打印, 优先级改变, 其他, 打印完成, 已提交
- 胶片打印机:** A dropdown menu and a '优先级' (Priority) dropdown menu.

Figure 4.5.2 PS Workstation

4.6 Pop up window

Template name edit



Figure 4.6 Pop up window

Create new folder

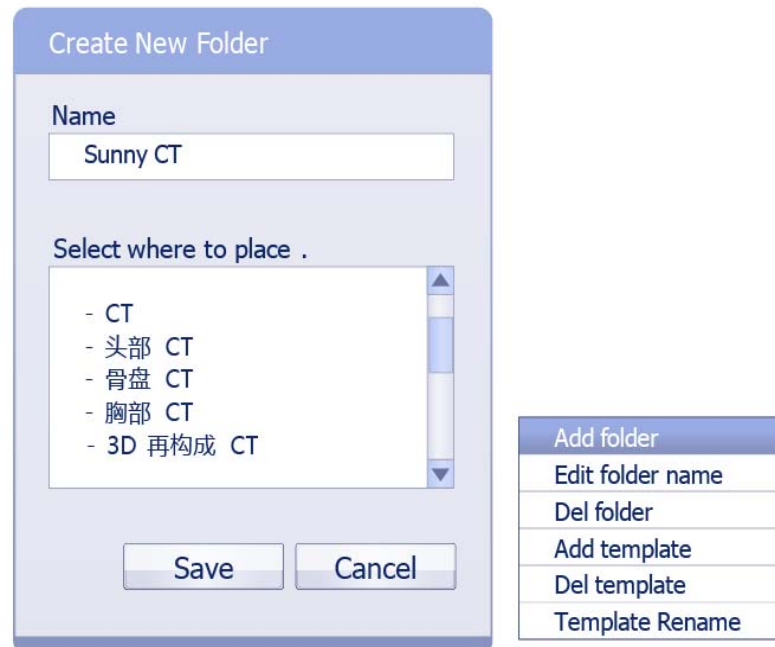


Figure 4.6 Pop up window

4.7 Message box



Figure 4.7 message box _ Information

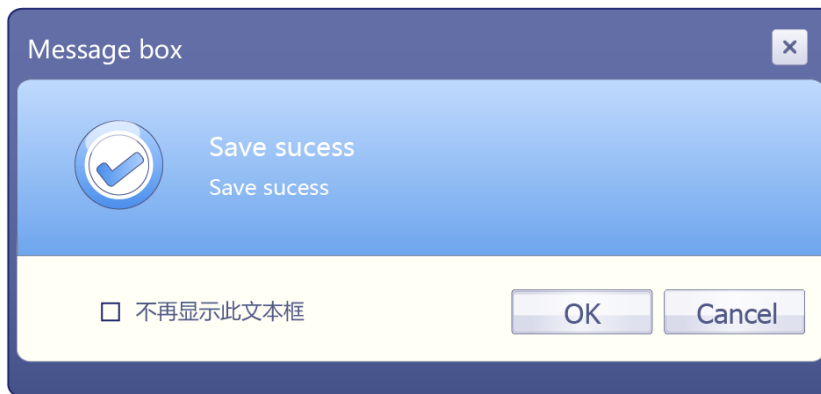


Figure 4.7 message box _ Success



Figure 4.7 message box _ Security Shield Blue



Figure 4.7 message box _ Question



Figure 4.7 message box _ Fail

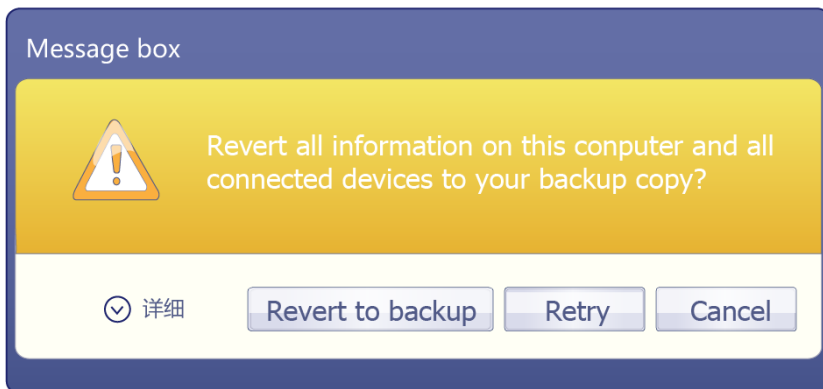


Figure 4.7 message box _ Warning

5 References

5.1 Referenced Documents

The guidelines in this document are further complimented by the following documents:

- Galileo_visualspecs_01

5.2 Glossary

Term/Acronym	Definition
Visual design	Develop and define the general and standard “look and feel” of the product.

GE Project

1.3 Design Research

- Multi-resolution's solution

Multi-resolution's solution

following screen,

1280*1024	Optimize and Verify
1280*800	Optimize and Verify
1280*768	Verify
1680*1050	Verfiy

The three main criteria in optimizing a page layout for a certain screen size are:

- **Initial visibility:** Is all key information visible above the fold so users can see it without scrolling? This is a tradeoff between how many items are shown vs. how much detail is displayed for each item.
- **Readability:** How easy is it to read the text in various columns, given their allocated width?
- **Aesthetics:** How good does your page look when the elements are at the proper size and location for this screen size? Do all the elements line up correctly -- that is, are captions immediately next to the photos, etc.?

1. Report workstation: Resolution change from 1280*1024pt to 1280*800pt

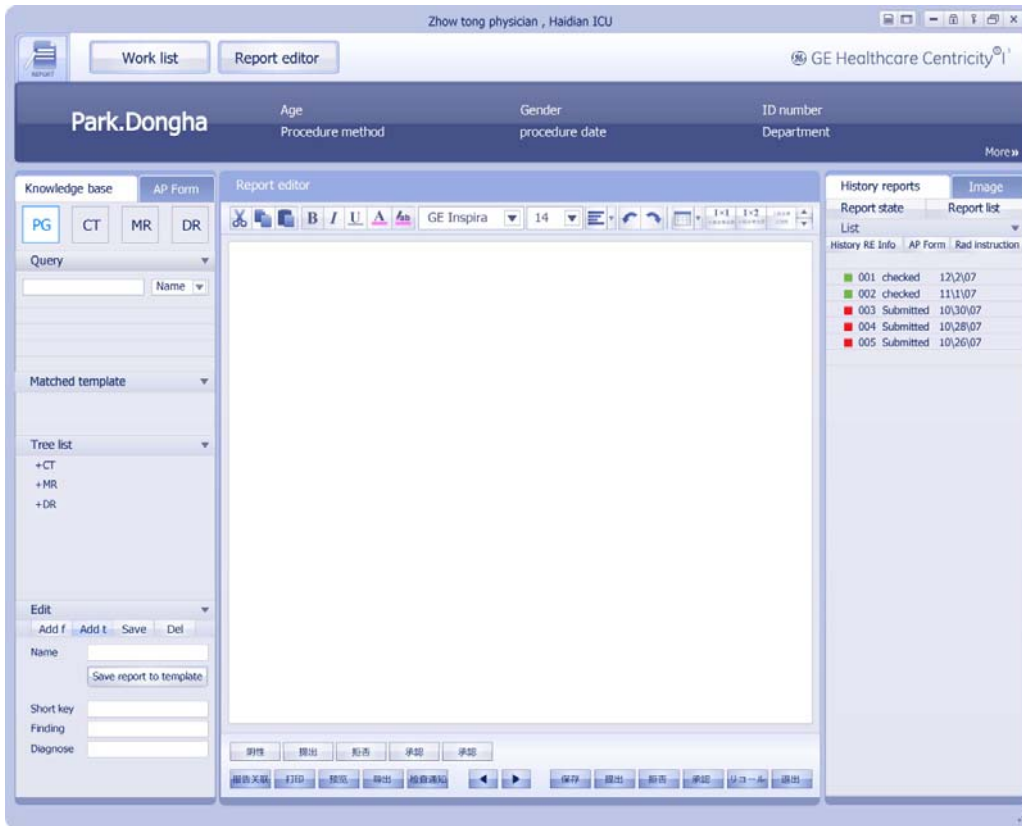


Figure 5.1 Report Workstation 1280*1024pt

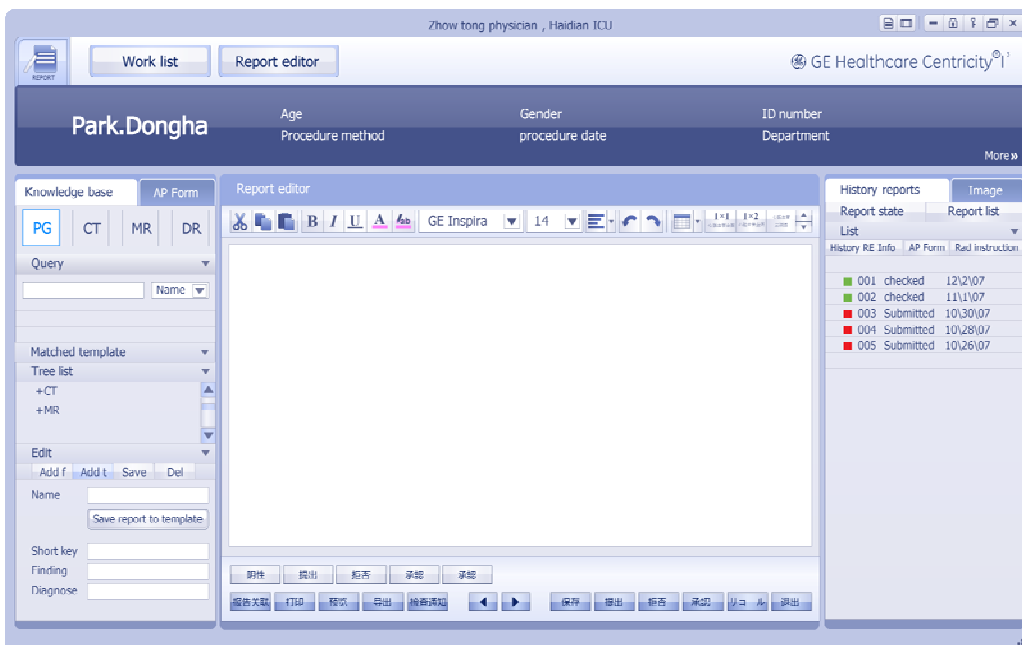


Figure 5.1 Report Workstation 1280*800pt

1.1 Resolution change:

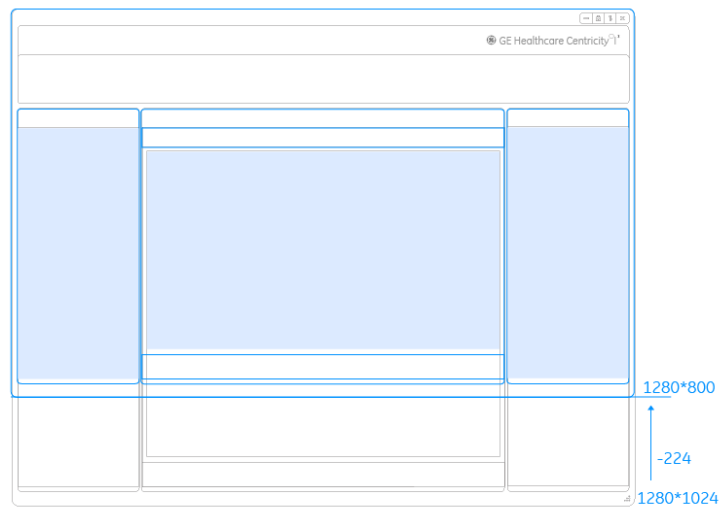


Figure 5.1.1 Resolution change form1280*1024pt to 1280*800pt

Resolution change: 1280*1024~1280*800pt

Width: The width is invariable

Height: The height changes from 1024pt to 800pt (-224pt).

1.2 Resolution change analysis:

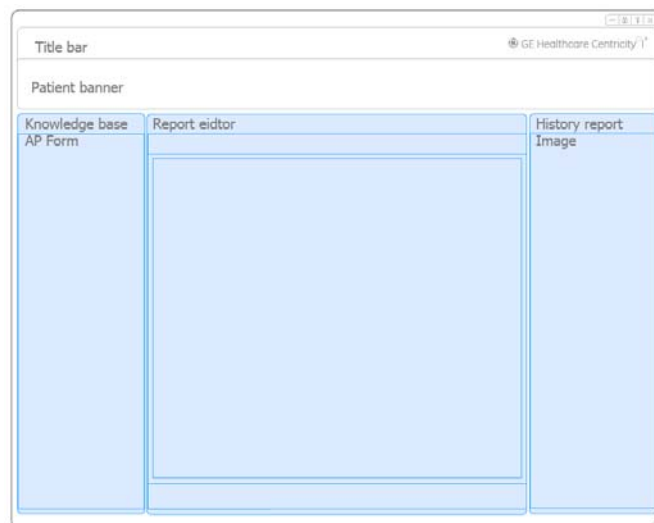


Figure 5.1.2 Resolution change form1280*1024pt to 1280*800pt

1. The height of Patient banner, title bar and menu bar are invariable
2. The height of main functional module area, which include Knowledge base, AP form, Report area, History report and Image, is changed from 1024pt to 800pt (-224pt).

1.3 Resolution change of report editor area

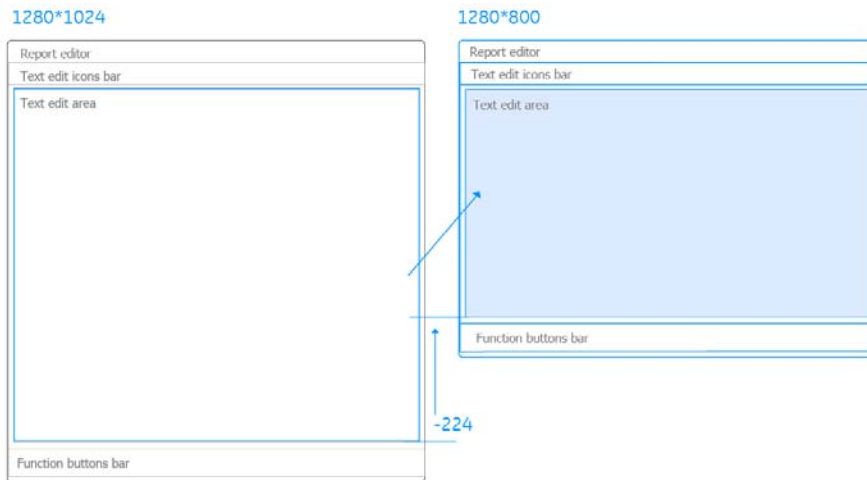


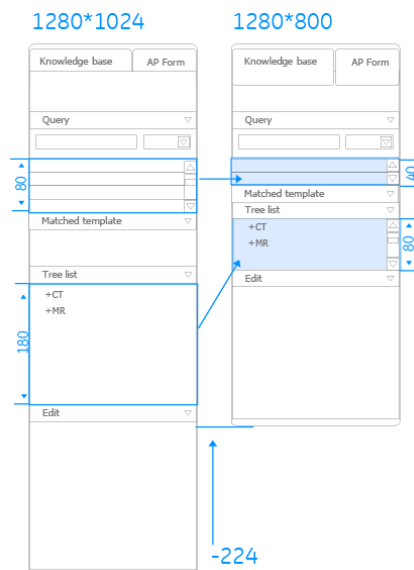
Figure 5.1 Resolution change of report editor form 1280*1024pt to 1280*800pt

Resolution change of report editor area:

The height of text edit area changes from 630pt to 406pt

The height of function buttons bar and the text edit tools bar is invariable

1.4 Resolution change of knowledge base area



Measurement change of Knowledge base form 1280*1024pt to 1280*800pt

Resolution change of Knowledge base area:

The height of tree list structure area changes from 180pt to 80pt

The height of information area changes from 80pt to 40pt

The height of other areas is invariable

2. work list: Resolution change from 1280*1024pt to 1280*800pt

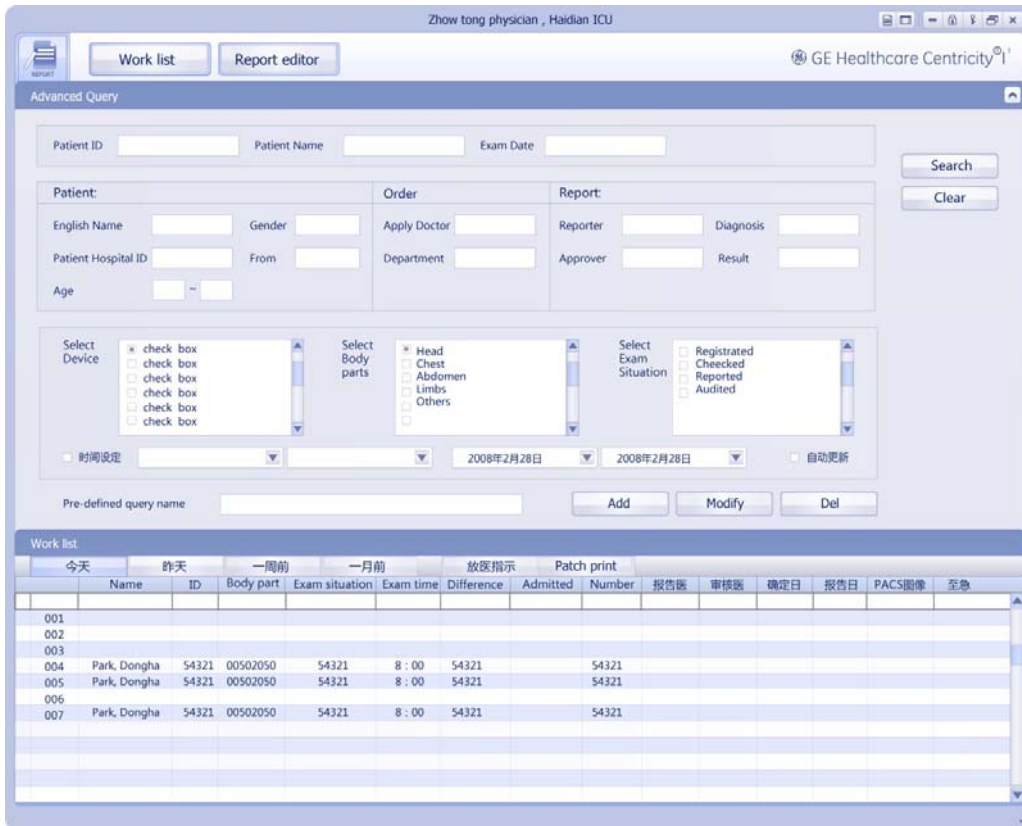


Figure 5.2 Report Workstation 1280*1024pt

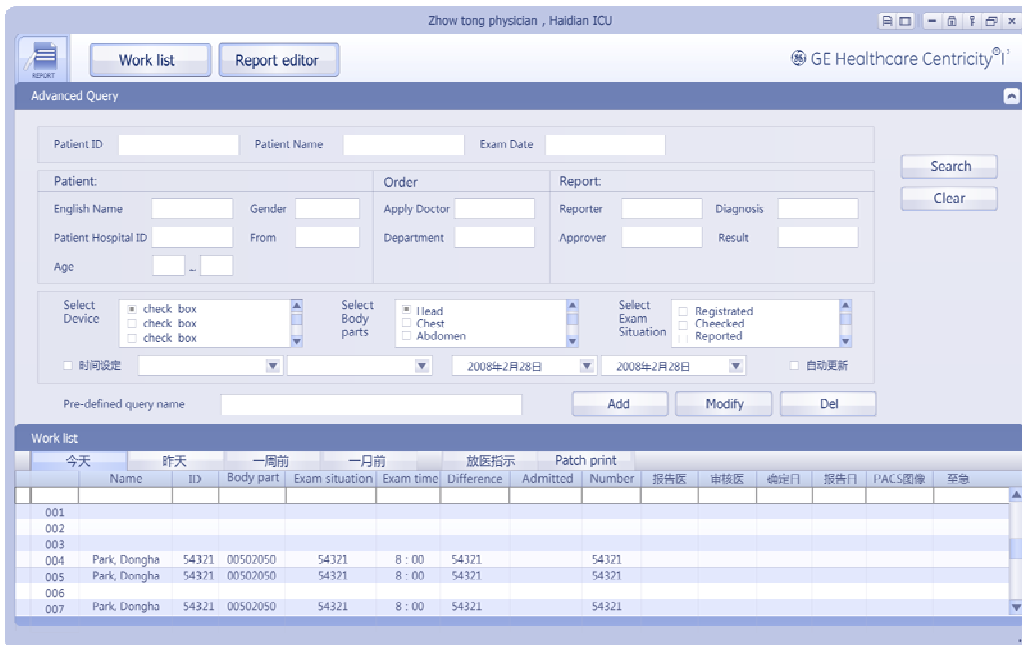


Figure 5.2 Report Workstation 1280*800pt

2.1 Resolution change:

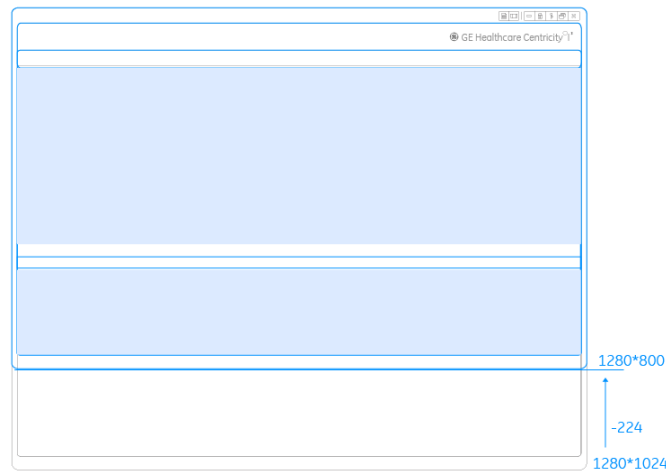


Figure 5.2.1 Resolution changes from 1280*1024pt to 1280*800pt

Resolution change: 1280*1024~1280*800pt

Width: The width is invariable

Height: The height changes from 1024pt to 800pt (-224pt).

2.2 Resolution change of advanced query area and work list area

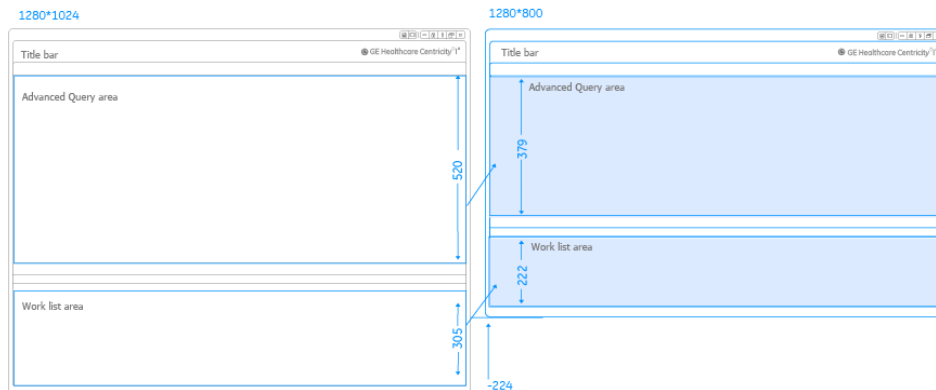


Figure 5.2.3 Height change of advanced query form 1280pt to 800pt

The height proportion between advanced query and work list is 1.7:1, the measurement of two areas reduced according to the proportion.

The height of advanced query changes from 520pt to 379pt

The height of work list changes from 305pt to 222pt

2.4 Resolution change of Advanced query area

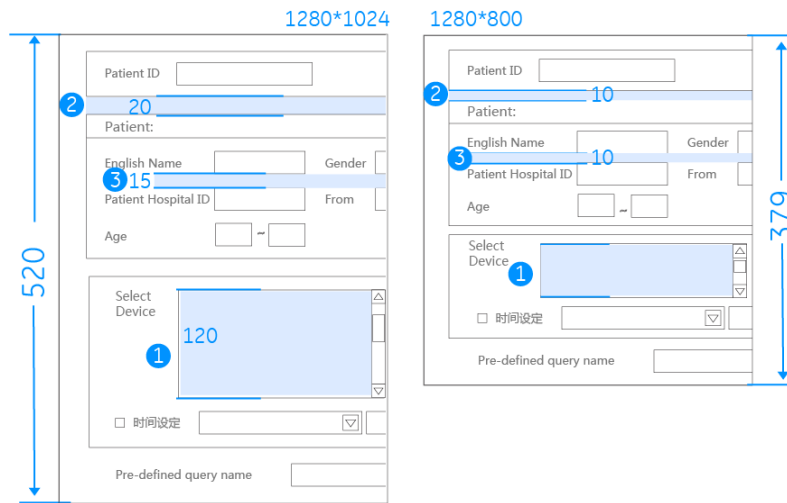


Figure 5.2 .4 Height change of advanced query form 1280pt to 800pt

- The height of checked list box area changes from 120pt to 60pt
- The spacing between query bars change from 20pt to 10pt
- The spacing between input field areas change from 15pt to 10pt

3.Report workstation : Resolution change from1280*1024pt to 1680*1050pt

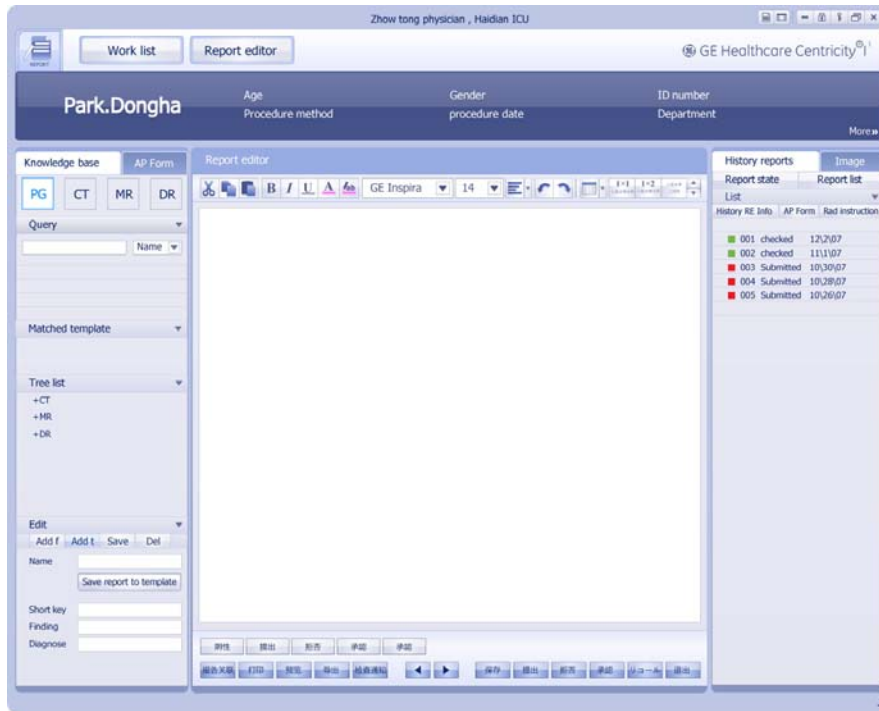


Figure 5.3 Report Workstation 1280*1024pt

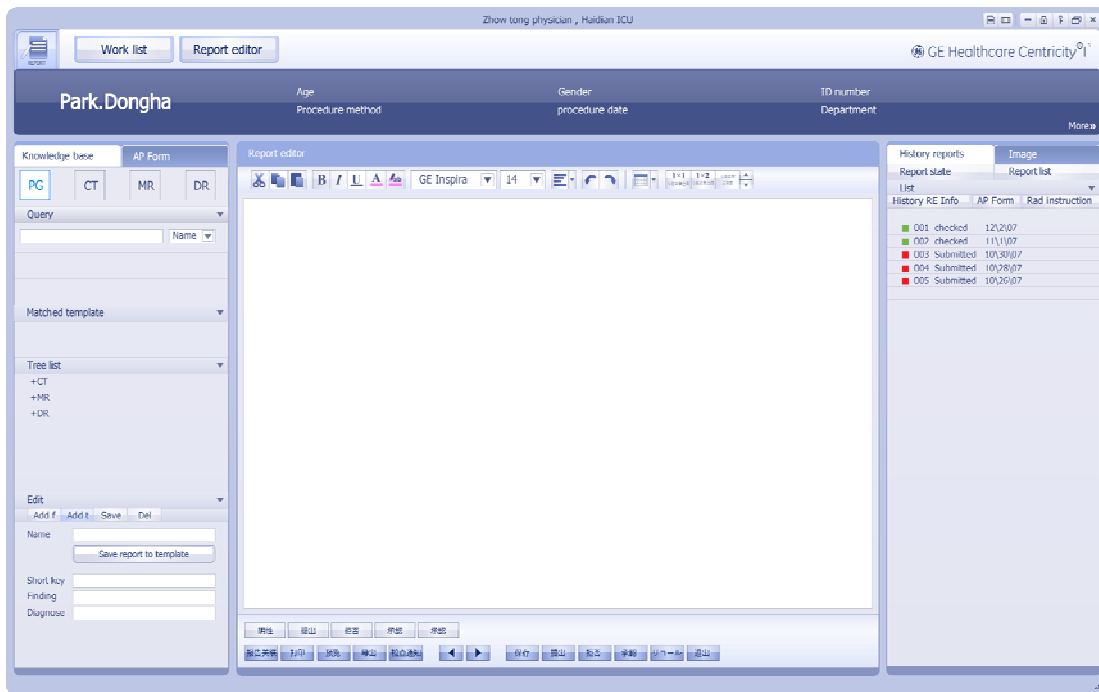


Figure 5.3 Report Workstation 1680*1050pt

3.1 Resolution change:

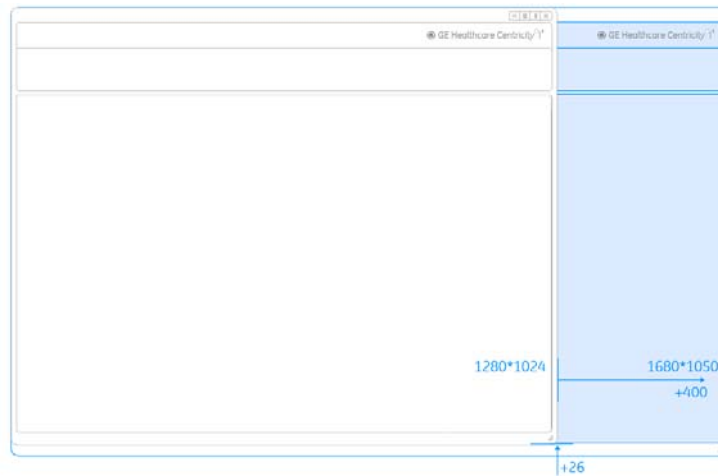


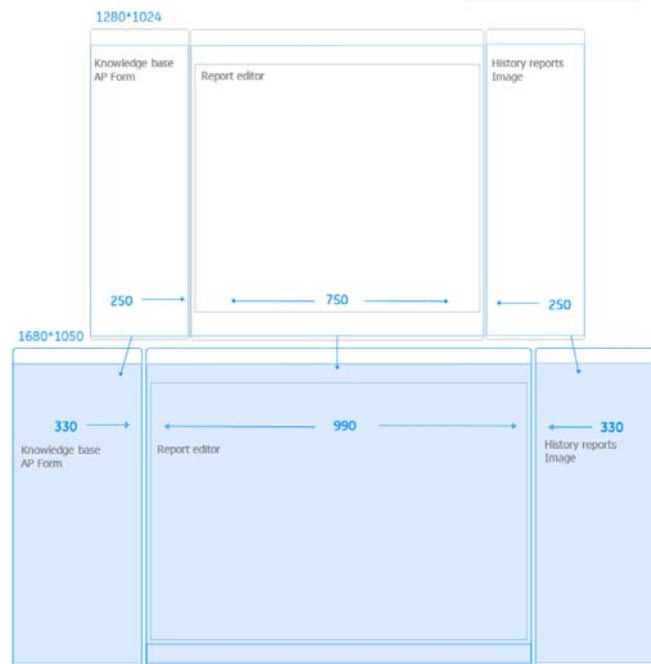
Figure 5.3.1 Measurement changes form 1280*1024pt to 1680*1050pt

Resolution change: 1280*1024~1680*1050pt

Width: The width changes from 1280pt to 1680pt (+400pt).

Height: The height changes from 1024pt to 1050pt (+26pt).

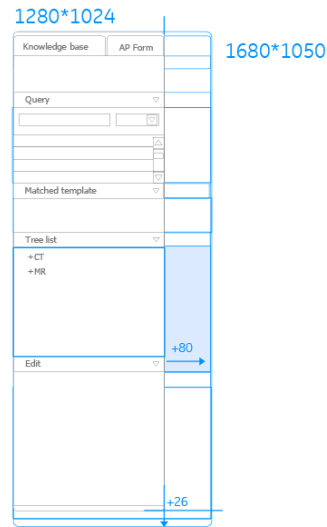
3.3 Resolution change of main function area:



Resolution change of main function area:

The width proportion between three main function module areas is 1:3:1. Three areas measurement increased according to the proportion.

3.4 Resolution change of Knowledge base



5.3.4 Measurement change of Knowledge base form 1280*1024pt to 1680*1050pt

Resolution change of Knowledge base:

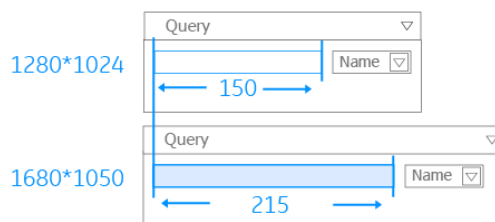
Width: The width changes from 250pt to 330pt (+80pt).

Height: The height changes from 790pt to 816pt (+26pt).



Resolution change of title bar

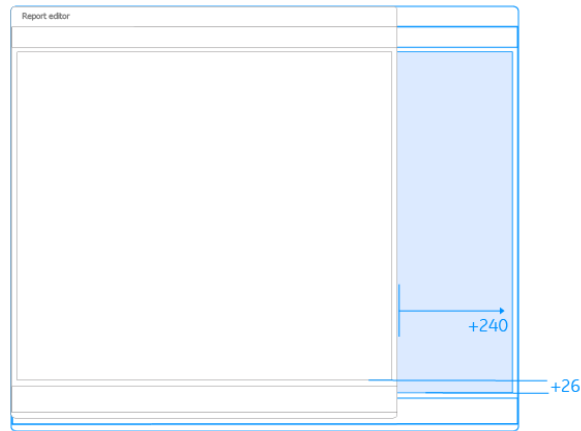
Width: The width of title bar changes from 150pt to 185pt (+35pt).



Resolution change of input field area

Width: The width of input field changes from 150pt to 215pt (+65pt).

3.5 Resolution change of report editor area

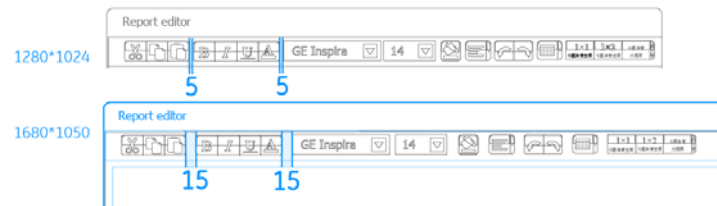


3.5 Measurement change of Report editor form 1280*1024pt to 1680*1050pt

Resolution change of report editor area:

Width: The width changes from 746pt to 980pt (+240pt).

Height: The height changes from 790pt to 816pt (+26pt).



Resolution change between icons

The spacing between icons change from 5pt to 15pt

4. Work list: Resolution change from 1280*1024pt to 1680*1050pt

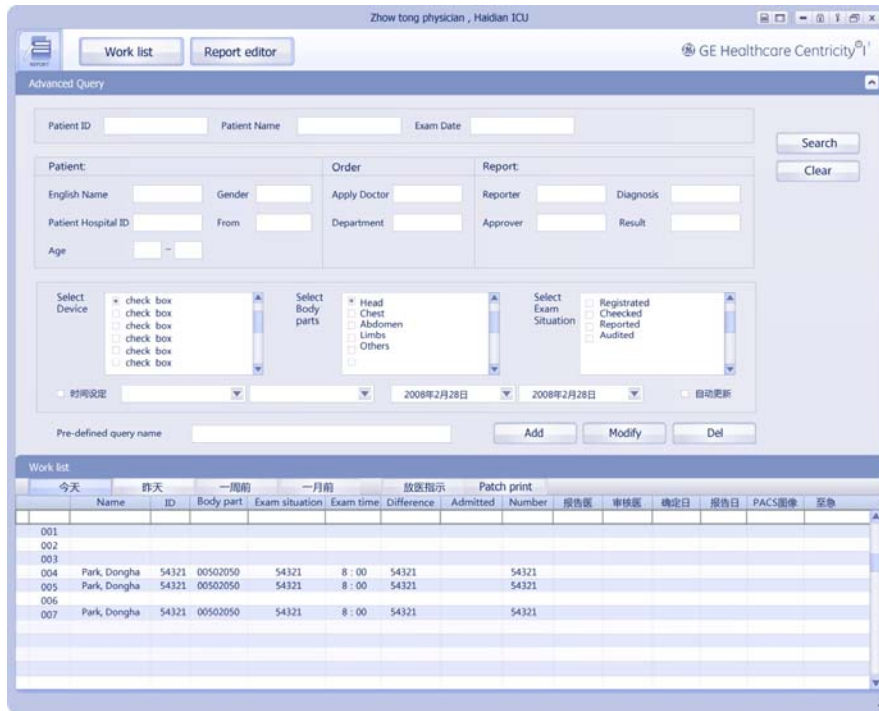


Figure 5.3 Report Workstation 1280*1024pt

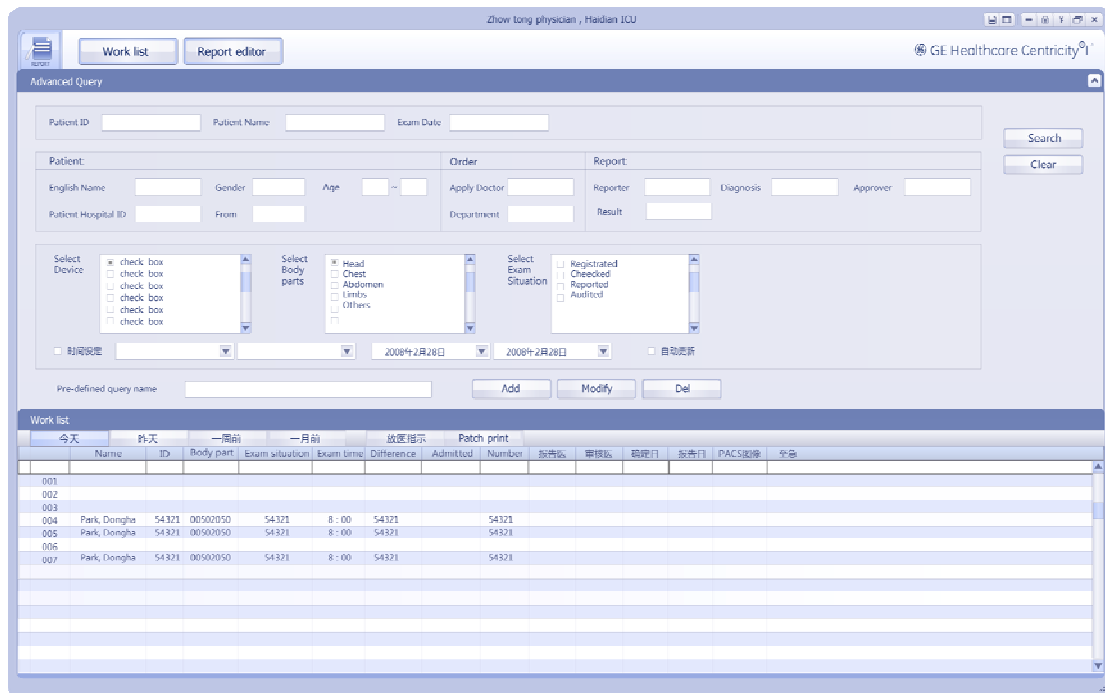
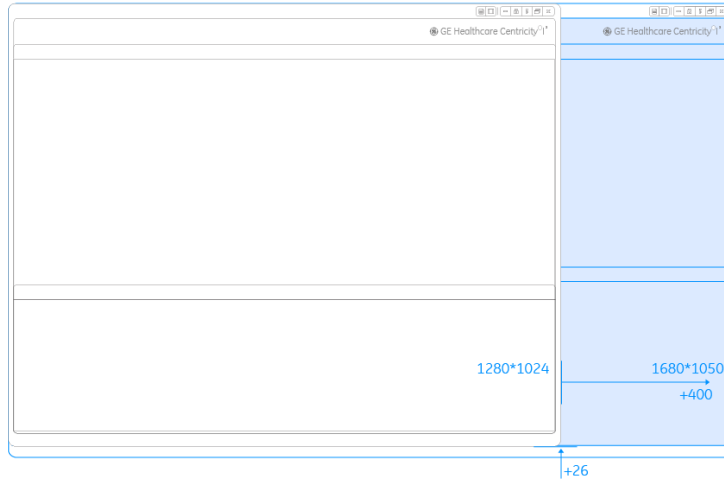


Figure 5.3 Report Workstation 1680*1050pt

4.1 Resolution change:



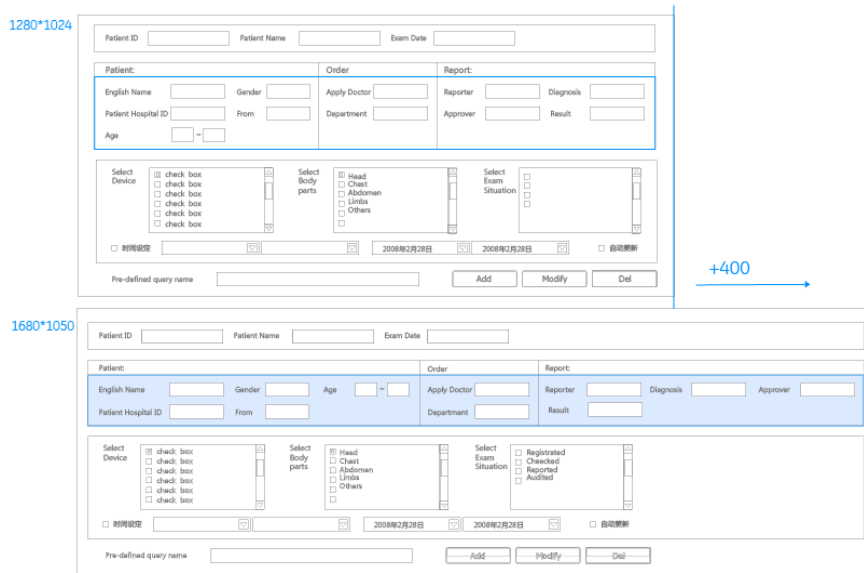
4.1 Measurement change of Report editor form 1280*1024pt to 1680*1050pt

Resolution change: 1280*1024~1680*1050pt

Width: The width changes from 1280pt to 1680pt (+400pt).

Height: The height changes from 1024pt to 1050pt (+26pt).

4.3 Resolution change of advanced query



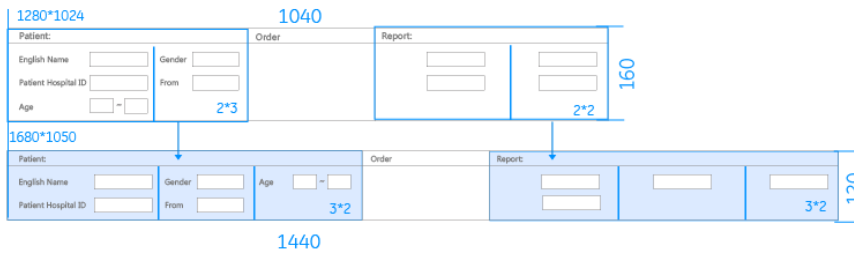


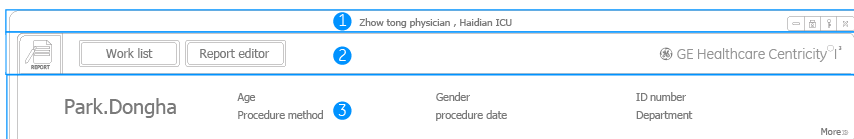
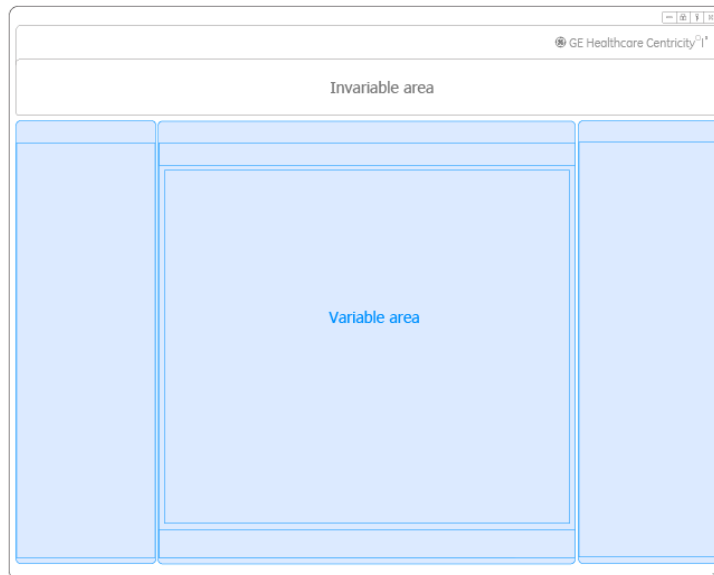
Figure 5.2 .4 Wight change of advanced query form 1280pt to 1680pt

Resolution change of advanced query:

Matching resolution changes by changing the arrangement from 2 lines -3 rows to 3 lines - 2 rows

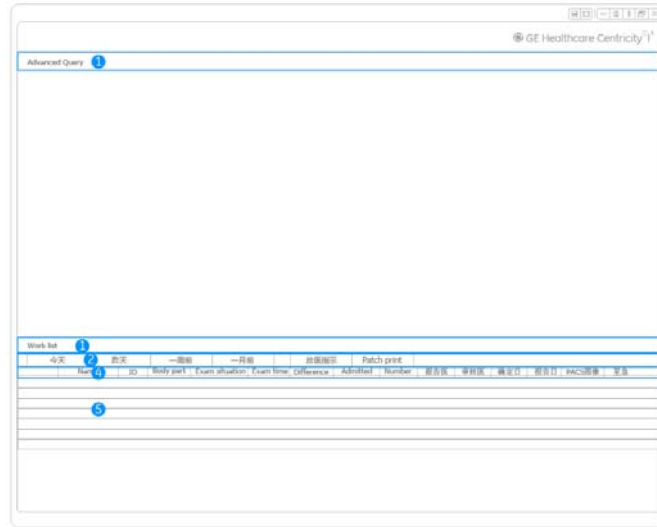
5 Summary :

5.1 Fixed spacing



(1) user information area (2) navigation bar (3) Patient banner area

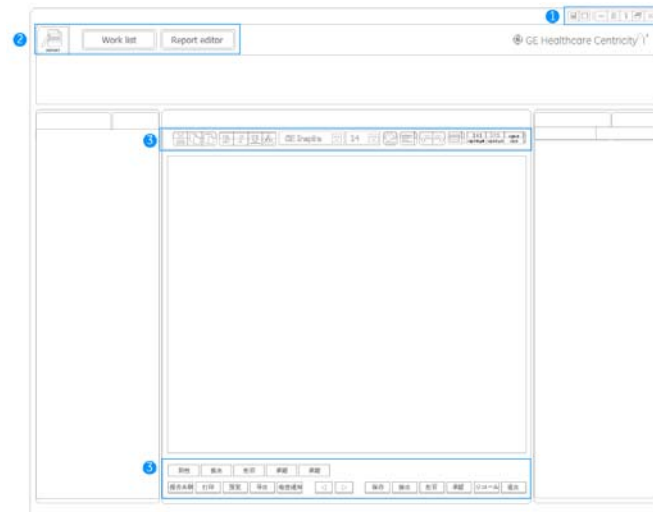
In the resolution change's process, the height of user information area, navigation bar and Patient banner area is invariable



(1) title (2) sub title (3) tool bar (4) column header (5)rich table

In the resolution change's process, the height of title bar, sub title bar, tool bar, column header and rich table is invariable

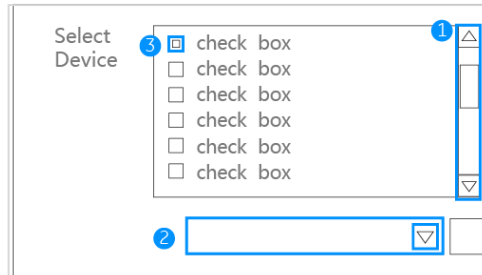
5.2 Fixed Buttons and icons



(1) Window control buttons (2) navigation buttons (3) text edit icons (4) function buttons

In the resolution change's process, the resolution of Window control buttons, navigation buttons, text edit icons and functional buttons is invariable

5.3 Fixed controls



(1) Scrolling bar (2) combo box (3) check box

In the resolution change's process, the weight of Scrolling bar, the height of combo box, and the resolution of check box is invariable

5.4 Fixed fonts

In the resolution change's process, the resolution of font is invariable

6 Prioritizing of resolution change

<p>*** Adjustment freely</p>	text edit area
	work list area
	tree list structure area
	main functional module (according to proportion)
<p>** Adjustment according to main functional module</p>	width of Patient banner / title / menu
	Spacing between icons and information filed
	Arrangement of information field
<p>* Fixed spacing</p>	the height of user information area/navigation bar / Patient banner area
	the height of title bar, sub title bar, tool bar, column header and rich table
	Controls/Buttons/icons
	Font size

GE Project

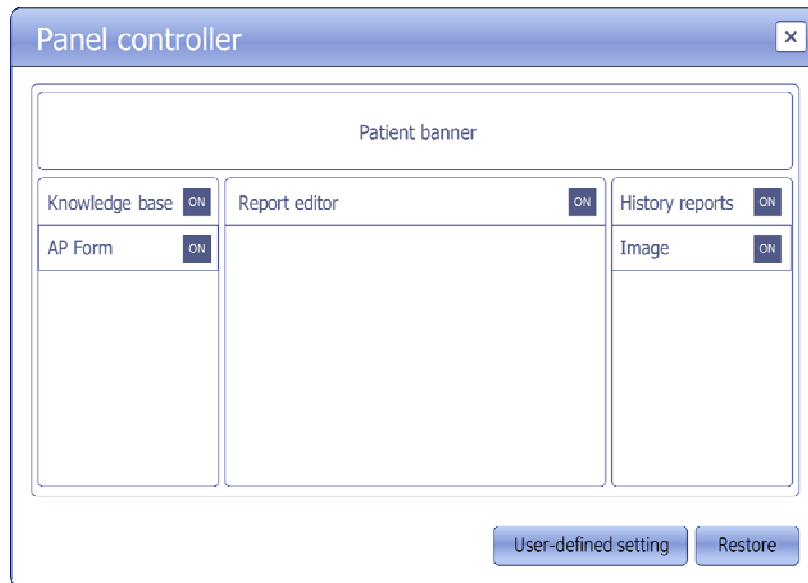
1.3 Design Research

- **UE Patent & Concept Design—Panel Controller**

UI Layout Controller

Concept Design / UE Patent

A flexible and easily used widget managing panel 's layout for RIS CE / I3



IITS/Usability Solution and Developer team, BJ developed a concept design for RIS CE / I3. The widget named "Panel controller", which is a flexible and easily used interactive widget, which control UI layout intuitively and conveniently. In most of current software, the UI layout adjustment has to be finished by complex customization setting, which is hard to use. The idea comes from user feedback firstly, they hope to close or open certain function panel of RIS CE /I3 UI easily and quickly without too much complex operation. So, if user frequently uses the function and they hope to realize simple operation, we need to explore new operation mode to create new user experience and convenient use.

Core function of widget includes:

1. Open and close the function panel of screen through naturally operating the widget;
2. Adjust function panel's position by intuitively operating the widget;
3. Define the new layout as a customized UI setting;
4. Restore changed UI layout to default setting;

My design task flow

1. **Concept design:** requirement / function definition
2. **Prototype design :** information architecture/ UI wireframe / interface appearance
3. **Flash demo design :** user operate task analysis / interactive communication

GE Project

1.4 Usability evaluation and survey

- Usability evaluation for Centricity® RIS CE / I3 at Japan ITEM show
- Usability baseline survey for Centricity® RIS CE 1.1

Usability evaluation for Centricity® RIS CE / I3 at Japan ITEM show



RIS CE / I3 Heuristic Evaluation

IITS/UCD, BJ supports RIS CE/I3 program to develop Heuristic Evaluation for Centricity RISCE new released. From this evaluation, we examine the interface of demo and judge its compliance with recognized usability principles (called heuristics) and produce a list of heuristics that the interface violated along with the relative severity of each.

Based on the evaluation result, we further develop UI and interaction redesign for RISCE. Now the evaluation and redesign work is still going on.

Usability baseline survey for Centricity® RIS CE 1.1



CE 1.1 RIS Usability Survey

IITS/Usability Solution, BJ team is developing a usability survey, which aims to get usability baseline of IITS product. In the first stage, survey for CE1.1 RIS is carried out at Peking University Third Hospital \ Hospital affiliated to Qingdao university and Shang Hai Hua Shan hospital. All together 45 or so customers participate in the survey, and at least 4 different roles including technical \physician \ registrar \ IT administrator attend it.

The questionnaire, as an evaluation method applied in the survey. It's a fast, cost-efficient and standardised assessment and focussed responses regarding a specific dimension of usability issues.

GE Healthcare IITS Invention Disclosure Form

send to riikka.kauramaki@med.ge.com

Docket No.: _____

Mail to: PATENT OPERATION, W-710

Date Received: _____

- Use as many pages in this word document as necessary.
- You may attach additional materials to support this disclosure, for example, Tech Notes and Drawings. Such submitted materials must be referenced in this disclosure form. Each page of these materials must be dated, signed and witnessed in the same manner as this invention disclosure.


Patentability Guidelines

This section provides a brief overview on the criteria used to determine if an idea is patentable and should be patented by GE. In general, the invention should satisfy the criteria below in order to be patentable. Since creation of intellectual property is of value to GE, if the extent to which the invention satisfies the criteria is uncertain, please submit the disclosure and let the PEB evaluate it in more detail.

- Utility
 - To be patentable, an invention must be useful, that is, it must accomplish at least one of its intended purposes.
- Novelty
 - The claimed invention cannot have been publicly known or used by others in this country, or patented or described in a printed publication anywhere in the world **prior to the date of invention by applicant.**
 - The claimed invention cannot have been patented or described in a printed publication anywhere in the world, or been in public use or on sale in this country, **more than one year prior to the date of the application for patent in the U.S.**
- Ingenuity
 - Would the subject matter of the invention, as a whole, have been obvious at the time the invention was made to a person having ordinary skill in the art ?
- Business Value

Inventions are also evaluated based upon their value to the business. The following criteria related to business value are considered:

 - **Detectability** – How easily can the invention be detected? The more easily detected an invention is, the lower the cost to enforce it.
 - **Inevitability** – How easy is it for a competitor to design around? Inventions that are easily designed around are of less value to the business.
- **Competitive Advantage** – Does the invention provide GE as a whole or more specifically IIS with a competitive advantage?

INVENTORS	<i>(Print or Type Name Below)</i>	<i>(Full Signature Below)</i>	Date
Zhao weixuan			2008-10-09

INVENTORS ORGANIZATIONS: (e.g., Imaging Solutions, Enterprise Solutions, Practice Solutions, Business Solutions, or Central Engineering). (Selection is based upon the organization of the majority of inventors. If there is a tie, the organization of the lead inventor for the disclosure should be used). **Check only 1**

- 31IS - Imaging Solutions
- 31ES - Enterprise Solutions
- 31PS - Practice Solutions
- 31BS - Business Solutions
- 31CE - Central Engineering

RESPONSIBLE BUSINESS: (e.g., Imaging Solutions, Enterprise Solutions, Practice Solutions, Business Solutions). **Check only 1.**

- 31IS - Imaging Solutions
- 31ES - Enterprise Solutions
- 31PS - Practice Solutions
- 31BS - Business Solutions

INVENTION TITLE: Provide a unique, descriptive title. If you write this disclosure in a language other than English, please provide a title in English as well. Si vous rédigez en français, merci de proposer un titre en anglais et un titre en français.

Panel Controller


PROBLEM/BACKGROUND: Describe the problem that is solved by the invention. Assume that the reader has a basic knowledge of your diagnostic imaging modality and related technologies.

The purpose of this invention is to design a new widget for Centricity RIS CE which is easy and efficient for users to regulate panels' layout in real interface.

Centricity® RIS CE is designed as the information system for the radiology department in modern hospital. Based on the practical environment for Centricity RIS CE software, the commission work is very complex, with various tasks to be completed in different modules during diverse workflow and scenarios. However, one single frame for panel layout can't satisfy our diverse users with the consideration of different operation and using habits. A new function is highly desirable to regulate and layout different kinds of panels in current interface to meet our user requirements.

So we design a new widget called "panel controller", which supports regulating panels' layout, displaying customized function panels with the most important information based on different requirement for different operation process.

Panel controller is a flexible and easily used interactive widget, which controls UI layout intuitively. In most of current software, the UI layout adjustment has to be finished by customization setting, which is hard to use for end users. The idea comes from user feedback, and they hope to close or open certain function panel in screen easily and quickly without too much complex operation. Since it's popular that users adjust the panel position\ close and they hope to realize simple operation. We need to explore new operation mode to create new user experience and convenient use.

INVENTORS <i>(Print or Type Name Below)</i>	<i>(Full Signature Below)</i>	Date
Zhao Weixuan		2008-10-09

INVENTION DESCRIPTION: Describe how the invention works and how it solves the problem posed above. If possible, include an example of how the invention works in practice.

Based on the thinking of user-centered design, an innovative solution with below features and main functions is provided

1. Open and close the function panel of screen through naturally operating the widget

Every function panel has two statuses: ON and OFF, which means the panel has been displayed or disappeared. This function allows users to open or close desired or undesired function panel in the real interface timely.

2. Adjust function panel’s position by intuitive operation

Every function panel can be adjusted into the ideal position considering different operation task scenarios. Users can adjust function panel timely and categorize panels freely. This function is aiming to create more feasible layout frame in order to meet different users’ needs and using habits

3. Define the new layout as a customized UI setting

Saving any regulated function panel layout as the default layout, this function make users save their preferred panel layout as default setting without fussy and repeated setting process.

4. Restore changed UI layout to default setting

Restore the current function panel layout setting to the initial setting both in the panel controller and the real interface timely.

DRAWING: Make as accurate a sketch or computer generated figure of your invention as you can and embed it into or attach it to this form. It need not be a drawing to scale, but should be complete enough to show what you have in mind. If you already have suitable photographs, sketches, software flowcharts or finished drawings, they may be used.

• **UI wireframe of Panel Controller**

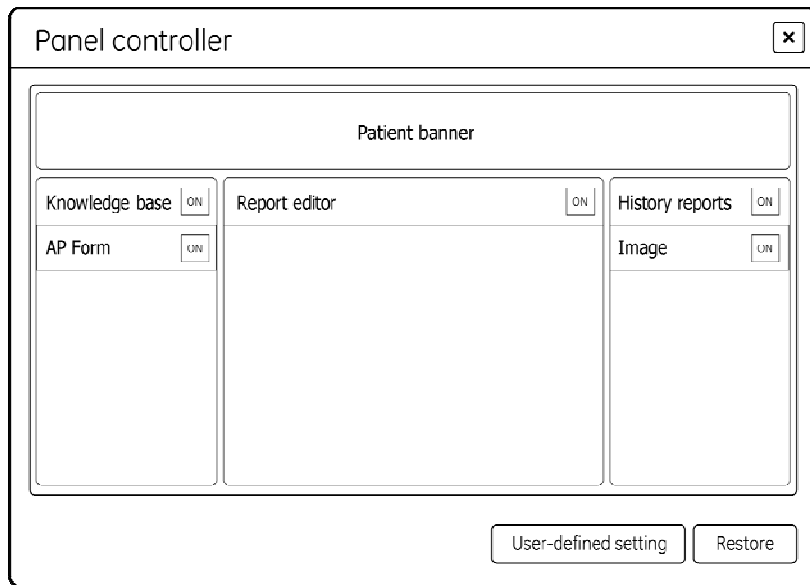


Fig.1. UI wireframe of panel controller

INVENTORS <i>(Print or Type Name Below)</i>	<i>(Full Signature Below)</i>	Date
Zhao Weixuan		2008-10-09

• UI layout and components function of panel controller

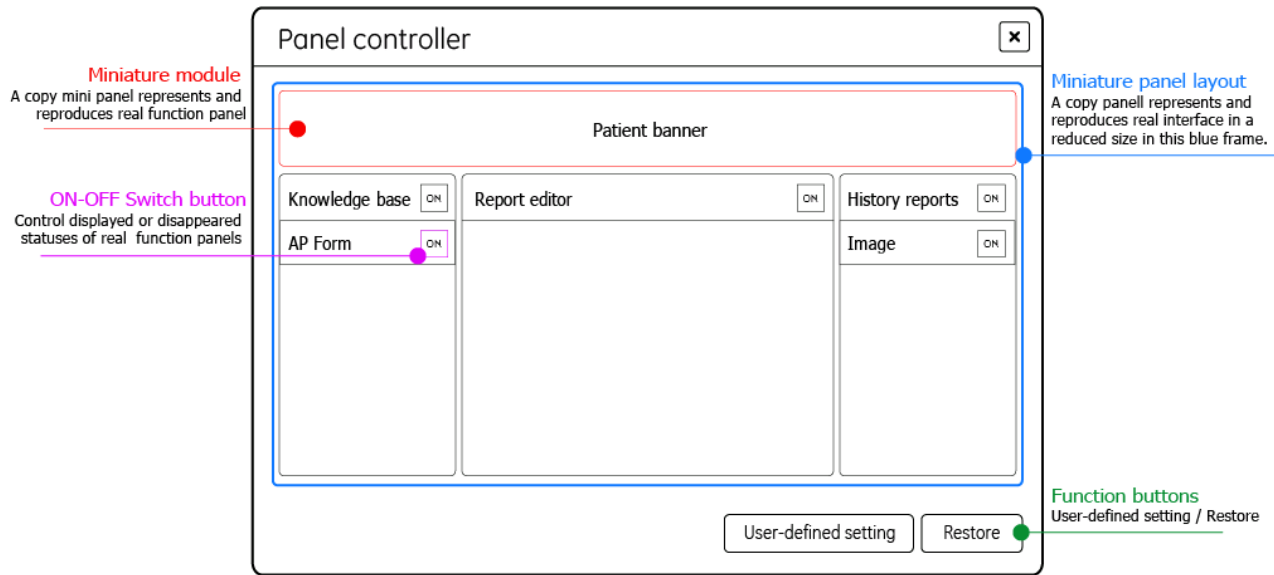


Fig.2. UI layout and components function of panel controller

UI Components	Function definition	Interactive communication
Miniature panel layout	A mininature copy model repersents and reproduces real interface in a reduced size,which shows current panels and layout.	<ul style="list-style-type: none"> • System shows current layout for users and changes the function panel layout based on different UI layout scenarios.
Miniature function panel	Every miniature panel repersents and relates a real fuction panel,	<ul style="list-style-type: none"> • Users can switch fuction panel statuses between displayed and disappeared as well as move miniature panel's position. • When users operate the panel controller, system will respond the operation process and result in the panel controller as well as the real interface timely.
ON-OFF switch button	Every panel has two statures including ON and OFF, which means the fuction panel has been displayed or disappeared.	<ul style="list-style-type: none"> • Users can switch <u>ON-OFF</u> button to control the status of the panel between displayed and disappeared, • The button can be responded by four status containing normal, hover, select and disabled.
<u>User-defined setting</u> button	Define the new layout as a customized UI setting	<ul style="list-style-type: none"> • Users redesign the fuction panel layout and click the <u>user-defined setting</u> button, system will save the layout setting as the defualt setting.

INVENTORS	(Print or Type Name Below)	(Full Signature Below)	Date
	Zhao Weixuan		2008-10-09

<u>Restore</u> button	Restore changed UI layout to default setting	<ul style="list-style-type: none"> Users redesign the function panel layout and click the <u>Restore</u> button, system will restore layout as the initial setting both in panel controller and real interface timely
<u>Close</u> button	The <u>Close</u> button in right top of the panel can hide the whole panel controller when user don not need it.	<ul style="list-style-type: none"> When user click the <u>Close</u> button, the panel controller will be dismissed.
<u>Panel controller</u> button	The <u>Panel controller</u> button in right top of the real interface can pops up panel controller.	<ul style="list-style-type: none"> When users click the <u>Panel controller</u> button, system will pop up the window.

• Appearance of Panel Controller

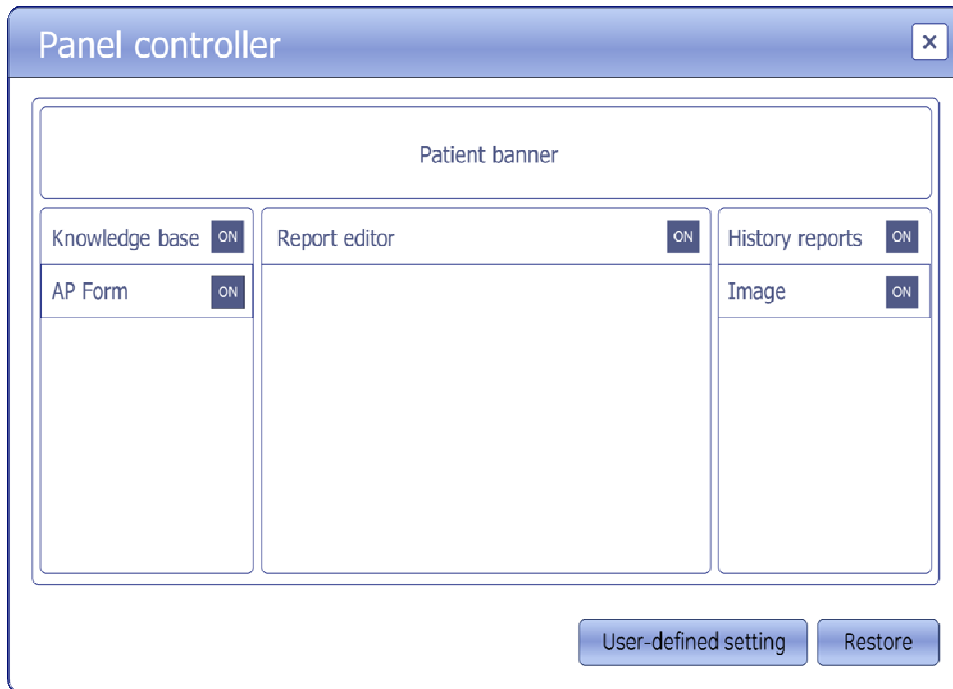


Fig.3. Appearance of panel controller

INVENTORS	(Print or Type Name Below)	(Full Signature Below)	Date
	Zhao Weixuan		2008-10-09

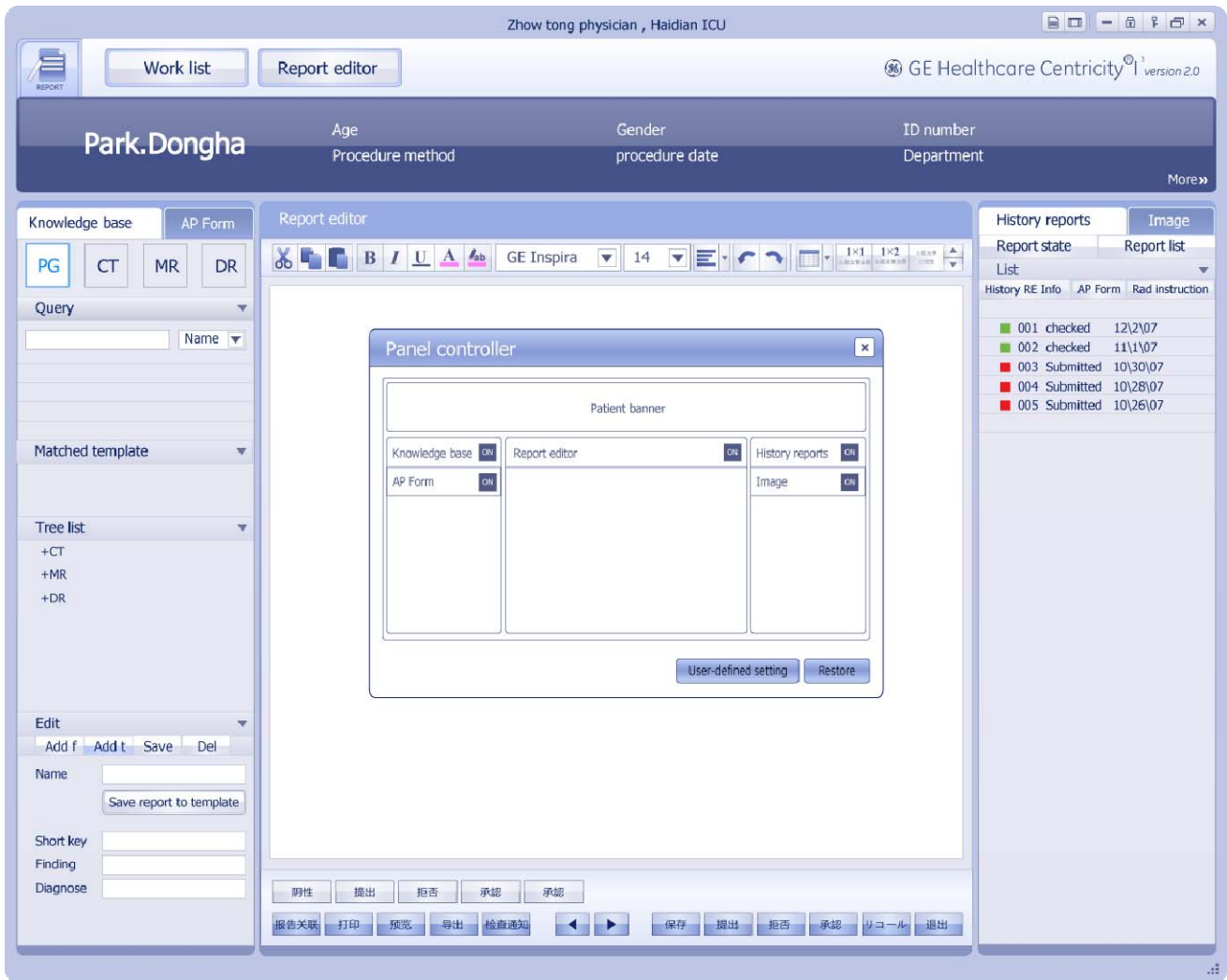


Fig.4. Appearance of panel controller

1. Task flow:

The chart shows the general operation flow using panel control

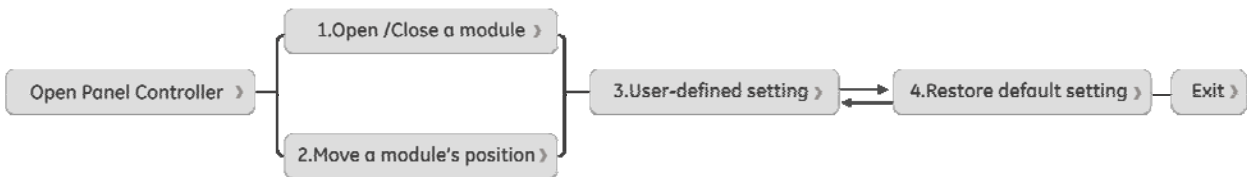


Fig.5. General Operation flow of panel controller

INVENTORS	(Print or Type Name Below)	(Full Signature Below)	Date
	Zhao Weixuan		2008-10-09

2. Main function introduction and operate flow:

2.1 Open and close the function panel of screen through naturally operating the widget

Every function panel has two statuses including ON and OFF, which means the panel has been displayed or disappeared.

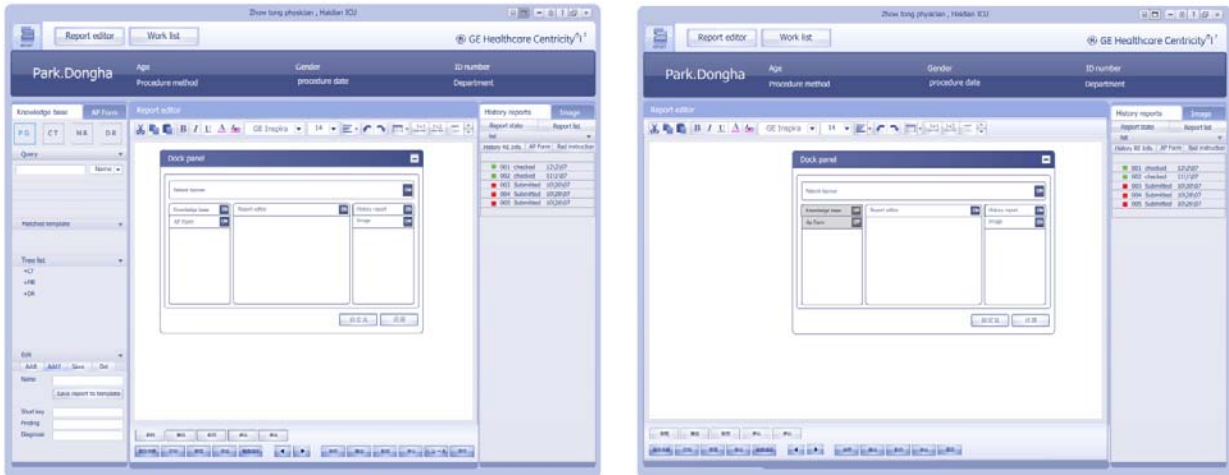
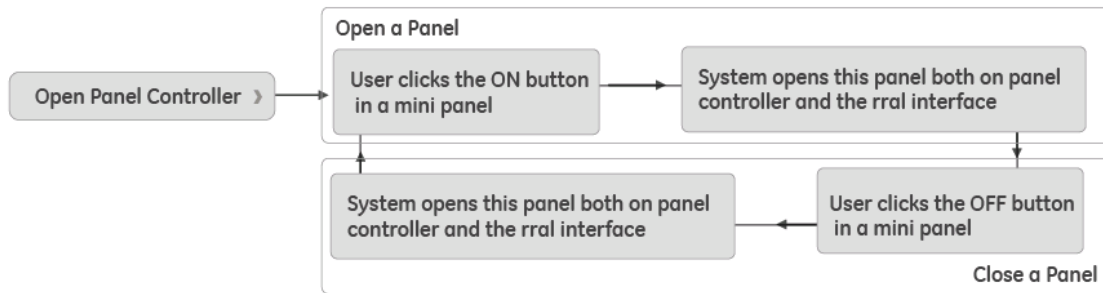


Fig.6. Close AP Form and Knowledge Base panel

Task 2.1: Close AP Form and Knowledge Base panel

Operation flow:



INVENTORS	(Print or Type Name Below)	(Full Signature Below)	Date
Zhao Weixuan			2008-10-09

2.2 Adjust function panel’s position by intuitive operation

Every function panel can be moved into the ideal position considering different operation task scenarios. Users can move panel timely and group panels freely. This function is aiming to create more feasible layout frame in order to meet different users’ needs and using habits

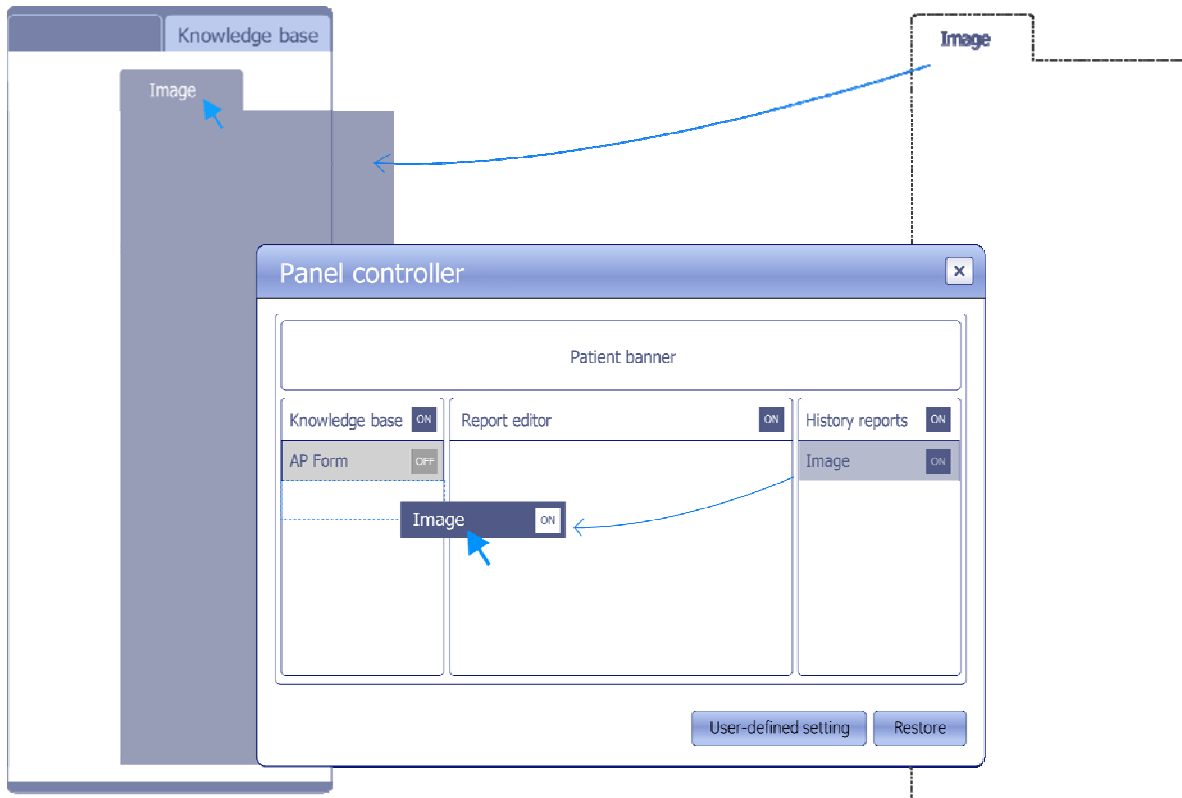


Fig.8. Move the position of panels

Task 2.2: move Image function panel from right side to left side

Operation flow:

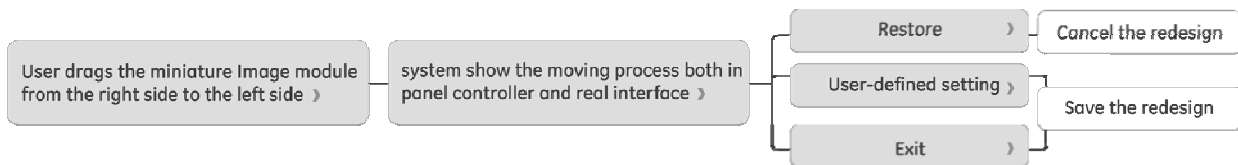


Fig.9. Operation flow of Move panels’ position

2.3 Define the new layout as a customized UI setting

INVENTORS	(Print or Type Name Below)	(Full Signature Below)	Date
	Zhao Weixuan		2008-10-09

Saving any regulated function panel layout as the default layout, this function make users save their preferred panel layout as the default setting without fussy and repeated settings.

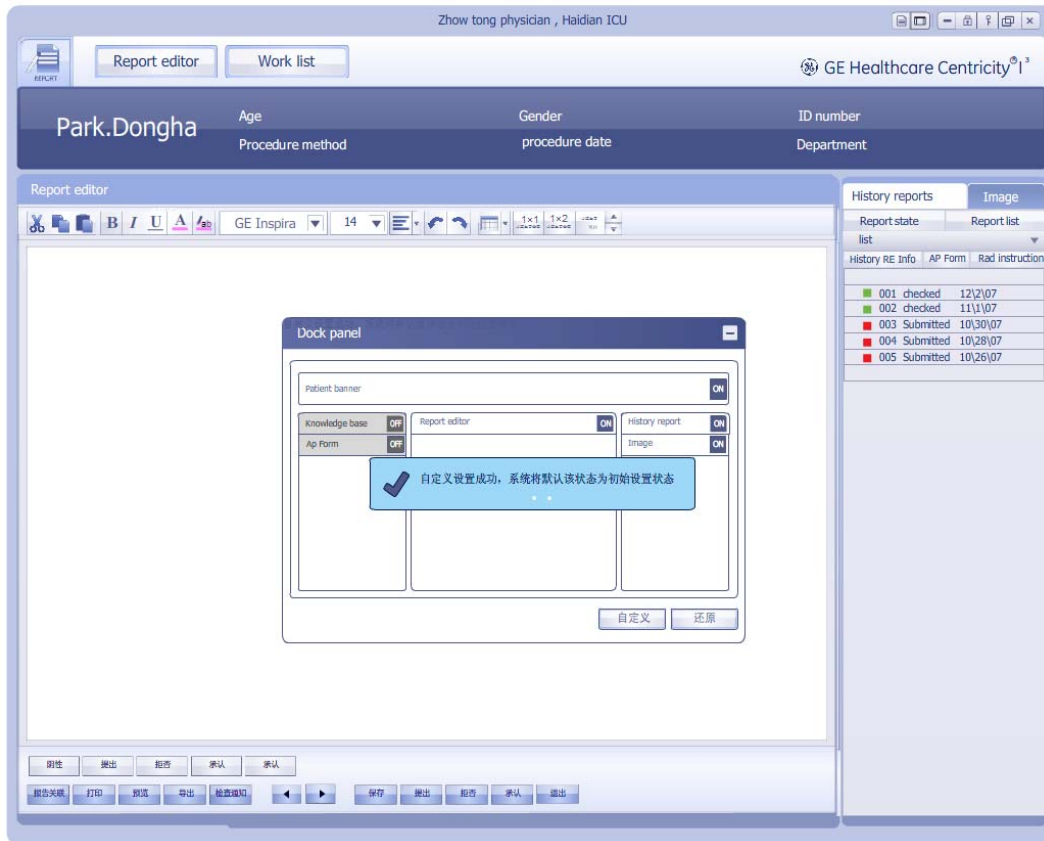


Fig.9. User-defined setting

Task 2.3: Save the closing moving function panels as the default setting

Operation flow:

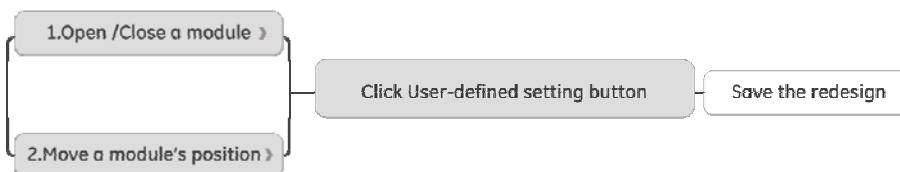


Fig.10. Operation flow of User-defined setting

2.4 Restore changed UI layout to default setting

INVENTORS	(Print or Type Name Below)	(Full Signature Below)	Date
	Zhao Weixuan		2008-10-09

Restore the current function panel layout setting to the initial setting both in the panel controller and the real interface timely.

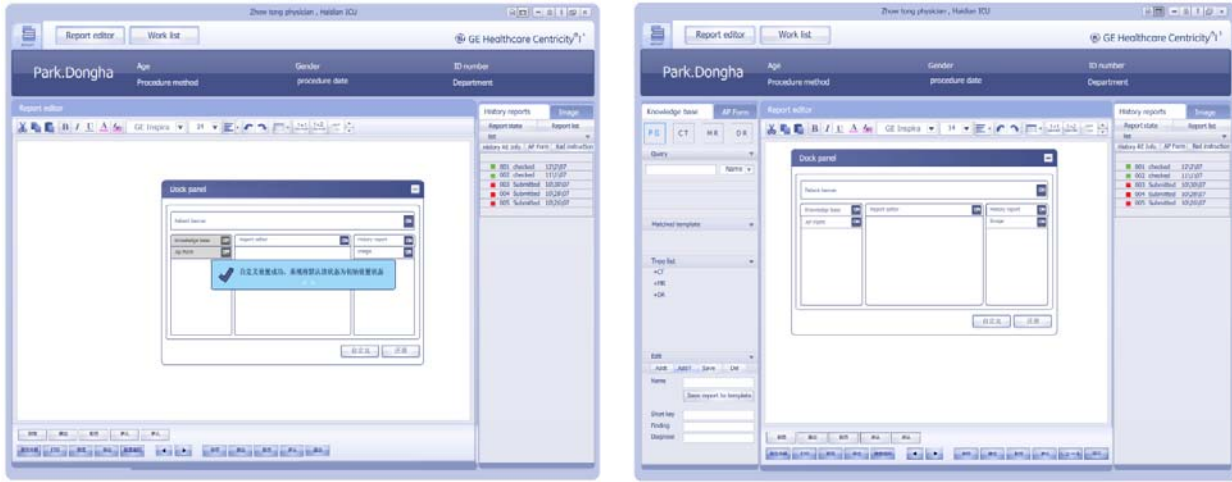


Figure .11. Restore initial setting

Task 2.4: Restore the current function panel layout setting to the initial setting

Operation flow:

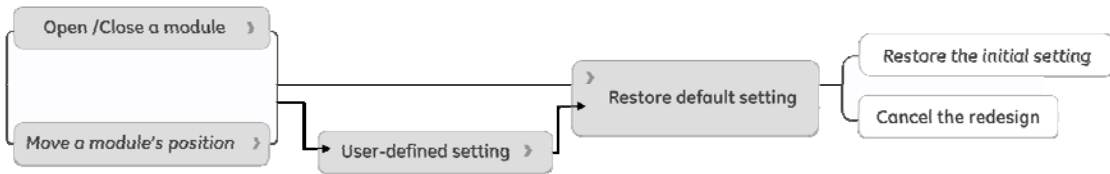


Figure .11. Operation flow of Restore initial setting

INVENTORS	(Print or Type Name Below)	(Full Signature Below)	Date
	Zhao Weixuan		2008-10-09

ADVANTAGES OF THE INVENTION: Describe the benefits of the invention, both in technical terms (e.g., stronger, new application, faster imaging, etc.) and business terms (e.g., cost savings, product efficiency, etc.).

Advantages:

- **Regulate panel layout functions**

Panel controller gives users a fixed area and explicit functions to regulate panels' layout. Accordingly, users not only can open/close the function panel, move panel's position but also can set up their personal layout as default layout. This pop up panel improves the flexibility of Centricity RIS CE system therefore notably increases user satisfaction with no doubt.

- **Amalgamate functions of panel layout regulation**

This design amalgamates all the functions of panel layout regulation into one pop up window. When user wants to control the layout, the only thing he needs to do is popping up the panel controller.

- **What You See Is What You Get**

"What You See Is What You Get" gives users the access to witness the whole editing and changing process, improving user satisfaction by friendly human-machine interaction.

- **Efficient to use**

All panels in the real interface will be presented in intuitive visual way. User is able to operate panel controller and modify the function panel layout quickly and freely. Simplest operation and interactive workflow make operation process more efficient and convenient

- **Simple and pleasant UI design**


Aesthetic factor is considered through the whole design. The information on panel controller is well-organized and consistent in respect of high-level standard of visual design. The panel controller always looks pleasant even viewed for a long time; it enhances the user satisfaction by offering an enjoyable sensory experience.

PRIOR ART: List all references to previous work that you have identified that relate to the invention (if any). Examples would be existing patents (whether GE or other) possibly identified via patent searches, GEMS invention disclosures in process or otherwise, existing products, publications, internal publications, or Tech Notes etc. All identified prior art references must be attached to this disclosure, but those pages need not be signed. **Minimum requirements are an internet (e.g. Google) and USPTO (www.uspto.gov) keyword search. Please attach the keyword search criteria and results to this disclosure form.**

- **GEHC invention disclosure: Search Folder.**
- **US Patent: Highlighting icons for search results. Publication info: US2006101347 - 2008-10-09**

CLAIM OF NOVELTY: Describe what is novel, unique, non-obvious about this invention compared to previous designs or solutions identified in the Problem/Background or Prior Art sections. "Obvious" is defined with respect to an individual with an average working knowledge of the general area. Be careful: what is obvious to you, as a specialist, may not be obvious to someone with an average working knowledge. You should err on the side of assuming that your invention is non-obvious.

1. **Panel controller helps user to adjust software interface layout in order to make user feel free and flexible in different using scenario.**
2. **In the adjusting process, the user can see the whole changing process both in panel controller and real interface simultaneity, this interactive process can show correlative relationship between panel controller and real interface.**
3. **Increasing the User-defined setting function, which enable User to set up customized layout freely according to personal preference and habits**

INVENTORS	<i>(Print or Type Name Below)</i>	<i>(Full Signature Below)</i>	Date
Zhao Weixuan			2008-10-09

SUMMARY QUESTIONS FOR INVENTION DISCLOSURE

(The answers to these questions will help the modality PEB with the patent filing decisions they make.)

1) **DESCRIBE ANY RECENT WORK ON DEVELOPING AND DEMONSTRATING THE IDEA AT GEMS.** *Has feasibility been proven? How? Is there a prototype?*

Yes, it has a prototype in Centricity™ RIS/PACS CE 2.0.

2) **ARE THERE ANY PLANS TO USE THE INVENTION IN A PRODUCT?** *Give Product/Program name and milestone dates if known. Has this invention been identified as a program deliverable?*

It plans to be used in Centricity™ RIS/PACS CE 2.0.

3) **WHAT ARE THE PLANS OR DESIRES TO PUBLISH?** *It is absolutely critical to identify the earliest possible public disclosure of the invention for legal reasons. This may include publication, installation of prototype, trade shows, etc. GEMS can lose the right to patent an invention by premature public disclosure.*

In 2008.

4) **DESCRIBE ANY KNOWN RELEVANT COMPETITOR ACTIVITY.** *Are any competitors working on solutions to the same problem? Have any competitors addressed the same problem?*

No

5) **WAS THIS INVENTION DEVELOPED IN THE COURSE OF A PROJECT WHICH WAS FUNDED IN PART BY AN ENTITY OTHER THAN GE?** *Has any work been done, for example, with Government funding, university collaboration, even if such funding was provided indirectly, as via CRD?*


No

6) **WHAT IS THE EARLIEST TANGIBLE DOCUMENTATION OF THIS INVENTION?** *Is it a lab notebook, engineering report, etc., or this disclosure document? If not this document, please provide a reference and a date.*

This disclosure form is the earliest documentation.

7) **HOW MUCH DIFFICULTY WOULD A COMPETITOR EXPERIENCE IN TRYING TO DESIGN AROUND THIS INVENTION?** *Are there many ways of relatively equal difficulty to solve the problem, or is the invention a unique solution in terms of benefit and simplicity?*

If these claims were accepted, a competitor would have a difficult time coming up with a solution

INVENTORS <i>(Print or Type Name Below)</i>	<i>(Full Signature Below)</i>	Date
Zhao Weixuan		2008-10-09

Note that this page *does not* replace the inventor signatures and dates as well as the two witness' signatures that are required on each page of the disclosure.

INVENTOR DATA SHEET

(To be completed for each named inventor)

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(Please indicate employer name above and check whether or not it's a GE company)

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OCCUPATION TITLE:	Interaction Designer

For GE Employees Only:

IMMEDIATE MANAGER'S NAME:	Yang Rui
GE MAILCODE:	100176
UNIT NO.:	

DISCLOSURE QUALITY TRACKER

This sheet is a process improvement tool used only to verify that the disclosure process meets customers' CTQ's.

<input type="checkbox"/> All Inventor Signatures <input type="checkbox"/> 2 Witness Signatures <input type="checkbox"/> Prior Art Supporting Materials Attached (must include results of internet and USPTO keyword searches) <input type="checkbox"/> Datasheet Completed for All Inventors <input type="checkbox"/> Complete Checklist above and Submit Original Disclosure and Supporting Materials to Patent Operation (W-710)	<h2 style="margin: 0;">INVENTOR CHECKLIST</h2>
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<input type="checkbox"/> Docket No. _____ <input type="checkbox"/> Inventor Notified of Receipt and Docket No.	<h2 style="margin: 0;">PATENT OPERATION</h2>
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Score each section by circling appropriate number: (1 = below expectation; 3 = meets expectation; 5 = exceeds expectation)

1 - 3 - 5 Invention Title 1 - 3 - 5 Problem/Background 1 - 3 - 5 Invention Description 1 - 3 - 5 Drawing 1 - 3 - 5 Advantages of the Invention 1 - 3 - 5 Prior Art 1 - 3 - 5 Claim of Novelty 1 - 3 - 5 Completed Summary Questions	<h2 style="margin: 0;">PATENT EVALUATION BOARD RATING</h2> <p style="margin: 10px 0 0 0;">TOTAL: _____</p>						
<input type="checkbox"/> File <input type="checkbox"/> Hold (C_____) Date: _____ <input type="checkbox"/> Inactivate <input type="checkbox"/> Trade Secret <input type="checkbox"/> Publish <input type="checkbox"/> Foreign Filing: (Yes <input type="checkbox"/> No <input type="checkbox"/>)	<h2 style="margin: 0;">PEB DECISION</h2>						
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-bottom: 1px solid black;"><u>Meeting Date</u></td> <td style="width: 50%; border-bottom: 1px solid black;"><u>Date Advised of Status</u></td> </tr> <tr> <td style="border-bottom: 1px solid black;"> </td> <td style="border-bottom: 1px solid black;"> </td> </tr> <tr> <td style="border-bottom: 1px solid black;"> </td> <td style="border-bottom: 1px solid black;"> </td> </tr> </table>	<u>Meeting Date</u>	<u>Date Advised of Status</u>					<h2 style="margin: 0;">PEB NOTIFICATION OF DECISION TO INVENTOR</h2>
<u>Meeting Date</u>	<u>Date Advised of Status</u>						

Score each section by circling appropriate number: (1 = below expectation; 3 = meets expectation; 5 = exceeds expectation)

1 - 3 - 5 Inventor Responsiveness 1 - 3 - 5 Relevance of Prior Art 1 - 3 - 5 Overall Quality of Disclosure	<h2 style="margin: 0;">OUTSIDE COUNSEL RATING</h2> <p style="margin: 10px 0 0 0;"><i>(to be completed and returned to GEMS Patent Operation along with patent application papers)</i></p>
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GE Project

2. Tel-Medicine Program (China & India)

- 1.1 Product workflow demonstration
- 1.2 Interface Ideation & Design points
- 1.3 UI Scenarios Description

UI Scenarios Description of Tel-Medicine Consultation system

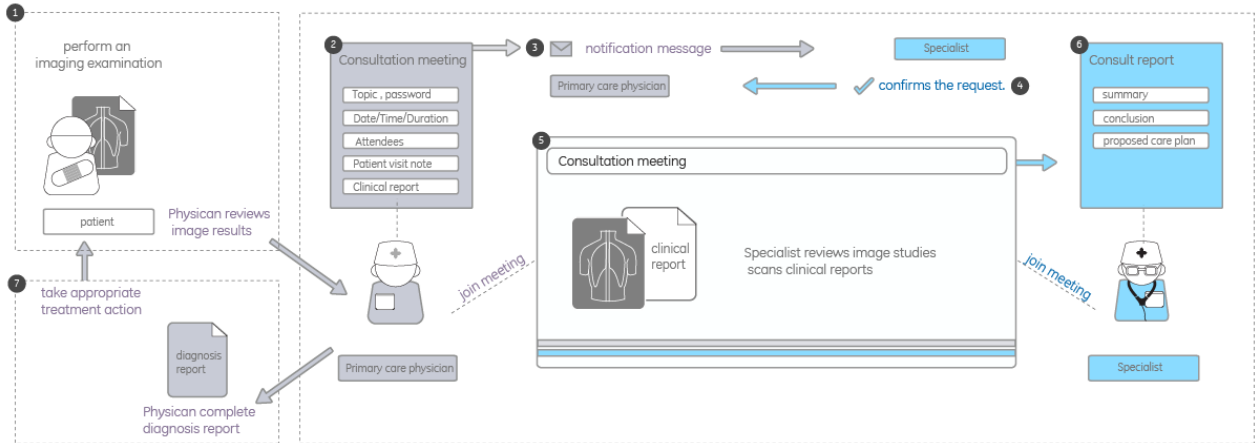
IITS, China, 2008

Zhao weixuan

2008-09-10

Tel-Medicine Consultation system

Product workflow demonstration



Focus on:

- **Workflow and function implement**
- **How make users feel easy to use?**

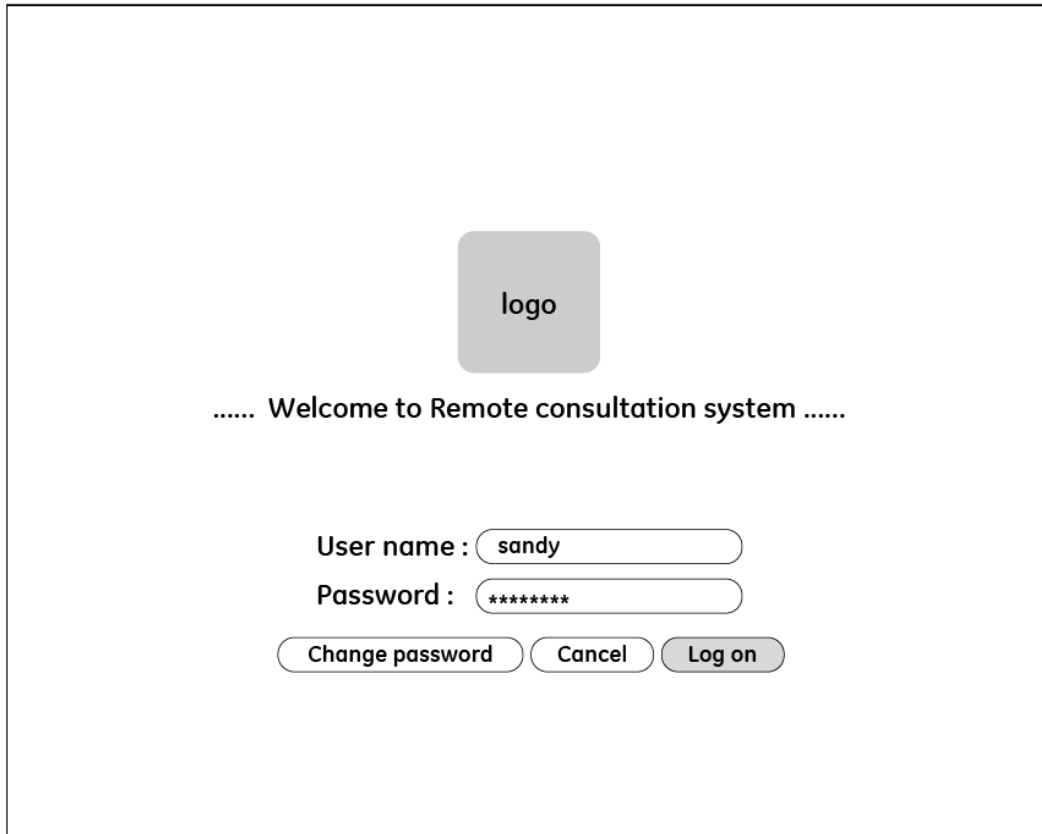
Create easy to use interactive design attempting to improve the usability and experience of the product and aiming to minimize the learning curve and to increase accuracy and efficiency of a task without diminishing usefulness. The objective is to reduce frustration and increase user productivity and satisfaction.

- **layout /navigation and scenario**

Interface Ideation

1. Log on & Module navigation:

Simple start / Clear navigation



Design points:

1. Easy to start
2. Select module navigation to enter into module directly
3. Quick start support user join in the consultation meeting quickly

UI Scenarios	
	Default UI of log on
	Dialog window of “change password”

UI Contents of log on		
Function items	Description	Requirement of visualization representation
User name/ password	User need to input name and password when they log in	Highlight the text inputted area when user input the information
Function buttons	Log on / cancel / change password	
logo	Product logo will be displayed in this area	The logo need precisely convey the meaning of the product
Welcome slogan	Welcome the Tel-medicine consultation system	

Core operation of log on	
Use case	Requirement of operation
Users input name and password	Matching with common operation is okay
“Log on” or “cancel”	
“Change password” If users want to change password. They click the button , a dialog window will be displayed to hint users input new password	

2 Home

The screenshot displays the 'Home' page of the Tel-medicine consultation system. At the top, there is a navigation menu with the following items: 'Home' (highlighted in black), 'my case', 'Quick Meeting', 'Quick Report', 'Exit', and a search icon. Below the navigation menu, the main content area shows a calendar for 'week 12'. On the left side of the calendar, there is a sidebar with the following elements: 'View my meeting agenda', 'View Groups', a large display of 'Monday 15 7:30 AM', and a monthly calendar for 'October 2008' with the 15th highlighted. The main calendar grid shows a meeting scheduled for Monday, October 15, from 8:00-9:00 AM, titled 'Meeting No.302' with the topic 'case topic'. A meeting entry for the previous day (October 14) is marked as 'Finished Meeting No.302 Topic: case topic'. At the bottom right of the calendar view, there are two buttons: 'Print' and 'Start.meeting'.

Navigation menu

The screenshot shows the navigation menu with the following items: 'Home' (highlighted in black), 'my case', 'Quick Meeting', 'Quick Report', 'Exit', and a search icon.

Design points:

1. The navigation menu contains: home, schedule, meeting, report and others, which can shift colors by entering different scenarios. The navigation buttons have three statuses: normal, hover, selected.

UI Scenarios	
	UI of My agenda
	UI of All agenda (used by administrator)

UI Contents of My agenda		
Function items	Description	Requirement of visualization representation
Navigation menu	The area house application –specific menus which provide access to core functions modules (homepage/my case/stat.map/ exit and search function)	Icons for menus Navigation buttons need 3 visual effects based on 3 statuses: normal, hover, selected
Searching	Support simple / advanced searching	Icon of searching
My agenda	<ul style="list-style-type: none"> The agenda grid will present global information of users’ overall tasks Typical tasks: <u>rejected case / accepted case/ new invitation/meeting (user has accepted it)/ report</u> The agenda could be displayed in week or month The role-header needs to present the date and weekday when the agenda is displayed week. For example: 2008-08-15, Wednesday. As far as the real time meeting, the column-header needs to represent the concrete time interval. It needs to display the task topic and status in one task cell. The topic tips tor task cell need to display the task topic , concrete time , sender, status 	Different status of tasks need to be represented in simple and natural visual way; also , come status is more urgent than others, for example , rejected case is more urgent than accepted case, it need to present the emergency level in clear visual language

Core operation of My agenda	
Use case	Description
Navigation menu	Switch to other function modules by navigation menu
Check overall Info	User could browse the overall information at a glance of UI
Check task grid	User could check detail information of tasks when he checks a concrete task cell. If user wants to know more detail information about one task, he could move the mouse to the cell, then a tips message will be floating displayed to list more details.
Printing	Print the page of agenda
start meeting	User could start a meeting when he selects one concrete consultation task.

My case

- My scheduled (physician)

Home	my case	Quick Meeting	Quick Report	Exit	<input type="text"/>	Q
<input type="checkbox"/> My scheduled		<input type="checkbox"/> My auditing		<input type="checkbox"/> My visited		<input type="checkbox"/> New case
<input type="button" value="One week"/>		<input type="button" value="One month"/>		<input type="button" value="Three month"/>		<input type="button" value="All case"/>
Case list						
		Case	Status	Sender	Date	
<input type="checkbox"/>	1	Billy	New		2008-7-21	
<input checked="" type="checkbox"/>	2	Tommy	New		2008-7-21	
<input type="checkbox"/>	3	Billy	Rejected		2008-7-21	
<input type="checkbox"/>	4	Sandy	New		2008-7-21	
Detail information						
patient photo		Patient Basic information				
New:Image Accepted : scheduled meeting info Finished : report info						

UI Scenarios	
	UI of <u>My Scheduled</u>
	UI of <u>My Auditing</u>
	UI of <u>My Invited</u>
	UI of <u>My Scheduling meeting</u>

UI Contents of <u>My Scheduled</u>	
Function items	Description
Navigation menu	
Tabbed workspace	In the use case of my case, user could switch between <u>My Scheduled / My Auditing / My Invited</u> by tab. Tabbed workspace includes tab, toolbar and function panel.

UI Scenarios	
	UI of My Scheduled

UI Contents of My Scheduled		
Function items	Description	Requirement of visualization representation
Short-cut buttons	One week / one week / three months / all lists	
Panel of case list	Display case in table The list includes "to do list" and "review list"	Distinguish 4 statuses of case list in easily understand visual way
Panel of case details	The fixed area will display detail information of a selected case. Different case displayed corresponding detail information in this area: <u>New case</u> : new patient info, related image information <u>Accepted case</u> : scheduled meeting info, patient basic info, related image information <u>Rejected case</u> : reject reason if has, case topic, patient basic info , related image information <u>Finished case</u> : show the report information	
Function buttons	"Start meeting" "Schedule meeting"	

Core operation of My Scheduled	
Use case	Description
Navigation menu	Switch to other function modules by navigation menu
Check one case	User could check one case, if he wants to see details of it. A fixed area below the list panel will display the details
Reschedule	If the case is rejected, support user reschedule quickly
start meeting	After user selects one concrete task, he could start a meeting through single-click the button of "start meeting"
Schedule new case	User could schedule new case by clicking the button of "schedule new case"

● My auditing

Navigation menu

Tabbed workspace

Case list

Command button

Case	Status	Sender	Date
<input type="checkbox"/> 1 Billy	New		2008-7-21
<input checked="" type="checkbox"/> 2 Tommy	New		2008-7-21
<input type="checkbox"/> 3 Billy	Rejected		2008-7-21
<input type="checkbox"/> 4 Sandy	New		2008-7-21

Design points:

1. Tabbed workspace Supports different role focus on their cared information.
2. Users can check the patient basic information details by double-clicking one case.

UI Scenarios	
	UI of My Auditing

UI Contents of My Auditing		
Function items	Description	Requirement of visualization representation
Short-cut buttons	One week / one week / three months / all lists	
Panel of case list	Display all cases need to be audited	This list should display the case based on the time sequence, new case need to be displayed on the top
Panel of case details	The fixed area will display detail information of a selected case.	
Function buttons	“OK ” “Delete” (user could del one case, then the sender will be informed the case is rejected)	

Core operation of My Auditing	
Use case	Description
Navigation menu	Switch to other function modules by navigation menu
Find out recent cases need to be audited	User could cheek one week case / One month case / three month case / all case through clicking the related short-cut buttons
Check one case	User could check one case, if he wants to see details of it. A fixed area below the list panel will display the details
Case auditing	User could audit one case and click “OK” button to approval it User could reject the case and give simple reason



● My visited (expert)

Home **my case** Quick Meeting Quick Report Exit

My scheduled My auditing My visited New case

One week One month Three month All case

Case list

	Case	Status	Sender	Date
<input type="checkbox"/>	1 Billy	New		2008-7-21
<input checked="" type="checkbox"/>	2 Tommy	New		2008-7-21
<input type="checkbox"/>	3 Billy	Rejected		2008-7-21
<input type="checkbox"/>	4 Sandy	New		2008-7-21

Detail information

patient photo

Patient Basic information

New:Image
Accepted : scheduled meeting info
Finished : report info

UI Scenarios	
	UI of My Invited

UI Contents of My Invited		
Function items	Description	Requirement of visualization representation
Short-cut buttons	One week / one week / three months / all lists	
Panel of case list	Display cases in table For every case, it's information of case number / topic / status / sender / date will be displayed	Distinguish 4 status of case in visual way
Panel of case details	The fixed area will display detail information of a selected case.	
	<u>New case</u> : new patient info, related image information <u>Accepted case</u> : scheduled meeting info, patient basic info, related image information <u>Rejected case</u> : reject reason if has, case topic, patient basic info , related image information <u>Finished case</u> : show the report information	
Function buttons	"Start meeting"	

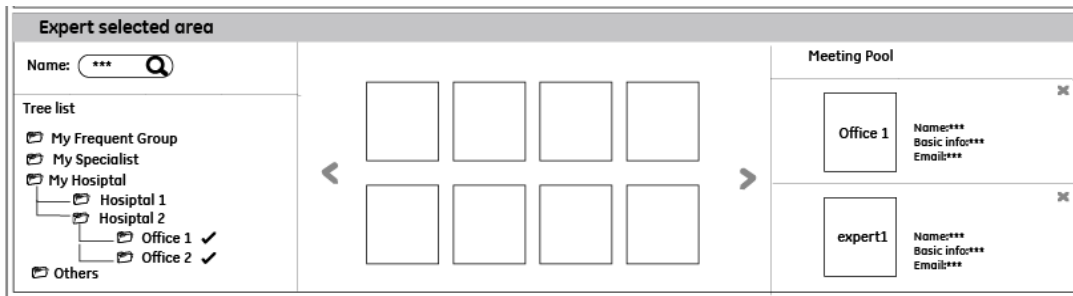
Core operation of My Invited	
Use case	Description
Navigation menu	Switch to other function modules by navigation menu
Find out recent cases need to be audited	User could check one week case / One month case / three month case / all case through clicking the related short-cut buttons
Check one case	User could check one case, if he wants to see details of it. A fixed area below the list panel will display the details
Reject	User could reject the case through click the "reject" button. User could input reason and confirm the operation from the pop up window
Start meeting	User could start a meeting when he selects one concrete task.

● New case

Design points:

1. Save button: save all the input and selected information in this page
2. Send request: users can edit all the schedule information and press the send request button to send the request
3. Cancel button: cancel all the input and select information in this page

● New case_ Selected expert



Design points:

1. Expert library: support expert/office/ hospital name querying
2. Tree list searching: show the library's tree list for user, he can selected an expert/office/ hospital. The relative expert detail cards will show on the middle parts of the panel.
3. Expert showing area:
 - Support users to define the favorite expert/office/hospital
 - Select a favorite expert and press the "Add to favorite" button.
 - Display the favorite expert/office/hospital for users quickly selected
4. When user defines the expert and hopes he can join the meeting, he can drag this expert card in the meeting expert pool in the right of the panel. He also can cancel this expert by click the close button on the expert card.

● The UI scenario of selecting expert details



How to support user easily select attendee?

Easy to select expert

Intuitive operation (direct an expert card into the meeting pool)

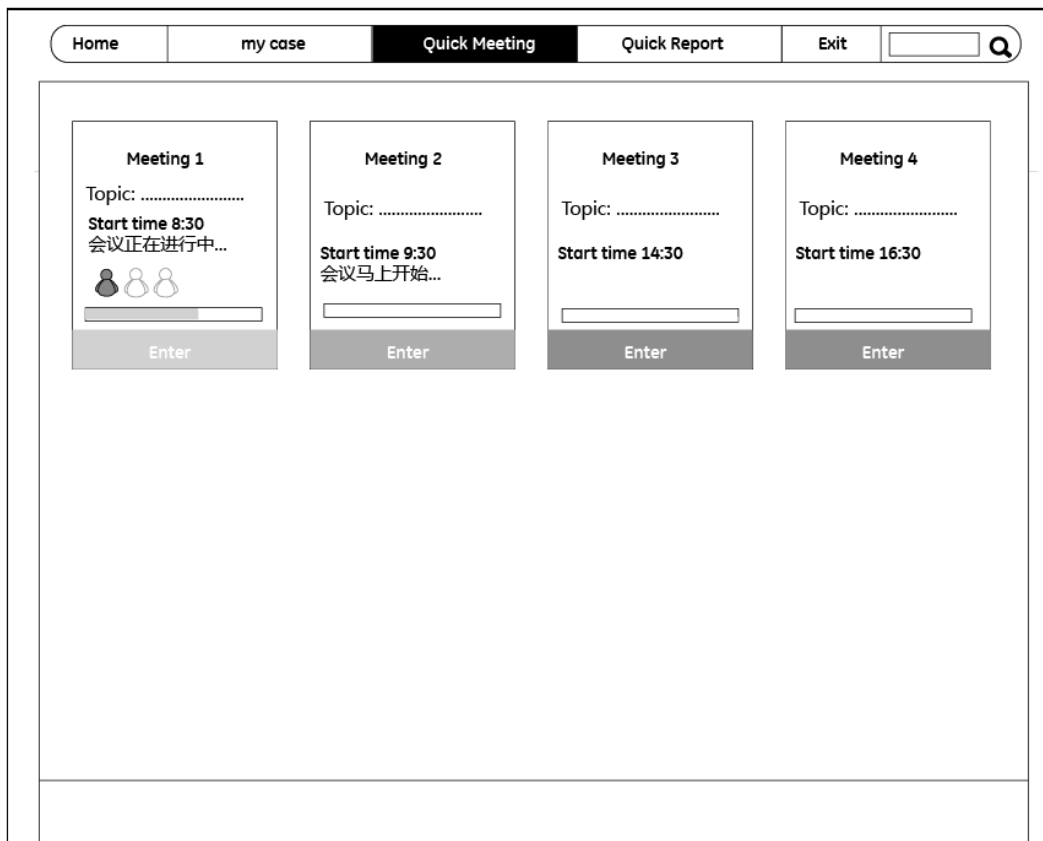
There is an expert library on the left of expert selected panel, which support expert name querying and tree list searching. When users found an expert or locked an expert selected area, the relative expert detail cards will show on the middle parts of the panel. The expert showing area will be designed as a moving flash and display the most or last contact expert for users quickly selected. When user defines the expert and hopes he can join the meeting, he can drag this expert card in the meeting expert pool in the right of the panel.

UI Scenarios	
UI of New case	

UI Contents of New case		
Function items	Description	Requirement of visualization representation
Date selection area	User selects date and time to hold the meeting and then define the meeting duration	
Basic info input area	User needs to input basic information of the patient. the basic information includes: topic / patient information / visit note, etc.	
Panel of attaching data area	In default situation, the attached data list will be displayed in the area. If user wants to attach data , he can click the attach data button to provoke the pop up window, then he can select different form of files from the database, when he click the attach data button, the attach data info will be showed in the attach data list	Distinguish different kinds of data in visual way (for example, apply different visual techniques to distinguish the image data from text file)
	Function buttons: attaching data / Cancel	
Panel of expert selection area	User could select expert or institute from the tree view to invite them attend the meeting	
	The panel includes <u>tree list / information cards /meeting pool</u> <u>Tree list</u> : the nods include my favorite groups folder / the folder of different kinds of experts focusing on the treatment of different diseases/ Different institutions' folder. <u>Expert or institution card</u> : when user click the item in the tree view, the card will show its detail information <u>Meeting pool</u> : display experts or institutions which are invited to join the meeting	
	<u>Add to favorite</u> : user could move one items from other folders to my favorite group folder	
Function buttons	"Send request" "Cancel" "Save" "Start meeting"	

Core operation of New case	
Use case	Description
Navigation menu	Switch to other function modules by navigation menu
Input basic Info	User input the information of topic /meeting password
Attach data	Click attach data button to open up pop up window of patient data library to select needed data
Select the expert or institute	Select needed expert or institution from the tree list, and copy it to meeting pool

● Consultation Board



Design points:

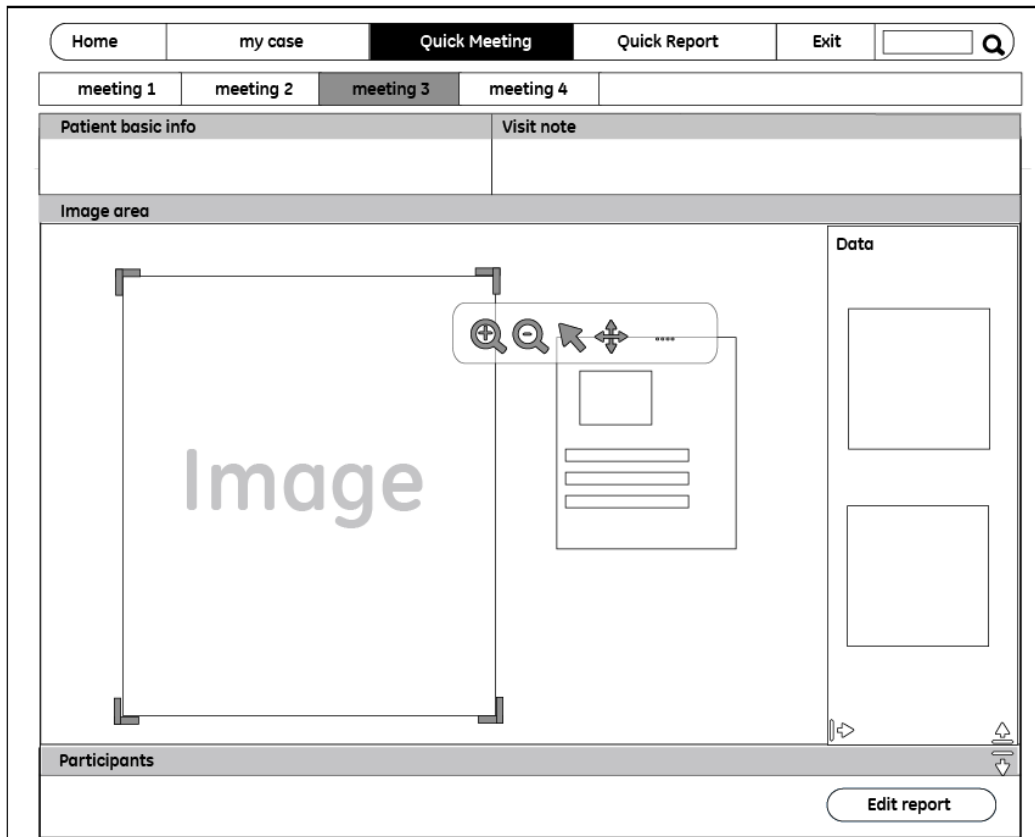
1. The consultations board help user know the on-going meeting and report status, it supports user quick locate one task and enter into consultation meeting or report space without waste time browsing case from my case space.
2. Show my meeting:
 - Show today's or the week's meeting
 - Display the meeting status and progress information.
3. Enter meeting quickly: users can select a meeting and click the below enter button to start meeting quickly. He also can click the start meeting button to enter meeting scenario.

UI Scenarios	
	UI of Consultation Board

UI Contents of Consultation Board		
Function items	Description	Requirement of visualization representation
Consultation cards	<ul style="list-style-type: none"> • Consultation cards display different consultation task recently. • Two kinds of card will be displayed : One is on-going consultation meeting; another is that consultation report is on process and meeting is over. • Meeting card will display consultation topic, meeting time, status information, etc. • Report card will display the consultation topic, status information, etc. 	Distinguish the meeting card and report card in visual way (help user easily know which are the meeting need to join in recently and which are the reports need to be finished soon)

Core operation of New case	
Use case	Description
Navigation menu	Switch to other function modules by navigation menu
Select one consultation	<ul style="list-style-type: none"> • After browsing the card, user could select one case and click the "Enter" button • If user select meeting card, he will directly enter into the meeting space(default consultation space) • If user select report card, he will directly enter into the report editing space

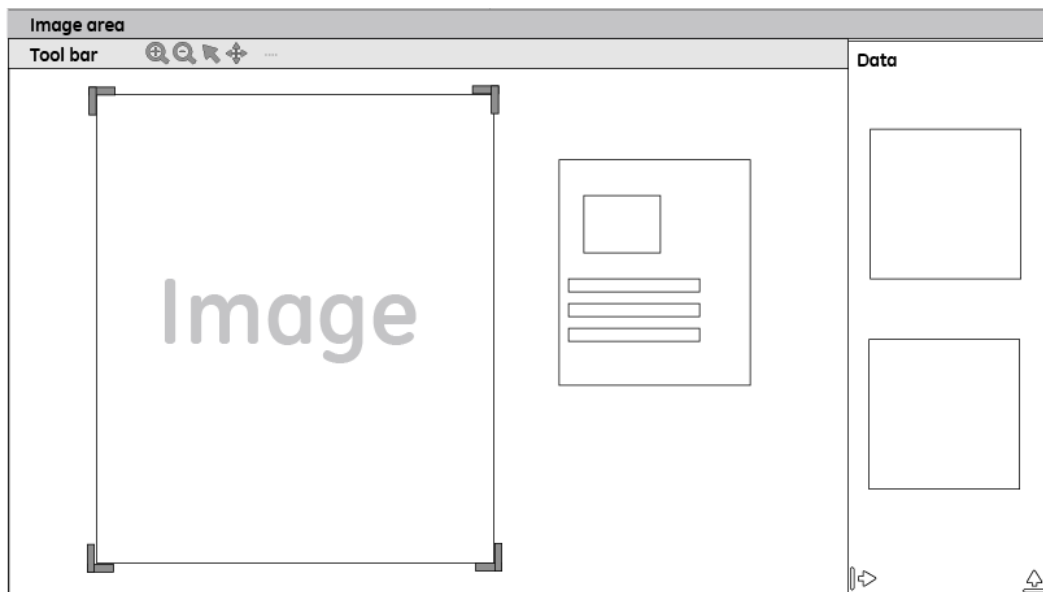
● Meeting



Design points:

1. Simple operation/ flexible image viewer space/ text message tracker
Meeting scenario contains two areas: patient basic information panel and the expert communication panel. Expert can adjust the two panels' space freely based on his current needs.
2. Meeting list will be minimized at the top of the interface, show the necessary information and make users enter in different meetings
3. Patient basic information: show patient basic information
4. Visit note: show visit note
5. Edit report button: enter edit report scenario
6. Easily see patient pathology image
7. Flexible space for displaying mutable patient data operation
8. Intuitive operation user could drag/zoom in and out image conveniently
9. On the meeting scenario, expert can drags any relative information materials (text or image) on this flexible space form the patient information library. Any materials he drags on the flexible space can be dragged, zoomed in and out, arranged in order to make expert feel the texts and images easy to see and focus.

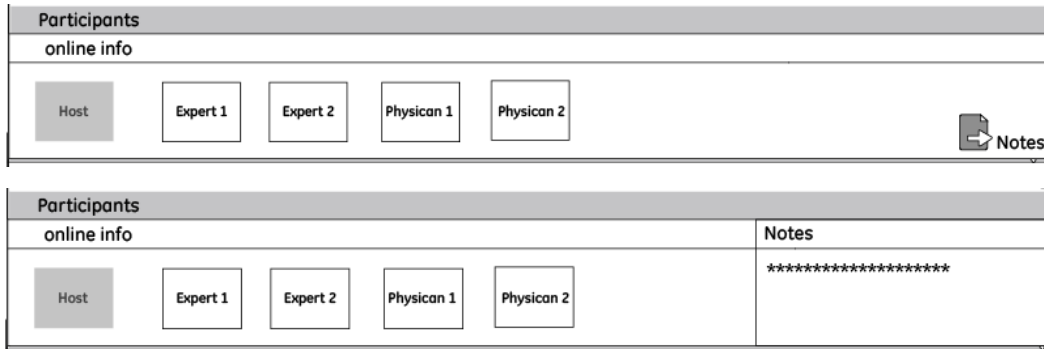
● Meeting_Image area:



Design points:

1. Data library:
 - Data library contents: pictures and patient detail information
 - User select data and clicking the check button, the data will displayed at the left space
 - Data library can be minimized if it not necessary
2. Image area: Any materials in flexible space can be dragged, zoomed in and out
3. Tool bar: zoomed in, zoomed out, cursor selected, cursor dragged

● Meeting _ Participants:



Design points:

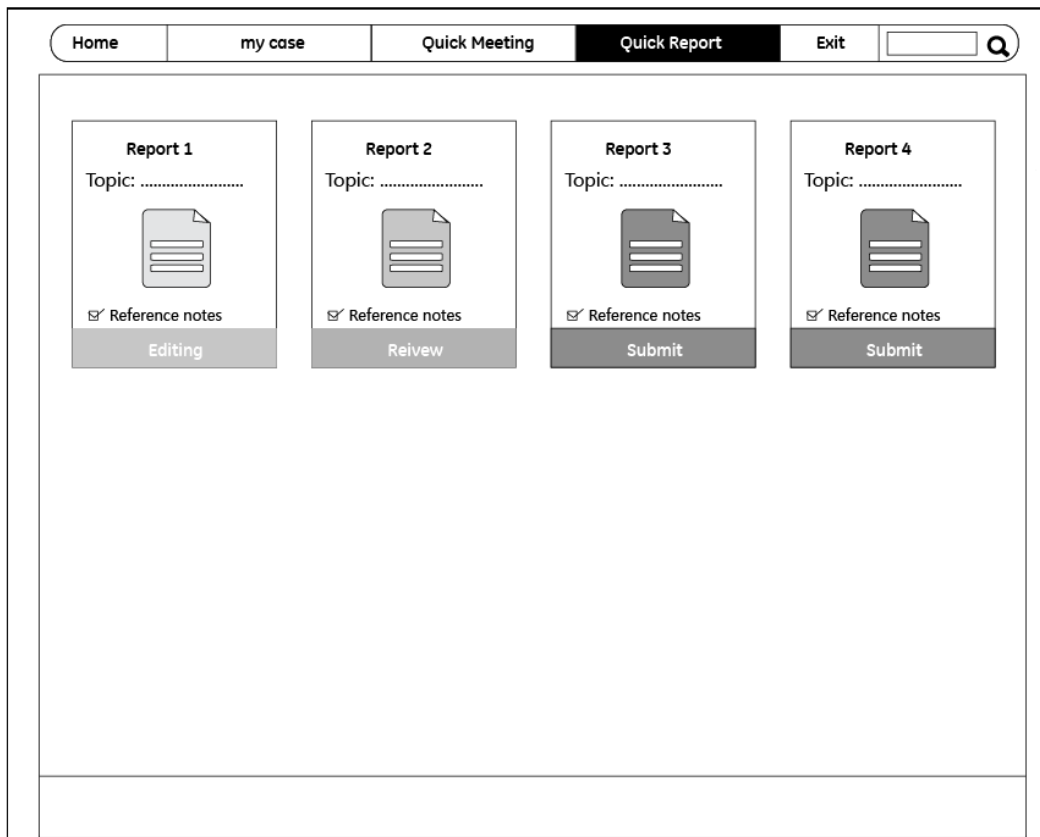
1. Online information: Show all the experts and physicians online information card
 The online card can see people’s name and photo and his online status
2. Voice communication
3. Note: Support users record some notes
 Text will be saved as a txt file by clicking the export button
 Notes area will be minimized as a note icon if this function is unnecessary
4. Text-message of consultation chat will be recorded by system and output automatically
 All the experts on the meeting can communicate each other on the expert communication panel. They can chat with other expert about this patient’s medical record according the images and information on the top panel. They also can share documents on this area. This area can make communicate freely between remote expert and Physician instead giving him a call or an email in order to minimize the communication cost. The chat text will be saved as a txt file automatically in order to give expert the useful reference during his editing report process.

UI Scenarios	
UI of Meeting	

UI Contents of Meeting		
Function items	Description	Requirement of visualization representation
Minimized Consultation cards	<ul style="list-style-type: none"> • Consultation list will be minimized and displayed on the top of the interface. • Only display the topic of every Consultation 	The selected card need to be distinguished from others
Panel of basic info/ patient info/ visit notes	<ul style="list-style-type: none"> • Patient basic information will be displayed in this area 	
Panel of patient pathologic image	<ul style="list-style-type: none"> • <u>Tool bar</u>: simple tools support user adjusts the image. It contents: zoom in / zoom out / add marks / drawing line / selecting image / dragging image 	Need easy to understand icon of every tool
	<ul style="list-style-type: none"> • <u>Image presentation area</u>: patient pathologic images will be displayed in <u>flexible area</u> 	
Panel of patient pathologic library (data)	<ul style="list-style-type: none"> • All related pathologic image will be displayed in the library 	
Panel of participants	<ul style="list-style-type: none"> • All online participants' information will be showed in the area. The information includes: participants' names, who are invited experts or representatives of invited institution. 	Distinguish the host with other participants Distinguish the experts from the local physician in visual way
Panel of notes	<ul style="list-style-type: none"> • User could trigger the notes panel to record meeting notes. • The notes will be automatically backup by system, and outputted as a reference file of report if user need. • Note panel includes: input area / function buttons (Save/Cancel) 	Icon of notes

Core operation of Meeting	
Use case	Description
Navigation menu	Switch to other function modules by navigation menu
Image data selection	<ul style="list-style-type: none"> • User need to browse the patient data from the data library, and then select the image need to be displayed in big size
Flexible panel	<ul style="list-style-type: none"> • To ensure the image area has a big space, other panels include <u>basic info / library / participants</u> could be in minimized status • The layout could be back to default situation if needed
Input notes	<ul style="list-style-type: none"> • User could trigger the notes functions when open up the panel of "meeting notes" from communication area

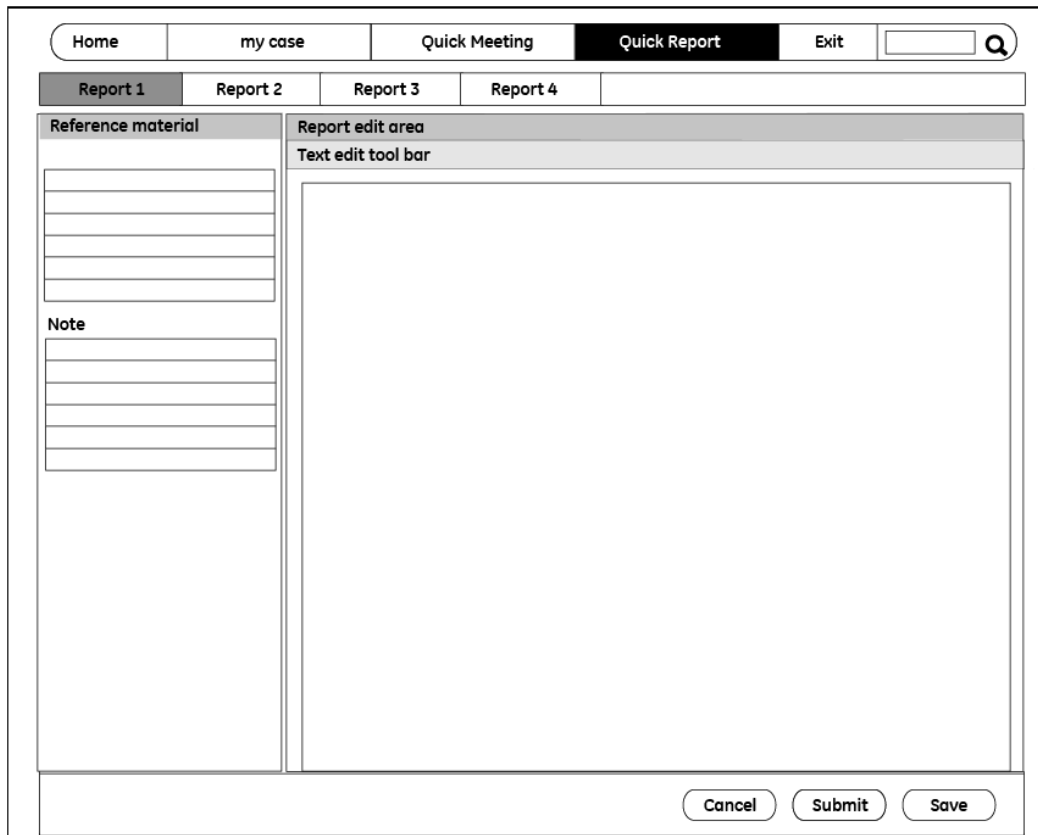
● Quick report



Design points:

1. Show today's or the week's report
2. Display the report topic /status /progress information.
3. Report status: need to editing/review/submit
4. Reference note: select reference notes , the notes will be display on the report edit page
5. Enter report edit quickly:
 Users can select a report and click the below enter button to start report edit quickly.
 He also can click the start meeting button to enter report edit scenario.

● Quick report_ Report edit



Design points:

1. Report list will be minimized at the top of the interface, show the necessary information and make users enter in different reports
2. Reference material: Show reference material (image/text)
Note: show visit note
3. Report edit area: Tool bar: text edit tool bar
Texts edit area:
Support user copy some text from reference material and note
4. Cancel button :
5. Save button : save the report before submit
6. Submit button: submit the report