

Bring clarity to your model using the Gantt Chart

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Objective of this webinar

Improve your understanding of the AIMMS Gantt Chart and its basic functionalities.

Demonstrate how to use the Gantt Chart effectively to get a clear insight into scheduling data, such as job schedule, resource allocation, staffing etc.

The Gantt Chart

- > Very useful to display interrelated jobs across multiple resources over time.

- > Mostly used for scheduling,
 - Project management,
 - Job scheduling,
 - Resource allocation.

- > Gives access to a lot of information.

The Model

> Efficient room allocation

> Doctor's appointment

- Start time
- Duration

> Room schedule is obscure and confusing

Appointment	Start	Duration	Room
MD1.01	8:00	20	1
MD1.02	8:20	20	6
MD1.03	8:40	20	1
MD1.04	9:00	20	7
MD1.05	9:20	20	4
MD1.06	9:40	20	2
MD1.07	10:00	20	4
MD1.08	10:20	20	2
MD1.09	10:40	20	5
MD1.10	11:00	20	4
MD1.11	11:20	20	5
MD2.01	8:00	20	2
MD2.02	8:20	20	7
MD2.03	8:40	20	4
MD2.04	9:00	20	2
MD2.05	9:20	20	1
MD2.06	9:40	20	5
MD2.07	10:00	20	7
MD2.08	10:20	20	3
MD2.09	10:40	20	1
MD2.10	11:00	20	6
MD2.11	11:20	20	1
MD3.01	8:35	20	2
MD3.02	9:35	20	7
MD3.03	10:35	20	4
MD4.01	8:00	60	5
MD4.02	9:00	60	3
MD4.03	10:00	60	8
MD4.04	11:00	60	2
MD5.01	8:00	40	3
MD5.02	8:40	40	8
MD5.03	9:20	40	6
MD5.04	10:00	20	1
MD5.05	10:40	20	6
MD5.06	11:20	20	7
MD5.07	12:00	40	3

The Team



>Mike – Medical Assistant



>Claire – Clinic administrator



>Dave – Model developer

Action plan

> Basic setup of the Gantt Chart

> End-User features

> Advanced adjustments



Setup

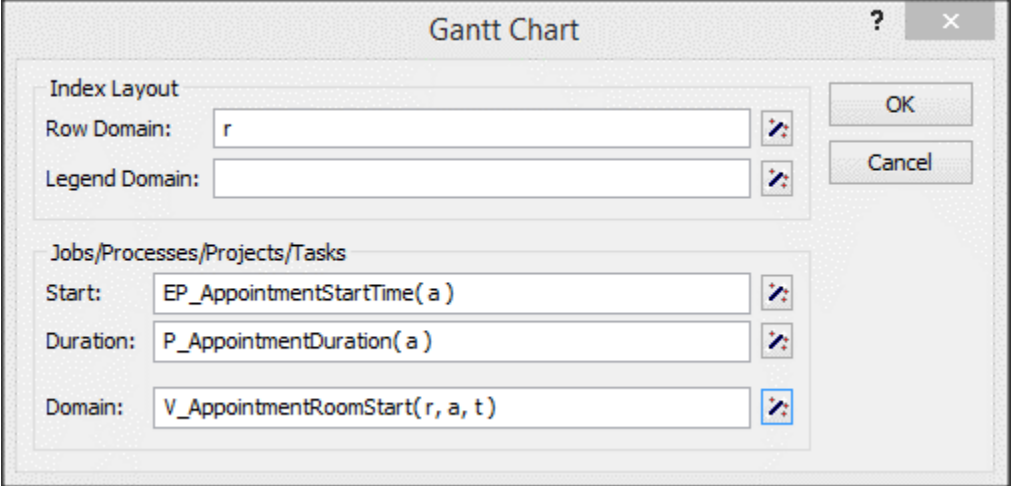
> Gantt Chart icon 

> Setup wizard

- Identifier indicating job start time
- Identifier indicating job duration
- Identifier indicating job domain
- Optional adjustments

Row domain

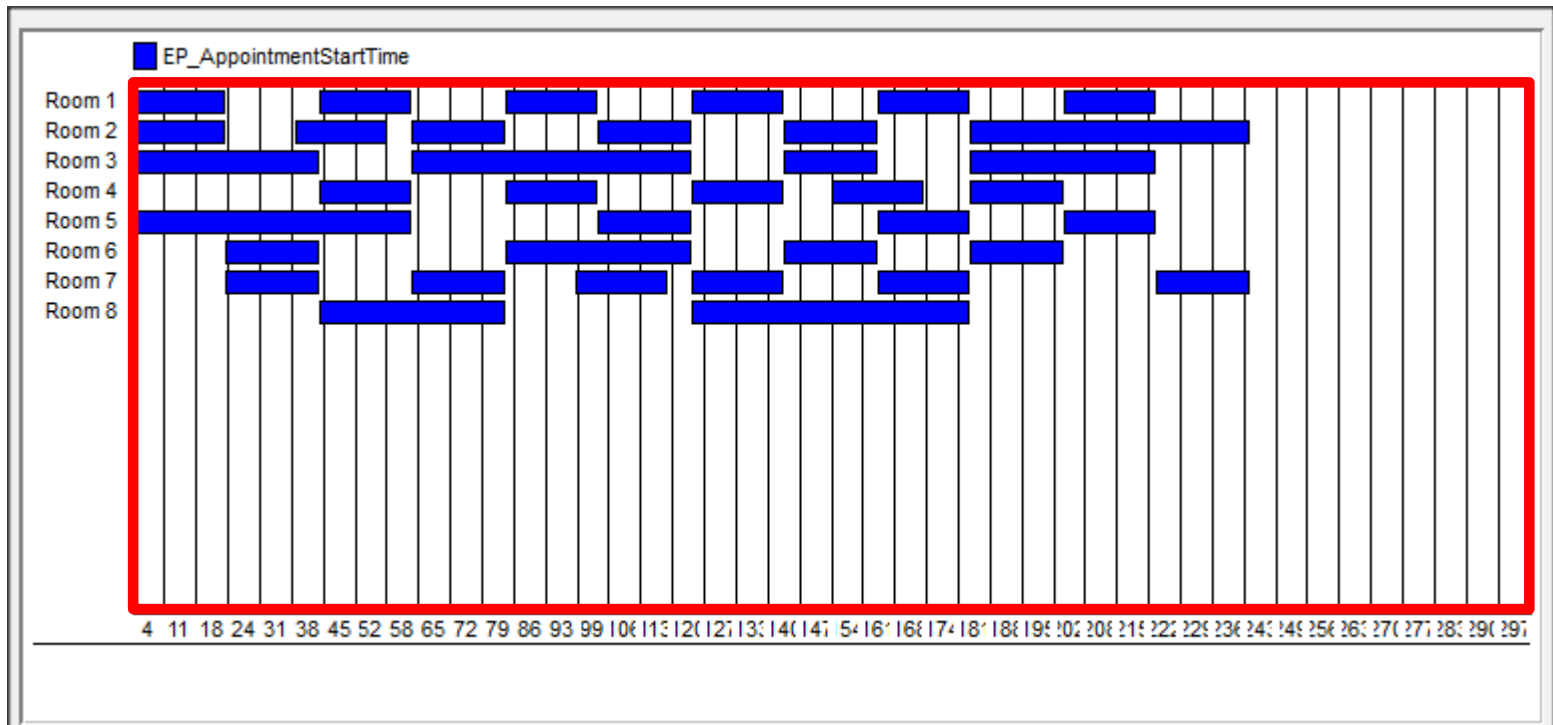
Legend Domain



The screenshot shows a dialog box titled "Gantt Chart" with a help icon (?) and a close icon (X) in the top right corner. The dialog is divided into two main sections. The first section, "Index Layout", contains two text input fields: "Row Domain:" with the value "r" and "Legend Domain:" which is empty. Each field has a small icon to its right. The second section, "Jobs/Processes/Projects/Tasks", contains three text input fields: "Start:" with the value "EP_AppointmentStartTime(a)", "Duration:" with the value "P_AppointmentDuration(a)", and "Domain:" with the value "V_AppointmentRoomStart(r, a, t)". Each field also has a small icon to its right. On the right side of the dialog, there are two buttons: "OK" and "Cancel".

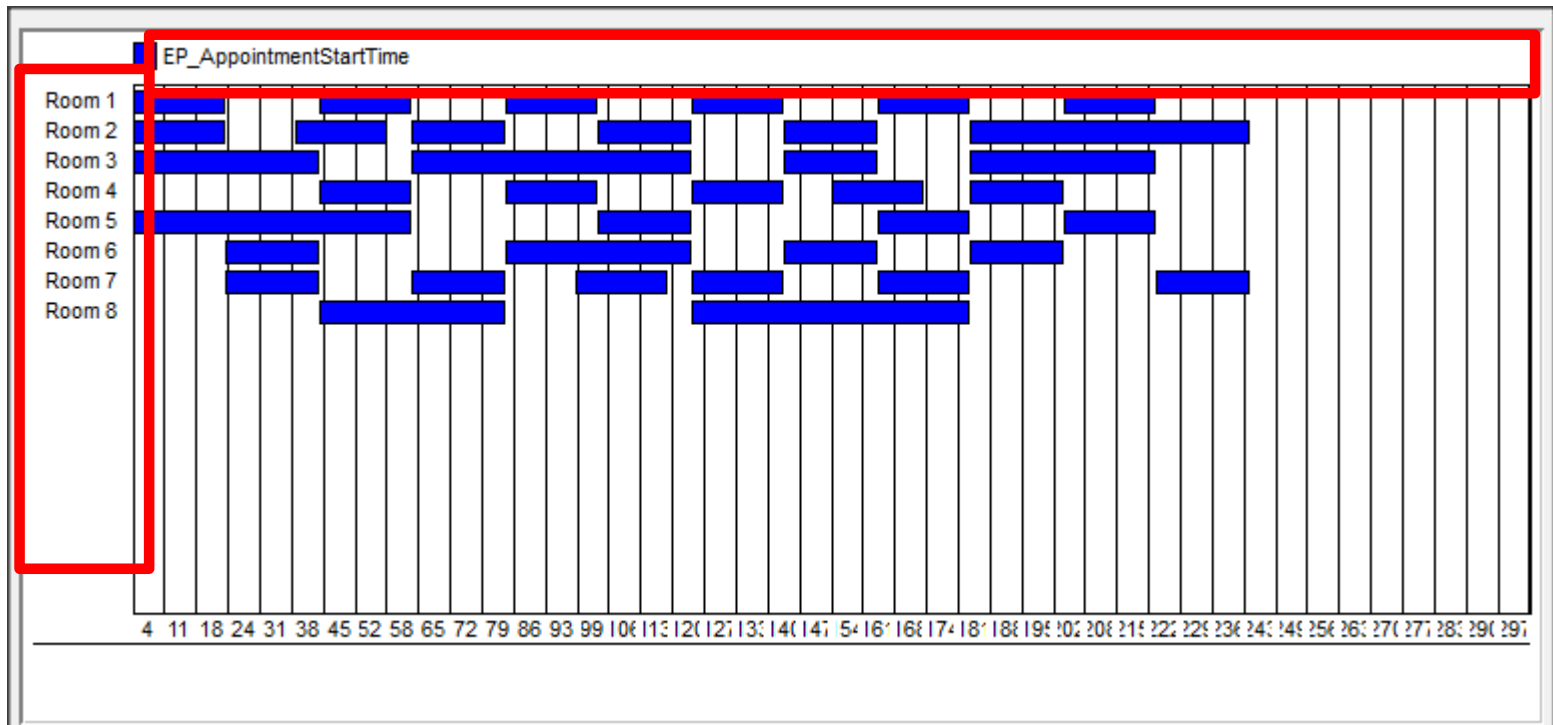
Setup

> Job start / duration / legend



Setup

> Row / Legend domain

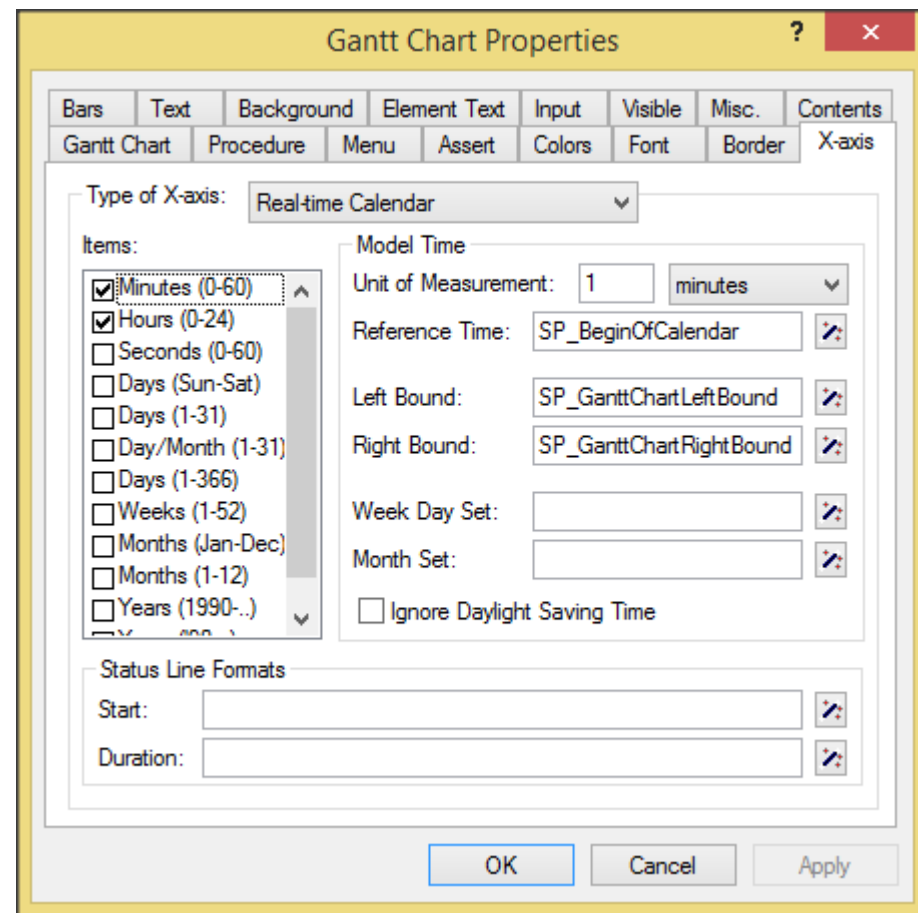


Time Axis

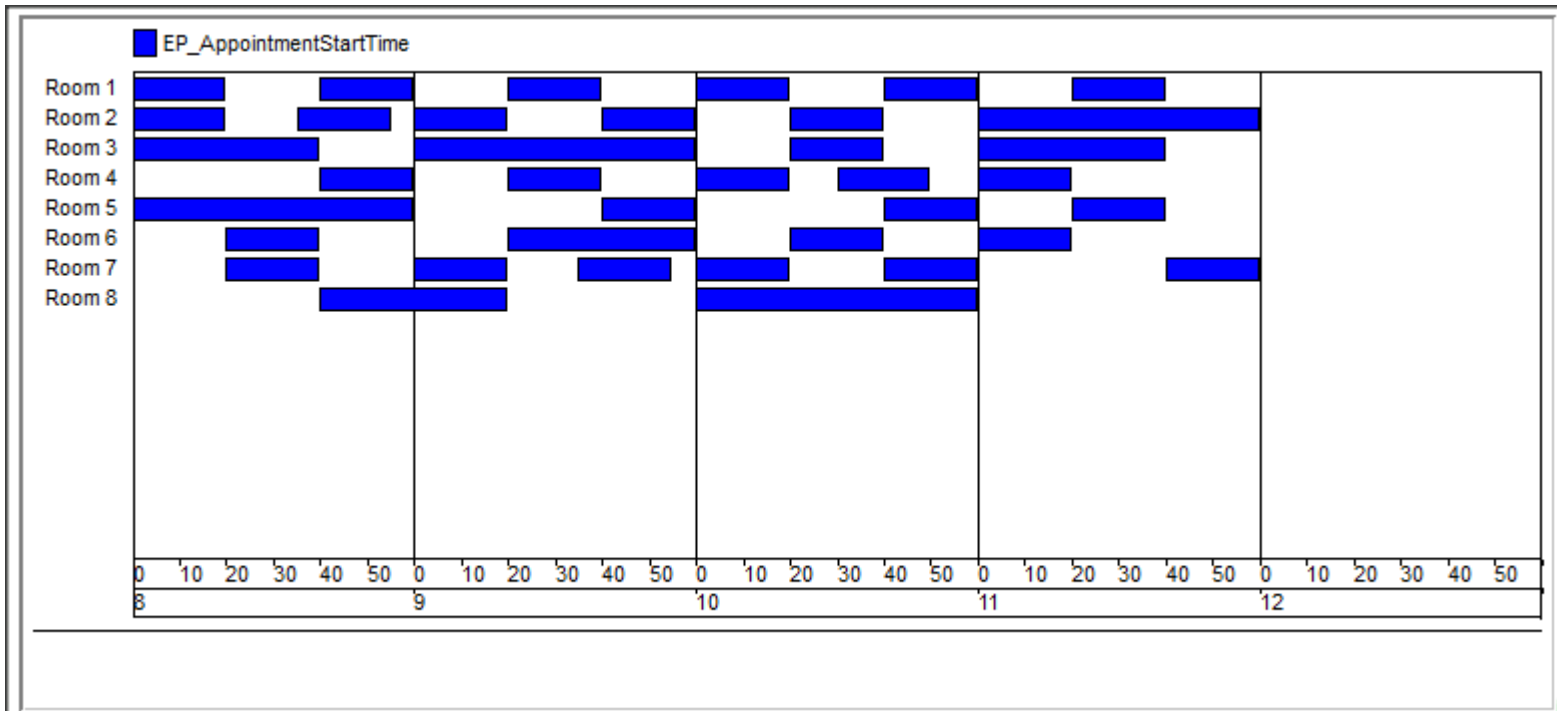
> Change the axis to a “Real-time Calendar”

> Adjust the x-axis

- Units on the x-axis
- Unit of measurement
- Reference time
- Left Bound
- Right Bound



Time Axis

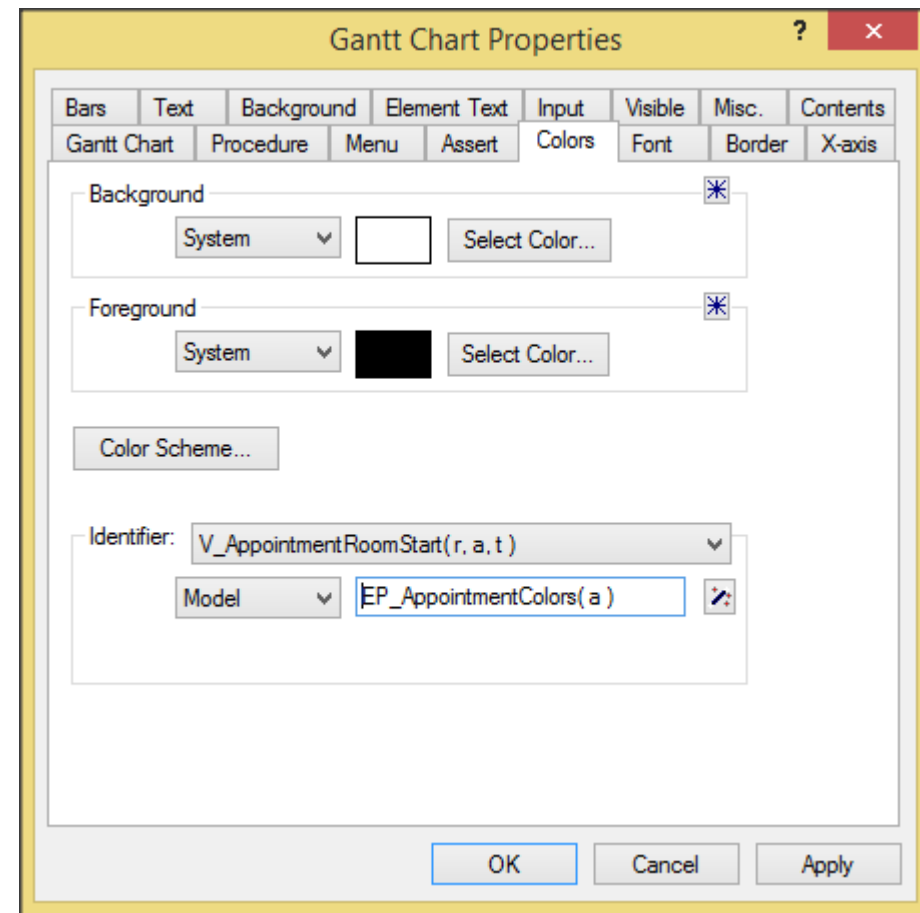


Color Scheme

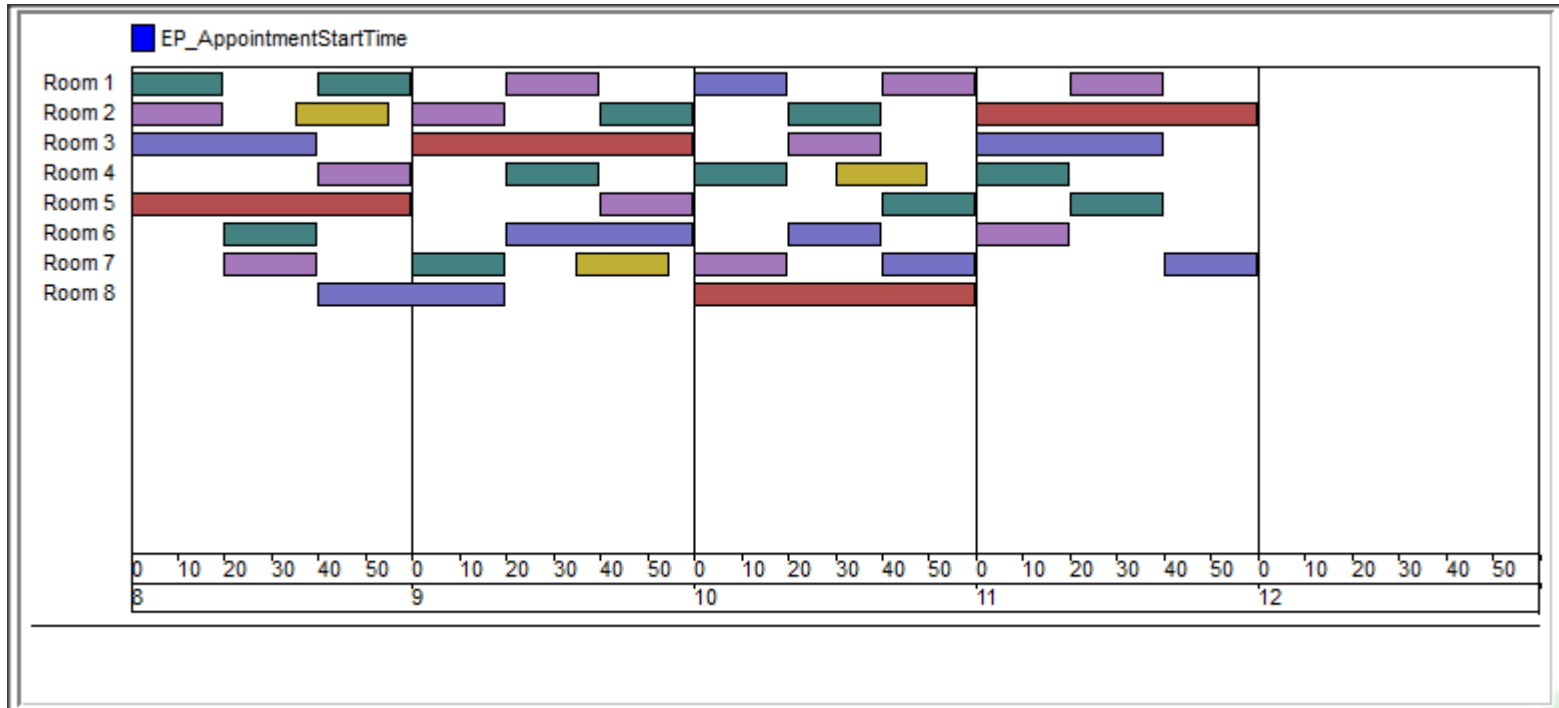
>Create an Element Parameter

- Range: AllColors

>Assign the Element Parameter as the color scheme for the domain identifier



Color Scheme

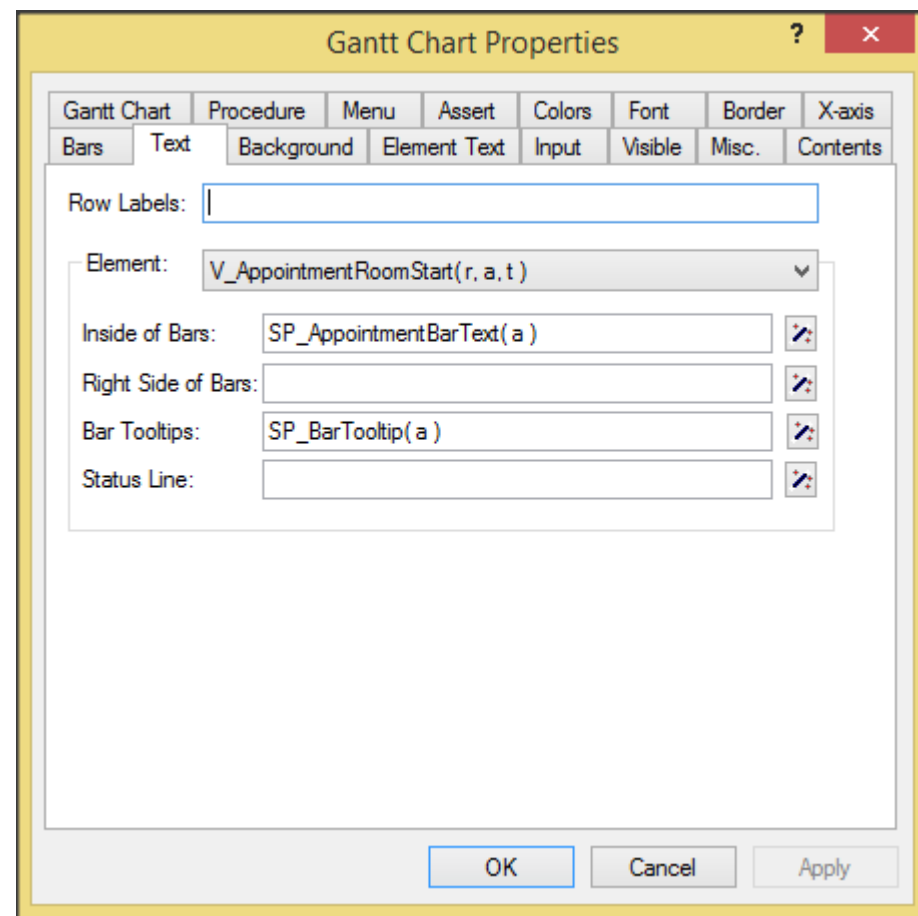


Text

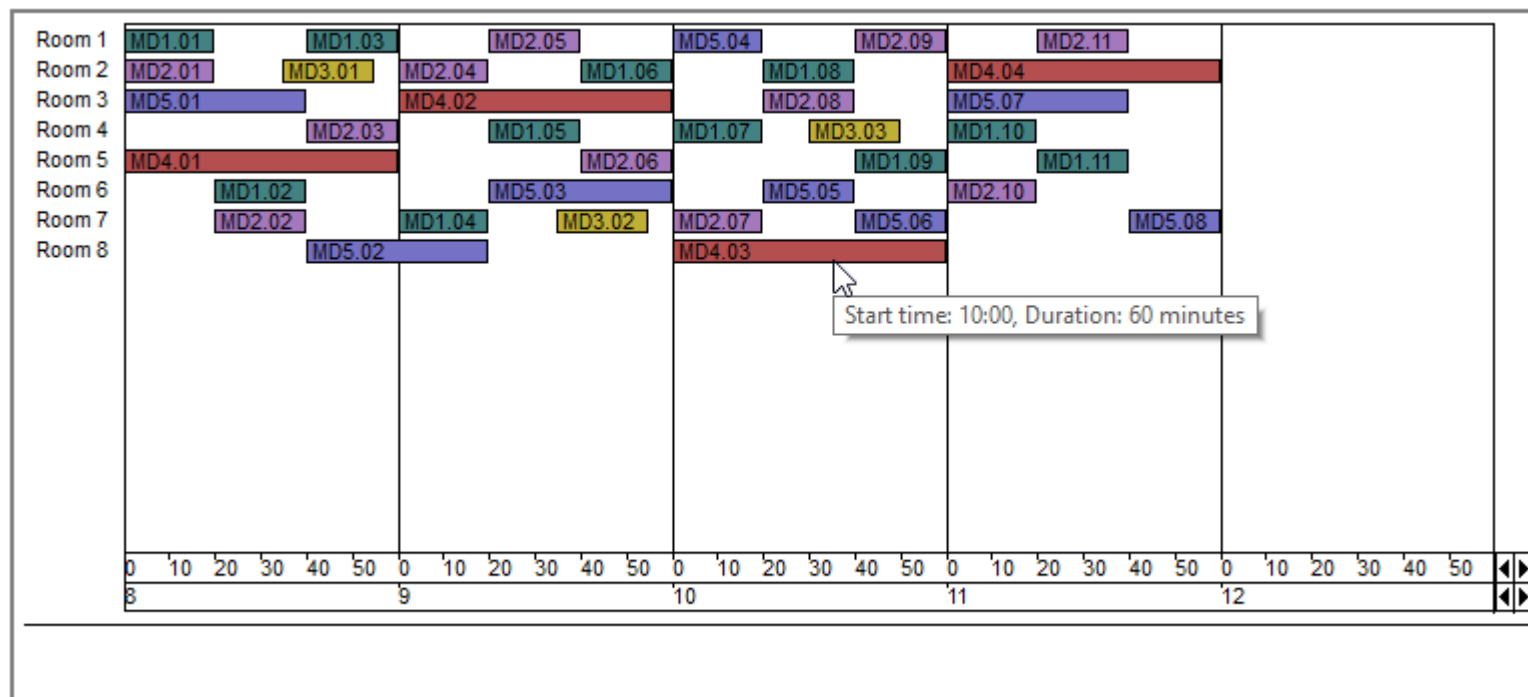
> Remove the legend

> Add String Parameters as

- Bar text
- Tooltip



Text

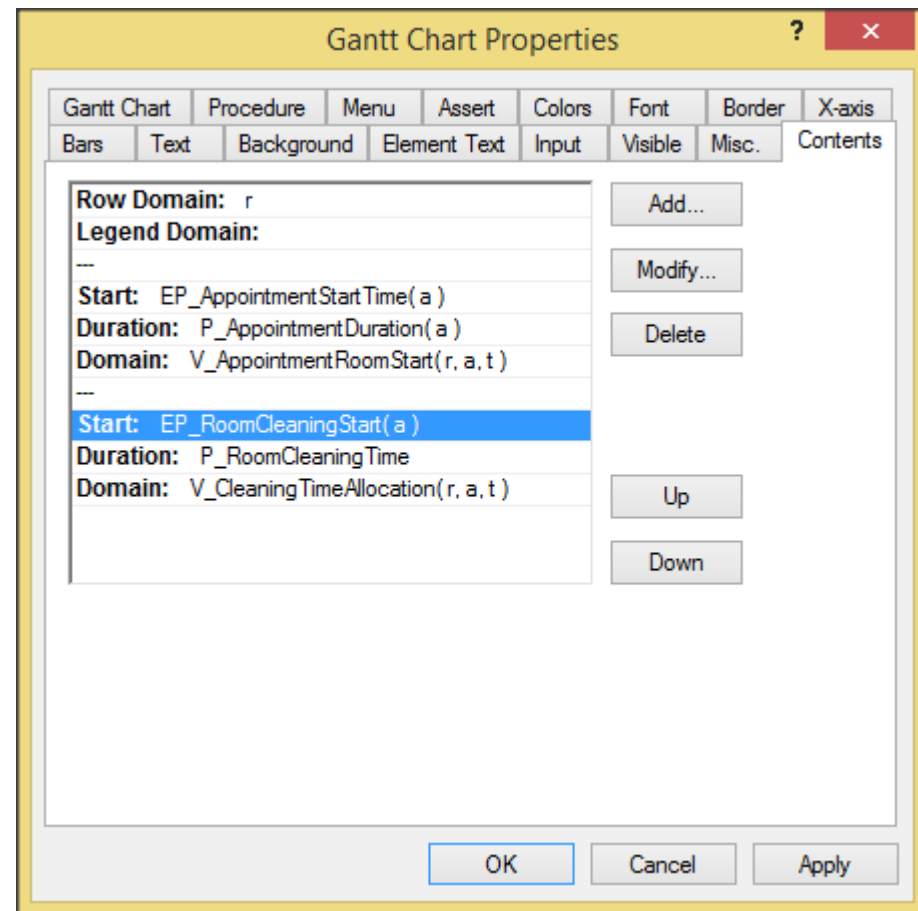


Adding content

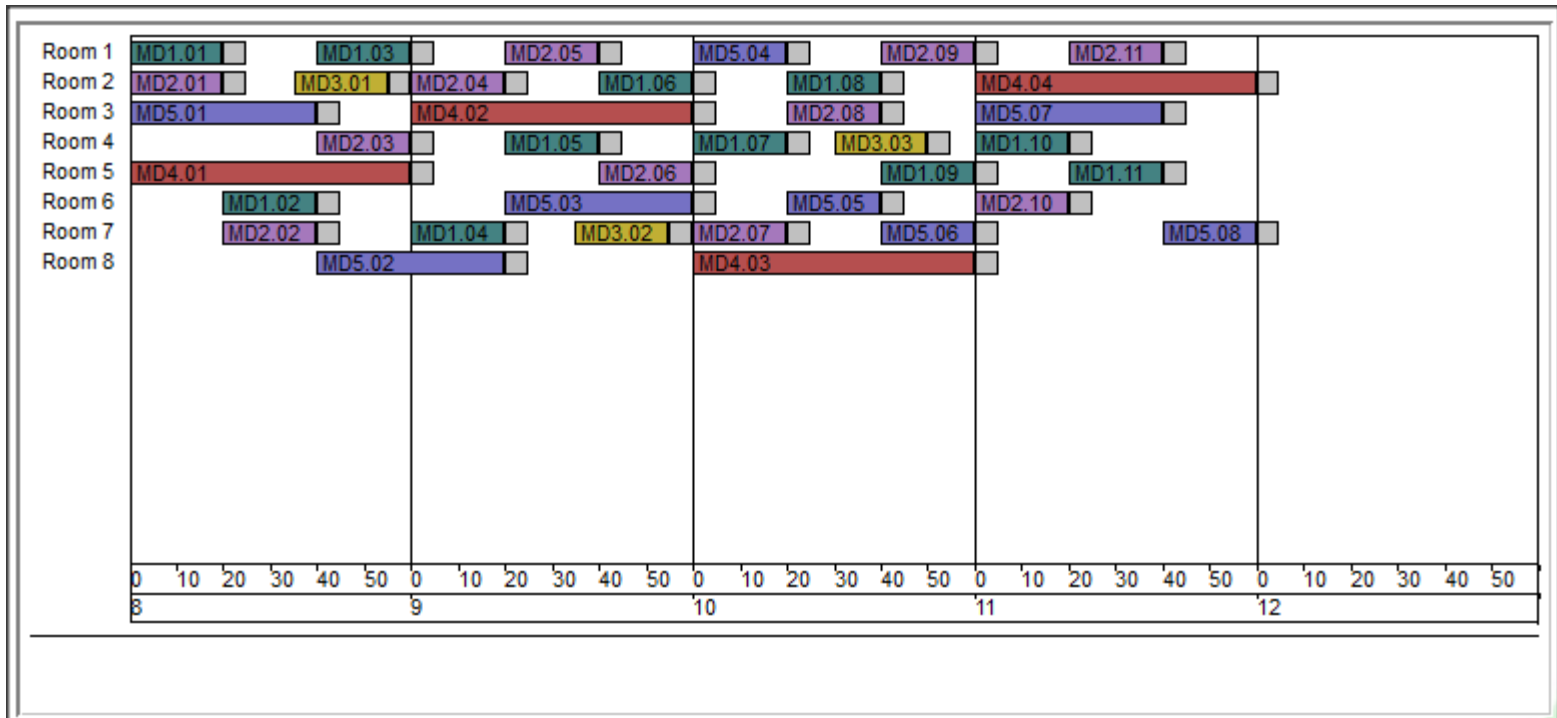
> Press the “Add” button

> Select

- Start
- Duration
- Domain



Adding content



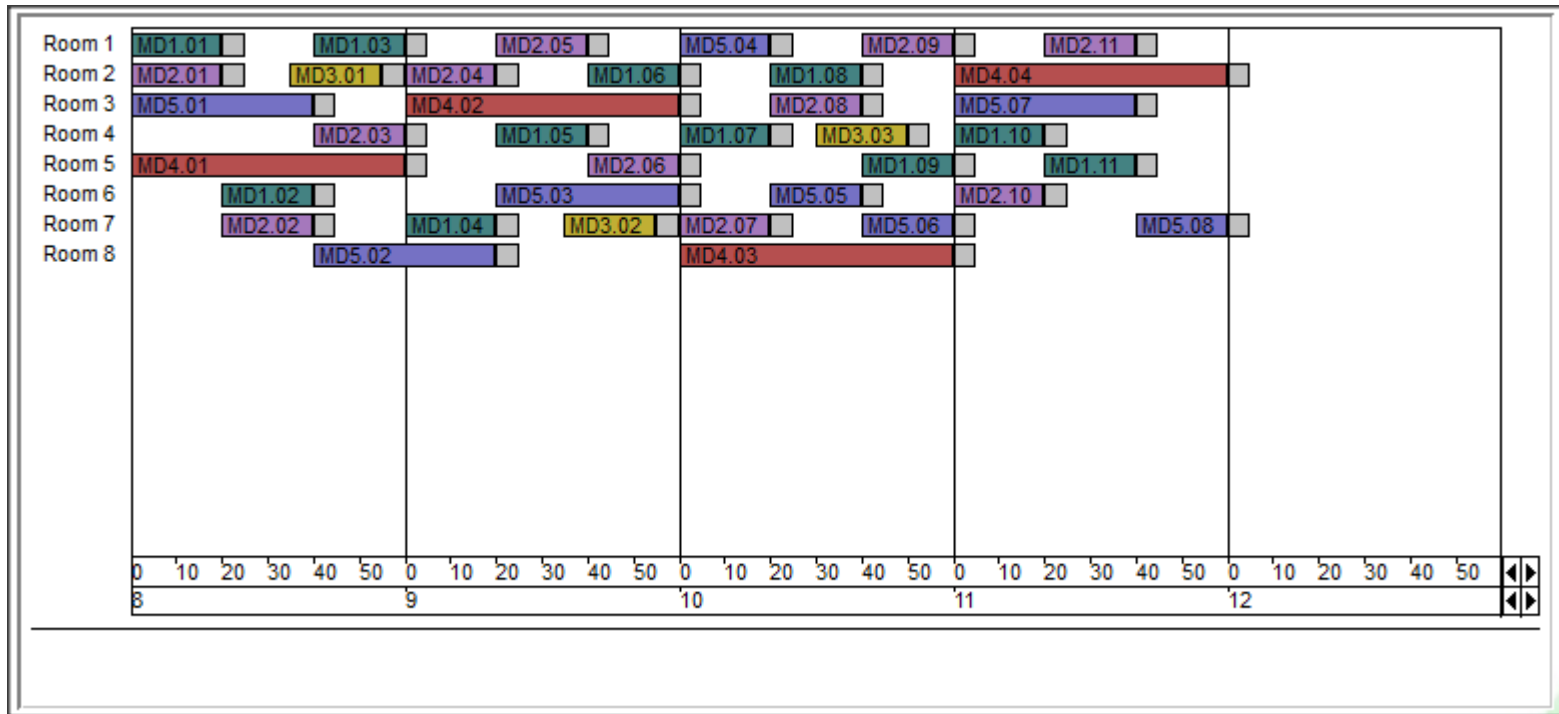
Enable Scrolling

- > Change the attribute of the left / right bound String Parameters to “Initial Value”

The screenshot shows the configuration window for a String Parameter named `SP_GanttChartLeftBound`. The window has a title bar with the name and a close button. Below the title bar is a toolbar with various icons. The main area is divided into several sections:

- Type:** String Parameter (dropdown menu)
- Identifier:** SP_GanttChartLeftBound
- Index domain:** (empty field with a pencil icon)
- Text:** (empty field)
- Default:** (empty field)
- Property:** (empty field with a pencil icon)
- Definition / Initial data:** A table with two columns: a line number and a value. The first row has line number 1 and the value `"2015-08-19 08:00:00"`. The **Initial data** radio button is selected and highlighted with a red box.
- Comment:** A table with two columns: a line number and a comment. The first row has line number 1 and an empty comment field.

Enable scrolling



AIMMS Demo

End User control



AIMMS



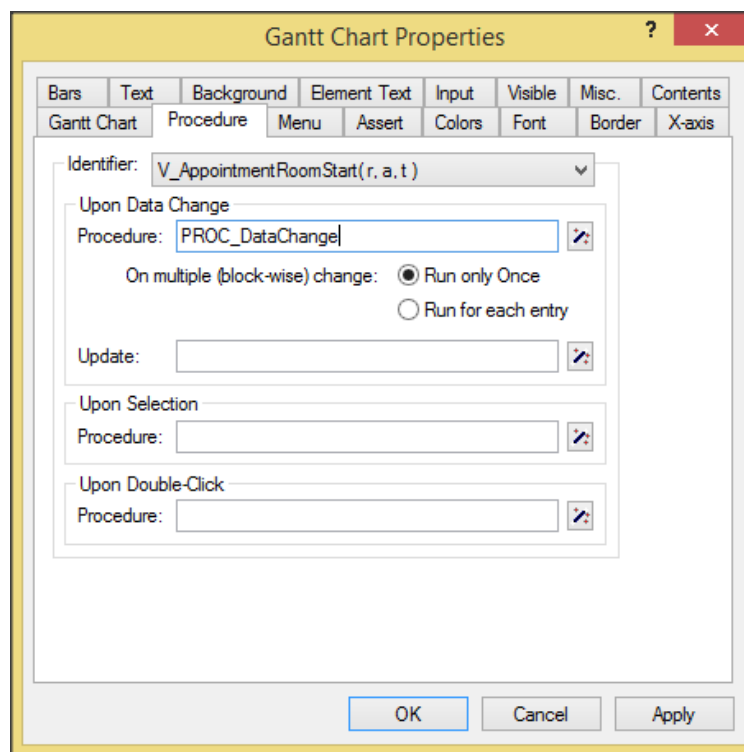
Procedure – data change



“... can I check the feasibility of the schedule when I play with the start time and duration of the appointments?”

Procedure – data change

>Add a procedure that is triggered every time we change the data.



Procedure – upon double click



“... can we use this method to update the status of each appointment when a patient checks in?”

Procedure – upon double click

> First, add these Identifiers:

- Parameter P_SelectedAppointment {
 IndexDomain: a;
}
- StringParameter SP_CheckedIn {
 IndexDomain: a;
}
- StringParameter SP_NewAppointmentText {
 IndexDomain: a;
 Definition: {
 FormatString("%s %s", SP_AppointmentBarText(a) , SP_CheckedIn(a));
 }
}



Procedure – upon double click

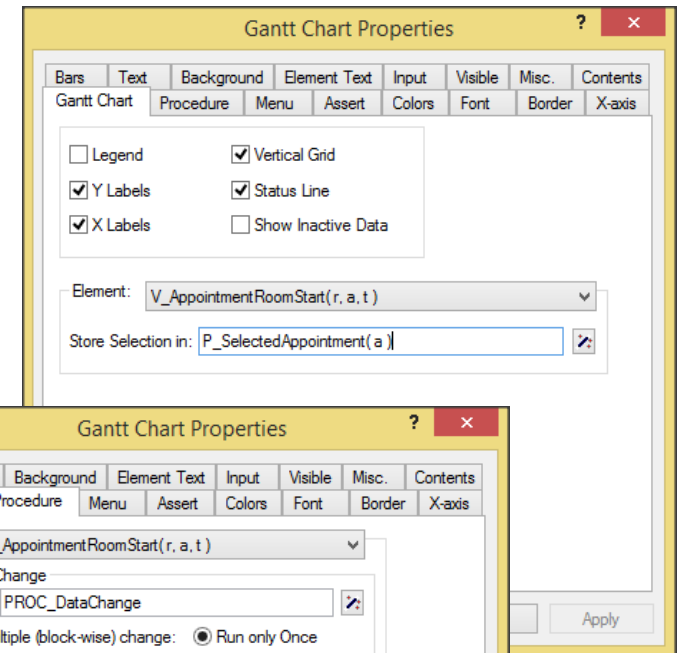
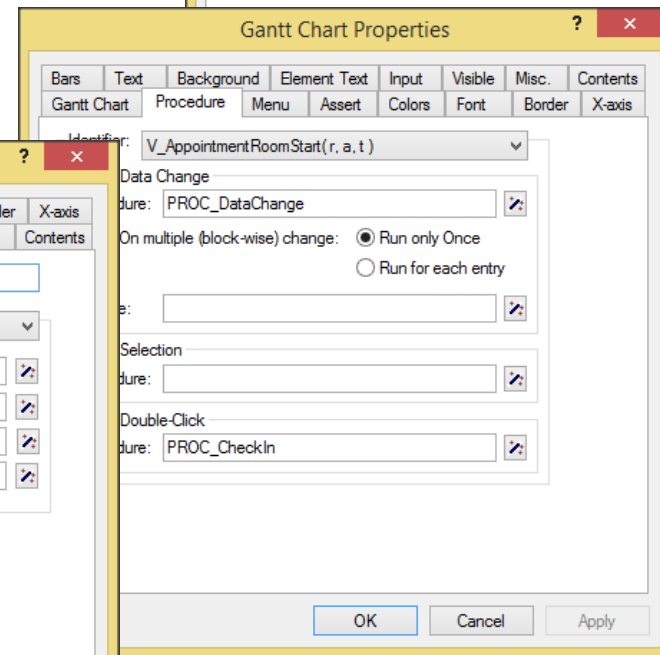
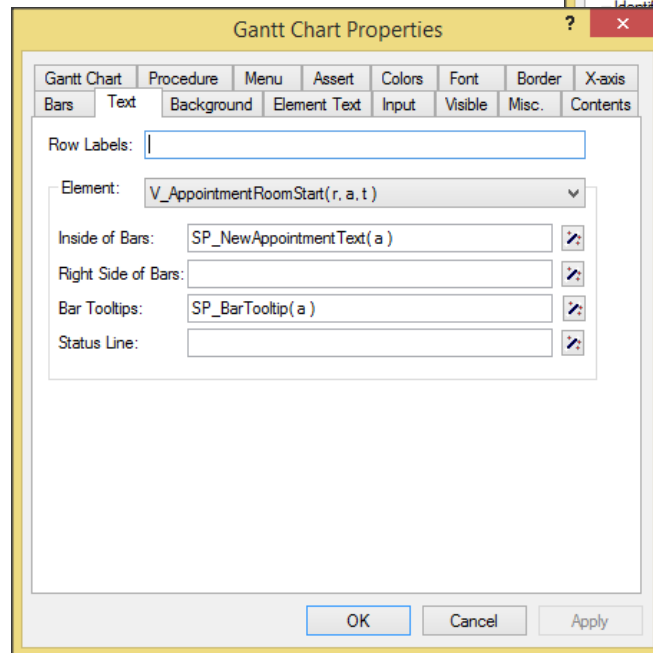
> ..and then a procedure containing this statement:

- `SP_CheckedIn(a) += "Checked In" OnlyIf (P_SelectedAppointment(a) = 1 and
SP_CheckedIn(a) = "");`

Procedure – upon double click

> Open the properties dialog.

- Store selection
- Procedure - Upon Double Click
- Replace the Bar text.



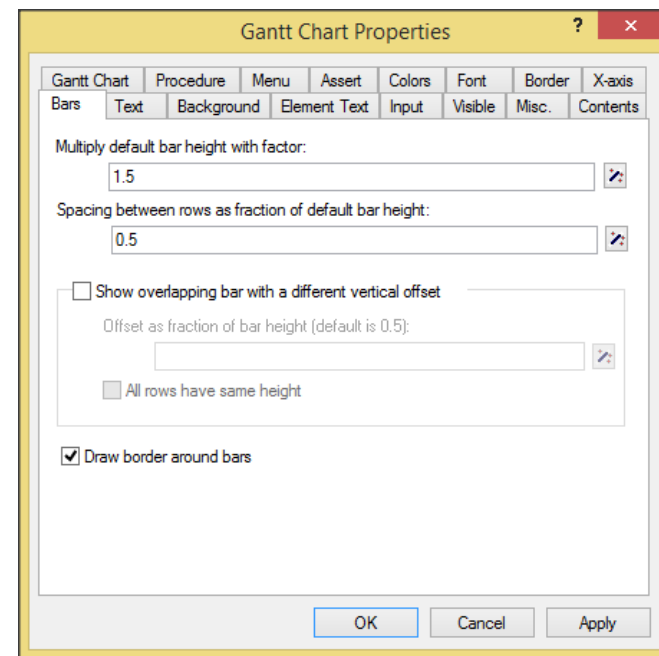
Bar size



“... can we adjust the size of the bar area?”

Bar size

- > Both bar height and row spacing can be adjusted from a factor of the default bar height.



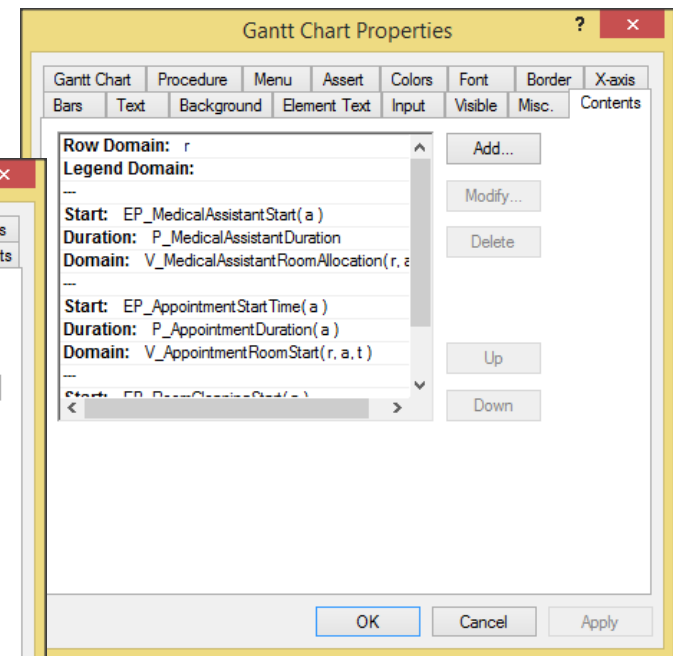
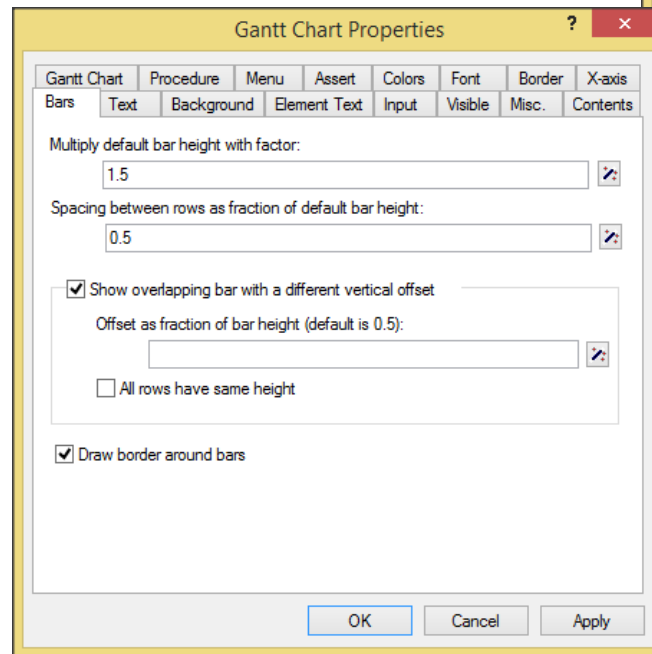
Overlapping bars



“... can we merge the medical assistant’s schedule into this Gantt Chart?”

Overlapping bars

- > Add content using the same indexed domain.
- > Allow the bars to overlap



Vertical Bands



“... quickly check availability across all the rooms?”

Vertical Bands

> Vertical band span the whole Gantt Chart

- Start
- Duration



> Use end user input values to experiment different options.

A dialog box titled "Appointment availability" with a yellow header bar. It contains two columns: "Time" and "Duration". Under "Time", there are two input boxes containing "9" and "30" separated by a colon. Under "Duration", there is one input box containing "20". A "Clear" button is located at the bottom right of the dialog.A dialog box titled "Gantt Chart Properties" with a yellow header bar. It has a tabbed interface with tabs for "Gantt Chart", "Procedure", "Menu", "Assert", "Colors", "Font", "Border", and "X-axis". The "Background" tab is selected, showing options for "Show Vertical Bands" (checked), "Band Hor. Position" (EP_ReqStartTime), "Band Width" (P_ReqDuration), "Band Color" (User, red), "Show Alternating Row Colors" (checked), and "Alternating Color" (System, blue). There are "OK", "Cancel", and "Apply" buttons at the bottom.

Summary

> Basics concepts of the Gantt Chart

- Setup
- X-axis
- Color Schemes
- Text

Summary

> End-user features

- Scrolling
- Zooming
- Manipulate data

Moving

Changing duration

Summary

> Advanced settings

- Procedures

 - Upon data change

 - Upon click

- Bars

 - Adjust height

 - Overlap

- Background

 - Vertical bands

 - Horizontal bands

Announcement of next webinar

The next webinar in this series will be on Constraint Programming Scheduling Applications and will be presented by Chris Kuip, Client Support consultant at AIMMS.

Join us – September 16, 2015:

- 5 pm CET / 11 AM EDT / 8AM PDT

Q&A



You can always email us at support@aimms.com with questions or suggestions.

Thank you!



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