



DIGISTAT® Scoring Calculator

DIGISTAT® Version 4.3

User Manual

DIG UD SCR IU 0005 ENG V01

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ASCOM UMS srl unipersonale
Via Amilcare Ponchielli 29, 50018, Scandicci (FI), Italy
Tel. (+39) 055 0512161 – Fax (+39) 055 829030
www.ascom.com

DIGISTAT® version 4.3

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1. Scoring Calculator



For general and detailed information about the DIGISTAT® environment and the instruction for use of the Control Bar software see the document “DIG UD CBR IU 0005 ENG V01 - Digistat Control Bar User Manual”.

1.1. Introduction

The DIGISTAT® “Scoring Calculator” module makes it possible to collect and classify clinical information according to the “Standard Severity Scores”.

DIGISTAT® “Scoring Calculator” performs all the necessary scoring calculations, importing data both from the DIGISTAT® Database and from most Network-Accessible, shared remote databases.

Scores and parameters are clearly displayed on charts and tables. Detailed information about the various Severity Scores is available.

This system, after patient selection, makes it possible to:

- navigate the available score algorithms and display, for each of them, the score calculations performed for a patient (either by score or by parameters values);
- display, via html, a description of the selected score algorithms;
- display in a chart a visual representation of the various scores values;
- configure a subset of parameters for each score parameter (chart, query, limits etc...);
- calculate a new score.

1.2. Module selection

To select the “Scoring Calculator” module,

- click the corresponding icon on the lateral bar (Fig 1).



Fig 1

The screen displayed in Fig 2 appears. In Fig 2 no patient is selected. The buttons on the Control Bar are therefore disabled and no data is displayed on screen.

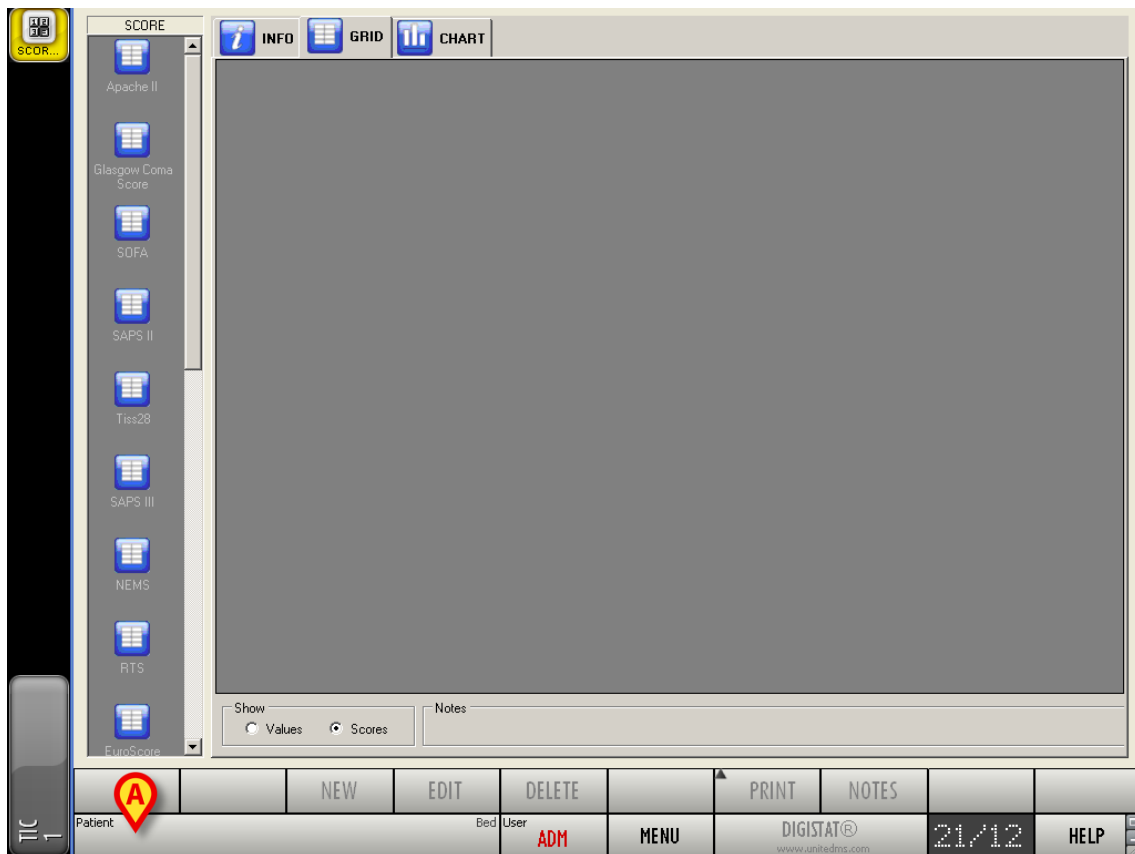


Fig 2 - Scoring table: no patient selected

1.3. Patient search and selection

To select a patient, if the patient search and selection tool is a DIGISTAT® software,

- click the **Patient** button on the Control Bar (Fig 2 A).

The DIGISTAT® Patient Explorer module opens if the module is available in the system in use, otherwise the patient search and selection functions are accomplished by Control Bar. See the related technical documentation to know the specific search and selection procedures.

If the software in use is not a DIGISTAT® software see the related documentation.



If your Healthcare Structure does not use a DIGISTAT® software for the patient search and selection procedures, please refer to the specific related documentation.

When a patient is selected the patient data (if any) are displayed. In Fig 3 patient “Cedar Hill Tarcento” is selected.

1.4. Screen structure

The screen shown in Fig 3 makes it possible to display in charts and tables the various data.

The screen is formed of three main areas:

- 1) the list of available “Scores” (Fig 3 A);
- 2) the data area (this area displays charts, tables and scores instructions Fig 3 B);
- 3) the command bar (Fig 3 C).

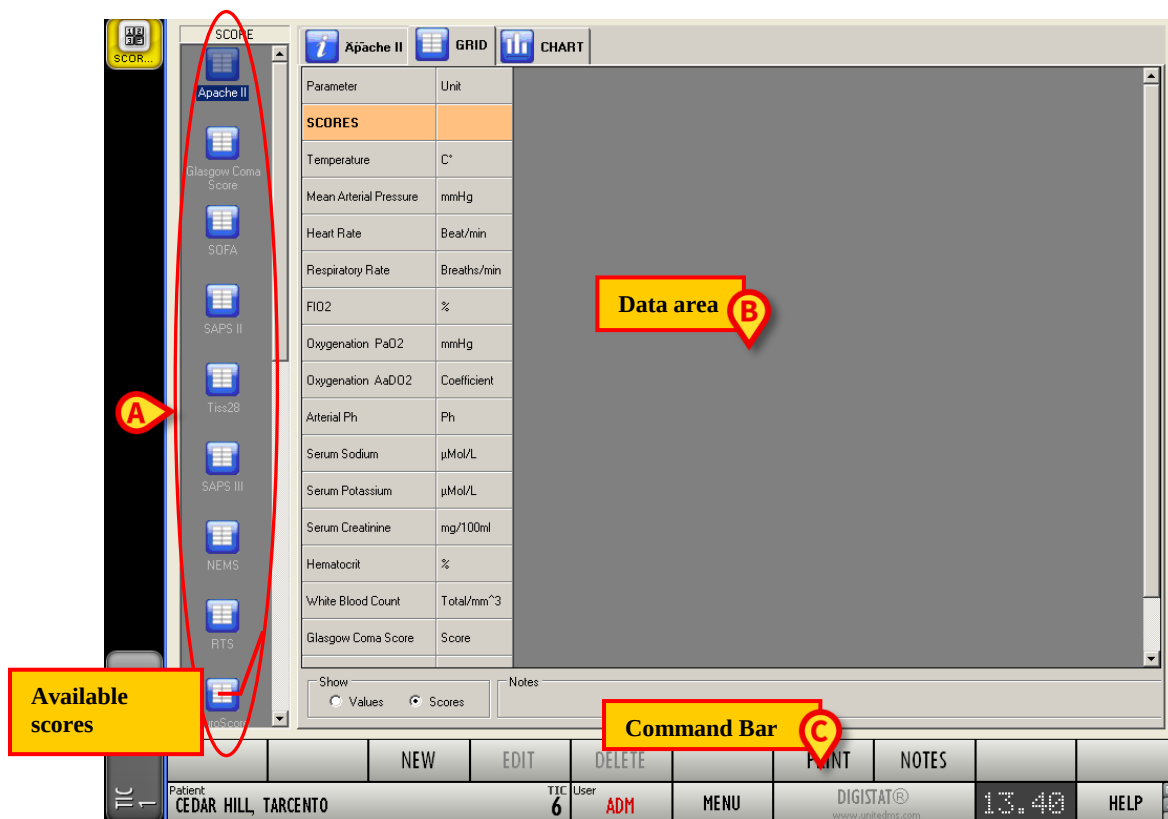


Fig 3 - Scoring table - Patient selected

1.5. The list of available scores

The vertical area on the left (Fig 3 A, Fig 4) displays the list of all the available scores.

These are some of the scores currently available (only the scores explicitly enabled by configuration are displayed):

- APACHE II - Acute Physiologic and Chronic Health Evaluation
- APS - Acute Physiologic Score
- SAPS II - Simplified Acute Physiology Score
- TISS 28 - Therapeutic Intervention Score System
- GCS - Glasgow Coma Score
- NEMS - Nine equivalent of nursing manpower
- RTS - Revised Trauma Score
- MPM Admission - Mortality Probability Model
- MPM 24h Model - Mortality Probability Model every 24 hours of ICU stay
- SOFA - Sepsis-Related Organ Failure Assessment
- EUROSCORE - European System for Cardiac Operative Risk Evaluation
- HIGGINS CABG - ICU admission risk based on preoperative conditions and intraoperative events.

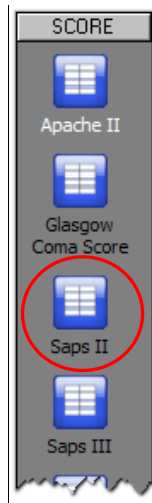


Fig 4 - Selectable scores

An icon and a name indicate each available score (for example “Apache II”, “Saps II” etc...).

The icon corresponding to the score currently in use is highlighted - .

To select a score,

- click the corresponding icon.

The central part of the screen (“Data area” - Fig 3 **B**) displays the available data for the selected score and patient.

1.6. Data area

The “data area” is the central part of each screen. In this area either charts, tables or score information are displayed. (Fig 5, Fig 3 B).

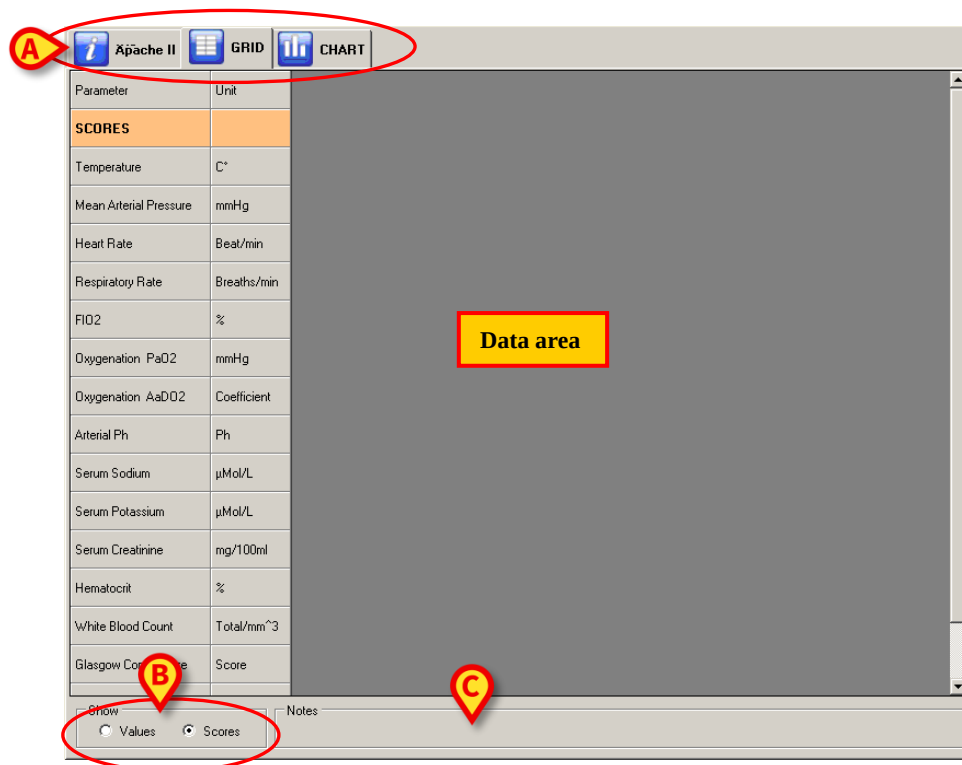


Fig 5 - Data area

This area always displays the data referring to the score selected on the bar on the left (Fig 4).

Three tabs are on the top left corner of the data area (Fig 5 A).

- The “Table” tab (selected in the figure) displays the table containing the score values.
- The tab containing the name of the selected score (“Apache II” in the figure) displays the score’s on-line guide.
- The third tab “Chart” displays in a chart the trends of the acquired score parameters values.

The area indicated in Fig 5 C displays the possible notes associated to a single score calculation. The note is displayed only if the column relating to the specific calculation is selected. See paragraph 1.8.

1.7. Table

The table in the data area (Fig 6) displays the different scores associated to the parameters relating to the selected score calculation.

Parameter	Unit	16/12/2011 09.34 ADM	16/12/2011 11.52 ADM	16/12/2011 13.11 ADM	16/12/2011 13.14 ADM	21/12/2011 13.23 ADM
SCORES		50	46	56	52	58
Temperature	C°	1	2	2	1	1
Mean Arterial Pressure	mmHg	2	3	2	2	2
Heart Rate	Beat/min	0	0	0	0	2
Respiratory Rate	Breaths/min	3	0	1	3	1
FI02	%	21	21	21	21	21
Oxygenation PaO2	mmHg	1	1	1	3	4
Oxygenation AaDO2	Coefficient					
Arterial Ph	Ph	4	2	3	4	2
Serum Sodium	μMol/L	1	2	1	2	3
Serum Potassium	μMol/L	2	3	3	3	4
Serum Creatinine	mg/100ml	2	2	2	3	2
Hematocrit	%	2	2	0	2	2
White Blood Count	Total/mm ³	2	0	4	1	2
Glasgow Coma Score	Score	9	4	11	7	9

Fig 6 - Scores table - “Apache II”

The first column displays the names of all the parameters (Fig 7).

Parameter
SCORES
Temperature
Mean Arterial Pressure
Heart Rate
Respiratory Rate
FI02
Oxygenation PaO2

Fig 7 - Parameters

The second column indicates the unit of measure of the values displayed on the table (Fig 8).

Unit
C°
mmHg
Beat/min
Breaths/min
%

Fig 8 - Unit of measure

The other columns refer to a score calculation. Each cell displays the score calculated for the corresponding parameter (Fig 9).

A	16/12/2011 09.34 ADM
B	50
	1
	2
	0
	3
	21
	1

Fig 9 - Scores

The first cell of each column indicates the date, the time and the acronym of the user who recorded the information (Fig 9 **A**).

The second cell indicates the score total value (Fig 9 **B**).

For some parameters it is possible to display the parameter value instead of the corresponding points.

To do that

- select the “Values” option on the bottom left corner (Fig 10, Fig 5 **B**).

Show
☒ Values
☐ Scores

Fig 10 - Display values

The values are this way displayed in the table (Fig 11).

Parameter	Unit	16/12/2011 09.34 ADM
SCORES		50
Temperature	C°	38,7
Mean Arterial Pressure	mmHg	65
Heart Rate	Beat/min	96
Respiratory Rate	Breaths/min	47
FI02	%	<50
Oxygenation PaO2	mmHg	

Fig 11 - Values

1.7.1. Notes

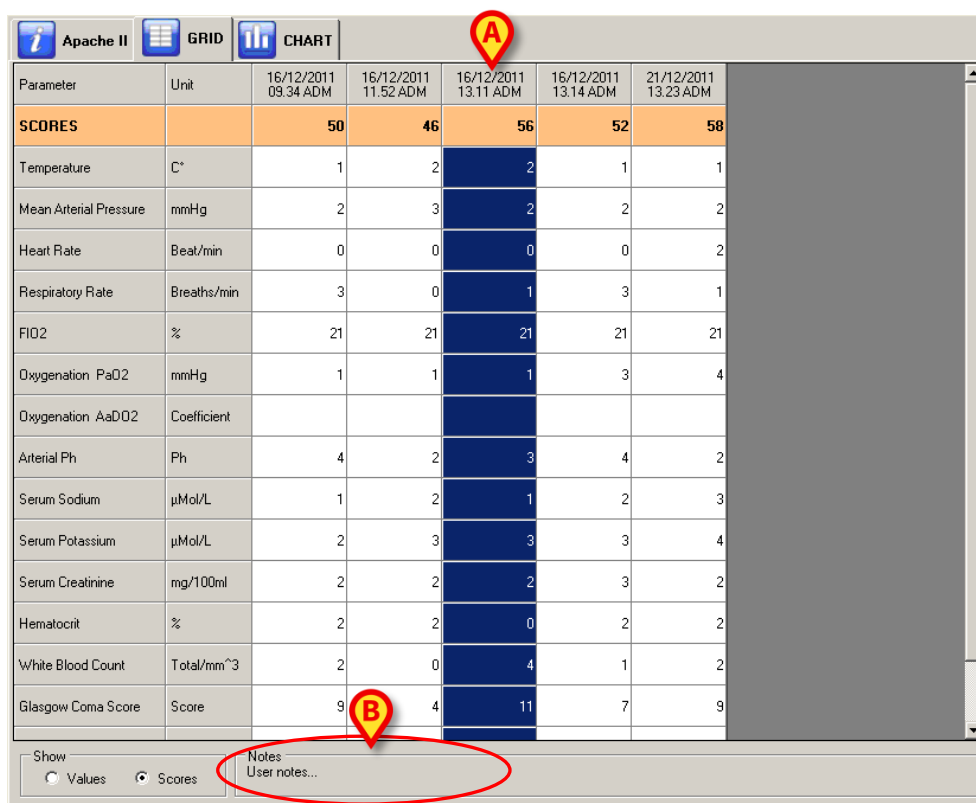
The “Notes” area, indicated in Fig 5 **C** and Fig 12 **B**, displays the possible notes associated to a single score calculation. The note is displayed only when the column corresponding to the specific score calculation is selected.

To select a column,

- Click the column itself.

The column is highlighted (Fig 12 **A**).

If there is a note associated to that score calculation, the note is displayed in the “Notes” area (Fig 12 **B**).



Parameter	Unit	16/12/2011 09.34 ADM	16/12/2011 11.52 ADM	16/12/2011 13.11 ADM	16/12/2011 13.14 ADM	21/12/2011 13.23 ADM
SCORES		50	46	56	52	58
Temperature	C°	1	2	2	1	1
Mean Arterial Pressure	mmHg	2	3	2	2	2
Heart Rate	Beat/min	0	0	0	0	2
Respiratory Rate	Breaths/min	3	0	1	3	1
FI02	%	21	21	21	21	21
Oxygenation PaO2	mmHg	1	1	1	3	4
Oxygenation AaDO2	Coefficient					
Arterial Ph	Ph	4	2	3	4	2
Serum Sodium	µMol/L	1	2	1	2	3
Serum Potassium	µMol/L	2	3	3	3	4
Serum Creatinine	mg/100ml	2	2	2	3	2
Hematocrit	%	2	2	0	2	2
White Blood Count	Total/mm^3	2	0	4	1	2
Glasgow Coma Score	Score	9	4	11	7	9

☐ Values
 ☒ Scores
 Notes
User notes...

Fig 12

1.8. How to calculate a new score

To calculate a new score and to insert the corresponding values in the table

- select, on the list on the left, the Standard Severity Score to be used (Fig 4).
- Click the **New** button on the command bar (Fig 13).



Fig 13 - Command bar

A window opens, making it possible to specify the values of all the parameters that are relevant for the selected score.

Apache II

Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)				<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39	>=41
Mean Arterial Pressure (mmHg)				<50		<70 >=50		<110 >=70		<130 >=110	<160 >=130	>=160
Heart Rate (Beat/min)				<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140	>=180
Respiratory Rate (Breaths/min)				<6		<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35	>=50
FI02 (%)												
Oxygenation PaO2 (mmHg)				<55	<61 >=55		<71 >=61	>=71				
Oxygenation AaDO2 (Coefficient)								<200		<350 >=200	<500 >=350	>=500
Arterial Ph (Ph)				<7,15	<7,24 >=7,15	<7,33 >=7,24		<7,5 >=7,33	<7,6 >=7,5		<7,7 >=7,6	>=7,7
Serum Sodium (µMol/L)				<111	<120 >=111	<130 >=120		<150 >=130	<155 >=150	<=160 >=155	<180 >=160	>=180
Serum Potassium (µMol/L)				<2,5		<3 >=2,5	<3,5 >=3	<5,5 >=3,5	<6 >=5,5		<7 >=6	>=7
Serum Creatinine (mg/100ml)						<0,6		<1,5 >=0,6		<2 >=1,5	<3,5 >=2	>=3,5
Hematocrit (%)				<20		<30 >=20		<46 >=30	<50 >=46	<60 >=50		>=60
White Blood Count (Total/mm³)				<1		<3 >=1		<15 >=3	<20 >=15	<40 >=20		>=40
Glasgow Coma Score (Score)												
Age (Years)												

13.47

SCORES

OK

CANCEL

NOTES

Fig 14 - Data entry window ("Apache II" system)



Each score has its own parameters and points attribution criteria. Therefore the data entry window changes according to the selected scoring system. This paragraph describes, as example, the window relating to the "Apache II" system. The data entry procedures remain the same for all the available scores.

- Insert the values and /or the points in the window (Fig 15 A).

When all the parameters are specified the total value is displayed in the box indicated in



The total value is calculated only if all the parameters are specified.

Apache II

Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)			1	<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5	<41 >=39	>=41	
Mean Arterial Pressure (mmHg)			2	<50	<70 >=50	<70 >=50	<110 >=70	<110 >=70	<130 >=110	<160 >=130	>=160	
Heart Rate (Beat/min)			2	<40	<55 >=40	<70 >=55	<110 >=70	<110 >=70	<140 >=110	<180 >=140	>=180	
Respiratory Rate (Breaths/min)			1	<6	<10 >=6	<12 >=10	<25 >=12	<35 >=25	<50 >=35	>=50		
FIO2 (%)		*	21	<50								
Oxygenation PaO2 (mmHg)			4	<55	<61 >=55	<71 >=61	>=71					
Oxygenation AaDO2 (Coefficient)							<200		<350 >=200	<500 >=350	>=500	
Arterial Ph (Ph)			2	<7,5	<7,24 >=7,15	<7,33 >=7,24	<7,5 >=7,33	<7,6 >=7,5	<7,7 >=7,6	<7,7 >=7,6	>=7,7	
Serum Sodium (µMol/L)			3	<111	<120 >=111	<130 >=120	<150 >=130	<155 >=150	<160 >=155	<180 >=160	>=180	
Serum Potassium (µMol/L)			4	<2,5	<3 >=2,5	<3,5 >=3	<5,5 >=3,5	<6 >=5,5	<7 >=6	<7 >=6	>=7	
Serum Creatinine (mg/100ml)			2		<0,6	<0,6	<1,5 >=0,6	<2 >=1,5	<3,5 >=2	<3,5 >=2	>=3,5	
Hematocrit (%)			2	<20	<30 >=20	<30 >=20	<46 >=30	<50 >=46	<60 >=50	<60 >=50	>=60	
White Blood Count (Total/mm ³)			2	<4	<3 >=1	<3 >=1	<15 >=9	<20 >=15	<40 >=20	<40 >=20	>=40	
Glasgow Coma Score (Score)		*	9	GSC 6								
Age (Years)		*	3	>=55 <65								

NOTES

OK

CANCEL

13.23

SCORES

58

Fig 15 - Specified scores and values

- Click the **Ok** button (Fig 15 B).

A new column is this way added to the score's table. The new column displays the new set of values (Fig 16).



The data entry window and the data entry procedures are described in paragraphs 1.8.1 and 1.8.2.

Parameter	Unit	16/12/2011 09.34 ADM	16/12/2011 11.52 ADM	16/12/2011 13.11 ADM	16/12/2011 13.14 ADM	16/12/2011 13.23 ADM
SCORES		50	46	56	52	58
Temperature	C°	1	2	2	1	1
Mean Arterial Pressure	mmHg	2	3	2	2	2
Heart Rate	Beat/min	0	0	0	0	2
Respiratory Rate	Breaths/min	3	0	1	3	1
FI02	%	21	21	21	21	21
Oxygenation PaO2	mmHg	1	1	1	3	4
Oxygenation AaDO2	Coefficient					
Arterial Ph	Ph	4	2	3	4	2
Serum Sodium	μMol/L	1	2	1	2	3
Serum Potassium	μMol/L	2	3	3	3	4
Serum Creatinine	mg/100ml	2	2	2	3	2
Hematocrit	%	2	2	0	2	2
White Blood Count	Total/mm ³	2	0	4	1	2
Glasgow Coma Score	Score	9	4	11	7	5

Fig 16 - New score

Select the “Values” option on the bottom-left corner to display on the table the actual values of the parameters (Fig 17, Fig 5 **B**) instead of the score’s points.

Show
☒ Values
☐ Scores

Fig 17 - Display values

1.8.1. Data entry window description

The data entry window (an example is shown in Fig 18), offers several tools to specify the relevant values and to calculate the corresponding scores.

Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)			<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39		>=41
Mean Arterial Pressure (mmHg)			<50		<70 >=50		<110 >=70		<130 >=110	<160 >=130		>=160
Heart Rate (Beat/min)			<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140		>=180
Respiratory Rate (Breaths/min)			<6	<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35			>=50
FI02 (%)												
Oxygenation PaO2 (mmHg)			<55	<61 >=55		<71 >=61	>=71					
Oxygenation AaDO2 (Coefficient)							<200		<350 >=200	<500 >=350		>=500
Arterial Ph (Ph)			<7,15	<7,24 >=7,15	<7,33 >=7,24		<7,5 >=7,33	<7,6 >=7,5		<7,7 >=7,6		>=7,7
Serum Sodium (µMol/L)			<111	<120 >=111	<130 >=120		<150 >=130	<155 >=150	<=160 >=155	<180 >=160		>=180
Serum Potassium (µMol/L)			<2,5		<3 >=2,5	<3,5 >=3	<5,5 >=3,5	<6 >=5,5		<7 >=6		>=7
Serum Creatinine (mg/100ml)					<0,6		<1,5 >=0,6		<2 >=1,5	<3,5 >=2		>=3,5
Hematocrit (%)			<20		<30 >=20		<46 >=30	<50 >=46	<60 >=50			>=60
White Blood Count (Total/mm³)			<1		<3 >=1		<15 >=3	<20 >=15	<40 >=20			>=40
Glasgow Coma Score (Score)												
Age (Years)												

NOTES

OK CANCEL

Fig 18 - Data entry window ("Apache II" system)

All the parameters, with their unit of measure, are listed on the left (Fig 18 A, Fig 19).

Parameter
Temperature (C°)
Mean Arterial Pressure (mmHg)
Heart Rate (Beat/min)
Respiratory Rate (Breaths/min)
FI02 (%)
Oxygenation PaO2 (mmHg)

Fig 19 - Parameters list

The three successive columns (Fig 18 B, Fig 20),

Imp	Value	Scores

Fig 20 - Import, value and scores

display the following information:

- 1) the “Imp” column can display, if enabled by configuration, a button making it possible to automatically import the results of a query associated to the parameter. When this is the case a button is displayed inside the cell, as in Fig 21. Click the button to specify the score.

Parameter	Imp	Value	Scores
Primo Param (Kg)			<=25 >0

Fig 21

- 2) the “Value” column makes it possible to specify the parameter’s value;
- 3) the “Scores” column displays the score (points) relating to the value specified for the corresponding parameter.

The rectangles on the central part of the window (Fig 18 C, Fig 22) are both scores specification buttons and reference guides indicating the value-points relationship.

+4	+3	+2	+1	+0	+1	+2	+3	+4
<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39	>=41
<50		<70 >=50		<110 >=70		<130 >=110	<160 >=130	>=160
<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140	>=180
<6		<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35	>=50

Fig 22 - Values and scores table

Each rectangle is in fact a button. Click the rectangle to insert the score corresponding to the interval specified in the rectangle itself. The first rectangle on the top left corner, for instance, indicates a temperature that is below 30 degrees and corresponds to a score of +4 points. Click the rectangle to add 4 points to the “Scores” column (Fig 23).

Parameter	Imp	Value	Scores	+4	+3
Temperature (C°)			4	<30	<32 >=30

Fig 23

1.8.2. Data entry procedures

To specify a value on the data entry window

- click the “Value” column on the row corresponding to the wanted parameter (Fig 24 A).

Parameter	Imp	Value	Scores
Temperature (C°)			<30
Mean Arterial Pressure (mmHg)			<50
Heart Rate (Beat/min)			<40
Respiratory Rate (Breaths/min)			<6
FIO2 (%)			

Fig 24

A cursor appears in the cell (as in Fig 24).

- Type the wanted value.

The corresponding score is automatically displayed on the adjacent “Score” cell (Fig 25).

Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)				<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39	>=41
Mean Arterial Pressure (mmHg)				<50		<70 >=50		<110 >=70		<130 >=110	<160 >=130	>=160
Heart Rate (Beat/min)		65	2	<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140	>=180
Respiratory Rate (Breaths/min)				<6		<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35	>=50

Fig 25 - Value specified

It is also possible to specify the score directly, without entering the exact parameter value. There are two methods to do that:

First method

- Click the button indicating the interval corresponding to wanted score.

If, for instance, the button shown in Fig 26, indicating a Mean Arterial Pressure comprised between 50 and 70 mmHg, and corresponding to a +2 value is clicked,

Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)				<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39	>=41
Mean Arterial Pressure (mmHg)				<50		<70 >=50		<110 >=70		<130 >=110	<160 >=130	>=160
Heart Rate (Beat/min)				<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140	>=180
Respiratory Rate (Breaths/min)				<6		<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35	>=50
FI02 (%)												

Fig 26

the score 2 for the Mean Arterial Pressure is automatically inserted in the “Scores” column (Fig 27).

Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)				<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39	>=41
Mean Arterial Pressure (mmHg)			2	<50		<70 >=50		<110 >=70		<130 >=110	<160 >=130	>=160
Heart Rate (Beat/min)				<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140	>=180
Respiratory Rate (Breaths/min)				<6		<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35	>=50

Fig 27

Second method

- Click the “Scores” cell corresponding to the parameter to be specified (Fig 28).

Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)				<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39	>=41
Mean Arterial Pressure (mmHg)				<50		<70 >=50		<110 >=70		<130 >=110	<160 >=130	>=160
Heart Rate (Beat/min)				<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140	>=180
Respiratory Rate (Breaths/min)				<6		<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35	>=50
FI02 (%)												

Fig 28

A window referring to the parameter to be specified appears, displaying the possible scores and their corresponding values (Fig 29).

Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0
Temperature (C°)				<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36
Mean Arterial Pressure (mmHg)				Mean Arterial Pressure				<110 >=70
Heart Rate (Beat/min)				Score	Choice			<110 >=70
Respiratory Rate (Breaths/min)				4	x < 50		2	<25 >=12
FI02 (%)				2	50 <= x < 70		10	
				0	70 <= x < 110			
				2	110 <= x < 130			
Oxygenation PaO2 (mmHg)				3	130 <= x < 160		1	>=71
Oxygenation AaDO2 (Coefficient)				4	160 <= x		61	<200
Arterial Ph (Ph)								<7,5 >=7,3
Serum Sodium (µMol/L)				<111	<120 >=111	<130 >=120		<150 >=130

Fig 29

- Click the line corresponding to the wanted score. For instance: the line indicated in Fig 30 (Mean Arterial Pressure between 50 and 70 mmHg) corresponds to a +2 score.

Mean Arterial Pressure	
Score	Choice
4	x < 50
2	50 <= x < 70
0	70 <= x < 110
2	110 <= x < 130
3	130 <= x < 160
4	160 <= x

Fig 30

The score “2” is this way inserted in the appropriate cell (Fig 31).

Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)				<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39	>=41
Mean Arterial Pressure (mmHg)			2	<30		<70 >=50		<110 >=70		<130 >=110	<160 >=130	>=160
Heart Rate (Beat/min)				<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140	>=180
Respiratory Rate (Breaths/min)				<6		<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35	>=50

Fig 31

The box indicated in Fig 32 displays the total score.

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Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)			1	<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39	>=41
Mean Arterial Pressure (mmHg)			2	<50		<70 >=50		<110 >=70		<130 >=110	<160 >=130	>=160
Heart Rate (Beat/min)			2	<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140	>=180
Respiratory Rate (Breaths/min)			1	<6		<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35	>=50
FI02 (%)		*	21	<50								
Oxygenation PaO2 (mmHg)			4	<55	<61 >=55		<71 >=61	>=71				
Oxygenation AaDO2 (Coefficient)								<200		<350 >=200	<500 >=350	>=500
Arterial Ph (Ph)			2	<7,15	<7,24 >=7,15	<7,33 >=7,24		<7,5 >=7,33	<7,6 >=7,5		<7,7 >=7,6	>=7,7
Serum Sodium (µMol/L)			3	<111	<120 >=111	<130 >=120		<150 >=130	<155 >=150	<160 >=155	<180 >=160	>=180
Serum Potassium (µMol/L)			4	<2,5		<3 >=2,5	<3,5 >=3	<5,5 >=3,5	<6 >=5,5		<7 >=6	>=7
Serum Creatinine (mg/100ml)			2			<0,6		<1,5 >=0,6		<2 >=1,5	<3,5 >=2	>=3,5
Hematocrit (%)			2	<20		<30 >=20		<46 >=30	<50 >=46	<60 >=50		>=60
White Blood Count (Total/mm³)			2	<1		<3 >=1		<15 >=3	<20 >=15	<40 >=20		>=40
Glasgow Coma Score (Score)		*	9	GSC 6								
Age (Years)		*	3	>=55 <65								

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A

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OK

CANCEL

Fig 32



Totals are only displayed when all the parameters are specified.

1.9. Second score formula

A configuration option makes it possible to specify two formulas for the same score. For example: a “main” formula can be specified to calculate the score total value while a “second” formula can be specified to calculate another meaningful value (a value indicating the “mortality rate”, for instance).

In these cases the module’s interface slightly changes to display both values at the same time. See for an instance Fig 33, displaying the data entry window referring to a sample configuration.

Nuovo Score

Parameter	Imp	Value	Scores	0	1	2	3	4
Primo Param (Kg)	↓	75	2	<=25 >0	<=50 >25	<=75 >50	<=100 >75	>100
Secondo Parametro (Kg)		*	2	Item 3				
Terzo Par,		Si	1	Si	No			
Quarto Par,		3						

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FORMULA
5

OK
CANCEL

NOTES

Fig 33

In Fig 33 **A** both scores are indicated: the one calculated by the “main” formula (value = 8) and the one calculated by the “secondary” formula (value = 5).

Both values are then displayed on the “Scores” grid on the module’s main screen (Fig 34 **A**).

Parameter	Unit	21/12/2011 09.55 ADM	23/12/2011 10.08 ADM
SCORES		7 [5]	8 [5]
Primo Param	Kg	1	2
Secondo Parametro	Kg		2
Terzo Par,		1	1
Quarto Par,		5	3

Fig 34

1.9.1. Contextual information on the parameters

The data entry window (Fig 35) can provide information on the relevant parameters.

The existing information (specified by configuration) is displayed on the bottom of the window every time the user clicks the cell displaying the parameter name. See for an instance Fig 35, in which the FIO2 parameter was clicked.

The screenshot shows the Apache II data entry window. The FIO2 (%) parameter is selected, and its information is displayed in the bottom section. The information includes a note: "Inserted only if FIO2 value is less than 50%. Write down the worst value observed during the last 24 hours." The note is circled in red. The window also displays a table of parameters and their values, a scores section, and OK/CANCEL buttons.

Parameter	Value	Range 1	Range 2	Range 3	Range 4	Range 5	Range 6	Range 7	Range 8	Range 9	Range 10
Temperature (C°)	2	<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39	>=41	
Mean Arterial Pressure (mmHg)	2	<50		<70 >=50		<110 >=70		<130 >=110	<160 >=130	>=160	
Heart Rate (Beat/min)	4	<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140	>=180	
Respiratory Rate (Breaths/min)	2	<6		<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35	>=50	
FIO2 (%)	* 21	<50									
Oxygenation PaO2 (mmHg)	4	<55	<61 >=55		<71 >=61	>=71					
Oxygenation AaDO2 (Coefficient)						<200	<350 >=200	<500 >=350	>=500		
Arterial Ph (Ph)	3	<7,15	<7,24 >=7,15	<7,33 >=7,24		<7,5 >=7,33	<7,6 >=7,5	<7,7 >=7,6	>=7,7		
Serum Sodium (µMol/L)	2	<111	<120 >=111	<130 >=120		<150 >=130	<155 >=150	<=160 >=155	<180 >=160	>=180	
Serum Potassium (µMol/L)	0	<2,5		<3 >=2,5	<3,5 >=3	<5,5 >=3,5	<6 >=5,5	<7 >=6	>=7		
Serum Creatinine (mg/100ml)	2			<0,6		<1,5 >=0,6		<2 >=1,5	<3,5 >=2	>=3,5	
Hematocrit (%)	2	<20		<30 >=20		<46 >=30	<50 >=46	<60 >=50	>=60		
White Blood Count (T total/mm³)	4	<1		<3 >=1		<15 >=3	<20 >=15	<40 >=20	>=40		
Glasgow Coma Score (Score)	* 6	GSC 9									
Age (Years)	* 5	>=65 <75									
Chronic Health Points	* 2	Elective postoperative patient									

NOTES

Inserted only if FIO2 value is less than 50%. Write down the worst value observed during the last 24 hours.

OK CANCEL

Fig 35 - Parameter information

1.9.2. Time settings

The box indicated in Fig 36 displays the time associated to the score specification. Also the date is displayed if it is different from the current date.

Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)			1	<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5		<41 >=39	>=41
Mean Arterial Pressure (mmHg)			2	<50		<70 >=50		<110 >=70		<130 >=110	<160 >=130	>=160
Heart Rate (Beat/min)			2	<40	<55 >=40	<70 >=55		<110 >=70		<140 >=110	<180 >=140	>=180
Respiratory Rate (Breaths/min)			1	<6		<10 >=6	<12 >=10	<25 >=12	<35 >=25		<50 >=35	>=50
FI02 (%)		*	21	<50								
Oxygenation PaO2 (mmHg)			4	<55	<61 >=55		<71 >=61	>=71				
Oxygenation AaDO2 (Coefficient)								<200		<350 >=200	<500 >=350	>=500
Arterial Ph (Ph)			2	<7,15	<7,24 >=7,15	<7,33 >=7,24		<7,5 >=7,33	<7,6 >=7,5		<7,7 >=7,6	>=7,7
Serum Sodium (µMol/L)			3	<111	<120 >=111	<130 >=120		<150 >=130	<155 >=150	<=160 >=155	<180 >=160	>=180
Serum Potassium (µMol/L)			4	<2,5		<3 >=2,5	<3,5 >=3	<5,5 >=3,5	<6 >=5,5		<7 >=6	>=7
Serum Creatinine (mg/100ml)			2			<0,6		<1,5 >=0,6		<2 >=1,5	<3,5 >=2	>=3,5
Hematocrit (%)			2	<20		<30 >=20		<46 >=30	<50 >=46	<60 >=50		>=60
White Blood Count (Total/mm³)			2	<1		<3 >=1		<15 >=3	<20 >=15	<40 >=20		>=40
Glasgow Coma Score (Score)		*	9	GSC 6								
Age (Years)		*	3	>=55 <65								

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OK
CANCEL

Fig 36 - Time specification

The time displayed in this box is the time displayed on the scores table in the first cell of the specific column (Fig 37).

21/12/2011
13.23 ADM

58
1
2
2
1
21

Fig 37

Current time is set by default. The user can set a different time, preceding current time.

To set the time

- click the box displaying the time (Fig 36). The following buttons are displayed (Fig 38).

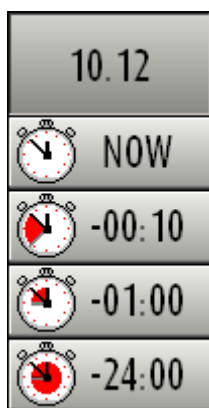


Fig 38

Use the **-00:10** button to set the time ten minutes back (ten minutes per click).

Use the **-01:00** button to set the time one hour back (one hour per click).

Use the **-24:00** button to set the time twenty-four hours back (twenty-four hours per click).

Use the **Now** button to set the current time again.

1.10. The command bar

The command bar contains various buttons (Fig 39, Fig 3 C). Each button makes it possible to perform a specific procedure. The different functions are here listed and briefly described. They are explained in detail in the paragraphs indicated.



Fig 39 - Command Bar



Use this button to add a new score. The button opens a data entry window. The data entry window is described in paragraph 1.8.1, the related procedures are described in paragraph 1.8.2.



Use this button to modify the values of a selected score. See paragraph 1.10.1 for the detailed procedure.



Use this button to delete a selected score. See paragraph 1.10.2 for the detailed procedure.



Use this button to create a print report. See paragraph 1.10.3 for the module's print functionalities.



Use this button to add a patient note. See paragraph 1.10.4 for the procedure.

1.10.1. How to edit an existing score

To edit the values of an existing score

- click the corresponding column on the scores table.

The column is this way highlighted (Fig 40 A).



Parameter	Unit	16/12/2011 09.34 ADM	16/12/2011 11.52 ADM	16/12/2011 13.11 ADM	16/12/2011 13.14 ADM	21/12/2011 13.23 ADM
SCORES		50	46	56	52	58
Temperature	C°	1	2	2	1	1
Mean Arterial Pressure	mmHg	2	3	2	2	2
Heart Rate	Beat/min	0	0	0	0	2
Respiratory Rate	Breaths/min	3	0	1	3	1
FI02	%	21	21	21	21	21
Oxygenation PaO2	mmHg	1	1	1	3	4
Oxygenation AaDO2	Coefficient					
Arterial Ph	Ph	4	2	3	4	2
Serum Sodium	μMol/L	1	2	1	2	3
Serum Potassium	μMol/L	2	3	3	3	4
Serum Creatinine	mg/100ml	2	2	2	3	2
Hematocrit	%	2	2	0	2	2
White Blood Count	Total/mm ³	2	0	4	1	2
Glasgow Coma Score	Score	9	4	11	7	9

Fig 40 - Scores table

- Click the **Edit** button on the command bar (Fig 41).



Fig 41 - Command bar

The corresponding data entry window is displayed (Fig 42).

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Parameter	Imp	Value	Scores	+4	+3	+2	+1	+0	+1	+2	+3	+4
Temperature (C°)			1	<30	<32 >=30	<34 >=32	<36 >=34	<38,5 >=36	<39 >=38,5	<41 >=39	>=41	
Mean Arterial Pressure (mmHg)			2	<50	<70 >=50	<110 >=70	<130 >=110	<160 >=130	<180 >=140	>=180		
Heart Rate (Beat/min)			2	<40	<55 >=40	<70 >=55	<110 >=70	<140 >=110	<180 >=140	>=180		
Respiratory Rate (Breaths/min)			1	<6	<10 >=6	<12 >=10	<25 >=12	<35 >=25	<50 >=35	>=50		
FI02 (%)		*	21	<50								
Oxygenation PaO2 (mmHg)			4	<55	<61 >=55	<71 >=61	>=71					
Oxygenation AaDO2 (Coefficient)							<200	<350 >=200	<500 >=350	>=500		
Arterial Ph (Ph)			2	<7,15	<7,24 >=7,15	<7,33 >=7,24	<7,5 >=7,33	<7,6 >=7,5	<7,7 >=7,6	>=7,7		
Serum Sodium (µMol/L)			3	<111	<120 >=111	<130 >=120	<150 >=130	<155 >=150	<160 >=155	<180 >=160	>=180	
Serum Potassium (µMol/L)			4	<2,5	<3 >=2,5	<3,5 >=3	<5,5 >=3,5	<6 >=5,5	<7 >=6	>=7		
Serum Creatinine (mg/100ml)			2		<0,6 >=0,6	<1,5 >=0,6	<2 >=1,5	<3,5 >=2	>=3,5	>=60		
Hematocrit (%)			2	<20	<30 >=20	<46 >=30	<50 >=46	<60 >=50	>=60			
White Blood Count (Total/mm³)			2	<1	<3 >=1	<15 >=3	<20 >=15	<40 >=20	>=40			
Glasgow Coma Score (Score)		*	9	GSC 6								
Age (Years)		*	3	>=55 <65								

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OK

CANCEL

Fig 42 - Data entry window

- Edit the values on the window (see paragraphs 1.8.1 and 1.8.2 for the specific procedure).
- Click the **Ok** button.

The score values are this way changed.



The data entry window can also be displayed by double-clicking the corresponding column.

1.10.2. How to delete a score

To delete one of the scores on the table

- click the corresponding column on the scores table.

The column is highlighted (Fig 43).



Parameter	Unit	16/12/2011 09.34 ADM	16/12/2011 11.52 ADM	16/12/2011 13.11 ADM	16/12/2011 13.14 ADM	21/12/2011 13.23 ADM
SCORES		50	46	56	52	58
Temperature	C°	1	2	2	1	1
Mean Arterial Pressure	mmHg	2	3	2	2	2
Heart Rate	Beat/min	0	0	0	0	2
Respiratory Rate	Breaths/min	3	0	1	3	1
FIO2	%	21	21	21	21	21
Oxygenation PaO2	mmHg	1	1	1	3	4
Oxygenation AaDO2	Coefficient					
Arterial Ph	Ph	4	2	3	4	2
Serum Sodium	μMol/L	1	2	1	2	3
Serum Potassium	μMol/L	2	3	3	3	4
Serum Creatinine	mg/100ml	2	2	2	3	2
Hematocrit	%	2	2	0	2	2
White Blood Count	Total/mm ³	2	0	4	1	2
Glasgow Coma Score	Score	9	4	11	7	9

Fig 43 - Scores table

- Click the **Delete** button on the command bar (Fig 44).



Fig 44 - Command bar

User confirmation is required (Fig 45).

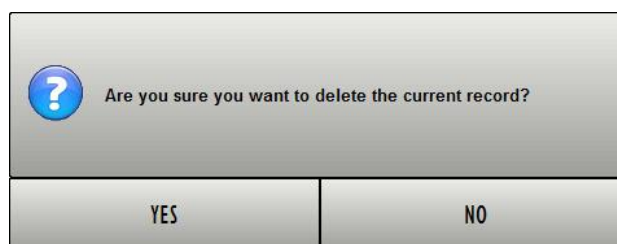


Fig 45

- Click **Yes** to proceed. The selected column disappears from the table.

1.10.3. Print reports

To access the “Scoring Calculator” module print functionalities

- click the **Print** button on the command bar (Fig 46).



Fig 46 - Command bar

Different print options can be configured. In the example shown in Fig 47 a user can print either the values chart or the values grid.



Fig 47

- Click the wanted option.

A print preview is displayed. The system’s print functionalities are described in paragraph **Error! Reference source not found..**

1.10.4. How to add a patient note

The **Notes** button on the command bar (Fig 48 **A**) makes it possible to add notes relating to the patient.



Fig 48 - Command bar

To add a patient note

- click the **Notes** button.

The following window opens.

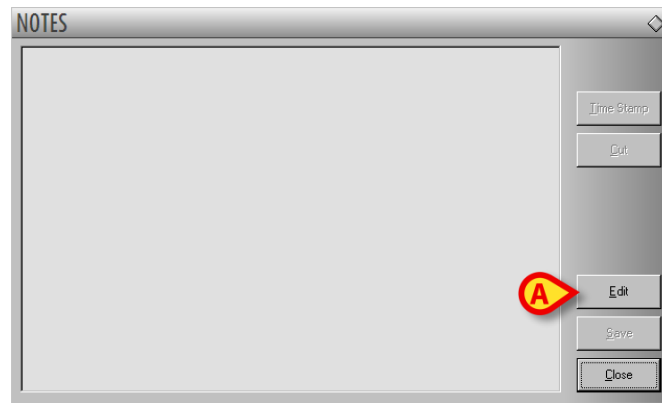


Fig 49 - “Notes” window

- Click the **Edit** button (Fig 49 A).

The window changes and turns to “edit” mode.



Fig 50 - “Notes” window (edit mode)

- Type the note. The text is displayed in the window.
- Click the **Save** button to save the note (Fig 50 A).

The window closes automatically. The presence of a note is indicated by the color of the button on the command bar, that becomes yellow. Click the button again to display the note again.

Use the **Time Stamp** button on the right (Fig 50 B) to display the date, time and the acronym of the user who is adding the note (Fig 51).

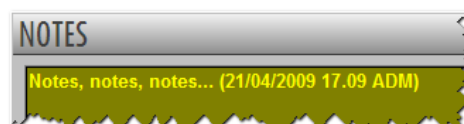


Fig 51 - Date and time

Use the **Cut** button (Fig 50 C) to cut a selected text portion from the note.

To cut a text portion from a note

- click the **Edit** button (Fig 49 A).

- Select the text to be cut using either the mouse device or the workstation keyboard.
- Click the Cut button.

The selected text disappears from the note.



*The notes inserted this way are visible - after clicking the **Notes** button on the command bar - on every DIGISTAT[®] module currently in use implementing the **Notes** button.*

1.11. Charts

The patient scores can be displayed in charts.

To do that

- click the “Chart” tab indicated in Fig 52 A.

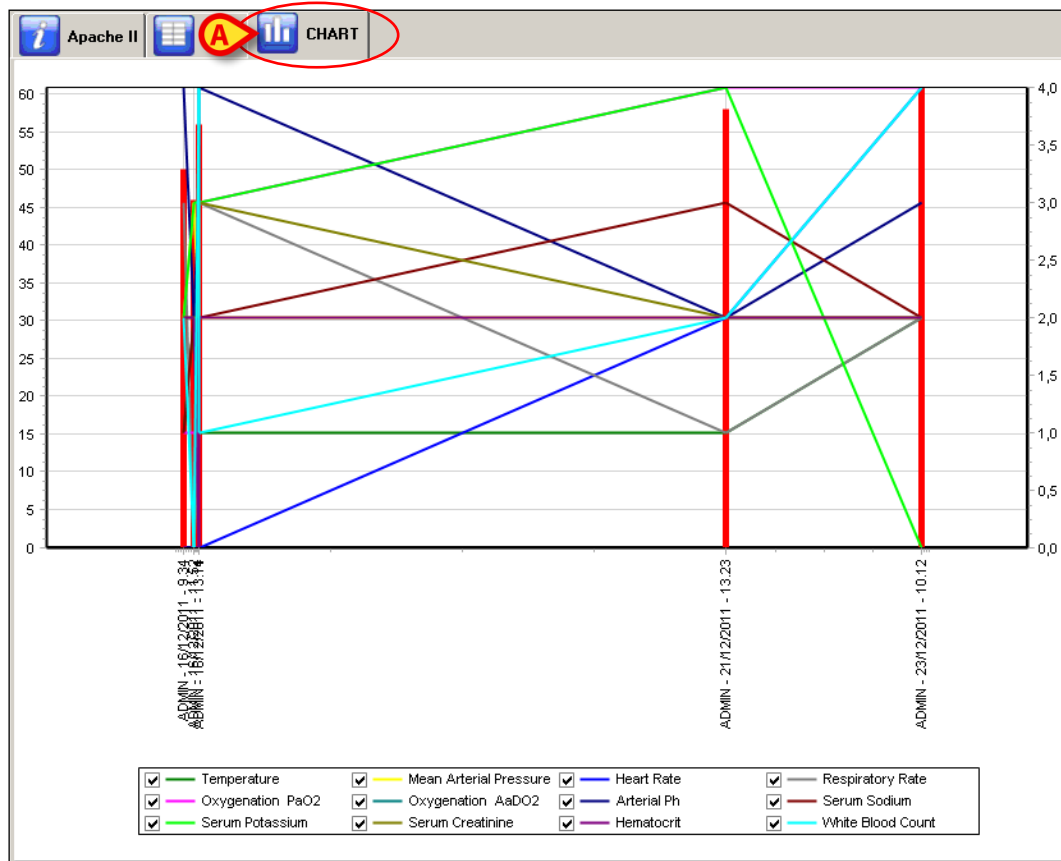


Fig 52 - Grafico

The chart shown in Fig 52 displays the trends of each parameter.

1.12. Scores on-line guide

An on-line user guide is available for each score.

To access the guide

- click the  tab indicated in Fig 53 A.

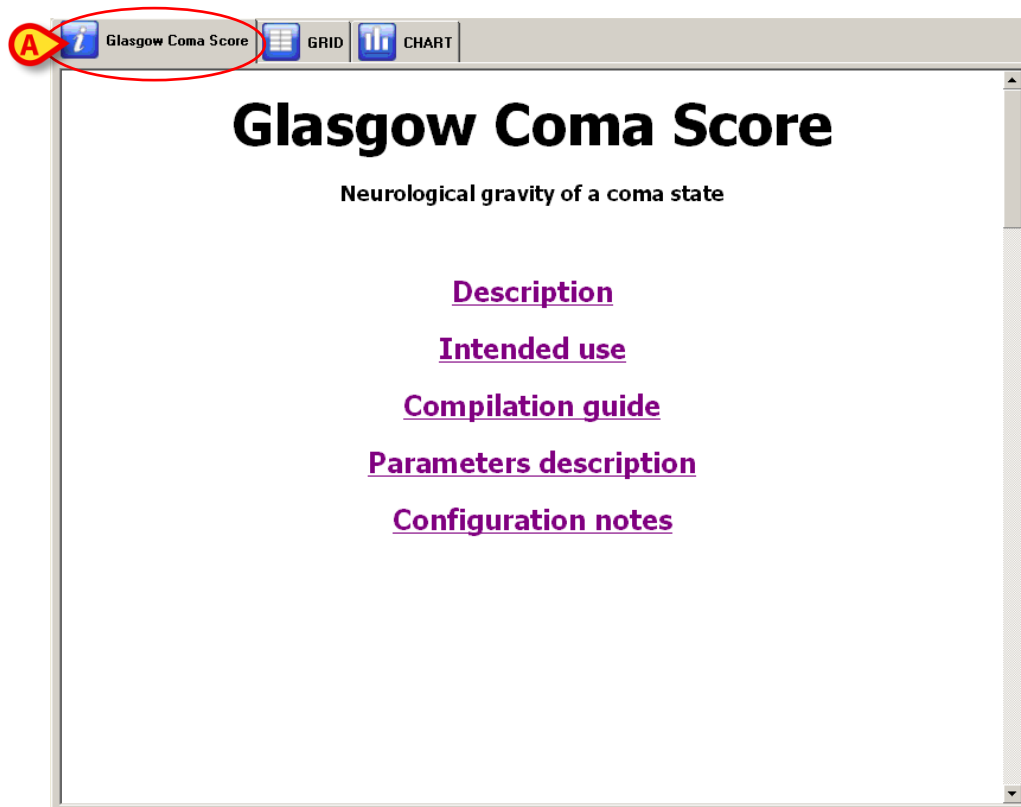


Fig 53 - On line guide

The on line guide of the scoring system currently selected opens (Fig 53).

2. Contacts

- **ASCOM UMS srl unipersonale**

Via Amilcare Ponchielli 29, 50018, Scandicci (FI), Italy
Tel. (+39) 055 0512161
Fax (+39) 055 8290392

- **Technical assistance**

support.it@ascom.com

800999715 (toll free, Italy only)

- **Sales and products information**

it.sales@ascom.com

- **General info**

it.info@ascom.com

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