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# 1 Introduction

Blood should be stored at two (2) to five (5) degrees Celsius to maintain as long as possible. Under optimal conditions the shelf life is 42 days. In practice, healthcare has shorter storage times, according to surveys, between 20 and 25 days. One reason for this is that blood bags, when they leave the controlled and safe environment within blood centers and comes out in health care, they are stored in a manner that is not always safe. This can include the radiator is broken; shipments will take longer than expected or blood bags that are picked out of the fridge but not used.

These uncertainties mean that medical personnel, to be on the safe side, are forced to throw blood because they do not always know what temperatures it is exposed to.

QTA Tracer System<sup>®</sup> eliminates the uncertainty as it continuously measures the temperature of the blood and stores the information. The QTA Tracer is attached to the blood bag to verify the quality of the blood over the blood bags whole lifetime. When personnel take up the blood bag, the QTA Tracer is activated and it responds with a green or red light depending on whether the blood is healthy and can be used or if it must be discarded.

## **1.1** System requirements

The following accessories are needed to use the QTA Tracer System

Accessory	Description
PC with Windows 7	Note book, Lap Top or stationary PC, 2Mb
	RAM, Physical storage > 100Mb
	Delivered by Abbott or by the local IT
	department on the hospital.
Bluetooth 4.0 Single Mode USB Dongle	Delivered by Abbott
Bar code reader reading 2D bar codes	Delivered by Abbott
QTA Tracer	Delivered by Abbott

# 1.2 System overview

The QTA Tracer system requires a PC with the QTA Tracer System software installed, a Bluetooth USB dongle, a Barcode reader and QTA Tracers.



Figure 1 System overview

# 1.3 System function

#### 1.3.1 QTA Tracer

The QTA Tracer is attached to a blood bag to measure temperatures and calculate if the blood is valid according to specific configuration parameters that is defined by each blood center.







There is no specific rule when to attach the QTA Tracer to the blood bag, because it depends on the unique process that is used at each blood center.

The QTA Tracer has a motion detector that activates the tracer – preparing it for communication and showing blood status (green or red diode flashing).

## 1.4 How the QTA Tracer defines the blood status

The blood status is shown with the following label symbols in both QTA Tracer and QTA Access Point:

- 🗸 Blood is ok
- 🛛 🗮 Blood is not ok
- ( )no light- Blood is not ok, the QTA Tracer is not operating as it should

The blood status is calculated by the QTA Tracer and is marked as X- Blood is not ok, if one of following conditions is true:

- If the blood has been exposed to too low, or too high temperature
- If the blood has been exposed to the different temperature ranges for too long. The temperature ranges are configured in the database.
- If both of the following start logging delays not has been reached:
  - Start time delay Wait for a specific time, specified in the configuration
  - Start at temperature Wait for a specific temperature is reached, specified in the configuration
- If the blood not has been released from quarantine
- If an error occur in the QTA Tracer.

The QTA Tracer is labeled with the following labels:

Label	Description
~	🗸 - Blood is ok.
×	🔀 - Blood is not ok.
N 44 5	This is a bar code including the Bluetooth address for the QTA Tracer.
	The Bluetooth address is the unique identifier (serial number) for the QTA
	tracer and the address is also printed in plain text below the bar code on
302007846765	the QTA Tracer.
	Use this unique id when reporting a claim.
	Scan this bar code using QTA Access Point to connect to a QTA Tracer.
N.	Waste Electrical and Electronic Equipment (WEEE) Statement. Return
X a	product to distributor.
	Read the manual before use.
*	QTA Tracer includes Bluetooth technology.
<b>REF</b> 10001	QTA Tracer product number.
<b>(</b> € <sub>0402</sub>	CE Certified by notified body 0402.







## 1.4.1 QTA Access Point

The QTA Access Point is a PC with the QTA Access Point software installed and a Bluetooth USB Dongle and barcode reader/hand scanner inserted in USB ports.

To start or readout stored information from the QTA Tracer the QTA Access Point is needed. QTA Access Point is used to:

- Start a new QTA Tracer logging
- Readout status and temperatures from QTA Tracer
- Release blood from quarantine
- Readout stored information on the QTA Tracer

To configure the QTA Tracer System a QTA Access Point Configurator is needed. The QTA Access Point Configurator stores configuration parameters in the database that is used by the QTA Access Point.

QTA Access Point Configurator is managed by the QTA Tracer System distributor or the local system manager.

# 1.5 Installation

The installation process of the QTA Tracer System<sup>®</sup> is described in the installation instructions. The installation is performed by personnel from Abbott or Tridentify. The system can be installed by a local system manager who has gone through a training program on how to set up the QTA Tracer System<sup>®</sup>.







# 2 QTA Access Point – Manual

For video manuals - visit www.qtatracersystem.com/support

#### 2.1 Start a new log

To start a new QTA Tracer log, follow these steps:

- 1. Select the "New log" tab.
- 2. Scan the barcodes for the corresponding fields shown in the Access Point. For example:
  - o Donation Identification no
  - $\circ$  Blood group
  - $\circ \quad \text{Collection date} \quad$
  - o Expire date
  - $\circ \quad \text{Product code} \quad$
- 3. Activate the QTA Tracer by moving it, tilting it. One of the LED diodes will then flash, green or red.



- 4. Scan the bar code on the QTA Tracer using the bar code reader.
- 5. The Access Point notifies that logging has started with a sound signal and as shown figure 2 below.

QTA Access Point - QTA Tra	cer System			
File Language Help				
V Loggningen har startats fo QTA Tracer Id: New Log Status	ir QTA Tracer: 78c5e5727bfe	1		<b>QTA</b> ACCESS POINT
ISBT class RED Donation identification no: Blood group Product code: Collection date: Expire date: Collection date: Clear all fields	BLOOD CELLS		2	
				h.







# 2.2 Read status using QTA Tracer

To see if the blood is valid on the QTA Tracer, follow these steps:

- Turn on the QTA Tracer by moving it.
- The status of the blood is indicated by
  - ✓ Blood is ok (green light), functional
  - X-Blood is not ok (red light), nonfunctional
  - ( )- no light- Blood is not ok, the QTA Tracer is not operating as it should

#### 2.3 Read QTA Tracer status using QTA Access Point

To read a QTA Tracer status using a QTA Access Point, follow these steps:

- 1. Select the "Status" tab. Status is shown as below in Figure .
  - 2. Activate the QTA Tracer by moving it, tilting it. One of the LED diodes will then flash, green or red.
  - 3. Scan the bar code on the QTA Tracer using the bar code reader.

Elle Language Help         QTA Tracer         Id: 78:56:57:27:6         New Log         Status             Time remaning         Estimated exp.date         Temperature < 1°C 0 days, 0 hours, 0 minutes         Temperature < 1°C 0 days, 22 hours, 48 minutes         2014-05-18 11:50         Temperature < 17°C 13 days, 15 hours, 36 minutes         2014-05-08 16:56    Tracer status          Blood valid:         V         Donation identification no: 500201200002402         Blood group:       6200 - Blood group description not found         Product code:       10% - Blood group description not found         Product code:       15 mar 2012 07:52         Experied ate:       2 6 apr 2012 23:59	QTA Access Point - QTA Tracer System	
QTA Tracer         It:       ?BSC55727bf         New Log       Staus         Imperature < 1°C 0 days, 0 hours, 0 minutes         Temperature < 1°C 0 days, 22 hours, 48 minutes       2014-06-18 11:50         Temperature < 17°C 13 days, 15 hours, 36 minutes       2014-05-22 04:38         Tracer staus       2014-05-08 16:56         Blood released from quaratine:	Eile Language Help	
Time remainingEstimated exp.dateTemperature < 1°C 0 days, 0 hours, 0 minutes2014-06-18 11:50Temperature < 10°C 40 days, 22 hours, 48 minutes2014-05-18 11:50Temperature < 17°C 13 days, 15 hours, 36 minutes2014-05-22 04:38Temperature < 27°C 0 days, 3 hours, 54 minutes2014-05-08 16:56Tracer status8lood valid:Blood valid:✓Blood valid:✓Blood released from quaratine:✓Blood telessed from quaratine:✓Blood telessed from quaratine:✓Blood group:6200 - Blood group description not foundPonation identification no:S00201200002402Blood group:6200 - Blood group description not foundProduct code:E3846000Collection dete:15 mar 2012 07:52Expire date:26 apr 2012 23:59	QTA Tracer Id: 78cSe5727bfe V New Log Status	QTA ACCESS POINT
Temperature < 1°C 0 days, 0 hours, 0 minutes       2014-06-18 11:50         Temperature < 17°C 13 days, 15 hours, 36 minutes       2014-05-22 04:38         Temperature < 27°C 0 days, 3 hours, 54 minutes       2014-05-08 16:56         Tracer status       8lood valid:         Blood valid:       ✓         Blood released from quaratine:       ✓         Tracer status:       Running         Tracer status:       Running         Tracer status:       000002402         Blood group:       6200 - 8lood group description not found         Product code:       E3846000         Collection date:       15 mar 2012 07:52         Expire date:       26 apr 2012 23:59	Time remaning Estimated exp.date	
Temperature < 10°C 40 days, 22 hours, 48 minutes	Temperature < 1°C 0 days, 0 hours, 0 minutes	
Temperature < 17°C 13 days, 15 hours, 36 minutes	Temperature < 10°C 40 days, 22 hours, 48 minutes 2014-06-18 11:50	
Temperature < 27°C 0 days, 3 hours, 54 minutes       2014-05-08 16:56         Tracer status       Blood valid:       ✓         Blood released from quaratine:       ✓         Tracer status:       Running         Tracer status:       Running         Tracer status:       00%         Blood bag information          Donation identification no:       S00201200002402         Blood group:       6200 - Blood group description not found         Product code:       E3846000         Collection date:       15 mar 2012 07:52         Expire date:       26 apr 2012 23:59	Temperature < 17°C 13 days, 15 hours, 36 minutes 2014-05-22 04:38	
Tracer status         Blood valid:         Jood released from quaratine:         Tracer status:       Running         Tracer status:       100%         Blood bag information       00%         Blood group:       6000 group description not found         Product code:       E3846000         Collection dete:       15 mar 2012 07:52         Expire date:       26 apr 2012 23:59	Temperature < 27°C 0 days, 3 hours, 54 minutes 2014-05-08 16:56	
Blood valid:       ✓         Blood released from quaratine:       ✓         Tracer status:       Running         Tracer status:       100%         Blood bag information          Donation identification no:       S00201200002402         Blood group:       6200 - Blood group description not found         Product code:       E3846000         Collection date:       15 mar 2012 07:52         Expire date:       26 apr 2012 23:59	Tracer status	
Blood released from quaratine: ✓ Tracer status: Running Tracer battery level: 100% Blood bag information Donation identification no: 500201200002402 Blood group: 6200 - Blood group description not found Product code: E3846000 Collection date: 15 mar 2012 07:52 Expire date: 26 apr 2012 23:59	Blood valid: 🗸	
Tracer status:     Running       Tracer battery level:     100%       Blood bag information     500201200002402       Blood group:     6200 - Blood group description not found       Product code:     E3846000       Collection date:     15 mar 2012 07:52       Expire date:     26 apr 2012 23:59	Blood released from quaratine: 🗸	
Tracer battery level:     100%       Blood bag information     500201200002402       Blood group:     6200 - Blood group description not found       Product code:     E3846000       Collection date:     15 mar 2012 07:52       Expire date:     26 apr 2012 23:59	Tracer status: Running	
Blood bag information         Donation identification no:       S00201200002402         Blood group:       6200 - Blood group description not found         Product code:       E3846000         Collection date:       15 mar 2012 07:52         Expire date:       26 apr 2012 23:59	Tracer battery level: 100%	
Donation identification no:       S00201200002402         Blood group:       6200 - Blood group description not found         Product code:       E3846000         Collection date:       15 mar 2012 07:52         Expire date:       26 apr 2012 23:59	Blood bag information	
Blood group:     6200 - Blood group description not found       Product code:     E3846000       Collection date:     15 mar 2012 07:52       Expire date:     26 apr 2012 23:59	Donation identification no: S00201200002402	
Product code:         E3846000           Collection date:         15 mar 2012 07:52           Expire date:         26 apr 2012 23:59	Blood group: 6200 - Blood group description not found	
Collection date:         15 mar 2012 07:52           Expire date:         26 apr 2012 23:59	Product code: E3846000	
Expire date: 26 apr 2012 23:59	Collection date: 15 mar 2012 07:52	
	Expire date: 26 apr 2012 23:59	

Figure 3 Read QTA Tracer Status

#### 2.3.1 Time Remaining and Estimated exp.date:

Calculated time left and expiration date for the temperature intervals entered in the QTA Access Point Configurator are shown in the top table.

#### 2.3.2 Blood valid:

In Figure 4 the blood is valid, the QTA Tracer is in status: **Running** If tracer still has status: **Wait for start** the blood status will be invalid How QTA Tracer defines the blood status is described in 1.4.

#### 2.3.3 Blood released from quarantine:

Showing if the blood is released from quarantine or not.







## 2.3.4 Tracer status:

The Tracer status can have the following modes:

- Running QTA Tracer log temperatures and calculate if blood is valid
- Wait start QTA Tracer wait for one of the following to be true
  - Start time delay Wait for a time, specified in the configuration
    - Start at temperature Wait for a temperature is reached, specified in the configuration
- Error An error has occurred on the QTA Tracer.
- Configuration Configuration not completed. Log not initiated.

#### 2.3.5 Tracer battery level:

Showing if the battery level is ok or not. The percentage shows how many percent it is left before the battery is empty depleted.

#### 2.3.6 Blood bag information tab:

The blood bag information that is stored in the QTA Tracer for the current log.

#### 2.4 Manually release blood from quarantine

To release blood from quarantine manually, the release blood from quarantine configuration must be set to manual mode, se QTA Access Point Configurator manual.

To release blood from quarantine, follow these steps:

- 1. Select the "Status" tab. Status is shown as below in Figure 1.
- 2. Activate the QTA Tracer by moving it, tilting it. One of the LED diodes will then flash, green or red.
- 3. Scan the barcode on the QTA Tracer using the bar code reader.
- 4. If the blood is not already released, use one of the following options to release blood:
  - Use the push button "Release blood from quarantine" or -
  - Scan the bar code on the screen to release blood
  - See below in Figure 1.
- 5. The QTA Tracer is automatically disconnected when the blood is released. See below in Figure 2.

TA Access Point - Q Language Help	TA Tracer System			
2TA Tracer Id: 78c5e5728198 New Log Status	✓			
Tim	e remaning	Estimated exp.date	<b>824</b> 20	
Temperature < 1°C 0	) days, 0 hours, 0 minutes			
Temperature < 10°C	42 days, 0 hours, 0 minutes	2014-06-19 13:04	286	
Temperature < 17°C	14 days, 0 hours, 0 minutes	2014-05-22 13:04	Release blood from	
Temperature < 27°C	0 days, 4 hours, 0 minutes	2014-05-08 17:04	quarantine	
Tracer status		1		
Blood valid:	×			
Blood released from q	uaratine: 💢			
Tracer status:	Wait start			
Tracer battery level:	100%			
Blood bag information				
Donation identification	no: S00201200002402			
Blood group:	6200 - Blood group descri	ption not found		
Product code:	E3846000			
Collection date:	15 mar 2012 07:52			
	26 apr 2012 22-50			

Figure 1 Release blood







Velocity       Revelocity         QTA Tracer       Image: Control of the second s	Ere Language Help	
UA Iracer         Id:         Mew Log         Status         Time remaning Estimated exp.date         Blood valid:         Blood valid:         Blood valid:         Blood bag information         Donation identification no:         Blood group:         Product code:         Collection date:         Expire date:	Slood released from quarantine for QTA Tracer:78c5e5727bfe	
New Log       Status         Time remaning       Estimated exp.date         Tracer status       Blod valid:         Blod valid:       Blod released from quaratine:         Tracer status:       Tracer status:         Tracer status:       Tracer status:         Blod bag information       Donation identification no:         Blod group:       Product code:         Collection date:       Eppire date:	QIA Iracer	ΑΤΔΑ
New Log       Status         Time remaning       Estimated exp.date         Tracer status       Image: Status         Blood valid:       Image: Status         Blood valid:       Image: Status         Blood released from quaratine:       Image: Status         Tracer status:       Image: Status         Blood spinformation       Image: Status         Blood pinformation       Image: Status         Blood pinformation       Image: Status         Blood roup:       Image: Status         Product code:       Image: Status         Collection date:       Image: Status         Expire date:       Image: Status		<b>G</b> IA
Time remaning Estimated exp.date         Tracer status         Blood valid:         Blood released from quaratine:         Tracer status:         Tracer status:         Tracer status:         Tracer status:         Blood released from quaratine:         Tracer status:         Tracer status:         Blood pilongraphic         Blood g information         Donation Identification no:         Blood group:         Product code:         Collection date:         Eppire date:	New Log Status	
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Donation identification no: Blood group: Product code: Collection date: Expire date:	Blood bag information	
Blood group: Product code: Collection date: Expire date:	Donation identification no:	
Product code: Collection date: Expire date:	Blood group:	
Collection date: Expire date:	Product code:	
Expire date:	Collection date:	
	Expire date:	

# 2.5 Change language

Select "Language" in the menu and pick one of the languages in the drop down list, see figure 5.







