

GEMINI

Compact Microplate Processor

System Guide



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I. Gemini System Guide

This System Guide is intended to assist Gemini users with system start-up, basic operation, maintenance and service. The System Guide is supplemental to the electronic Instructions for Use Manual that is provided with each Gemini unit. The Instructions for Use Manual gives detailed information and instructions on all aspects of the Gemini instrument.



2. Gemini User Levels

The Gemini instrument allows different **User Groups** to have different levels of access to Gemini features. This makes it possible to ensure that only authorized personnel can make changes to assays, edit sample details, view results, etc. Each Gemini **User** should be assigned a unique login and password. Then, each user can be assigned to one or more **User Groups**.

At startup, the system will be set up with four **Users** and three **User Groups**. (Refer to Tables 1 and 2 below) The **User Groups** will be given the access rights shown in Table 2. More **Users** and **User Groups** can be added as necessary. User rights can also be changed, if needed, by following the procedure in Chapter 7 of the Gemini Instructions for Use.

Table 1: Users

User Name	Password at Startup (may be changed)	User Group(s) Assigned	Intended User
Supervisor	inimeg	Administrator, Manager, Analyst	For BCS Service technician use only
Administrator	bcs123	Administrator, Manager, Analyst	Designated individual with access to all user privileges
Manager	pathogens	Manager, Analyst	Laboratory supervisor or manager(s)
Analyst		Analyst	General users and analysts

Table 2: User Groups

Items	Sup/Admin	Manager	Analyst	When item is checked, members of this user group can...
Administer Users	X	X		...register new users and define their rights. Define, edit or delete user groups. Clear user passwords.
Create Assays	X	X		...create new assays.
Change Preferences	X			...access the Preferences tab in the Options dialog and change the settings on this tab (see Instructions for Use chapter 7.2.4 on page 7-11).
Change System Setup	X			...open the System Set-Up dialog and change the settings on any of the tabs (see Instructions for Use chapter 7.3 on page 7-19).
Edit Assays	X	X		...edit assays. Note however that even if a group of users is allowed to edit assays, assays themselves can be individually protected by a specific password set by the person or company which created the assay (e.g. validated pre-defined assays are normally password protected).
Edit Sample Details	X	X	X	...access and edit sample information (see Instructions for Use chapter 5.2 on page 5-4).

Edit Running Worklists	X	X	X	...access the Edit > Panel Definition menu item in order to change the settings of an existing worklist (e.g. to add new plates - see Instructions for Use chapter 5.6 on page 5-47 on continuous loading).
Edit Worklist Options	X	X		...open the Worklist Options dialog and decide on a number of operations to be performed (or not) as the worklist is being processed (e.g. pre-run checks, sample archiving, tip management, reagent reloading, result printing - see Instructions for Use chapter 5.4 on page 5-25).
Post Results to LIMS	X	X	X	...allow test results to be exported to a host computer. Note that for users who are not generally allowed to undertake this action, a special authorization procedure may apply.
Manually Remove Outliers	X			...remove outliers manually (see Instructions for Use chapter 5.5.4.1 on page 5-43).
Restore Backups	X	X		... allow replacement of all current system files by system files from a previous backup (e.g after a system crash), see Instructions for Use chapter 8.4.2 on page 8-18.
Start Worklists	X	X	X	...define a worklist, load the instrument and start the processing (perform a run). This is one of the basic rights. For users who are not allowed even to start worklists, a special authorization procedure may apply.

3. Gemini Components and Accessories

3.1. Gemini Instrument (Part No. 78000) Components Include:


- Gemini Unit
- Inlay, LLD, Conductivity Plates (Set of 2)
- Waste Bag (Box of 10)
- Waste Bag Holder
- Power Cord, Euro
- Gemini Waste Container, 10 L with cap
- Gemini System Liquid Container, 10 L with cap
- Gemini Wash Bottle, 1 L with Red Sensor Cap
- Gemini Wash Bottle, 2 L with Blue Sensor Cap
- Gemini Wash Bottle, 2 L with Yellow Sensor Cap
- Gemini Wash Bottle Tray
- Washer Manifold Cleaning Set
- Aspirate Waste Bottles (Set of 2)
- Gemini Sample Rack (4 racks)
- Gemini Reagent Rack, 8 bottle
- Gemini Control Rack
- Gemini Reagent Rack Adapters (Set of 6)
- Gemini Plate Carrier Assembly (Set of 2)
- Gemini Reader Filter 450 nm (installed)
- Gemini Reader Filter 492 nm (installed)
- Gemini Reader Filter 620 nm (installed)
- Gemini Reagent Rack, 5 bottle (packaged separately)
- Washer Pump Revival Tool (packaged separately)
- 300 uL Eppendorf conductive tips, 1 box of 960 tips
- 1100 uL Eppendorf conductive tips, 1 box of 960 tips
- USB Drive Containing: Gemini Instructions for Use Manual, Assay Programming Manual, Service Manual, Firmware and Software
- Gemini System Guide


3.2. Gemini Accessories

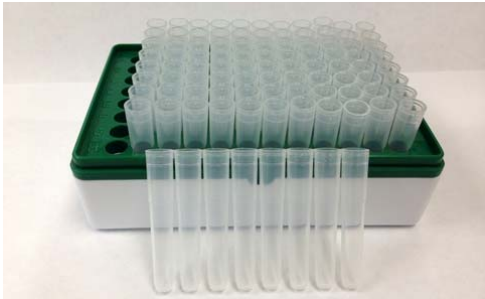
3.2.1. Consumables

Biohazard Bags
Part No: 06900000140
Description: 10 biohazard bags and lids


Eppendorf Conductive Tips (1100 µL)
Part No: E-H0030-003-772
Description: 10 racks of 96 tips


Eppendorf Conductive Tips (300 µL)
Part No: E-H0030-003-764
Description: 10 racks of 96 tips


Polypropylene Tubes (3.5 mL)
Part No: S-55.535
Description: 1000 sample tubes, bulk packed


Cluster Tubes with Rack
Part No: 73057
Description: 10 racks of 96 cluster tubes


3.2.2. Racks / Rack Accessories

Gemini 1-Lane Plastic Sample Rack

Part No: 07620026000

Description: Rack for 16 sample tubes (diameter 10 - 14 mm)



Gemini 8-Lane Metal Sample Rack

Part No: 78901 Gemini 8-Lane Metal Sample Rack (Base not included)

Part No: 78901-1 Gemini 8-Lane Metal Sample Rack Base

Description: Rack for 152 sample tubes, 8 lanes, 19 samples per lane



Gemini 2-Lane Metal Sample Rack

Part No: 78900 Gemini 2-Lane Metal Sample Rack (Base not included)

Part No: 78900-1 Gemini 2-Lane Metal Sample Rack Base

Description: Rack for 38 sample tubes, 2 lanes, 19 samples per lane





Gemini Reagent Rack, 8 bottle (*Listeria* assays)

Part No: 07620031301


Description: Rack for 8 reagent bottles (2 x 35 mm; 6 x 38 mm)




Gemini Reagent Rack, 5 bottle (<i>Salmonella</i> assays)
Part No: 07620031200
Description: Rack for 5 bottles (38 mm)



Gemini Reagent Rack Adapters
Part No: 07620031500
Description: Set of 6 adapters (25 mm) for use with Gemini Reagent Rack 8 bottle (07620031301) and Gemini Reagent Rack, 5 bottle (07620031200)


3.2.3. Bottles / Washer Accessories

Gemini Wash Buffer Bottles
Part No: 07635028303 Gemini Wash Bottle, 1 L with Red Sensor Cap*
Part No: 07635028103 Gemini Wash Bottle, 2 L with Blue Sensor Cap*
Part No: 07635028203 Gemini Wash Bottle, 2 L with Yellow Sensor Cap*
Part No: 07620261101 Gemini Wash Bottle Set with Sensor Caps
Description: Wash buffer bottles with colored caps and level sensors
*Bottles are standard equipment of Gemini instruments



Gemini Wash Bottle, 1L with Cap
Part No: 03970000009
Description: 1L Wash Buffer Bottle with cap



Gemini Aspiration Bottle, 500mL, No Cap
Part No: 03970000010
Description: 500 ml bottle for aspirate, no cap
==NO PICTURE AVAILABLE==

Gemini Wash Bottle, 2 L, No Cap
Part No: 03970000012
Description: 2 L wash buffer bottle, no cap


Gemini 2 L Wash Bottle Cap
Part No: 03970000013
Description: Cap for 2 L bottle
== NO PICTURE AVAILABLE==

3.2.4. Reader

Gemini Reader Lamp
Part No: 01700000156
Description: Lamp for reader 13.8 V, 30 W


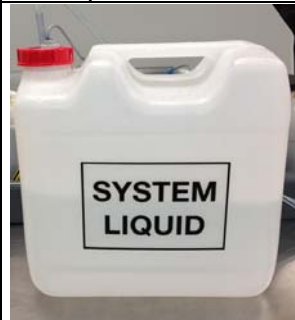
Optical Filters
Part No: 07630325900 Gemini Reader Filter, 405 nm
Part No: 07630325800 Gemini Reader Filter, 450 nm*
Part No: 07630325700 Gemini Reader Filter, 492 nm*
Part No: 07630325400 Gemini Reader Filter, 620 nm*
Description: Filter for reader
*Filters are standard equipment of Gemini instruments


3.2.5. Miscellaneous accessories

Gemini System Liquid Container, 10 L with Cap
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Part No: 03970000004

Description: 10 L container with red cap
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Gemini Waste Container, 10 L with Cap
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Part No: 03970000011

Description: 10 L container with blue cap



Gemini Plate Carrier Assembly

Part No: 07620221401

Description: Assembly of plate carrier for 2-plate system



Power Cord Option

Part No: 02700000175

Description: Power cord, US

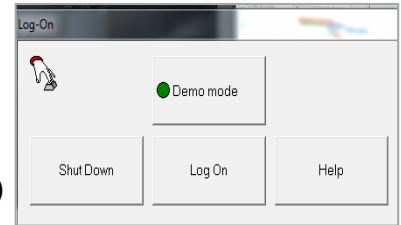


4. Gemini Basic Operation – Quick Guide: I-Lane Plastic Sample Rack

For more detailed instructions or help with more complex features refer to the Gemini Instructions for Use.

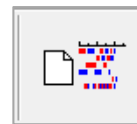
4.1. Log On

- 4.1.1. Select **Log On**
- 4.1.2. Select your user level
- 4.1.3. Enter your password select **OK** (Analyst = no password)



4.2. Create a Worklist

- 4.2.1. Select **File > New > Worklist** or click the New Worklist button
- 4.2.2. Select **Sample Details** to enter samples
- 4.2.3. Select **Delete All** to delete all previously analyzed samples
- 4.2.4. Select **Add Samples**
- 4.2.5. Enter the number of samples to be tested – Gemini software will automatically number samples appropriately after the 1st sample number is entered
- 4.2.6. To assign the appropriate assay to the samples, select **Select All**
- 4.2.7. Select **Add Test** and select the appropriate assay from the list of assays available
- 4.2.8. Select **OK** to return to Set-up Panel screen
- 4.2.9. To add a plate to the work list select **Add Plate** (repeat selection to add an additional plate)
- 4.2.10. To assign the appropriate assay to the plate highlight the plate and select **Add Assay**
- 4.2.11. To add samples to the plate select **Add Sample** and highlight the appropriate samples for the plate and select **OK** (Click **Select All** to automatically add all samples to the plate)



Note: Samples will automatically be placed into the microplate formation, as shown in Figure 1, by the software but they are loaded into the system by sample racks

Figure 1: Sample arrangement on microplates

Sample arrangement on microplate 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	NC1	T6	T14	T22	T30	T38	T46	T54	T62	T70	T78	T86
B	NC2	T7	T15	T23	T31	T39	T47	T55	T63	T71	T79	T87
C	PC1	T8	T16	T24	T32	T40	T48	T56	T64	T72	T80	T88
D	T1	T9	T17	T25	T33	T41	T49	T57	T65	T73	T81	T89
E	T2	T10	T18	T26	T34	T42	T50	T58	T66	T74	T82	T90
F	T3	T11	T19	T27	T35	T43	T51	T59	T67	T75	T83	T91
G	T4	T12	T20	T28	T36	T44	T52	T60	T68	T76	T84	T92
H	T5	T13	T21	T29	T37	T45	T53	T61	T69	T77	T85	T93

Sample arrangement on microplate 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	NC1	T6 ₉₉	T14 ₁₀₇	T22 ₁₁₅	T30 ₁₂₃	T38 ₁₃₁	T46 ₁₃₉	T54 ₁₄₇	T62 ₁₅₅	T70 ₁₆₃	T78 ₁₇₁	T86 ₁₇₉
B	NC2	T7 ₁₀₀	T15 ₁₀₈	T23 ₁₁₆	T31 ₁₂₄	T39 ₁₃₂	T47 ₁₄₀	T55 ₁₄₈	T63 ₁₅₆	T71 ₁₆₄	T79 ₁₇₂	T87 ₁₈₀
C	PC1	T8 ₁₀₁	T16 ₁₀₉	T24 ₁₁₇	T32 ₁₂₅	T40 ₁₃₃	T48 ₁₄₁	T56 ₁₄₉	T64 ₁₅₇	T72 ₁₆₅	T80 ₁₇₃	T88 ₁₈₁
D	T1 ₈₄	T9 ₁₀₂	T17 ₁₁₀	T25 ₁₁₈	T33 ₁₂₆	T41 ₁₃₄	T49 ₁₄₂	T57 ₁₅₀	T65 ₁₅₈	T73 ₁₆₆	T81 ₁₇₄	T89 ₁₈₂
E	T2 ₈₅	T10 ₁₀₃	T18 ₁₁₁	T26 ₁₁₉	T34 ₁₂₇	T42 ₁₃₅	T50 ₁₄₃	T58 ₁₅₁	T66 ₁₅₉	T74 ₁₆₇	T82 ₁₇₅	T90 ₁₈₃
F	T3 ₈₆	T11 ₁₀₄	T19 ₁₁₂	T27 ₁₂₀	T35 ₁₂₈	T43 ₁₃₆	T51 ₁₄₄	T59 ₁₅₂	T67 ₁₆₀	T75 ₁₆₈	T83 ₁₇₆	T91 ₁₈₄
G	T4 ₈₇	T12 ₁₀₅	T20 ₁₁₃	T28 ₁₂₁	T36 ₁₂₉	T44 ₁₃₇	T52 ₁₄₅	T60 ₁₅₃	T68 ₁₆₁	T76 ₁₆₉	T84 ₁₇₇	T92 ₁₈₅
H	T5 ₈₈	T13 ₁₀₆	T21 ₁₁₄	T29 ₁₂₂	T37 ₁₃₀	T45 ₁₃₈	T53 ₁₄₆	T61 ₁₅₄	T69 ₁₆₂	T77 ₁₇₀	T85 ₁₇₈	T93 ₁₈₆

4.2.12. Enter the appropriate assay and reagent batch numbers and expiration dates and select **OK**

4.2.13. To begin work list select **Start**

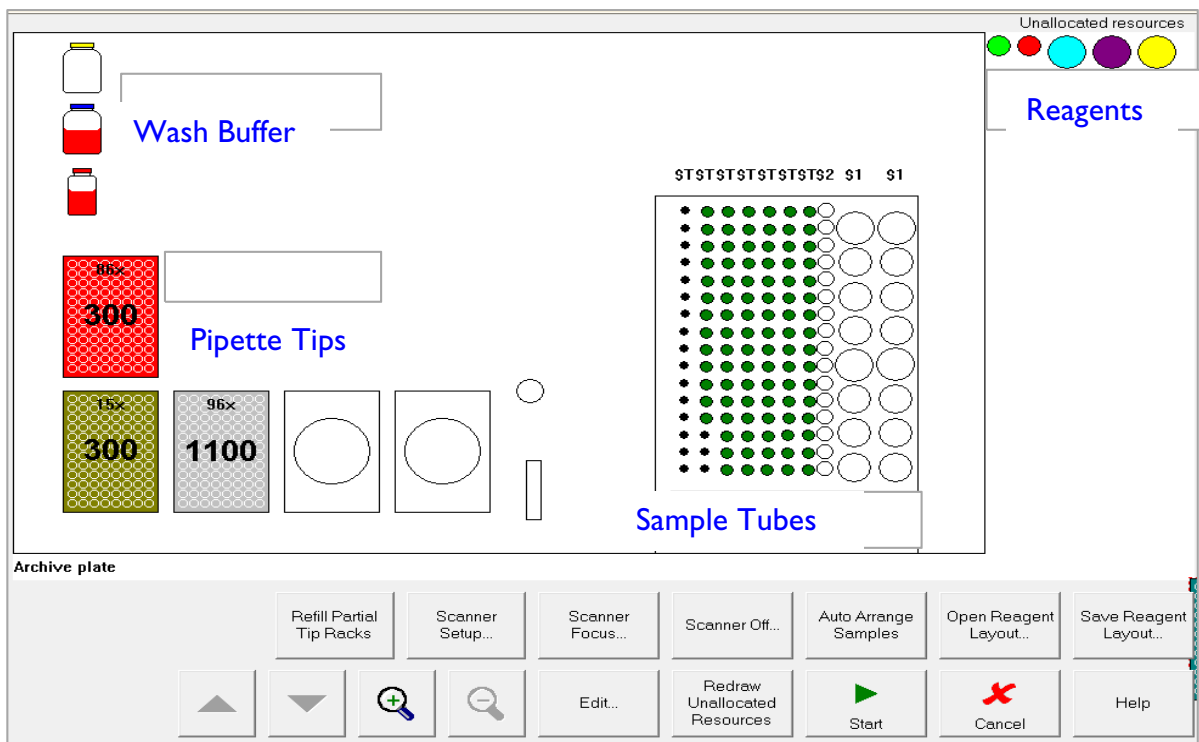
4.3. Allocating Resources – (Refer to Figure 2)

- 4.3.1. Pipette tips - place required 300 µL and 1100 µL tips on the Gemini and assign to the appropriate position, red racks are not completely filled (the system remembers where it picked up a pipette tip last)
- 4.3.2. Reagents – insert Reagent Rack with reagents & controls and assign to the appropriate position, click on Open Reagent Layout for previously saved reagent (*.rea) files
- 4.3.3. Samples – place samples in sample racks on the Gemini and assign samples (green dots) to the appropriate position by clicking on **Auto Arrange Samples**

Note: Place sample racks in Gemini loading bay when specified lane lights up

4.3.4. Wash Buffer – verify sufficient wash buffer is present and assign to the appropriate position

Figure 2 – Gemini Allocation of Resources



4.4. Perform Assay

4.4.1. To begin assay select **Start**

4.4.2. Load the necessary plates when prompted and select **OK**

Note: All strips containing at least 1 sample for analysis must contain a complete set of 8 wells - To conserve tests, blank or previously used wells can be used to fill in spaces not corresponding to actual samples

4.4.3. Upon completion of the assay results are automatically saved and a report is printed, to give results a unique name/number, select **File > Save Results As** and edit file name

4.5. Shut down

4.5.1. Remove plates when prompted by Gemini and select **OK**

4.5.2. Return remaining reagents to the refrigerator – do not store reagents in aluminum reagent rack

4.5.3. To shut down the software click on **File > Exit**, to shut down the computer click on **Start > Shutdown > OK**, the Gemini system may now be switched off

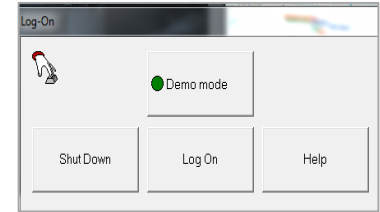
4.5.4. Perform routine daily maintenance – clean interior surfaces, remove sample tubes, empty biohazard bag, empty waste container and check system liquid level

5. Gemini Basic Operation – Quick Guide: Cluster Tubes

For more detailed instructions or help with more complex features refer to the Gemini Instructions for Use.

5.1. Log On

- 5.1.1. Select **Log On**
- 5.1.2. Select your user level
- 5.1.3. Enter your password select **OK** (Analyst = no password)



5.2. Create a Worklist

- 5.2.1. Select **File > New > Worklist** or click the New Worklist button
- 5.2.2. Select **Sample Details** to enter samples
- 5.2.3. Select **Delete All** to delete all previously analyzed samples
- 5.2.4. Select **Add Samples**
- 5.2.5. For cluster tube operation, samples must be named as **001, 002, 003**, etc...



Note: Samples must be positioned as indicated in Figure 1 with sample 001 in position D1

- 5.2.6. Enter the number of samples to be tested – Gemini software will automatically number samples appropriately if the 1st sample number entered is 001

Figure 1 – Required Cluster Tube Sample Positions

Cluster tube rack 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	No sample	006	014	022	030	038	046	054	062	070	078	086
B	No sample	007	015	023	031	039	047	055	063	071	079	087
C	No sample	008	016	024	032	040	048	056	064	072	080	088
D	001	009	017	025	033	041	049	057	065	073	081	089
E	002	010	018	026	034	042	050	058	066	074	082	090
F	003	011	019	027	035	043	051	059	067	075	083	091
G	004	012	020	028	036	044	052	060	068	076	084	092
H	005	013	021	029	037	045	053	061	069	077	085	093

Cluster tube rack 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	No sample	099	107	115	123	131	139	147	155	163	171	179
B	No sample	100	108	116	124	132	140	148	156	164	172	180
C	No sample	101	109	117	125	133	141	149	157	165	173	181
D	094	102	110	118	126	134	142	150	158	166	174	182
E	095	103	111	119	127	135	143	151	159	167	175	183
F	096	104	112	120	128	136	144	152	160	168	176	184
G	097	105	113	121	129	137	145	153	161	169	177	185
H	098	106	114	122	130	138	146	154	162	170	178	186

- 5.2.7. To assign the appropriate assay to the samples select **Select All**
- 5.2.8. Select **Add Test** and select the appropriate assay from the list of assays
- 5.2.9. Select **OK** to return to Set-up Panel screen
- 5.2.10. To add a plate to the work list select **Add Plate** (repeat selection to add an additional plate)
- 5.2.11. To assign the appropriate assay to the plate highlight the plate and select **Add Assay**
- 5.2.12. To add samples to the plate Select **Archived Samples** and highlight the appropriate samples for the plate and select **OK** (Click **Select All** to automatically add all samples to the plate)

5.2.13. Enter the appropriate assay, reagent batch numbers and expiration dates and select **OK**

5.2.14. To begin work list select **Start**

5.3. Allocating Resources – (Refer to Figure 2)

5.3.1. Pipette tips - Place required 300 μ L and 1100 μ L tips on the Gemini and assign to the appropriate position, red racks are not completely filled (the system remembers where it picked up a pipette tip last)

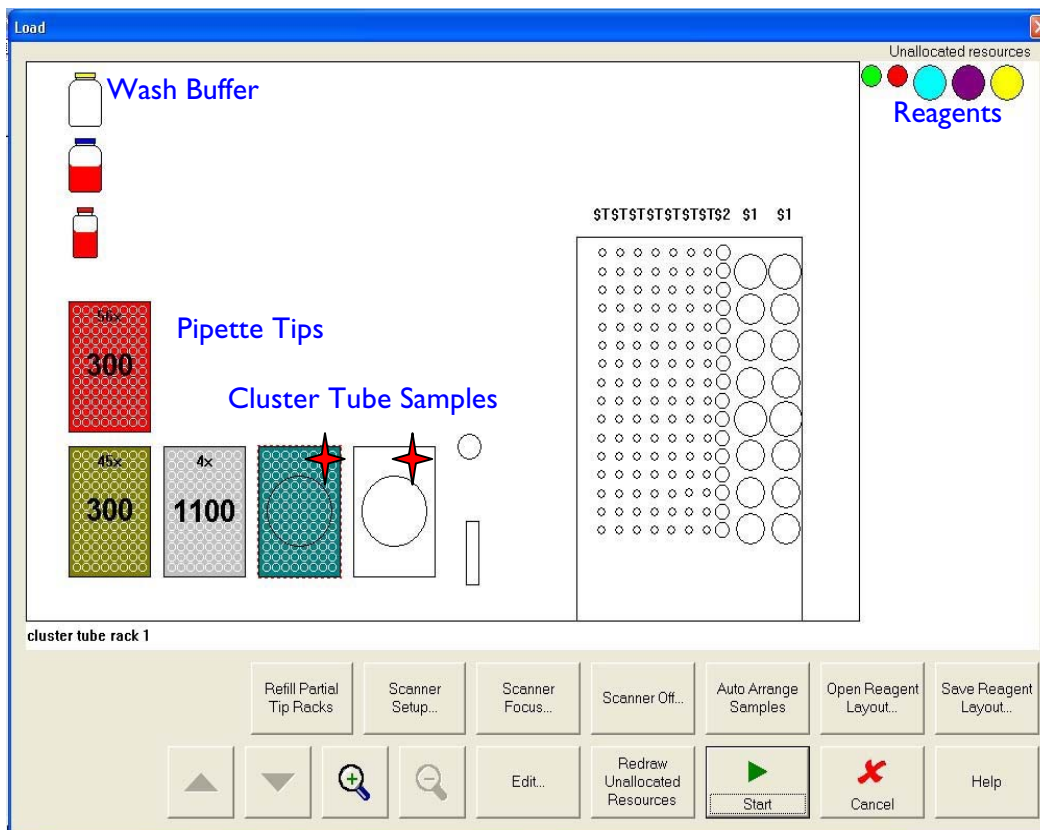
5.3.2. Reagents – Insert Reagent Rack with reagents & controls and assign to the appropriate position, click on **Open Reagent Layout** for previously saved reagent (*.rea) files

5.3.3. Samples – Place samples in cluster tubes (teal color) on the Gemini (rack 1 on left, rack 2 on right) and assign to the appropriate position – first three sample tubes should be empty as controls are pipetted directly into the microplates

Note: Place cluster tube racks in Gemini with tube D1 in the upper right hand corner 

5.3.4. Wash Buffer – Verify sufficient wash buffer is present and assign to the appropriate position

Figure 2: Gemini Allocation of Resources



5.4. Perform Assay

5.4.1. To begin assay select **Start**

5.4.2. Load the necessary plates when prompted and select **OK**

Note: All strips containing at least 1 sample for analysis must contain a complete set of 8 wells - To conserve tests, blank or previously used wells can be used to fill in spaces not corresponding to actual samples

5.4.3. Upon completion of the assay results are automatically saved and a report is printed, to give results a unique name/number, select **File > Save Results As** and edit file name

5.5. Shut down

5.5.1. Remove plates when prompted by Gemini and select **OK**

5.5.2. Return remaining reagents to the refrigerator – do not store reagents in aluminum reagent rack

5.5.3. To shut down the software click on **File > Exit**, to shut down the computer click on **Start > Shutdown > OK**, the Gemini system may now be switched off

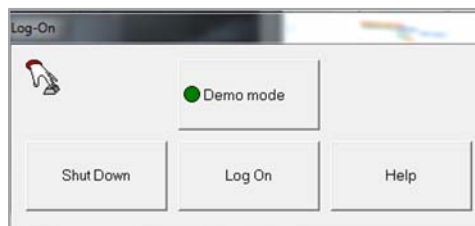
5.5.4. Perform routine daily maintenance – clean interior surfaces, remove sample tubes, empty biohazard bag, and empty waste container and check system liquid level

6. Gemini Basic Operation – Quick Guide: Metal Sample Racks

For more detailed instructions or help with more complex features refer to the Gemini Instructions for Use.

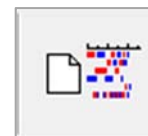
6.1. Log On

- 6.1.1. Select **Log On**
- 6.1.2. Select your user level
- 6.1.3. Enter your password select **OK** (Analyst = no password)



6.2. Create a Worklist

- 6.2.1. Select **File > New > Worklist** or click the New Worklist button
- 6.2.2. Select **Sample Details** to enter samples
- 6.2.3. Select **Delete All** to delete all previously analyzed samples
- 6.2.4. Select **Add Samples**
- 6.2.5. Enter the number of samples to be tested – Gemini software will automatically number samples appropriately after the 1st sample number is entered
- 6.2.6. To assign the appropriate assay to the samples, select **Select All**
- 6.2.7. Select **Add Test** and select the appropriate assay from the list of assays available
- 6.2.8. Select **OK** to return to Set-up Panel screen
- 6.2.9. To add a plate to the work list select **Add Plate** (repeat selection to add an additional plate)
- 6.2.10. To assign the appropriate assay to the plate highlight the plate and select **Add Assay**
- 6.2.11. To add samples to the plate select **Add Sample** and highlight the appropriate samples for the plate and select **OK** (click **Select All** to automatically add all samples to the plate)



Note: *Samples will automatically be placed into the microplate formation, as shown in Figure 1, by the software but they are loaded into the system by sample racks*

Figure 1: Sample arrangement on microplates

Sample arrangement on microplate 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	NC1	T6	T14	T22	T30	T38	T46	T54	T62	T70	T78	T86
B	NC2	T7	T15	T23	T31	T39	T47	T55	T63	T71	T79	T87
C	PC1	T8	T16	T24	T32	T40	T48	T56	T64	T72	T80	T88
D	T1	T9	T17	T25	T33	T41	T49	T57	T65	T73	T81	T89
E	T2	T10	T18	T26	T34	T42	T50	T58	T66	T74	T82	T90
F	T3	T11	T19	T27	T35	T43	T51	T59	T67	T75	T83	T91
G	T4	T12	T20	T28	T36	T44	T52	T60	T68	T76	T84	T92
H	T5	T13	T21	T29	T37	T45	T53	T61	T69	T77	T85	T93

Sample arrangement on microplate 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	NC1	T6	T14	T22	T30	T38	T46	T54	T62	T70	T78	T86
B	NC2	T7	T15	T23	T31	T39	T47	T55	T63	T71	T79	T87
C	PC1	T8	T16	T24	T32	T40	T48	T56	T64	T72	T80	T88
D	T1	T9	T17	T25	T33	T41	T49	T57	T65	T73	T81	T89
E	T2	T10	T18	T26	T34	T42	T50	T58	T66	T74	T82	T90
F	T3	T11	T19	T27	T35	T43	T51	T59	T67	T75	T83	T91
G	T4	T12	T20	T28	T36	T44	T52	T60	T68	T76	T84	T92
H	T5	T13	T21	T29	T37	T45	T53	T61	T69	T77	T85	T93

6.2.12. Enter the appropriate assay and reagent batch numbers and expiration dates and select **OK**

6.2.13. To begin work list select **Start**

6.3. Loading Metal Racks – (Refer to Figures 2 & 3)

6.3.1. Place samples into rack beginning at the top right notched corner numbered 1 (this should be done prior to the heat inactivation step)

6.3.2. After heat inactivation, let samples cool and slide the rack into its base in the direction of the arrows.

Figure 2 – Adding Metal Rack to Base



6.3.3. Load controls and reagents into reagent rack

6.3.4. Place reagent rack(s) in Gemini loading bay once track lights up, beginning on the right side with **Tracks 11 & 12**

6.3.5. Turn scanner off by selecting **Scanner Off**

6.3.6. Next place sample rack(s) in Gemini loading bay once track lights up. If loading 2 sample racks, turn scanner off again before loading second rack.

Figure 3 – Track Numbering



6.4. Metal Rack Setup – (Refer to Figure 4)

6.4.1. Reagent Setup

6.4.1.1. Select **Scanner Setup**

6.4.1.2. Select **Racks tab**

6.4.1.3. For TRANSIA PLATE *Salmonella* Gold, the squares under tracks 11 & 12 should say **\$3-5x2**. If they do not, click on the square under track 12 to open the selection window and choose **\$3-5x2**, select **OK**

6.4.1.4. For TRANSIA PLATE *Listeria*, the squares under tracks 9 & 10 should say **\$1-8x2**. And the squares under tracks 11 & 12 should say **\$3-5x2**. If they do not, select the incorrect squares, choose the correct rack label and select **OK**

Note: “\$1” signifies an 8 bottle reagent rack and “\$3” signifies a 5 bottle reagent rack, these racks must be placed in the corresponding tracks from right to left as shown in Figure 3

6.5.1. Sample Setup

6.5.1.1. Select a **Track** number where a sample rack is loaded

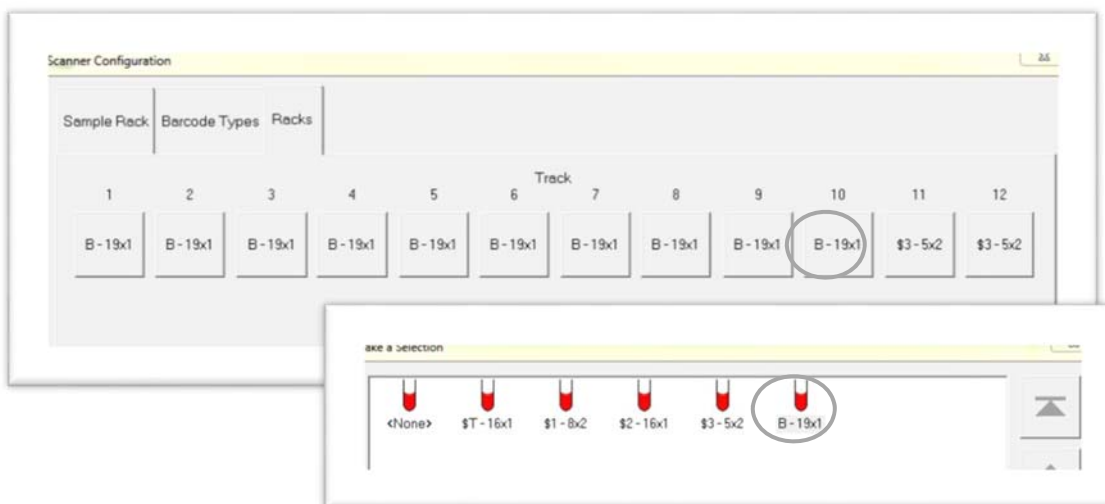
6.5.1.2. Select **\$B-19x1** and select **OK**

6.5.1.3. Repeat **steps e** and **f** for all tracks containing samples

Note: Each track represents a row of the rack, for example, if using the 8-Lane Rack, repeat steps e & f for tracks 3-10

6.5.1.4. Select **<None>** if track is empty

Figure 4 – Gemini Scanner Configuration



Description of Figure 4: this is the rack layout for TRANSIA PLATE Salmonella Gold when using both the 2-lane and 8-lane sample racks. The \$3-5x2 represents the 5 - bottle reagent rack and \$B-1x19 represents lanes of the metal sample racks.

6.5. Allocating Resources – (Refer to Figure 5)

6.5.1. Pipette tips - Place required 300 μ L and 1100 μ L tips on the Gemini and assign to the appropriate position, red racks are not completely filled (the system remembers where it picked up a pipette tip last)

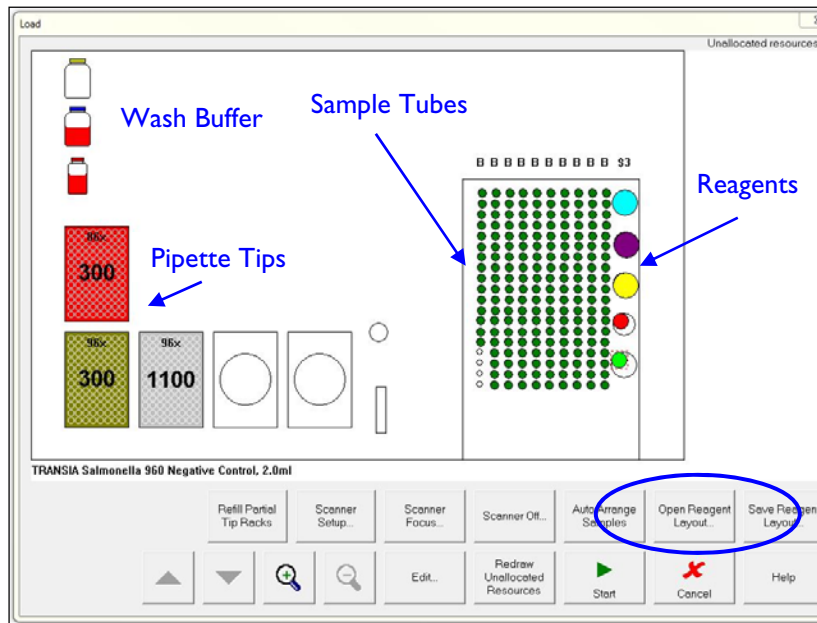
6.5.1.1. Refill partial tip racks as necessary then select **Refill Partial Tip Racks** to update the Gemini's tip inventory

6.5.2. Reagents – Assign to the appropriate position by clicking on **Open Reagent Layout** for previously saved reagent (*.rea) files

6.5.3. Samples – Assign samples (green dots) to the appropriate position by clicking on **Auto Arrange Samples**

6.5.4. Wash Buffer – Click on wash buffer icons to verify sufficient wash buffer is present

Figure 5 – Gemini Allocation of Resources



6.6. Perform Assay

6.6.1. To begin assay select **Start**

6.6.2. Load the necessary plates when prompted and select **OK**

6.6.3. Give each plate a unique name, ex: "Date_Time_Assay_Operator_Plate_1"

Note: All strips containing at least 1 sample for analysis must contain a complete set of 8 wells - To conserve tests, blank or previously used wells can be used to fill in spaces not corresponding to actual samples

6.6.4. Upon completion of the assay results are automatically saved and a report is printed, to give results a unique name/number, select **File > Save Results As**, select **Edit**, edit the file name, select **OK**

6.7. Shut Down

6.7.1. Remove plates when prompted by Gemini and select **OK**

6.7.2. Return remaining reagents to the refrigerator – do not store reagents in aluminium reagent rack

6.7.3. To shut down the software click on **File > Exit**, to shut down the computer click on **Start > Shutdown > OK**, the Gemini system may now be switched off

6.7.4. Perform routine daily maintenance – clean interior surfaces, remove sample tubes, empty biohazard bag, and empty waste container and check system liquid level

6.8. Rack Service and Repair

Note: Two non – metric Allen wrenches, also known as hex keys or hex wrenches, are required to tighten or repair the Gemini metal sample rack.

6.8.1. Wrench Specifications

- 6.8.1.1. One 1/16” and one 3/32” wrench is required per Gemini installation site – these are compatible with both the 8 – lane and 2 – lane metal sample rack
- 6.8.1.2. The 1/16” wrench should be used to tighten the screws of sample rack body
- 6.8.1.3. The 3/32” wrench should be used to tighten or replace metal sample rack handles
- 6.8.1.4. These wrenches often comes in sets. If non – metric Allen wrenches are unavailable locally, contact your BioControl Sales Representative for assistance

7. Gemini Basic Operation

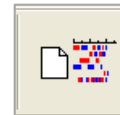
For more detailed instructions or help with more complex features refer to the Gemini Instructions for Use.

7.1. Logging On

- 7.1.1. Select **Log On**
- 7.1.2. Select your user level
- 7.1.3. Enter your password and click **OK** (Analyst = no password, just click **OK**)

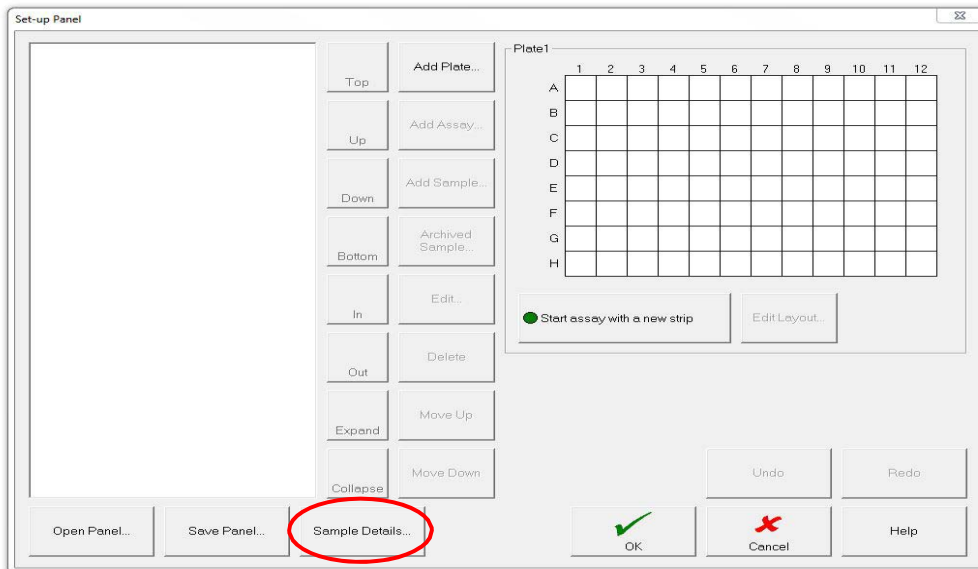
7.2. Creating a Worklist

Click on **File > New > Worklist** or click the New Worklist button

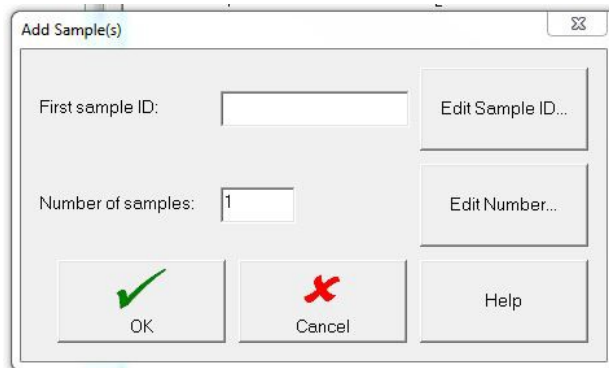


7.3. Adding Samples (Instructions for Use Chapter 5.2)

- 7.3.1. Select on **Sample Details** to enter samples



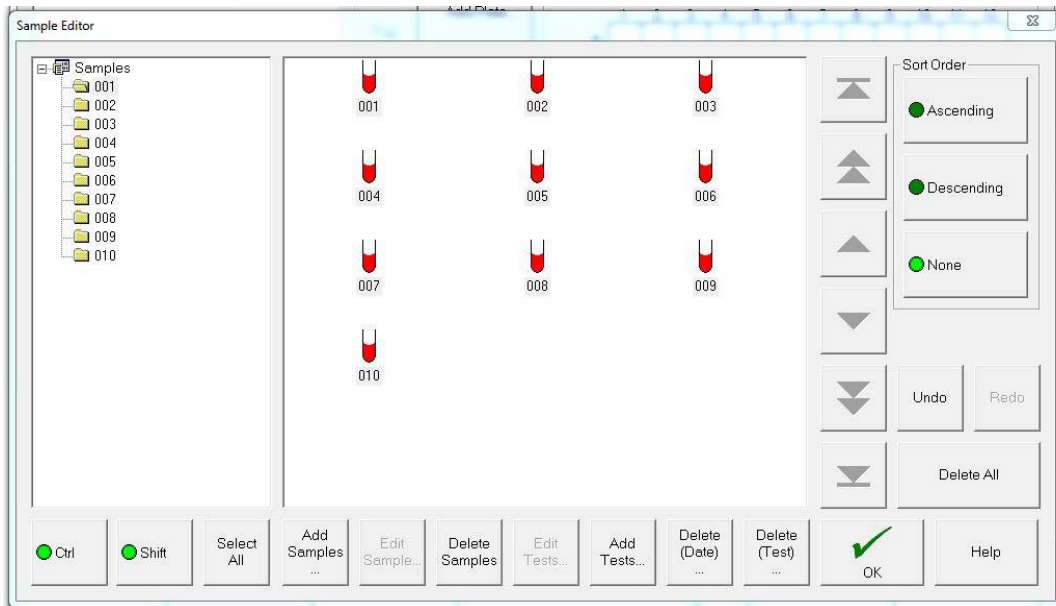
7.3.2. Select Add Samples



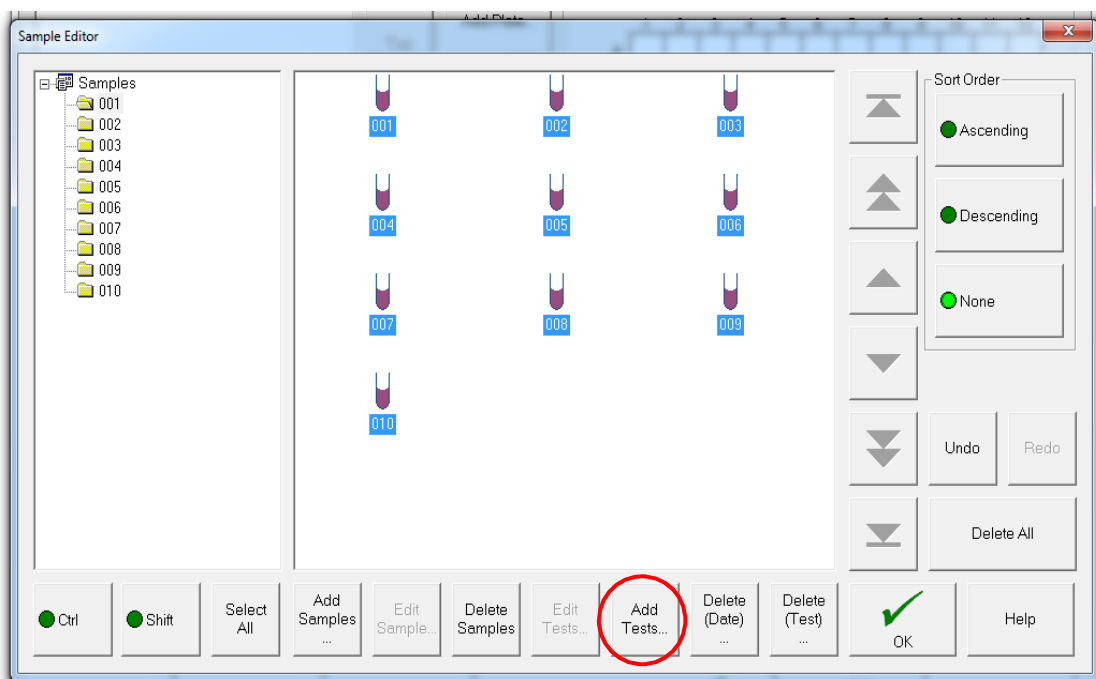
7.3.3. Samples may be entered one at a time by selecting **Edit Sample ID**, entering the name in the First Sample ID field, leaving the number of samples as 1 and selecting **OK**. Select **Add Samples** and repeat this process for each additional sample

7.3.4. To enter a group of samples, click **Edit Sample ID**, enter the sample name in the First Sample ID field, click **Edit Number**, enter the number of samples and click **OK**. The samples will automatically be numbered

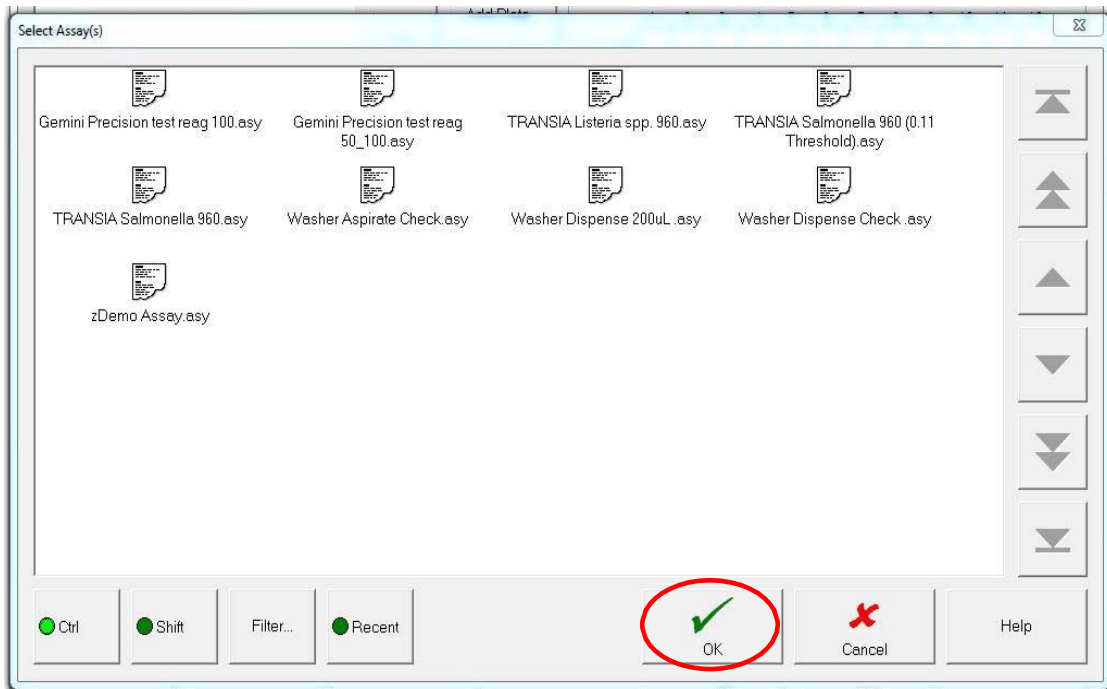
For Example: If the First Sample ID is 001 and the Number of Samples is 10, the samples will be populated as below:



7.3.5. Each sample must be assigned a test. Select the samples to be tested (to select all samples click **Select All**) and click **Add Tests**. To select a group of samples to be tested (but not all the samples), click Ctrl and Shift, then click the first and last sample of the group you are adding to highlight them. Click **Add Tests**

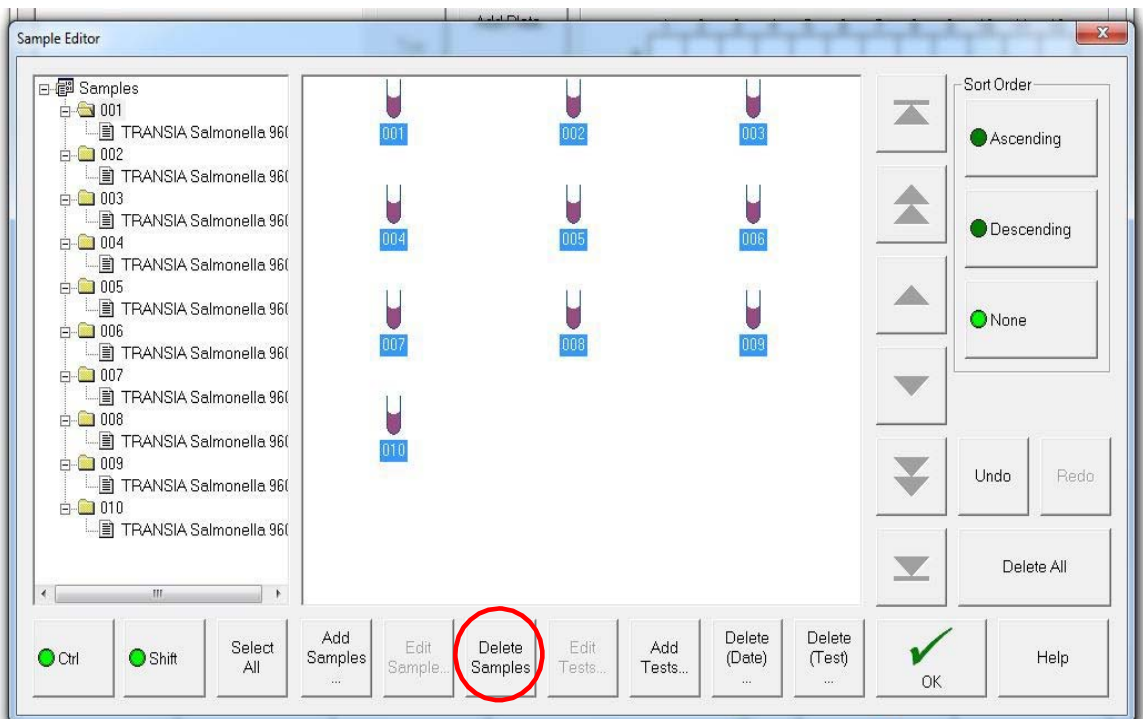


7.3.6. Select the appropriate test(s) for each sample and click **OK**. Repeat until all samples have tests added.



7.3.7. When tests have been added to all samples, click **OK**

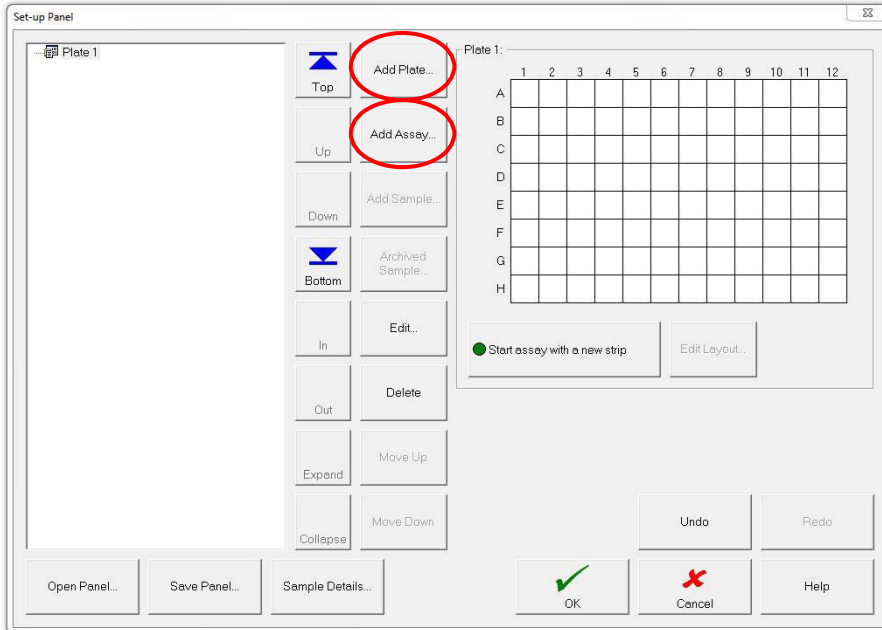
7.3.8. To delete samples, select the individual ones for deletion or click **Select All** to highlight and then click **Delete Samples**



7.4. Setting Up a Plate (Instructions for Use Chapter 5.3)

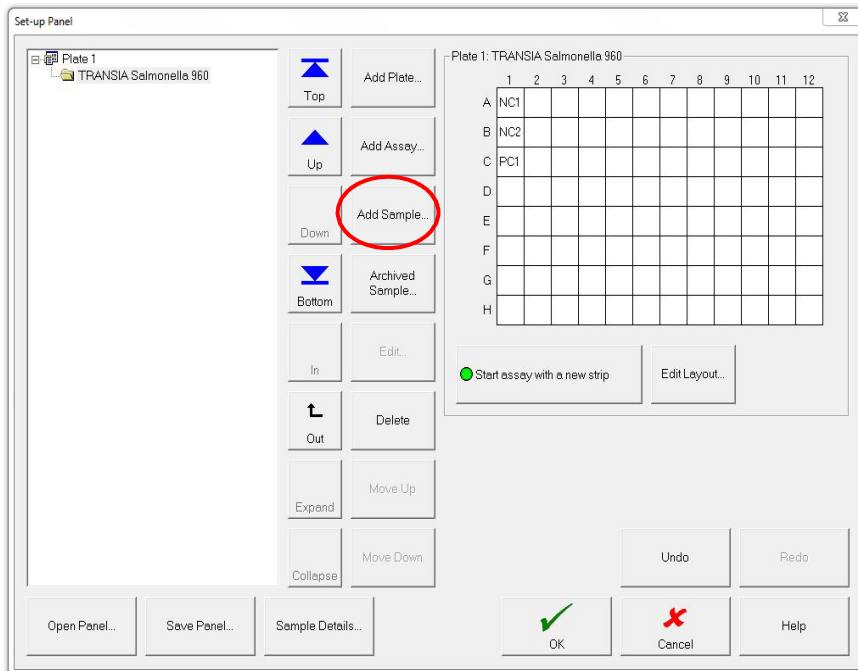
7.4.1. Click **Add Plate**

7.4.2. Click **Add Assay**

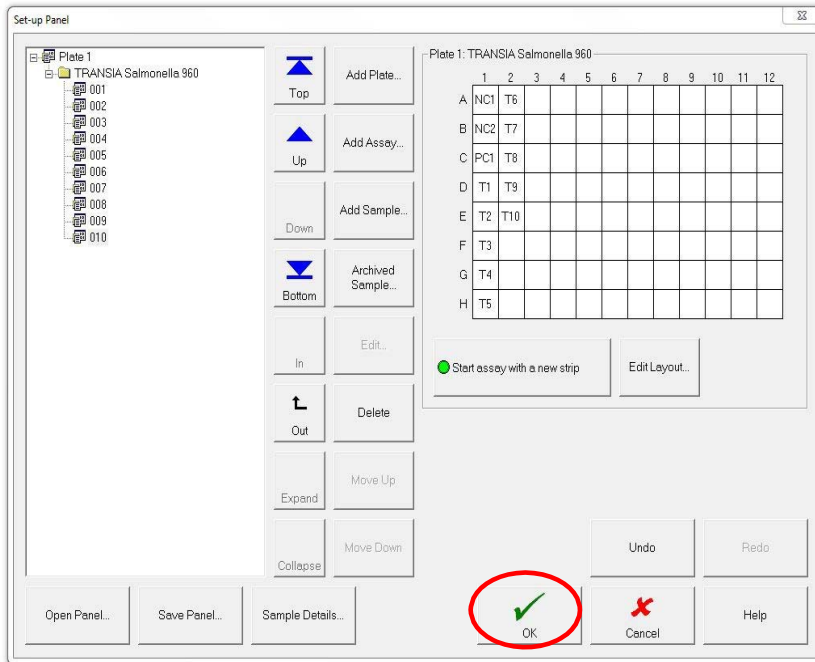


7.4.3. Select the appropriate assay. The required assay controls will automatically be added to the plate

7.4.4. Click **Add Sample** to add samples to the plate



7.4.5. Select the samples to be tested on this plate (use **Select All** to add all samples) and click **OK**. Selected samples will populate the plate. (Only samples that have been designated for testing with the same assay assigned to the plate will be available to select)



7.4.6. When finished adding samples to the worklist click **OK**

Note: Samples will automatically be placed into the microplate formation, as shown in Figure 1, by the software but they are loaded into the system by sample racks

Figure 1: Sample arrangement on microplates

Sample arrangement on microplate 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	NC1	T6	T14	T22	T30	T38	T46	T54	T62	T70	T78	T86
B	NC2	T7	T15	T23	T31	T39	T47	T55	T63	T71	T79	T87
C	PC1	T8	T16	T24	T32	T40	T48	T56	T64	T72	T80	T88
D	T1	T9	T17	T25	T33	T41	T49	T57	T65	T73	T81	T89
E	T2	T10	T18	T26	T34	T42	T50	T58	T66	T74	T82	T90
F	T3	T11	T19	T27	T35	T43	T51	T59	T67	T75	T83	T91
G	T4	T12	T20	T28	T36	T44	T52	T60	T68	T76	T84	T92
H	T5	T13	T21	T29	T37	T45	T53	T61	T69	T77	T85	T93

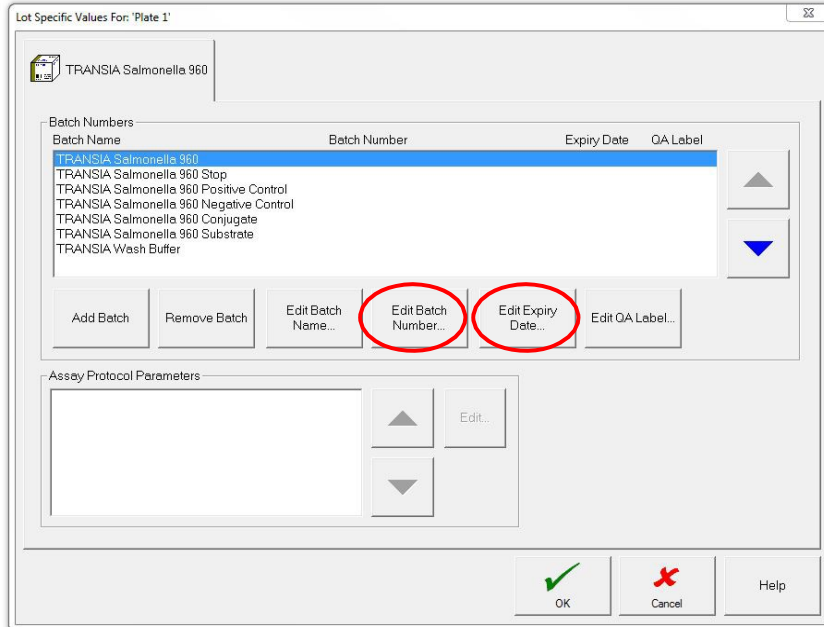
Sample arrangement on microplate 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	NC1	T6	T14	T22	T30	T38	T46	T54	T62	T70	T78	T86
B	NC2	T7	T15	T23	T31	T39	T47	T55	T63	T71	T79	T87
C	PC1	T8	T16	T24	T32	T40	T48	T56	T64	T72	T80	T88
D	T1	T9	T17	T25	T33	T41	T49	T57	T65	T73	T81	T89
E	T2	T10	T18	T26	T34	T42	T50	T58	T66	T74	T82	T90
F	T3	T11	T19	T27	T35	T43	T51	T59	T67	T75	T83	T91
G	T4	T12	T20	T28	T36	T44	T52	T60	T68	T76	T84	T92
H	T5	T13	T21	T29	T37	T45	T53	T61	T69	T77	T85	T93

7.5. Entering Lot Specific Values (Instructions for Use Chapter 4.6)

7.5.1. Highlight the kit name by clicking on it and click Edit Batch Number to enter or edit the lot number for the kit

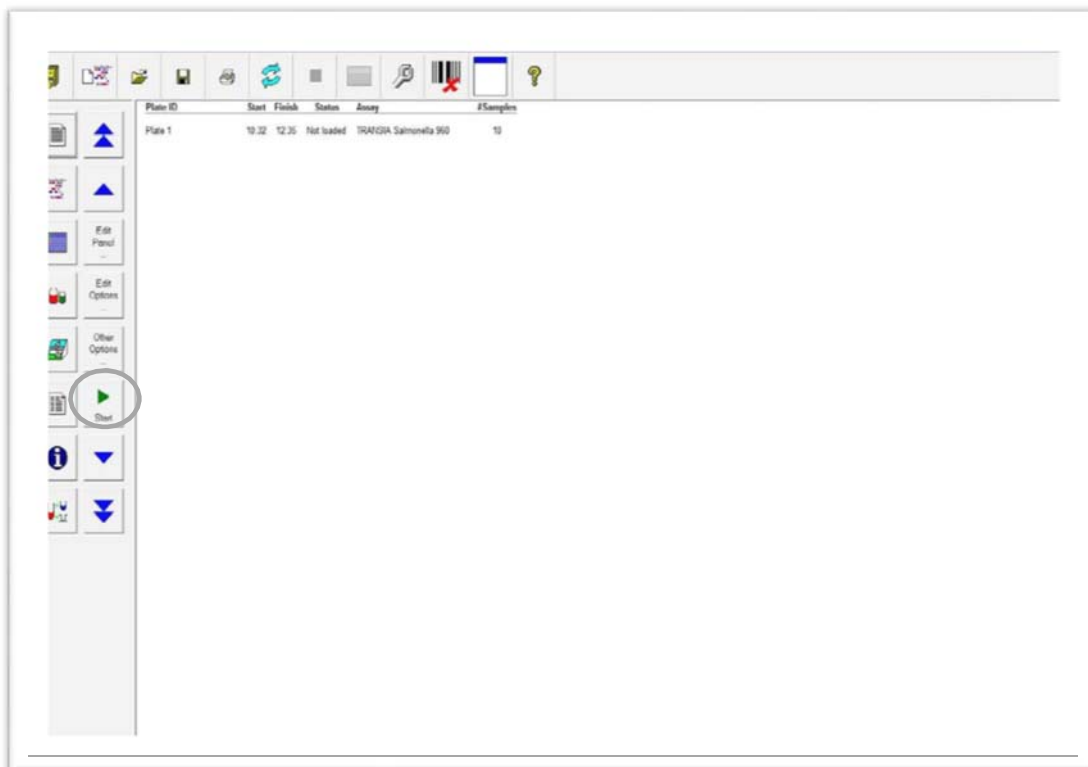
7.5.2. Click **Edit Expiry Date** to enter or edit the expiration date for highlighted line



7.5.3. Continue to add lot numbers and expiration dates for each reagent by repeating the above steps for each reagent

7.5.4. Click **OK** when finished entering lot and expiration information to go to the Worklist window

Note: After the lot and expiration is entered for all reagents the Worklist window will automatically appear.



7.6. Starting a Worklist

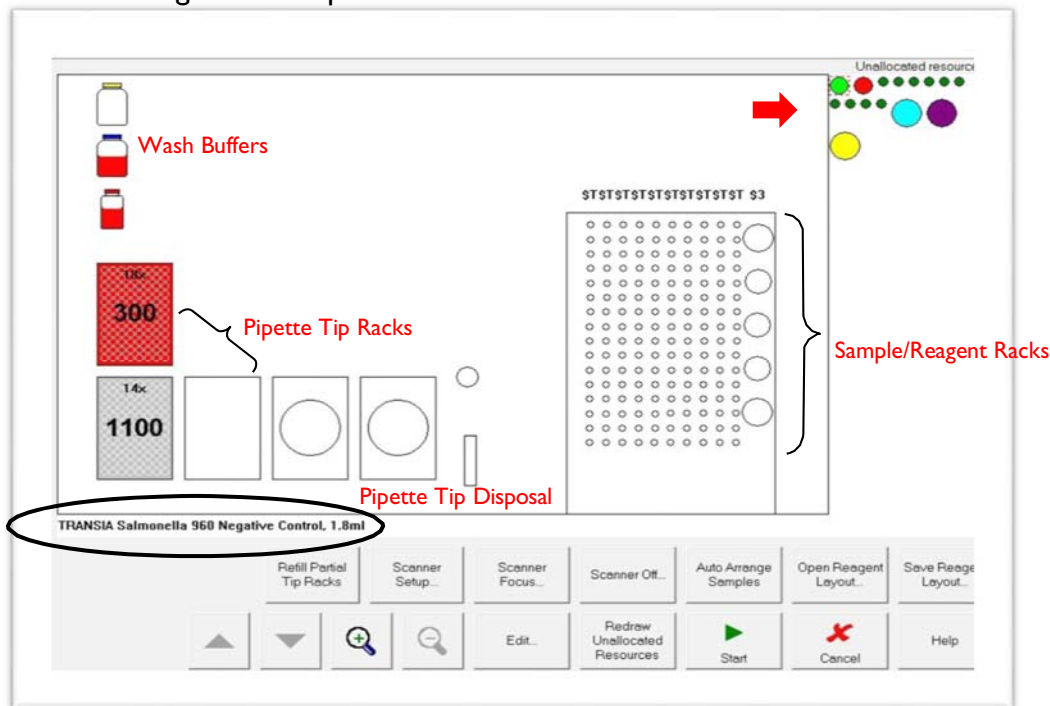
7.6.1. Click **Start**.

7.7. Loading Samples into Gemini Instrument (Instructions for Use Chapter 4.8.2)

- 7.7.1. Place the sample tubes into the sample racks and the reagents into the reagent racks.
- 7.7.2. Samples and reagents can be loaded into the Gemini once the Resource Allocation screen appears
- 7.7.3. Load the racks one at a time starting with the reagent rack(s). Insert the first rack on the lane marked with the LED illuminated
- 7.7.4. Once each inserted rack is loaded properly the LED will turn off for that position and the LED for the next available position will illuminate. If a rack is loaded incorrectly the LED will blink and an audible alarm will sound. Remove the rack and wait for the LED to stop blinking and remain lit. Reload the rack

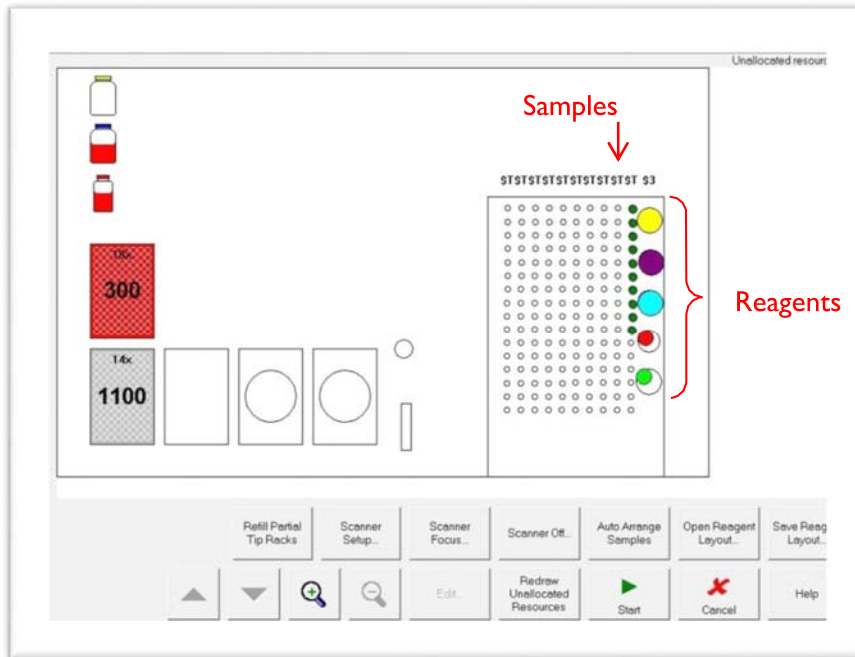
7.8. Allocating Resources (Instructions for Use Chapter 4.8.3)

- 7.8.1. The system requires that you place each reagent and sample (colored circles on the right hand side of the screen) on the location where it was loaded. From this screen you can also change the location of the tips and wash buffers by selecting and dropping each to a new location
- 7.8.2. Each circle represents a sample or reagent. A circle can be identified by clicking on it and reading the description in the lower left section



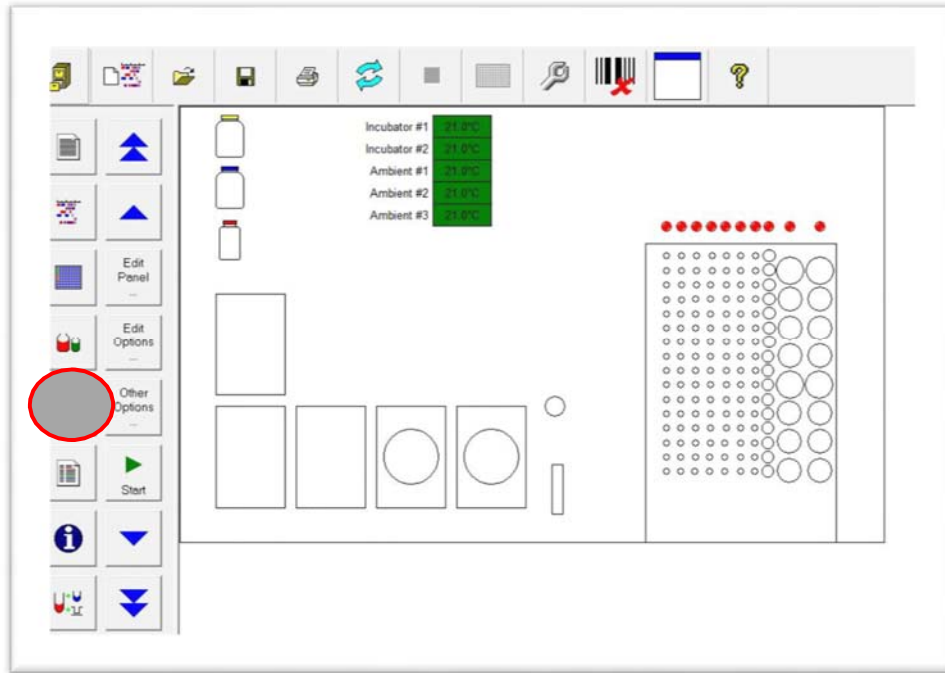
- 7.8.3. Click on each circle to pick it up and click on its corresponding location on the loading grid to drop it in that location
- 7.8.4. The samples (smallest circles) can be placed individually or automatically arranged by clicking **Auto Arrange Samples**
- 7.8.5. Similarly, the reagents can be automatically arranged by clicking on **Open Reagent Layout** for a previously saved file

Note: When using Auto Arrange samples the system arranges samples starting in the back of the loading grid in the first available sample lane on the right. Make sure that samples are actually loaded in this order when using Auto Arrange



- 7.8.6. Carefully check to make sure that all reagents, wash buffers, tips and samples are in the correct locations
- 7.8.7. The number displayed at the top of the pipette tip racks indicates the quantity of that size of tip that is required to complete the assay. Ensure that there are sufficient tips loaded to complete the assay and that the appropriate volume tip is placed in the indicated position

7.8.8. Check that the temperature status in Ambient #1-3 is below 30 °C before starting a run. To do this, go to the left side bar and click on the fifth icon down from the top

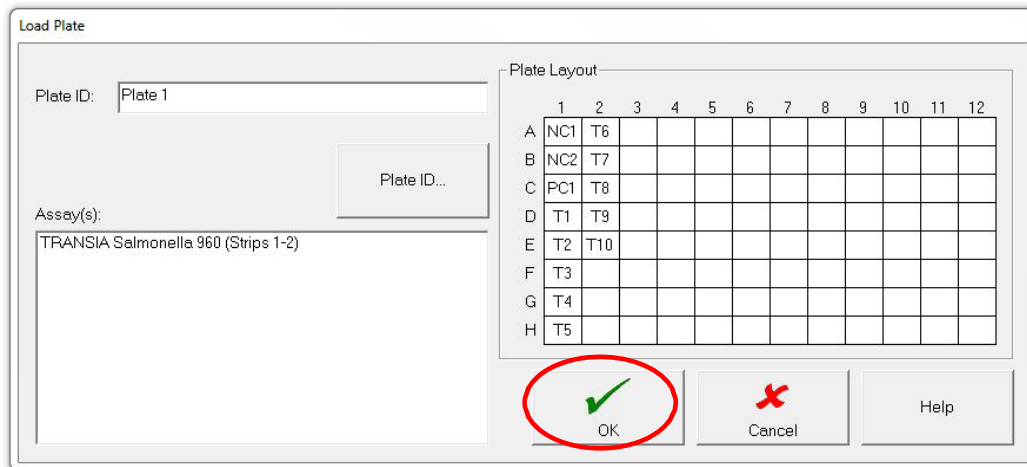


7.9. Starting the Assay

7.9.1. Once the reagents and samples are allocated click **Start**

7.9.2. The system will prompt you to load the test plates

7.9.3. Load the test plates ensuring correct orientation, rename the plate if desired, and click **OK**



7.9.4. The assay will start automatically.

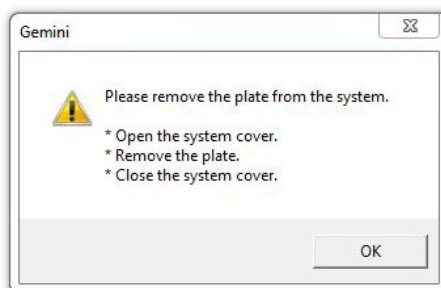
7.10. Results Report

7.10.1. The assay results are automatically saved to a result file

- 7.10.2. The file can be saved to another location by clicking File > **Save As**
- 7.10.3. To open a saved file click the Open button and select the entry Results Files (.res)
- 7.10.4. Click the desired file and open it
- 7.10.5. To print a result report click the **Print** button

7.11. Unloading

- 7.11.1. The system will automatically alert you to any fully processed plates that can be removed. The following message will be displayed:



- 7.11.2. To remove the plate, open the cover, remove the plate, then, close the cover. Click **OK** to tell the system that the plate has been removed
- 7.11.3. Sample and reagent racks may be removed when the LED for that position is flashing, meaning that the system has finished processing the items in that rack
- 7.11.4. Tip racks may not be removed until the assay is completed as the cover will be locked while the assay is running. (If the assay requires that tips be added during the run, the cover will unlock for a brief time so that tips may be added)
- 7.11.5. Waste bag and liquid waste do not need to be removed after each run, however, if full or nearly full replace the waste bag and dispose of liquid waste

7.12. Shut Down

Note: Always shut down the computer before shutting down the system

- 7.12.1. To shut down the Gemini software click on **File > Exit**
- 7.12.2. Click on **Start > Shutdown > Shutdown > OK** to shutdown the computer
- 7.12.3. When the computer is shutdown the Gemini system may be switched off

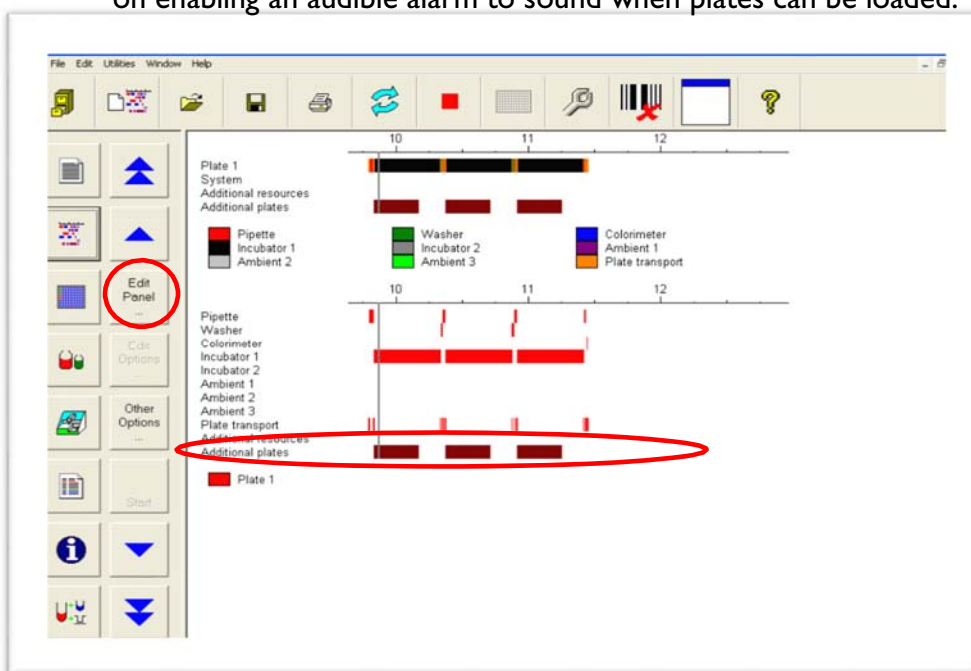
8. Gemini Advanced Operation

This section guides users on advanced operation options that may occasionally be encountered. For more detailed instructions or help with more complex features refer to the Gemini Instructions for Use.

8.1. Continuous Loading

(Instructions for Use Chapter 5.6) - Continuous loading will be required when you want to add new samples and new test plates while the instrument is running. This is accomplished by modifying the current worklist.

- 8.1.1. Adding an additional plate can only be done when the pipettor is not busy and all of the plates on the current worklist are incubating. To view this, click the **Schedule** button and look for the Additional Plates line at the bottom. The brown lines indicate when additional plates can be loaded. Refer to the note at the end of the section for instructions on enabling an audible alarm to sound when plates can be loaded.

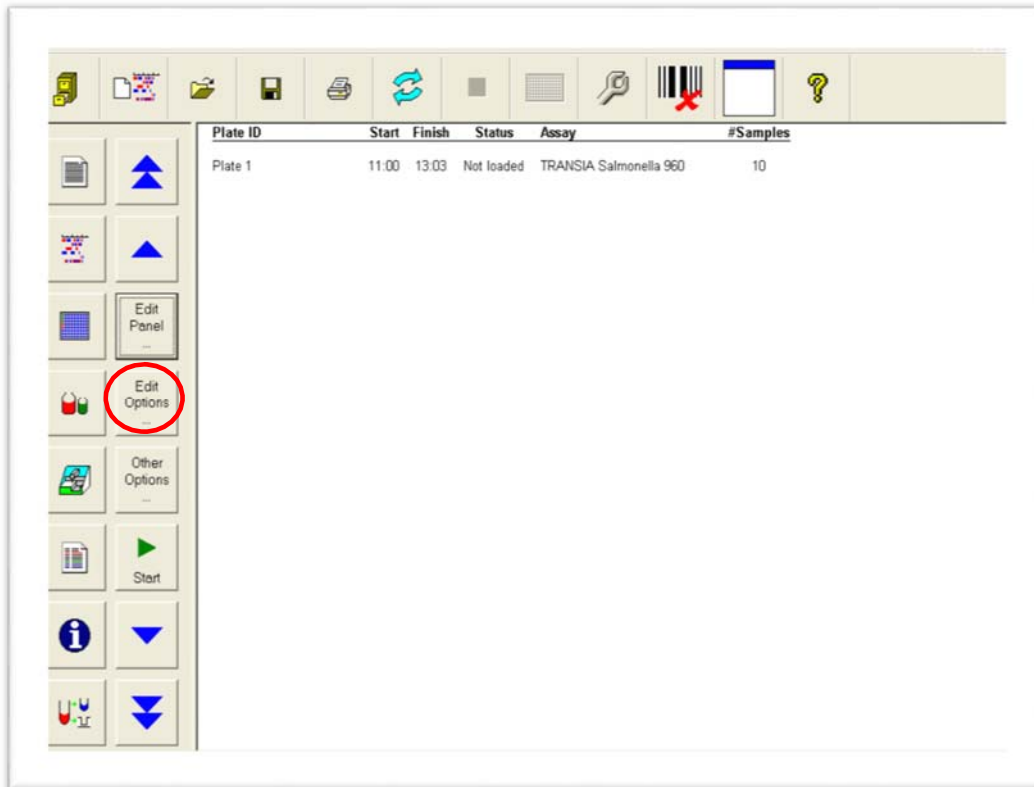


- 8.1.2. The worklist can be setup at any time. Click **Edit Panel** and edit sample details, add tests, add plates, add assay and add samples to the assay as described previously under Gemini Basic Operation section 7.2 – 7.4.6.
- 8.1.3. Add the lot specific values, click **Start**, load the samples and resources as described previously under Gemini Basic Operation section 7.5 – 7.8.8. Sample racks from the first plate can be removed as soon as the LED for that lane is blinking
- 8.1.4. Allocate the reagents as described above in Gemini Basic Operations section 7.8 – 7.8.8 Allocating Resources

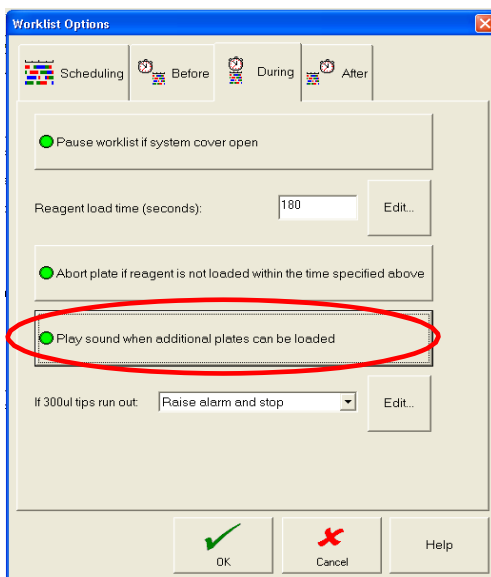
Note: If the second plate is running the same assay as the first plate the positive and negative controls for the second plate will be pre-allocated by the system. Remove the reagent rack and replace the positive and negative controls from the first plate with the positive and negative controls for the second plate. Ensure that the positive and negative controls for the second plate are in the correct positions by clicking on them and verifying the lot information (lower left corner of the screen) and the position in the reagent rack

8.1.5. Click Start to add the assay to the current worklist. The instrument will alert you if the plate cannot yet be loaded. When the instrument is ready for the new plate load it as above in the Starting an Assay section

Note: The Worklist Options can be adjusted such that an audible alarm will sound when additional plates can be added. From the Worklist window click **Edit Options**



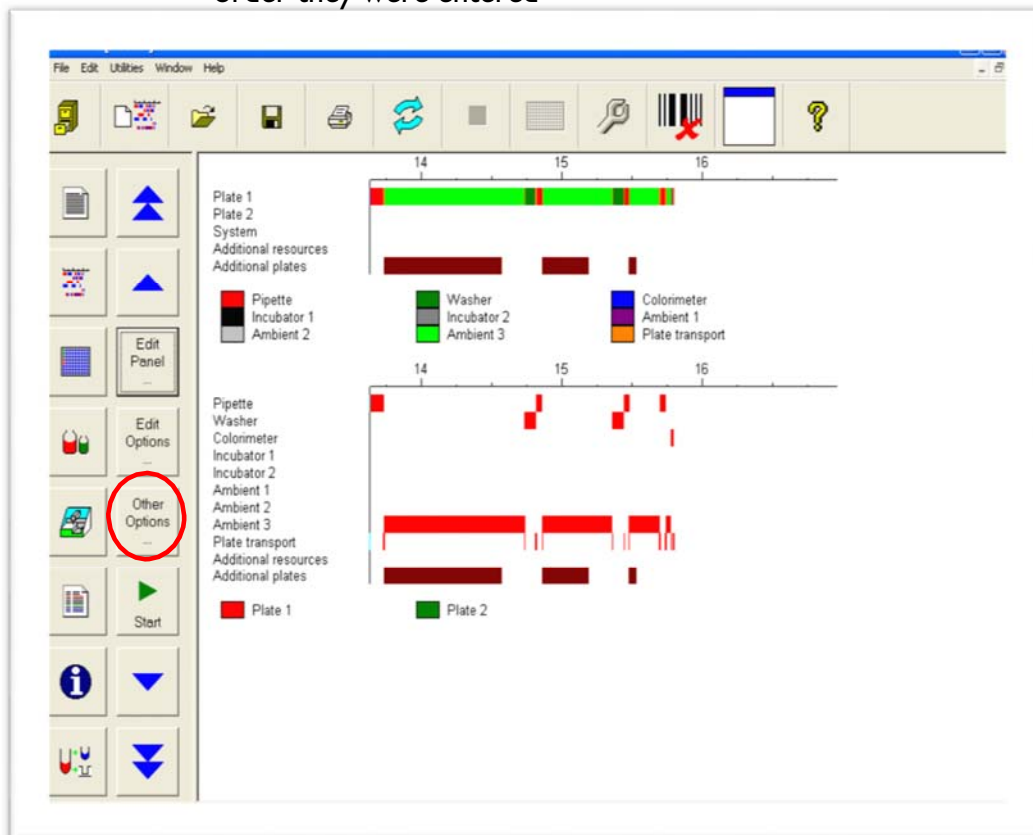
8.1.6. On the **During** tab click the **Play sound when additional plates can be loaded** option. Option is turned on when the circle becomes bright green. Click **OK**

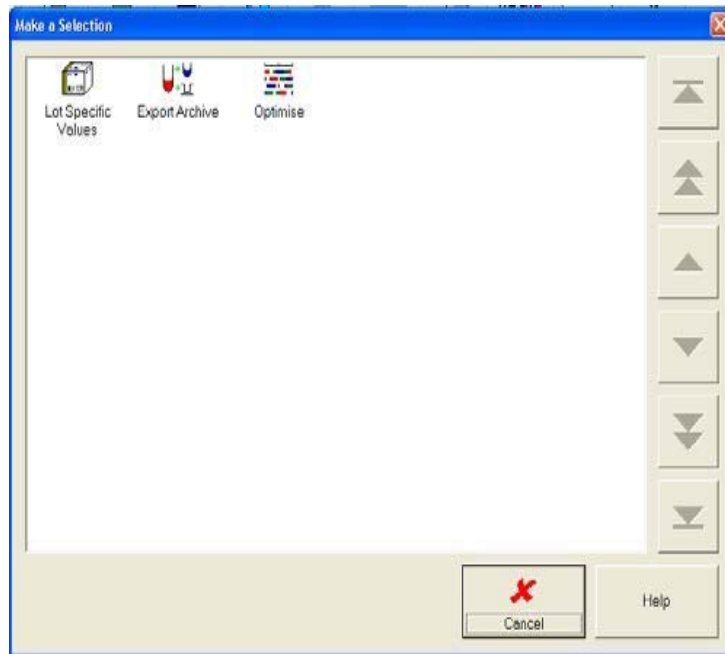


8.2. Two Plates, Two Assays

Two Plates, Two Assays will be required when two different assays and two different plates will be loaded at the same time. If second assay is to be added after the first assay is started refer to Continuous Loading section. Two plates can only be started at the same time if all of the samples and reagents can fit onto the instrument at once. If not, use Continuous Loading

- 8.2.1. Follow the instructions for Creating a Worklist and Adding Samples as described previously under Gemini Basic Operation section 7.2 – 7.4.6. Be sure to add all of the samples to be tested
- 8.2.2. Assign the appropriate tests to the samples
- 8.2.3. Add the first plate, add the appropriate assay to the plate and add the appropriate samples as described previously under Gemini Basic Operation section.
- 8.2.4. To add the second plate click **Add Plate**
- 8.2.5. Click **Add Assay** and select the assay for the second plate
- 8.2.6. Click **Add Samples** and select the samples to be added to the second plate
- 8.2.7. Click **OK**
- 8.2.8. Enter the information for the Lot Specific Values (see Entering Lot Specific Values section) for the first plate and click **OK**
- 8.2.9. The screen to enter the Lot Specific Values for the second plate will appear. Enter the values and click **OK**
- 8.2.10. The time to results can be optimized by clicking Other Options then selecting the Optimise option. The instrument will then calculate the shortest overall processing time and run the plates in that order. Otherwise, the plates will be processed in the order they were entered





8.2.11. Click **Start** and continue with Loading Samples into Gemini Instrument and the following steps as above. When it is time to load the plates the instrument will ask for each plate separately

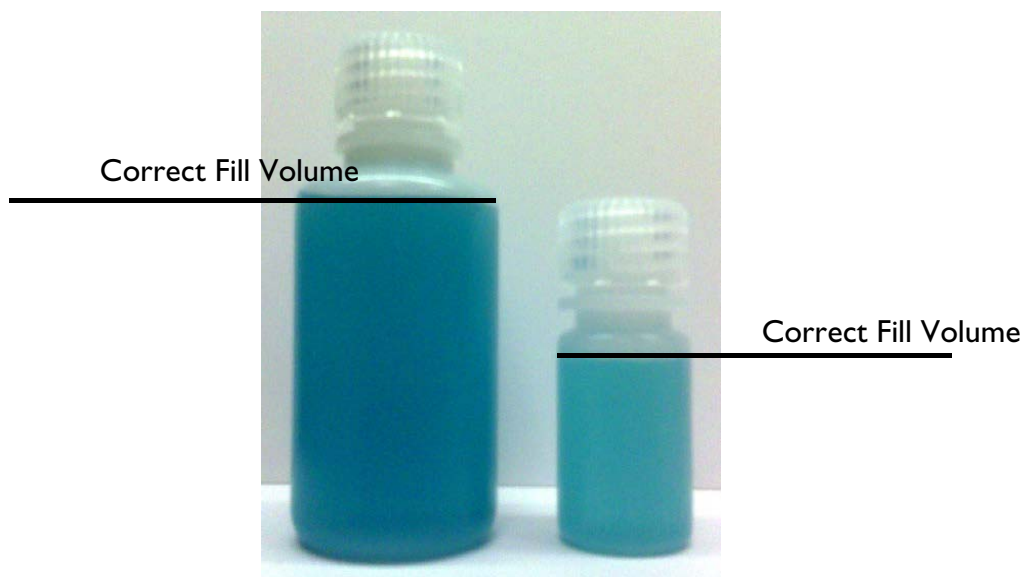
8.3. Two Plates, One Assay

Two Plates, One Assay will be required when more samples than can fit on one plate are to be loaded at the same time with the same assay and all reagents are from a single kit (multi-plate kit) or reagents are from different kits with the same lot number. Two plates can only be started at the same time if all of the samples and reagents can fit onto the instrument at once. If not, use Continuous Loading

- 8.3.1. Follow the instructions for Creating a Worklist and Adding Samples as described previously in Gemini Basic Operation section 7.2 – 7.4.6. Be sure to add all of the samples to be tested and assign the appropriate test to the samples
- 8.3.2. Add the first plate and add samples to fill the plate. Hint: if you click Add Sample, then Select All, then OK the plate will automatically be filled with as many samples as possible. The instrument will tell you that not all samples can fit on the current plate
- 8.3.3. Click **Add Plate**
- 8.3.4. Click **Add Assay** and select the assay
- 8.3.5. Click **Add Samples** and add the rest of the samples to the second plate
- 8.3.6. Click **OK**
- 8.3.7. Enter the information for the Lot Specific Values for the first plate as described under Gemini Basic Operation and click **OK**
- 8.3.8. The screen to enter the Lot Specific Values for the second plate will appear. Enter the values and click **OK**
- 8.3.9. The time to results can be optimized by clicking **Other Options** then selecting the **Optimise** option. The instrument will then calculate the shortest overall processing time and run the plates in that order. Otherwise, the plates will be processed in the order they were entered

- 8.3.10. Click **Start**
- 8.3.11. Continue with Loading Samples into Gemini Instrument
- 8.3.12. When the resource allocation screen appears only one set of reagents will be available (because the reagents are all the same lot). Allocate the reagents as above in the Allocating Resources section
- 8.3.13. Click **Start**. When it is time to load the plates the instrument will ask for each plate separately
- 8.3.14. If the reagent volume is not sufficient to run both plates the system will alert you to replace or refill the reagents
- 8.3.15. Remove the reagent rack, replace or refill the necessary reagents with reagents of the same lot and replace the rack. Reallocate the reagents and click **OK**

Note: Do not fill the reagent bottles higher than the shoulder of the bottle. Overfilling the reagent bottles can cause the pipettor to misread the reagent volume, resulting in reagent dispensing errors

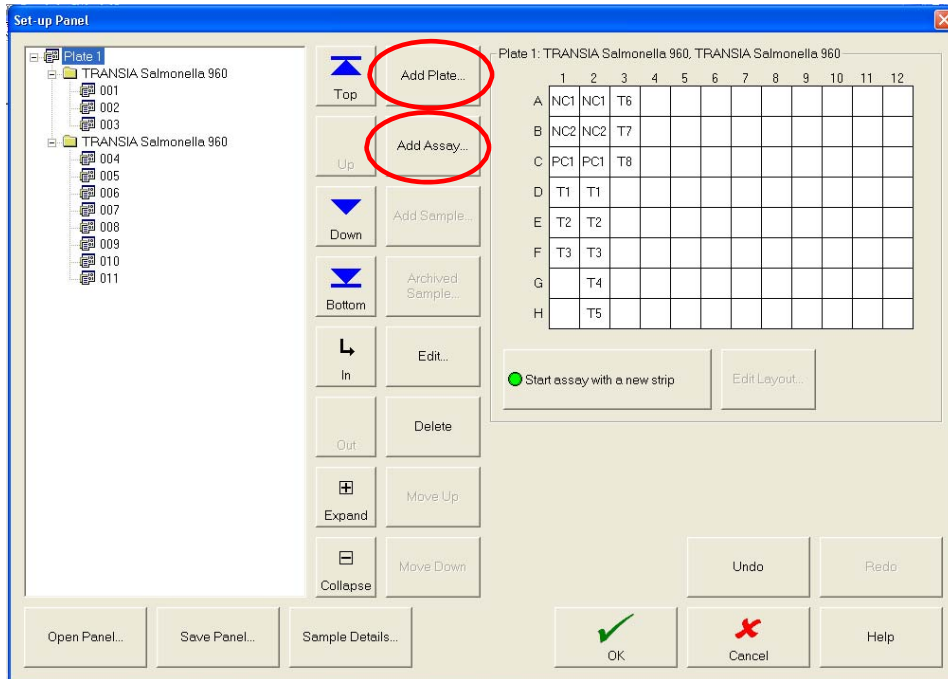


8.4. One Plate, Two Assays

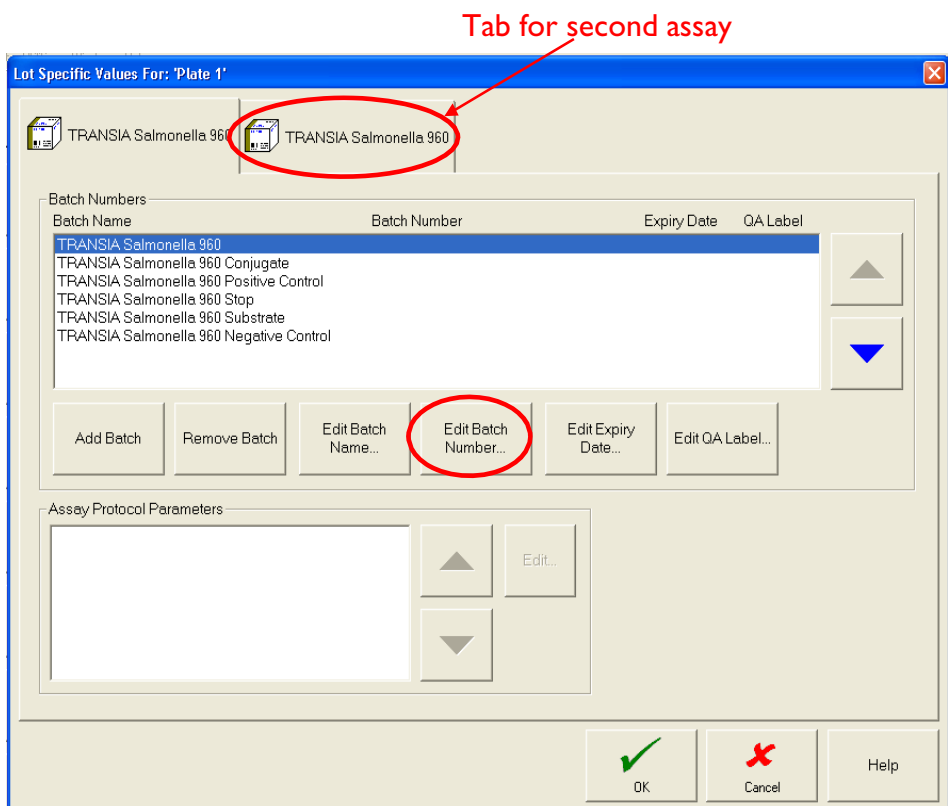
One Plate, Two Assays will be required when two different assays with the same plate incubation times and temperatures are to be run on the same plate or when two of the same assay with different lot numbers are to be run on the same plate.

- 8.4.1. Enter sample details and add the appropriate assay to each sample as described under Gemini Basic Operation section 7.2 – 7.4.6.
- 8.4.2. Click **Add Plate**.
- 8.4.3. Click **Add Assay** and add the first assay type.
- 8.4.4. Add the samples to the plate that go with the first assay type.
- 8.4.5. Click **Add Assay** again and select the appropriate assay for the second assay. The system will automatically place the control samples for the second assay on the plate.

8.4.6. Add the samples that will go on the second assay to the plate
For Example: Samples 1 - 3 are assigned to the first assay and samples 4 - 11 are assigned to the second assay. Controls for each assay are placed on the plate



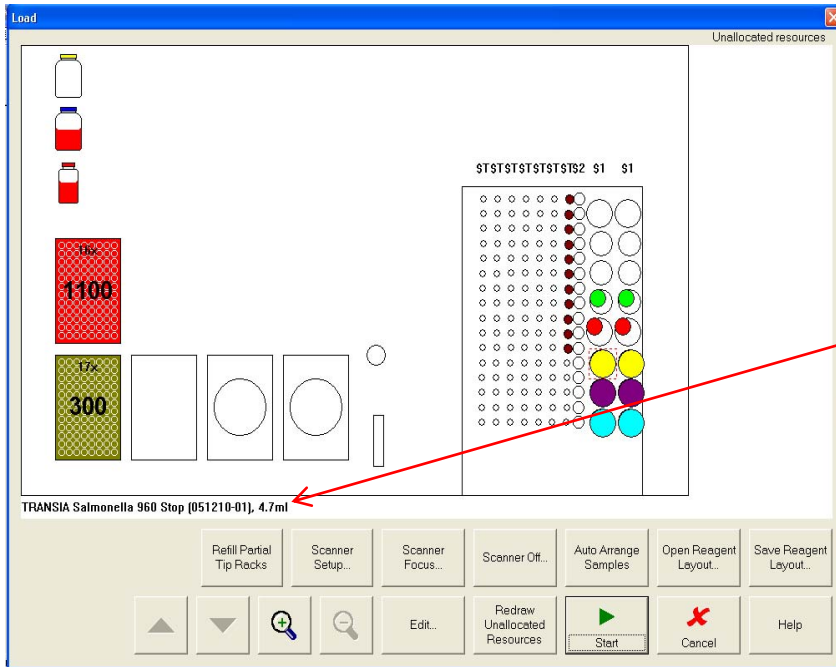
8.4.7. Click **OK**.
Note: Be sure to place wells for the appropriate assay and/or lot number in the correct location on the plate as defined by the Set-Up Panel



8.4.8. Enter the batch number and expiration date for both kits. Tab to the second kit by clicking on the second tab in the header

8.4.9. Click **OK** and proceed with Loading Samples and Allocating Resources as described under Gemini Basic Operation

Note: Double check that reagents from the correct batch or assay are in the desired locations and allocated correctly Check the batch number




Batch number as entered
in Lot Specific Values
screen

8.5. Loading Tips

- 8.5.1. Insert the tip rack(s) in the correct position(s) and press down firmly so that the racks rest evenly
- 8.5.2. When replacing empty or partial tip racks ensure that the replacement rack is correctly oriented. The semi-circular notch in the plastic portion of the tip rack should line up with the arrow imprinted in the upper right hand corner of the rack holder



8.6. Reloading Tip Racks During a Run

- 8.6.1. If the worklist requires more tips than are initially loaded, reloading will be required during the run. The bottom of the Schedule screen will display the following message: “Operator Intervention required in X minutes”
- 8.6.2. A message on the screen and an audible signal will warn the operator when it is time to reload and the Load Additional Tips button is enabled
- 8.6.3. Click the **Load Additional Tips** button 
- 8.6.4. Reload the tips as described above

8.7. Using Cluster Tubes

Cluster tubes may be used to hold samples instead of the 3.5 mL sample tubes. If cluster tubes are used, sample racks are not needed and samples are loaded in the cluster tube racks in the dilution plate area

- 8.7.1. Follow the instructions for Creating a Worklist and Adding Samples as described previously under Gemini Basic Operation Steps 7.2 – 7.3.8
 - 8.7.1.1. For each run of cluster tubes it is important to start the worklist with sample number 001 to prevent the Gemini from remembering the previous run tube positions (i.e. after running 2 plates of 152 samples, the next run will start with sample 001 not 153)

8.7.2. To use cluster tubes samples must be named and in a specific manner and placed in a specific location on the rack. Sample names start at 001 which is located in position D1 in the cluster tube rack and continue in order down each column. Refer to diagram below:

Cluster tube rack 1

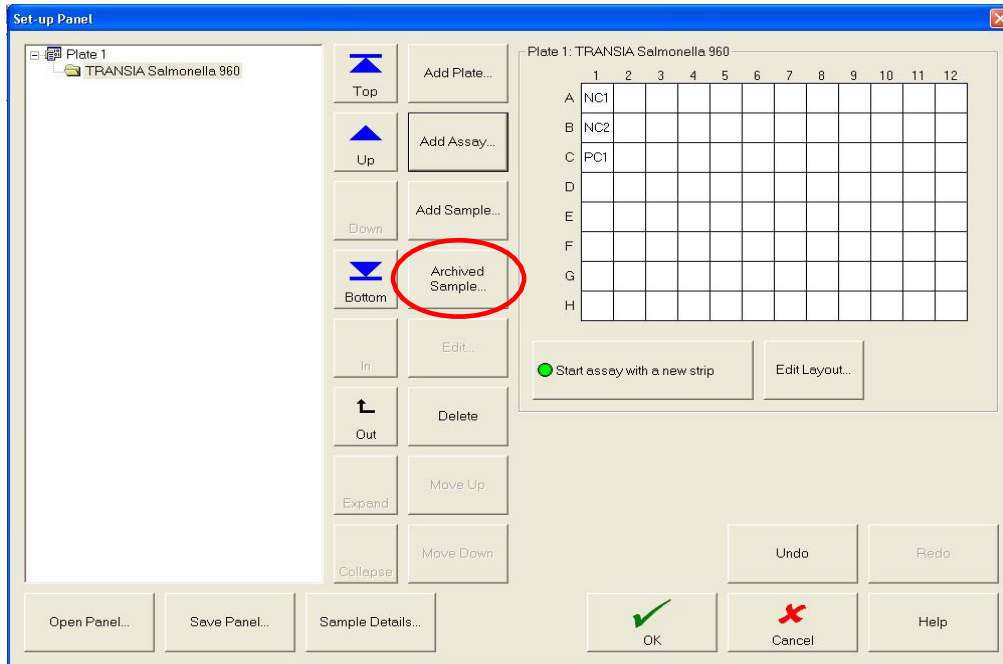
	I	2	3	4	5	6	7	8	9	10	11	12
A	No sample	006	014	022	030	038	046	054	062	070	078	086
B	No sample	007	015	023	031	039	047	055	063	071	079	087
C	No sample	008	016	024	032	040	048	056	064	072	080	088
D	001	009	017	025	033	041	049	057	065	073	081	089
E	002	010	018	026	034	042	050	058	066	074	082	090
F	003	011	019	027	035	043	051	059	067	075	083	091
G	004	012	020	028	036	044	052	060	068	076	084	092
H	005	013	021	029	037	045	053	061	069	077	085	093

Cluster tube rack 2

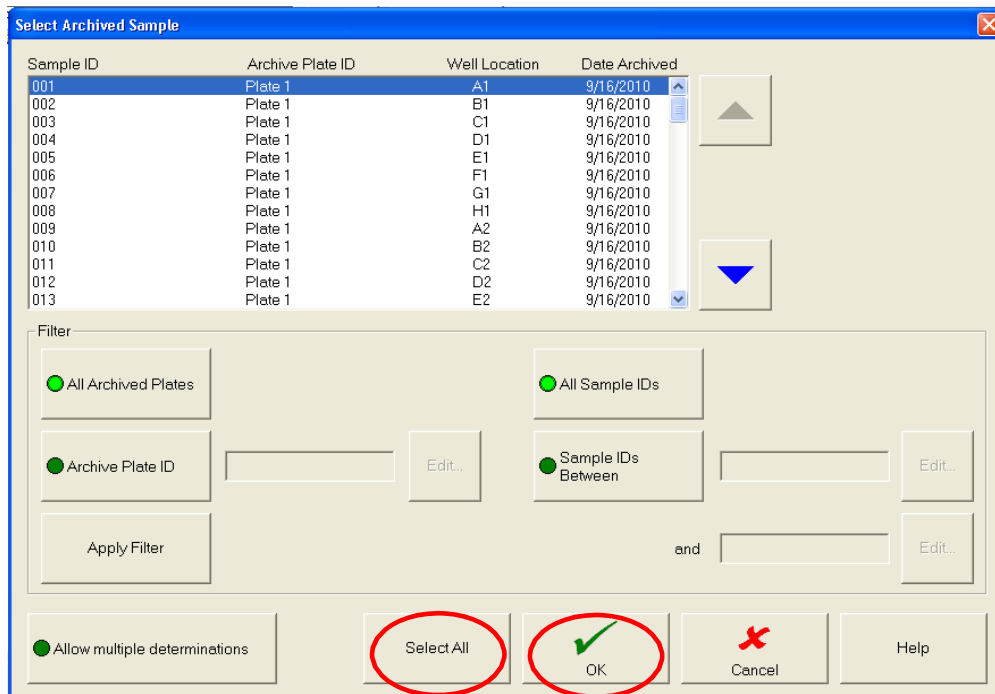
	I	2	3	4	5	6	7	8	9	10	11	12
A	No sample	099	107	115	123	131	139	147	155	163	171	179
B	No sample	100	108	116	124	132	140	148	156	164	172	180
C	No sample	101	109	117	125	133	141	149	157	165	173	181
D	094	102	110	118	126	134	142	150	158	166	174	182
E	095	103	111	119	127	135	143	151	159	167	175	183
F	096	104	112	120	128	136	144	152	160	168	176	184
G	097	105	113	121	129	137	145	153	161	169	177	185
H	098	106	114	122	130	138	146	154	162	170	178	186

Note: Double check that samples are in the correct locations in the cluster tube rack

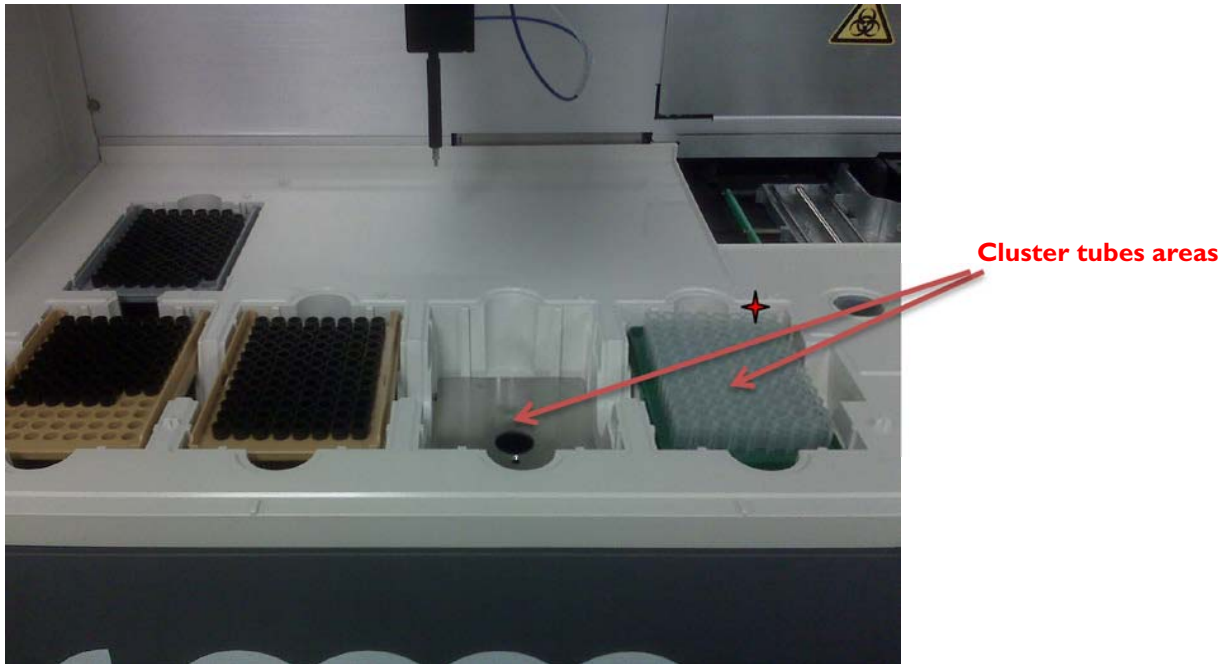
- 8.7.3. Be sure to add all of the samples to be tested and assign the appropriate tests to the samples as described in Step 7.3.5 of Gemini Basic Operation. Click **OK**
- 8.7.4. Add the plate(s) and add the assay(s) to the plate(s) as described previously under Gemini Basic Operation Steps 7.4 – 7.4.3. Do not click Add Sample
- 8.7.5. Click **Archived Sample**



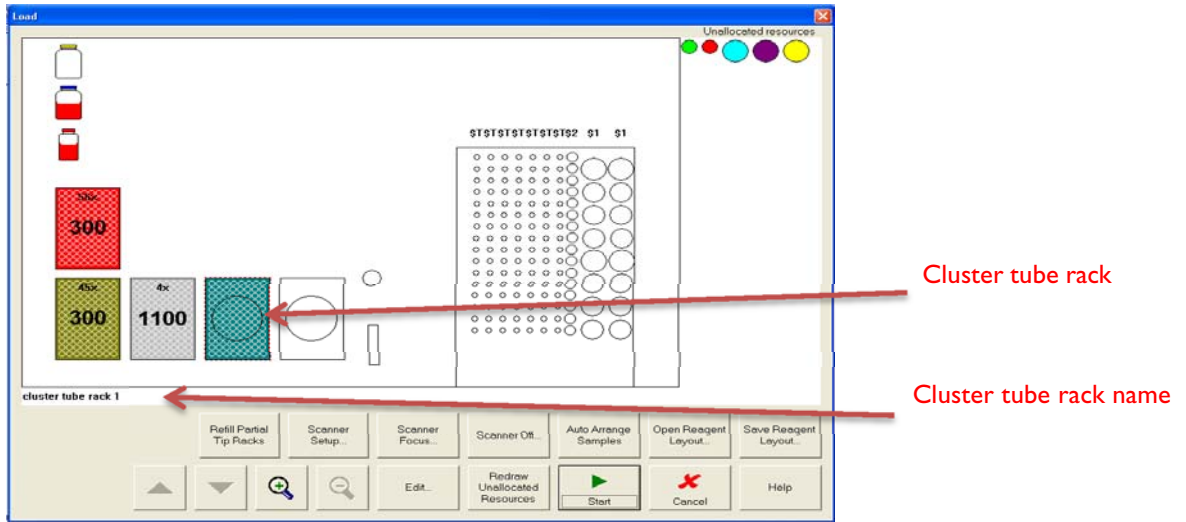
- 8.7.6. Select the samples to be tested on this plate (use **Select All** to add all samples) and click **OK**. Selected samples will populate the plate. (Only samples that have been designated for testing with the same assay assigned to the plate will be available to select)



- 8.7.7. Once all samples are on the plate click **OK** in the Set-Up Panel screen to go to the Lot Specific Values screen
- 8.7.8. Enter the information for the Lot Specific Values as described under Gemini Basic Operation Steps 7.5 – 7.5.4
- 8.7.9. Place the cluster tube rack(s) in the dilution plate area of the Gemini with tube DI in the upper right hand corner ✦



- 8.7.10. Click **Start**
- 8.7.11. Load Reagents and Allocate Resources as described under Gemini Basic Operation Steps 7.7 – 7.8.8. Sample racks do not need to be loaded and samples will not appear as unallocated resources since they have defined locations in the cluster tube rack. The cluster tube rack appears as a green plate in the dilution plate area and its name is in the lower left corner (cluster tube rack 1, cluster tube rack 2, etc.). Ensure that it is in the correct position and click **Start**
 - 8.7.11.1. When running partially filled cluster tube racks, the best timing can be achieved by using the **Optimise** option. However, this option switches the order of the racks, Rack 1 is the partial rack (needs to be on the left) and Rack 2 is the full rack (needs to be on the right). It is important that operators check what the load screen says when clicking on the cluster tube racks so they are placed in the correct locations



8.2.12. Proceed with Loading Plates and running the assay as described in Gemini Basic Operation Steps 7.9 – 7.9.4

9. Gemini Maintenance

Maintenance is an important part of keeping the Gemini instrument running properly. Daily, weekly and monthly maintenance procedures are recommended by the instrument manufacturer and checklists for recording completed maintenance are included in this System Guide.

Chapter 8 of the Gemini Instructions for Use provides detailed instructions on how to perform each maintenance procedure. The Gemini instrument has been set up to provide automatic reminders to perform weekly and monthly maintenance.



9.1. Gemini Maintenance Checklist

9.1.1. Daily Maintenance:

Instrument Start Up Tasks

- Clean surface of working area
- Check system liquid (refill if tank is empty)
- Empty waste liquid (if tank is full)
- Empty tip waste bag
- High workload* - clean tip probe with disinfectant (use a soft lint-free cloth, do not pull the apm or coaxial cables!)
- Check volume of wash buffer and reagents
- Check pipet tips and sample tube amounts
- Run the washer dispense and aspirate check assays
- In case of dispense or aspirate failure, clean both needles with specils and repeat any check assay that failed, if washer pump does not work, use the Washer Pump Revival Tool

End Worklist Tasks

- Inspect instrument deck for spillage
- Remove used reagent/sample racks
- Remove used microplates
- Check the waste bag, system liquid and waste liquid containers

Instrument Shut Down Tasks

- Carry out the 'End Worklist' tasks
- Remove all empty pipet tip racks
- Remove all reagent and control bottles from racks and store appropriately
- Exit user software and shutdown Windows XP
- Switch off instrument

9.1.2. Weekly Maintenance:

- Carry out the daily maintenance tasks
- Prime all 3 washer pumps with DI water (especially when not used for a while – ex. over weekend). Use the Washer Dispense Check assay.
- Clean loading bay and plate areas with disinfectant
- Clean tip probe with disinfectant (use a soft lint-free cloth, do not pull the apm or coaxial cables!)

9.1.3. Monthly Maintenance:

- Carry out the weekly maintenance tasks
- Disinfect reagent bottles, waste tank and system liquid tank (change the system liquid) and rinse out with distilled water
- Check the waste bottle “I” and disinfect if necessary

NOTE: Do not use alcohol based disinfectants on the door cover!

*High workload = 400+ samples/day

9.2. Gemini Maintenance Log

Laboratory:

Instrument S/N:

Week No.:

Month/Year:

Gemini Daily Maintenance Procedure		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Start Up	Clean working area surface							
	Check system liquid and waste containers							
	Empty waste bag							
	Clean tip probe (high workload instruments)							
	Check volume of wash buffer and reagents							
	Check pipet tip and sample tube amounts							
	Run the washer dispense and aspirate check assays							
After Each Run	Inspect instrument deck, plates, racks, etc. for spillages							
	Remove reagent and sample racks							
	Remove used test and dilution plates							
	Check the waste bag, system liquid, and waste liquid containers							
Shut Down	Perform the After Each Run tasks							
	Remove all empty disposable tip racks							
	Remove all reagent and control bottles from the racks or instrument and store							
	Close the finished worklist(s) and files							
	Exit the user software and shutdown Windows							
	Switch off the instrument							

Gemini Maintenance Log

Laboratory:

Instrument SIN:

Week No.:

Month/Year:

Gemini Weekly Maintenance Procedure	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Perform daily maintenance tasks							
Prime washer pumps							
Clean and decontaminate the instrument							
Clean the head of the pipettor							

Gemini Maintenance Log

Laboratory:

Instrument S/N:

Year:

Gemini Monthly Maintenance Procedure	January	February	March	April	May	June	July	August	September	October	November	December
Perform the weekly maintenance												
Clean and decontaminate the system liquid and waste liquid containers												
Clean and decontaminate the wash buffer bottles (bottles only)												
Change washer filters (high workload instruments)												

Gemini Special Procedures	Date	Operator	Comments
Heavy liquid overflow clean-up			
Pipettor decontamination			
Washer manifold needles (clean needles)			
Vacuum and trap flask maintenance			
Photometer (bulb replacement, filter maintenance or replacement)			
Fuse replacement			
Perform a backup of results			
Other			

* For detailed information regarding specific maintenance procedures refer to Chapter 8 of the Gemini Instructions for Use.

Operator/Supervisor Signature: _____

10. Gemini Service

The Gemini instrument requires semi-annual preventive maintenance service to be performed by a trained service technician. More frequent service is recommended for laboratories operating in hot, humid, dusty or otherwise challenging environmental conditions. Contact your service technician to schedule semi-annual services for your instrument.

A service log is provided and should be filled out by the service technician at the time of service. Paperwork should be kept in this System Guide for reference.

Additionally, if your instrument has an error please follow the instructions provided for generating error files which can be emailed to your service technician for diagnosis.



10.1 GEMINI Service Log

(To be completed by your service engineer or your local support person)

Instrument Serial Number _____

Customer Information

Company	
Address	
Phone	
E-mail	

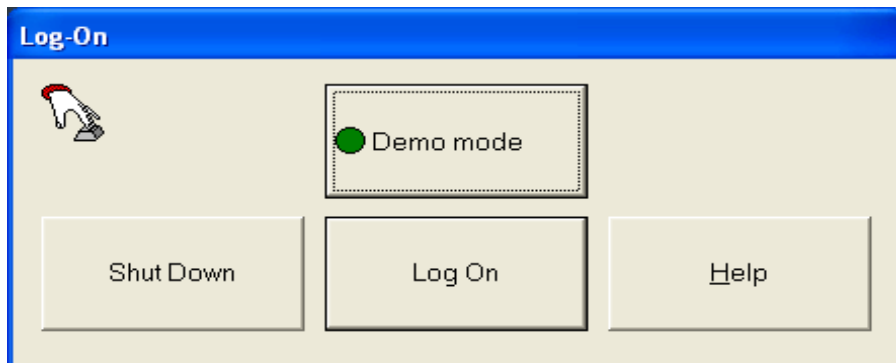
Maintenance & Servicing Visits

Date	Description	Performed by

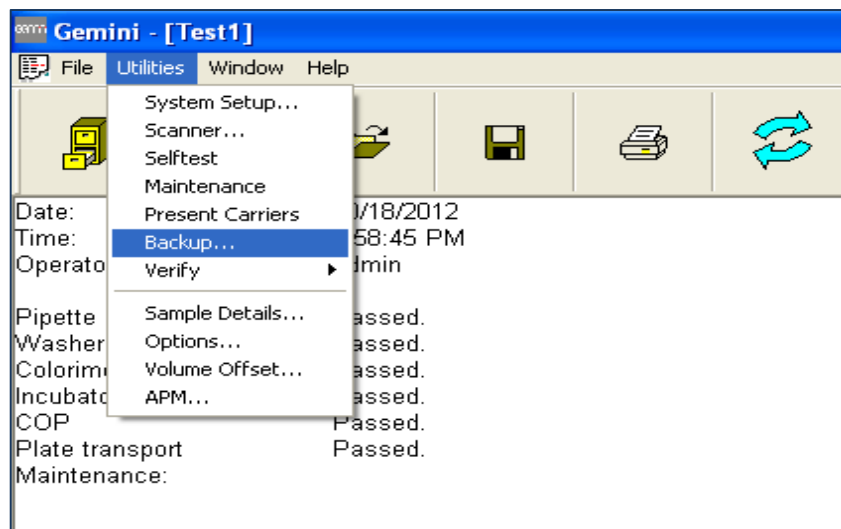
10.2 Gemini Back-up File Generation

The Gemini system logs all actions taken by the instrument as it operates. The back-up file contains the Gemini system log and can be used to troubleshoot and diagnose the system. Generating a back-up file is only necessary if an error occurs.

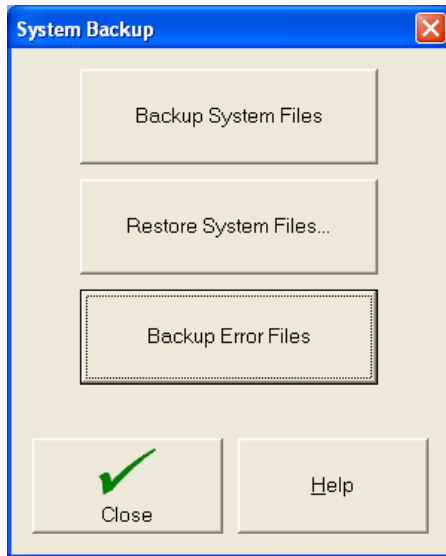
- 10.2.1. Log On
- Select **Demo mode**
 - Select **Log On**
 - Select user level
 - Enter your password, select **OK**



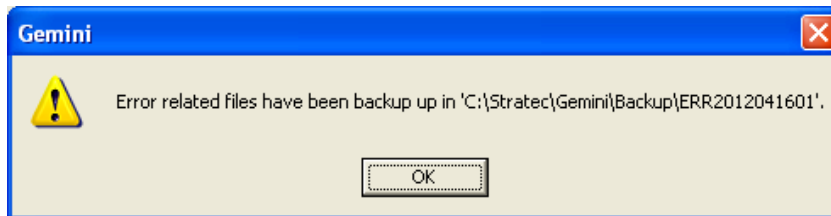
- 10.2.2. Select **Utilities > Backup**



10.2.3. Select **Backup Error Files**



10.2.4. The following message will appear:



10.2.5. Select **My Computer > C Drive > Stratec > Gemini > Backup**

10.2.6. Select the latest date **Error Folder**

10.2.7. Compress/Zip folder

- **Right Click** on Error Folder
- Select **Send to**
- Select **Compressed (zipped) folder**
- Folder will appear as (*.zip)

10.2.8. Email to sales/distribution contact