Plug and Play Test Results

Performed on July 18, 2013

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Test Prefix	Description	Expected Result	Result
Configuration1	Run the DGI using a negative session port.	Exception caught in main during start up: factory-port=-53000: invalid port number: -53000	PASS
Configuration2	Run the DGI using a reserved session port.	Exception caught in main during start up: factory-port=0: reserved port number: 0	PASS
Configuration3	Run the DGI using a session port greater than 65535.	Exception caught in main during start up: factory-port=68000: invalid port number: 68000	PASS
Configuration4	Run the DGI using a non-numeric session port.	Exception caught in main during start up: factory-port=53000wq: invalid port number: 53000wq	PASS
Configuration5	Run the DGI without the session port specified.	Plug and Play devices disabled.	PASS
BasicOperation1	Detect a single plug and play device.	SST (0) → 0.0 SST (1) → 5.0	PASS
BasicOperation2	Remove a plug and play device that has gone off-line.	SST (0) → 0.0 SST (1) → 5.0 SST (0) → 0.0	PASS

Test Prefix	Description	Expected Result	Result
BasicOperation3	Change the value of a plug and play device at run time.	SST (0) → 0.0 SST (1) → 5.0 SST (1) → 10.0	PASS
BasicOperation4	Detect two devices of the same type with the correct → value.	SST (0) → 0.0 SST (2) → 12.0	PASS
BasicOperation5	Detect two devices of different types with the correct values.	LOAD (0) → 0.0 ; SST (0) → 0.0 LOAD (1) → 42.0 ; SST (1) → 5.0	PASS
BasicOperation6	Remove the first of two SST devices.	SST (0) → 0.0 SST (2) → 12.0 SST (1) → 7.0	PASS
BasicOperation7	Remove the second of two SST devices.	SST (0) → 0.0 SST (2) → 12.0 SST (1) → 5.0	PASS
BasicOperation8	Remove a device other than the SST.	LOAD (0) → 0.0 ; SST (0) → 0.0 LOAD (1) → 42.0 ; SST (1) → 5.0 LOAD (0) → 0.0 ; SST (1) → 5.0	PASS
BasicOperation9	Change the value of one of several SST devices.	SST (0) → 0.0 SST (2) → 12.0 SST (2) → 17.0	PASS
BasicOperation10	Change the value of the a non-SST device.	LOAD (0) → 0.0 ; SST (0) → 0.0 LOAD (1) → 42.0 ; SST (1) → 5.0 LOAD (1) → 24.0 ; SST (1) → 5.0	PASS
BasicOperation11	Handle a large number of devices at once.	DRER (0) → 0.0 ; DESD (0) → 0.0 ; LOAD (0) → 0.0 ; SST (0) → 0.0 DRER (3) → 111.0 ; DESD (1) → 10.0 ; LOAD (1) → 42.0 ; SST (2) → 12.0	PASS

Test Prefix	Description	Expected Result	Result
BasicOperation12	Change the value of a large number of devices.	DRER (0) → 0.0 ; DESD (0) → 0.0 ; LOAD (0) → 0.0 ; SST (0) → 0.0 DRER (2) → 39.0 ; DESD (1) → 10.0 ; LOAD (1) → 42.0 ; SST (1) → 5.0 DRER (2) → 49.0 ; DESD (1) → 10.0; LOAD (1) → 42.0 ; SST (1) → 10.0	PASS
Failure1	Fail before sending the DGI device states.	Removing an adapter due to timeout	FAIL[1]
Failure2	Fail after sending the DGI device states.	SST (0) → 0.0 SST (1) → 5.0 SST (0) → 0.0	PASS
Failure3	Sleep after sending the device states and quickly continue.	SST (0) → 0.0 SST (1) → 5.0	PASS
Failure4	Sleep after sending the device states and continue after a delay.	SST (0) → 0.0 SST (1) → 5.0 SST (0) → 0.0 SST (1) → 5.0	FAIL[2]
Failure5A	DGI loses Wi-Fi before receiving device states.	Removing an adapter due to timeout	PASS
Failure5B	Controller loses Wi-Fi before sending the DGI device states.	Removing an adapter due to timeout	TODO
Failure6A	DGI loses Wi-Fi before receiving device states and then regains it.	SST (0) → 0.0 SST (1) → 5.0	PASS

[1]Works correctly, but error message is non-ideal.
[2]The heartbeat timer has already expired (a lot)

Test Prefix	Description	Expected Result	Result
Failure6B	Controller loses Wi-Fi before sending states and then regains it.	SST (0) → 0.0 SST (1) → 5.0	TODO
Failure7A	DGI loses Wi-Fi after receiving device states.	SST (0) → 0.0 SST (1) → 5.0 SST (0) → 0.0	PASS
Failure7B	Controller loses Wi-Fi after sending the DGI device states.	SST (0) → 0.0 SST (1) → 5.0 SST (0) → 0.0	TODO
Failure8A	DGI loses Wi-Fi after receiving device states and regains it instantly.	SST (0) → 0.0 SST (1) → 5.0	FAIL[3]
Failure8B	Controller loses Wi-Fi after sending device states and regains it instantly.	SST (0) → 0.0 SST (1) → 5.0	TODO
Failure9A	DGI loses Wi-Fi after receiving device states and regains it after a delay.	SST (0) → 0.0 SST (1) → 5.0 SST (0) → 0.0 SST (1) → 5.0	PASS
Failure9B	Controller loses Wi-Fi after sending device states and regains it after a delay.	SST (0) → 0.0 SST (1) → 5.0 SST (0) → 0.0 SST (1) → 5.0	TODO
UnexpectedError1	Send an unrecognized device type to the DGI.	Rejected client: Unknown device type: SST	PASS

[3]Testcase is not practical without significantly increasing the timeout.

Test Prefix	Description	Expected Result	Result
UnexpectedError2	Send an unrecognized signal type to the DGI.	Corrupt state: Unknown device signal: ControllerA:SST1 gateawy	PASS
UnexpectedError3	Send a corrupt state value to the DGI.	Corrupt state: received non-numeric value	FAIL[4]
UnexpectedError4	Have the same controller specify the same device twice.	Rejected client: The device ControllerA:SST1 already exists.	FAIL[5]
UnexpectedError5	Have the same controller start two simultaneous sessions.	Rejected client: Duplicate session for ControllerA	FAIL[6]
UnexpectedError6	The DGI adapter factory receives a packet with a header it does not recognize	Expected 'Hello' message: BadPacket	PASS
UnexpectedError7	The DGI adapter receives a packet with a header it does not recognize	Unknown header: BadPacket	FAIL[7]
UnexpectedError8	The DGI adapter factory receives a packet containing a lone Hello command with the wrong delimiter	Connection closed due to timeout.	FAIL[8]

[4]DeviceController crashes: ValueError: invalid literal for float(): 5,0
[5]Fatal exception in the device ioservice: The state indices are not consecutive
[6]The device controller is starting two separate sessions
[7]The DGI responds with an empty BadRequest
[8]DGI prints the correct output but the DeviceController receives an empty response

Test Prefix	Description	Expected Result	Result
UnexpectedError9	The DGI adapter factory receives a packet containing a lone Hello command followed by nonsense data	Connection closed due to timeout.	FAIL[9]
UnexpectedError10	The DGI adapter factory receives a packet containing nonsense data	Connection closed due to timeout.	FAIL[10]
UnexpectedError11	The DGI adapter receives a packet containing a lone command with the wrong delimiter	Removing an adapter due to timeout.	PASS
UnexpectedError12	The DGI adapter receives a packet containing a lone command with the wrong delimiter follwed by nonsense data	Removing an adapter due to timeout.	PASS
UnexpectedError13	The DGI adapter receives a packet containing a series of commands with the wrong delimiters	Removing an adapter due to timeout.	PASS
UnexpectedError14	The DGI adapter receives a packet containing nonsense data	Removing an adapter due to timeout.	FAIL[11]
MultipleControllers1	Have two controllers use the same device type with different names.	SST (0) $\rightarrow$ 0.0 ... SST (2) $\rightarrow$ 12.0	PASS

[9]Same outcome as UnexpectedError8
[10]Same outcome as UnexpectedError8
[11]Same outcome as UnexpectedError8

Test Prefix	Description	Expected Result	Result
MultipleControllers2	Have two controllers use the same device type with identical names.	SST (0) → 0.0 ... SST (2) → 12.0	PASS
MultipleControllers3	Have two controllers use different device types.	LOAD (0) → 0.0 ; SST (0) → 0.0 ... LOAD (1) → 42.0 ; SST (1) → 5.0	PASS
MultipleControllers4	Remove the first of two controllers connected to the DGI.	LOAD (0) → 0.0 ; SST (0) → 0.0 ... LOAD (1) → 42.0 ; SST (1) → 5.0 LOAD (1) → 42.0 ; SST (0) → 0.0	PASS
MultipleControllers5	Remove the second of two controllers connected to the DGI.	LOAD (0) ; SST (0) → 0.0 → 0.0 ... LOAD (1) → 42.0 ; SST (1) → 5.0 LOAD (0) → 0.0 ; SST (1) → 5.0	PASS
MultipleControllers6	Change the device value of a controller connected to the DGI.	SST (0) → 0.0 ... SST (2) → 12.0 SST (2) → 17.0	PASS
MultipleControllers7	Use a large number of controllers to connect at once.	DRER (0) → 0.0 ; DESD (0) → 0.0 ; LOAD (0) → 0.0 ; SST (0) → 0.0 ... DRER (3) → 111.0 ; DESD (1) → 10.0 ; LOAD (1) → 42.0 ; SST (2) → 12.0 ... DRER (3) → 121.0 ; DESD (1) → 10.0 ; LOAD (1) → 42.0 ; SST (2) → 17.0	PASS
MultipleDGI1	Have two DGI converge to a positive normal value.	SST (0) → 0.0 ... SST (1) → 20.0 ; SST (0) → 0.0 ... SST (1) → 20.0	FAIL[12]

[12]The DGI do not migrate. Eventually, "the heartbeat timer has already expired" prints a lot.

Test Prefix	Description	Expected Result		Result
MultipleDGI2	Have two DGI converge to a negative normal value.	SST (0) → 0.0 ... SST (1) → -5.0	SST (0) → 0.0 ... SST (1) → -5.0	FAIL[13]
MultipleDGI3	Have the normal value change during convergence.	SST (0) → 0.0 ... SST (1) → -3.0 ... SST (1) → -6.0	SST (0) → 0.0 ... SST (1) → -3.0 ... SST (1) → -6.0	FAIL[14]
MultipleDGI4	Have one DGI lose its devices during convergence.	SST (0) → 0.0 ... SST (1) < 250.0	SST (0) → 0.0 ... SST (0) → 0.0	FAIL[15]
MultipleDGI5	Have one DGI with no attached devices.	SST (0) → 0.0 ... SST (1) → 10.0	SST (0) → 0.0	PASS

[13]Same outcome as MultipleDGI1
[14]Same outcome as MultipleDGI1
[15]Same outcome as MultipleDGI1