GFI 1.3.9E Stable

Release Notes

GIT for Industry (GFI) is a software tool, provided by Smart DCC, for anybody that wishes to check whether their interpretation of the Great Britain Specification Companion for smart meters (GBCS) is consistent with Smart DCC's.

These release notes refer to version 1.3.9E Stable Release of the GFI testing tool. Please check "System Requirements" section for details about minimum and recommended hardware requirements to install and run this tool.

Warning: The user is strongly advised to review these release notes thoroughly before performing any update as existing information or functionality may be disrupted after performing the update.

If updating from GFI 1.3.2 or previous releases, please note that this is an enhanced version of the GFI testing tool. While an effort was made to keep the user interface unchanged, there are some architectural and interface changes the user should become aware before using the tool.

For technical support please contact the GFI Support Team: GFISupport@smartdcc.co.uk

Release Information

Version Number	Release Date
1.3.9E Stable Release	3rd October 2017

Release Timeline

Version Number	Release Date	Comments
1.3.9E	03/10/2017	Current public version
1.3.*E	25/07/2016	**E**nhanced version. New GFI tool architecture. GUI changes. Support for persistent HAN, multiple HAN devices and GPF functionality with mirror

GFI 1.3.9E Stable

Version Number	Release Date	Comments
1.3.2	28/06/2016	The 1.3.* release series updates ALL the supported Use Cases from GBCS v0.8.1 to GBCS v0.8.2
1.2.*	01/02/2016	Partial list of use cases uplifted to GBCS v0.8.2
1.0.*	29/06/2015	First industry public release of GFI. Supports all use cases specified in GBCS v0.8.1

Before Updating

The scenario file format in version 1.3.9E is incompatible with versions prior to 1.3.2E.

The user may still use the Export functionality for backup purposes – However, the tests will need to be re-created using version 1.3.*E or later of the tool.

Users updating from a GFI version prior to 1.3.2E are strongly advised to read the updated documentation in order to be familiar with the architectural and user interface changes, namely in order to configure and start the Communication Hub service.

List of Changes by Release

What's New: 1.3.9E Stable

Alignment with IRP541. The IRP corrects the hexadecimal encoding of OBIS Codes of Prepayment Charge Objects used in ECS02, ECS03 and ECS26a.

Alignment of GBT implementation with the DSP. GBT data messages sent by the GFI ACB now set the window field to 6.

Fixes an error when compiling the GFI source distribution.

What's New: 1.3.8E Stable

Support for responses to unsucessfull commands.
CHF is now able to handle a message sent from a GSME before the GPF mirror is created.
GFI acting as the GBT Initiator (sending commands) now sets streaming to 0 on the last window block.
Changes to ECS01c second iteration to correct an invalid number of switching rules.
Changes to ECS01c iterations to correct invalid script_selector values.
Corrections to the initialization values of some attributes in the GPF Prepayment cluster.
Messages to the GSME buffered by the CH are no longer lost after sending a Change of Tenancy command to the GPF.
GPF proxy event and security logs are now correctly exposed on the HAN.
Mirrored attribute HWVersion is now correctly exposed on the HAN.
GCS21j to the GPF now correctly returns the configuration data mirrored by the GSME.
Metering summation values are now correctly stored in the GPF mirror.
SupplyStatus attribute type corrected to ENUM8.
GPF now correctly supports GetSampledData on the HAN.
Scenario files no longer hardcode the system_datetime attribute and instead rely on the operating system time.
Triage tool now correctly decrypts encrypted data in a GCS15c response with supplementary remote party data.
Alignment of GCS02, GCS03 and GCS21d with IRP446.
GCS15e now correctly reports entries in reverse chronological order and without duplicates.
ECS20c report now separates registerReadLog and prepaymentReadLog.

What's New: 1.3.7E Stable

New "Segmented Processing" functionality that adds the possibility to use the GFI software with a physical CH. Please refer to the "GFI Segmented Processing" document for more detailed information regarding this feature.
Alignment with IRP420 that corrects the command identifier values in the ZCL payloads of the alternate responses to GCS15d and GCS15e.
Alignment with IRP447 that corrects the data type of the attribute "Price Trailing Digits" in GCS21b.
Alignment with IRP469 that adds duplicated requests for the attributes "Debt Recovery Rates".
Alignment with IRP461 that resolves a GBCS ambiguity regarding which bits in the Originator Counter should be considered for the PTUT Truncated Originator Counter.
GFI CH now only closes its client tunnel after a TransferDataError command if the status code is 0x00 ("No such tunnel").
Fixes an issue where the GFI CH would, after receiving *RequestTunnelResponse* command from a Device with a *TunnelStatus* of 0x02 (*No More Tunnel IDs*), request a new tunnel before receiving the responses confirming the closing of any active tunnels.
Fixes an issue where the GFI CH was sending a MirrorReportAttributeResponse command in response to every ReportAttributes command when it should be sent only to the last one.
Fixes the following issues when updating notification flags: • The GetSampledData flag is not cleared after the sampled data is received. • Flags are not updated after all GetNotifiedMessages are processed. • Flags are not updated when they are read using a ZCL Read Attributes command. • In some cases notification flags may not be updated after a Report Attributes due to an incorrect calculation of the current time.
The GFI CH now supports a new Sleepy End Device timeout parameter to set the aging timeout after which a device will receive a Leave Request and will have to rejoin the network. Because of incompatibilities between ZigBee stack manufacturers, the Leave Request with rejoin flag active sent by the CH may be rejected by the sleepy end device. The new parameter will allow GFI to work with all end devices implementing different stacks and at the same time keep the possibility of testing the Leave/Rejoin procedure after the aging out of the address table entries.
The GFI CH is now capable of handling Default Response commands arriving before the APS ACK message.

Fixes an issue where the GFI CH would in some cases incorrectly identify a device based on the MAC address.
The GFI GPF now returns the correct value of CurrentSummationDelivered in GCS13a.
The GFI GPF now responds to a GetCurrentPrice command from the HAN with a PublishPrice command.
CS02d iteration using an RSA certificate was removed.
GCS15b, GCS15c, GCS16a, GCS16b and GCS17 iterations from the GSME with supplementary remote parties were removed to align the tests with GBCS.
CS14 alert now correctly sends IEEE addresses and hashed keys in big endian.
CS03c iteration using an RSA certificate was removed.
Fixes an issue where GCS14 would only report zero in the “Tariff Information: Currency” most significant byte.
Fixes an issue where the GFI process would terminate with “segmentation fault” if the CS02b optional field “otherRemotePartySeqNumberChages” was left empty.
The first CCS03 iteration was changed to reduce the number of devices to a value allowed by the CH.
The number of expected samples in the second iteration of GCS61 was changed from 10 to 11 to align it with the iteration inputs.
CS10a to the GPF now supports requesting the GSME proxy log (Log ID 0x16).
CS10b to the GPF now supports requesting the GSME proxy log (Log ID 0x07).
Fixes an issue where GFI was incorrectly checking that the “Snapshot Cause” in GCS15c has exactly the value 0x00000002 instead of just checking that bit 1 was set.
The second iteration of GCS20, containing an invalid Event Configuraion, was removed.
Fixes an issue where GCS21a expected output parameter MeasurementPeriodStatus was being incorrectly processed.
Fixes an issue where GFI would not be able to decrypt sensitive data returned in a GCS61 response with a supplementary remote party.

Fixes an issue where the PTUT Supplier MAC was being derived from bits 63 to 32 of the 128 MAC calculation instead of bits 31 to zero.

Fixes several issues related with the GBT Header to align with the DLMS Green Book.

In data messages (where GFI is the GBT Initiator):

- The “streaming” bit is not set to zero in the last window block of each window and also in the last message block.
- The “window” should be set to 1 (because this window size refers to the ACK messages received by the Initiator).
- “block-number-ack” is always zero. It should match the block number of the last ACK.

In ACK messages (where GFI is the GBT Receiver):

- “last-block” should always be 1.
- “streaming” should always be zero.

GFI now always sends a GBT ACK after receiving the last block even if the block number is not a multiple of the window size. This was done to align GFI with the DSP solution even if it is not mandated neither by GBCS nor by the DLMS Green Book.

Fixes an issue where long-running tests (near 20 minutesor longer) with multiple test cases could produce failures with the error “CONTROL_RESPONSE not found”.

The GUI log search feature is now case-insensitive.

If a new GFI version adds new parameters to a test the GUI will automatically add those parameters to older versions of those tests avoiding the need to recreate them.

The GUI Counters dialog was simplified and unused and misleading information was removed. The counters are now unique by remote party identifier which aligns the GUI with the capabilities that are supported by GFI.

The GUI now automatically activates the CH log at startup.

The GUI now allows confirming or cancelling the deletion of multiple tests and test campaigns in a single step.

Fixes a GUI issue where if a test identifier included the the word “Properties” the test would not open in Basic Mode and the scenario icon would be the the same as the properties icon.

The GUI New Test dialog now has a minimum and a default size has also been added when moving to the next or previous page.

The GUI CH Configuration dialog default size was increase to show the import and export buttons.

Fixes focus issues in the GUI when alternating between properties and scenario tabs.
Fixes an issue with GFI Triage Tool where a GCS15d containing sensitive data would not be successfully decrypted.

What's New: 1.3.6E Stable

Fixed issue where the GFI CommsHub was not handling tunnel ids other tan 0x0000.
The timeout for delivering tunnel messages was increased from 10 to 60 seconds.
CS14 test case is now available in the GUI.
Fixed issue where GFI was not considering the supplementary remote party fields as inputs for the signature verification in critical responses and alerts.

What's New: 1.3.5E Stable

Fixed issue where GFI Comms Hub GPF handling of the ZSE command GetNotifiedMessage would not support setting multiple notification flags in the same execution.
Fixed issue where GFI Comms Hub would create a log file with an incorrect month in the filename.
GFI will now ignore alerts originating from an unknown device or targeting an unknown remote party. The previous behaviour could cause a test to fail if during its execution GFI received an alert from an unknown device or targeting an unknown remote party.
Fixed issue where receiving two Default Responses for the same Transfer Data would cause the next message in queue to be deleted.
Pre-payment top up private key for Supplier2 added to scenario files.
Fixed issue where a large payload in a GCS17 response would cause a test to fail.
Fixed issue affecting the check of the Snapshot Cause value in GCS15b, GCS15c, GCS16a and GCS16b where GFI would expect a constant value in the field instead of only checking that at least one of the relevant bits was set.
Test reports now show JSON inputs in the Input section.

What's New: 1.3.4E Stable

Fixed issue where the Comms Hub would crash after a non-sucessfull addition or removal of a device.
Fixed issue where the Comms Hub would incorrectly interpret the Notification Flag attribute.
Fixed issue where the GPF would change the value of its own Device Type attribute if the GSME tried to mirror it.
Fixed issue where the Comms Hub would in some cases would incorrectly interpret the join timeout.
GPF now responds to a command from a device not in the white-list with a Default Response and with the reason set to NOT_AUTHORIZED.
Fixed issue where in some cases the Tunnel Messages Pending notification flag would not be cleared.
Fixed issue where undelivered messages would remain in a retry state forever. The Comms Hub will now discard messages after three unsuccessful delivery attempts.

What's New: 1.3.3E Stable

Corrected SupplyDepletion.State default value of the GCS24 test case iterations to align with GBZ templates.
ECS52, GCS38 CS06: Firmware version field is now shown as a byte array represented in hexadecimal.
Corrected Debt Recovery Frequency default value of the GCS04 test case iterations to align with GBZ templates.
Removed "IncludeSupplementaryRemotePartyKACertificate" field from ECS17c test case iterations to align GBCS mapping table.
If a RequestTunnel command is issued from a GSME to GFI when there is an already active (or becoming active) tunnel GFI now responds with the same tunnel id instead of creating a new one.
GCS53 is now only checking if the End of Billing Period Snapshot in Snapshot Cause is set and ignores all other bits.

Added support for supplementary remote party fields to GCS17 use case.
The GFI GPF is now setting only 5 notification flags instead of 8.
Fixed response to Simple metering discovery.
Partner Link Key Exchange is enabled.
Fixed a bug that causes the stop test button to be enabled although the test has already finished. This prevented a new test to be run.
GFI is now reporting 0x01 to read attribute request for PhysicalEnviroment only on the ESI endpoint (EP2).
Fixed an issue occurring when adding a new device to an empty CH device log using CCS01.
Fixed limit of characters of installation credentials text input field of “Add device” GUI dialog.
The LocalTime attribute returned by Comms Hub now supports Daylight Saving Time.
GFI now sets the bit “Push All Static Data – Basic Cluster” on the attribute Functional Notifications Flags.
Fix the leave-rejoin process on the GFI Comms Hub.
Fixed an issue in the CHF device log that prevented devices to be correctly removed with a CCS02 command.

What’s New: 1.3.2E Stable

Support for persistent HAN (coordinator daemon for GFI). The HAN has support for one meter device and additional PPMID, IHD and CAD device. The coordinator daemon maintains a white-list of devices allowed to communicate over the HAN that can be maintained and read using the following CHF Use Cases: • CCS01 Add Device to CHF device log • CCS02 Remove device from CHF device log • CCS03 Restore CHF Device Log • CCS05/CCS04 Read CHF device log / Check HAN communications (by reading the CHF Communications Store)
The GUI application was changed to support the new coordinator daemon architecture.

Support for fake OTA server (GFI does not support OTA upgrades but needs to answer as such, for compatibility with a real Com Hub functionality and as expected by xSME).

A new emulated remote party named PPMID that provides the capability to send PCS01 and PCS02 use cases targeting a GSME (emulated or physical).

GPF component (part of the coordinator daemon). The GPF component supports mirroring of GSME through the ZigBee mirroring and GBCS Tapping Off (TOM) mechanisms. Mirrored data as well as GPF is made accessible both to the WAN through the applicable GBCS use cases and to the HAN.

List of supported Use Cases where the target is explicitly the GPF:

- GCS59 Restore GPF Device Log
- GCS09 Set Change of Tenancy date on GPF
- GCS61 Read gas Daily Consumption Log
- GCS62 Backup GPF Device Log

List of Use Cases where the target is GPF or GSME:

- CS11 Clear ZigBee Device Event Log
- GCS21e Read GSME/GPF Configuration Data Device Information (device identity)
- CS10a Read ZigBee Device Event Log
- CS10b Read ZigBee Device Security Log

List of Use Cases where the GPF works as a mirror of GSME endpoint:

- GCS13a Read GSME Consumption Register
- GCS13c Read GSME Register (TOU)
- GCS13b Read GSME Block Counters
- GCS14 Read GSME Prepayment Register(s)
- GCS15b Read GSME Billing Data Log (change of mode / tariff triggered)
- GCS15c Read GSME Billing Data Log (billing calendar triggered)
- GCS15d Read GSME Billing Data Log (payment-based debt payments)
- GCS15e Read GSME Billing Data Log (prepayment credits)
- GCS16a Read GSME Daily Read log(s)
- GCS16b Read GSME Daily Read log(s) (prepayment)
- GCS17 Read GSME Profile Data Log
- GCS21f Read GSME Tariff Data
- GCS21b Read GSME Configuration Data Prepayment
- GCS21d Read GSME Configuration Data Device Information (BillingCalendar)
- GCS21j Read GSME Configuration Data Device Information (Payment Mode)
- GCS46 Read MPRN on the GSME
- GCS33 Read GSME Valve Status
- GCS38 Read GSME Firmware Version
- GCS60 Read Meter Balance for GSME

List of TOM commands:

- GCS01a Set Tariff and Price on GSME

- GCS05 Update Prepayment Configurations on GSME
- GCS07 Send Message to GSME
- CS11 Clear ZigBee Device Event Log (where the Command is addressed to the GSME)
- GCS23 Set CV and Conversion Factor Value(s) on the GSME
- GCS25 Set Billing Calendar on the GSME
- GCS44 Write Contact Details on GSME
- GCS01b Set Price on GSME

GPF Emulator component supporting the same Use Cases supported by the GPF component described above. Note that the GPF Emulator is aimed at protocol testing and doesn't provide full Use Case functionality nor does it support mirroring.

Resolution of an issue where if a RequestTunnel command was issued from a GSME to GFI when there was an already active (or becoming active) tunnel GFI would not respond with the same tunnel id and would instead create a new one.

The LED in the GFI USB ZigBee stick gives the following information:

- **OFF:** Comms Hub module not running
- **Steady ON Green:** Comms Hub started and HAN created
- **Red ON** for more than 5 sec: Zigbee Stack is not responding
- **Flashing Green:** HAN initialization issue (restart Comms Hub)

What's New: 1.3.2 Stable

ECS68/GCS53: Date-time in response requirement was removed from this use cases. This change is made to align with IRP 439.

A new set of device certificates was integrated in GFI to fix a problem discovered where the old ones did not have the extension "Certificates Policies" marked as a critical extension.

In order to correct the issue raised by ALM issue 1353, GFI now encapsulates all DLMS sensitive payloads inside a DLMS Structure. This impacts the following use cases: ECS17b, ECS17d, ECS17e, ECS19, ECS20b, ECS20c, ECS21a, ECS21b, ECS22b, ECS66 and ECS68.

A bug was fixed on GFI where it would sometimes stop and hang amid ZigBee communications.

Fixed defect where wrong inputs were used to perform encryption and decryption when processing requests from unknown remote parties. Affected use cases: ECS20b, ECS20c, ECS21a, ECS21b, ECS22b, ECS66, GCS15b, GCS15c, GCS16a, GCS16b and GCS18.

Fixed defect in GCS15b where the response value of snapshot cause was always being checked against 0x00006008. GFI is now printing snapshot cause instead of checking against a specific value.

GCS21f supports the presence of the optional fields after the "Price (UINT32)" field in the GBZ Publish Price component. GFI now supports components with and without such fields (IRP 468).
Corrected CS02a iteration that was requesting a non-supported trust anchor cell from GSME.
GCS02 and GCS03 now support Alternate response status check other than 0x8B (NOT_FOUND).
Fixed defect in GCS21f that caused GFI GSME emulator to always respond with a default reponse even if the test input parameter “ATG.Control.EntriesFound” was set to True.
Changed GCS02 and GCS03 test cases to always checks the number of received alerts against the input expected parameter regardless of the response.
Fixed defect in GSME emulator that was returning a wrong DeviceIdentifier in ModelAndDeviceIdentifier attribute in GCS21e use case response.
Fixed Originator Counter values used in Pre-Payment Top Up use cases (CS01a and CS01b).
Fixed scalers values used in ECS01a, ECS01b, ECS01c, ECS01d, ECS24, ECS24b, both on test iterarion and emulators store.
Fixed Billing Period Duration Type value from 0x03 to 0x23 in GCS21d reponse in emulated mode.
GCS17 Sample ID in response is now checked against 0 (zero).
Improved report information when a given test case tries to check a field that is not present in response message. This issue was first identified in GCS21f where a supplementary remote party id was expected in response but received a message without it causing a generic exception. From now on in similar situations one should see a check of the expected value against “Not Present” and the specific check should fail.
Fixed a defect where the alert code of CS06 alert was always being checked against 0x8F66. Now depending on response the alert code is check against 0x8F66 if SUCCESS and 0x8F67 otherwise.
When a certain field is not present on the message and we try to print it GFI currently prints a value of 0 configured to the appropriate type.

Publish Price Matrix command should always contain 4 prices when addressed to the GSME. GCS01a and GCS01b iteration were changed accordingly.

What's New: 1.3.1 Stable

CS02d: Removed default iteration with RSA certificate from test case specification.

CS02d: Fixed failing signature validation in the response to CS02d command caused by GFI using device's old public key to check the signature instead of the new public key.

The current functionality is that after a sucesfull CS02d execution, GFI will use an updated device certificate for the device for the remainder of the run.

GCS13b: Changed Additional Header Frame Counter from 0x00 to 0x01 in acceptance criteria for response.

GCS21e: Added attribute HWVersion from BasicDeviceInformation to be read as part of the command.

Added verification of the message size. If GFI receives a message from a device bigger than 1200 bytes the maximum message size verification will fail, causing the test to fail.

GCS31: Removed default iteration without supplementary as the Use Case is only sent using supplementary logic.

GCS32/39: Removed unnecessary Set operations in the report before doing response checks.

What's New: 1.3 Stable

Added the certificate "OCARoot-ZB-chain-to-OCARoot-ZA.pem" to the ZBZ2 Org hierarchy. This is the certificate that should be used as the Certification Path Certificate in CS02b, rootBySupplier mode.

Improved compatibility of the installer. (A) Inclues better compatibility when installing in legacy mode by using an MS-DOS partition table instead of a GUID partition table. (B) Improved compatability when installing in EFI mode by adding the bootloader to a standard location, for machines that do not support the EFI variables to be mutated by the operating system (e.g. VirtualBox).

A new configuration option has been added to the gfi-installer.conf file that overrides the automatic detection of Legacy and EFI.

Both the installer and GFI operating system have been updated to use the Linux kernel 4.2.0 by default (instead of 3.16). This only affects new installations and not upgrades. This new version of the kernel has improved hardware compatibility.

If its required to update an existing GFI installation to use the updated kernel (i.e. some of the hardware attached to the system is not working), please consult the Ubuntu documentation https://wiki.ubuntu.com/TrustyTahr/ReleaseNotes#LTS_Hardware_Enablement_Stack for advice. Please be warned that this is a potentially dangerous operation and could result in needing to reinstall GFI from scratch.

What's New: 1.3RC3

In the Scenario, corrected the issue related with the key agreement file for the Supplier2: changed from Z1-supplier2-ds.key to Z1-supplier2-ka.key.

CS02c, CS02d, CS02e and CS06: corrected the Business Target Name when a GSME is the target (changed from ESME1 to GSME1).

CS06: this Use Case was missing in the list of the ESME available Use Cases.

What's New: 1.3RC2

Corrected the issue related with date-times in Commands. The deviation and status fields are now set to 0x8000 and 0xFF, respectively.

What's New: 1.3RC1

GFI is using the latest pack of SMKI Organisation Test Certificates and Private Keys delivered by DCC at the beginning of **January 2016**. Two distinct OCA Hierarchy are included: ZAZ1 and ZBZ2. GFI is using the ZAZ1 pack. This SMKI pack supports CS02b anyByContingency mode.

All the supported Use Cases are now uplifted to GBCS v0.8.2.

Corrected the issue related with the signature verification in critical responses containing date-time.

Keys and certificates used by the Supplier 2 were updated to the ZAZ1 pack. In previous releases Supplier 2 was using the "other-user" keys and certificates contained in the Org-EE pack.

Extra protections added regarding the decryption of encrypted data.
Added a new ZigBee feature: in the event of an ESME reports a busy status while opening the tunnel, GFI tool will retry the open operation every 5 seconds.
Corrected the input parameters in the following list of Use Cases, where ACB was used as Business Originator without Supplementary Remote Party: ECS40, ECS61c, GCS21a and GCS31.
ECS25a: the number of characters in the “Alerts Configuration Settings” input parameter was corrected from 511 to 512.
CCS01, CCS02, CCS03, CCS05_CCS04: removed from the ESME list of available Use Cases. The target of these Use Cases is the CHF.
CS07 ESME: the target in the second iteration was corrected from GSME to ESME.
CS07 GSME: Use Case added to the list of available Use Cases. Was missing in the previous release.
FDRA-DLMS, GNCA-DLMS and GCA-DLMS: corrected the Business Originator of the second iteration.
ECS26i, ECS35c and ECS35d: removed from the ESME list of available Use Cases. The target of these Use Cases is the CHF.
Minor improvements in the Console Ouput.

Known Issues & Limitations

This section describes known issues and limitations that users may run into with this release of GFI.

Issue: The GFI GPF always publish a price of zero in response to a GetCurrentPrice command received from the HAN.
Issue: GFI supports one meter device and one PPMID at the same time on the HAN but it requires that the two devices are not added to the network at the same time. **Solution**: Add the second device only when the flag Authenticated for the first device appears as True in the GFI GUI.
Issue: The GUI mandates that an active meter is specified in the scenario file. Even in the case when there is no such meter the fields (id and certificate files) must still be filled.

Solution: Fill the required fields.

Issue: When a CH configuration is imported from an XML file, the extension (.xml) is being used to form the name.

Issue: The emulators do not fully support the CSR and certificate signing functionality of the use cases CS02c and CS02d. If a CS02d command contains a valid certificate, the response code will be SUCCESS and the emulator will update its certificate without further validation. This will cause a signature validation error, if the payload of the CS02d is not a certificate already installed in the emulator.

This does not affect the behaviour of the test cases when used in physical scenarios.

Issue: CS02b in emulated scenarios does not support disabling time based checks when performing CPV.

This does not affect the behaviour of the test cases when used in physical scenarios.

Issue: A GBCS inconsistency was found regarding the Recipient System Title of the Alert when executing CS02b in the SupplierByTransCoS replacement mode, future dated. According to the Mapping Table the Supplier should be the Recipient, according to the GBCS document should be the TransCoS. GFI sends the alert to the TransCoS.

Issue: GFI uses a set of example values as reference inputs for Use Cases iterations that may not have a functional meaning for the specific manufacturer's device under test.

Solution: Users of GFI are requested to validate, and modify if needed, the specific Use Case example values, prior to running it.

Issue: The tool expects Alerts, associated with the Use Cases, to be sent shortly after the Response.

Solution: Set up tests with future dates that will be reached shortly after the command and response are sent.

Issue: It is not possible to rename files using the GFI GUI. Any change in file names or folders or in the structure of the eclipse workspace may render the GFI GUI inoperable.

Solution: All files created using the GFI GUI should not be manipulated in any other way apart from using the options offered by the GFI GUI.

Issue: GFI's GUI uses its own perspective and workspace. Although possible, it is strongly advised not to use GFI's workspace to hold any other files or folders other than GFI's.

Solution: Do not use GFI's workspace to hold projects of any other type (e.g. C++), as these files might be lost in future updates.

Issue: Performance issues were observed when the contents of the reports/logs/output produced yield very large file sizes. As the output varies depending on the chosen tests, care should be taken when building the test.

Solution: To avoid performance issues that may render the tool unresponsive, the largest number of test-cases in one test should be limited. Editors or views not needed should also be immediately closed.

Issue: When running the GFI GUI, it was observed that occasionally, upon starting the application, an error message was displayed stating 'No editor descriptor'. This may happen if the application was not closed properly in a previous execution.

Solution: This error should be ignored and the Editor/View closed, after which the application can be safely used.

Issue: 1.0RC3 introduced changes in the file formats used, and as a consequence, properties and scenario files created using past releases are not usable anymore. Additionally, all test case specifications were revised, resulting in changes in parameter values/expected results and iterations. A test created using an older version may not necessarily yield the same outcome.

Solution: Discard tests created with old releases and create new ones with 1.0RC4 or later releases instead. If needed, the export option is available for both tests and campaigns.

Issue: The incremental search in the log viewer window is case-sensitive.

Issue: The graphical test editor does not enforce any rules or make any validations regarding data entered in the fields. This means the user may enter invalid input data deliberately (e.g. to make the test fail deliberately) but should be extremely careful not to do so inadvertently, specially with enumerated and JSON fields.

Issue: There is a known issue experienced on certain hardware configurations caused by the graphics drivers. The symptoms are that the installation completes successfully and the computer boots into the GFI Testing Application, however, upon the next boot the computer boots into a blank screen.

This is caused by the need of proprietary drivers of the underlying Linux system for the graphics hardware.

Solution: Currently, it is suggested that the user manually installs the relevant drivers upon first installation. Due to licencing, these drivers cannot be distributed as part of the GFI Testing Application, but end users are free to download them.

In the case of an AMD graphics card, please see the following link:

http://support.amd.com/en-us/download

In the case of an Nvidia graphics card, please see the following link:

http://www.nvidia.com/object/unix.html

GFI Updater

The GFI Updater allows the User to update the GFI testing tool to the last version available in the GFI Update Server.

Through the desktop icon the User can launch the GFI Updater and start an update process. The ZigBee radio must be inserted into the laptop in order for the User to be allowed to download a new version of the GFI software. Also the user password will be requested. The GFI operating system uses the following credentials by default:

Username: **gfi**
Password: **gfi**

Note that an internet connection is needed to download the update files.

After the update process is concluded, the User can verify the version of the GFI testing tool using both command-line and the GFI Updater.

In order to check the GFI version using the command-line run the following commands in a Linux terminal:

cd /opt/gfi
./gfi-testing-tool --version

A similar text to the following should be presented:

GFI Testing Tool 1.3.9E External Release (Oct 03 2017 12:28:41)
Base v1.3.9E Stable Release
Copyright (c) Smart DCC Ltd.

To check the GFI version using GFI Updater, just click the icon in the desktop and follow the Wizard. It will tell the User the installed version of the tool as well as if there is any new update available on the Update Server.

System Requirements

The GFI testing tool Installer is supplied on a USB stick and requires a PC certified to run Ubuntu Linux 14.04 LTS with the minimum hardware requirements below.

Please note the GFI Installer completely wipes the Hard Drive/SSD on the target PC. Refer to the installation manual for step by step instructions on how to install GFI. The installation process, once booted into the installer should take aproximatelly 3min on the reference hardware.

Minimum	Recommended
Core i3 CPU / 4GB RAM	Core i5 CPU / 8GB RAM

Minimum	Recommended
256GB SATA 7200RPM	128GB SSD or higher
UK spec and keyboard	UK spec and keyboard
Free USB 2.0 port	Free USB 2.0 or USB 3.0 port
Certified to run Ubuntu Linux 14.04 LTS (Dell or Lenovo) with an Intel graphics chip from the i810 and upwards	Certified to run Ubuntu Linux 14.04 LTS (Dell or Lenovo) with an Intel graphics chip from the i810 and upwards
--	Screen resolution: 1920x1080

Reference Hardware

Recommended UK Spec laptops for GFI.

20DF004QUK - ThinkPad Edge E550, Intel Core i5, 1x8GB DDR3L-1600, 128 GB SSD, Intel HD Graphics, 15.6" FHD Antiglare (1920x1080).

20EVCTO1WW - ThinkPad Edge E560, Intel Core i5, 1x8GB DDR3L-1600, 192 GB SSD, Intel HD Graphics, 15.6" FHD Antiglare (1920x1080).

ZigBee Radio MAC Number

In case the User needs to check the ZigBee Radio MAC number the following options are available.

Using the GFI Updater:

1. Ensure the laptop have access to the Internet;
2. Connect the ZigBee radio stick to the laptop;
3. Wait at least 15 seconds;
4. Run the GFI Updater and look at the display for the MAC of the ZigBee Radio.
5. If the GFI Updater cannot find the ZigBee radio, remove it, reinsert it again and wait 20 seconds. Run the GFI updater again.

Using the EZSPMAC tool (command line):

1. Connect the ZigBee radio stick to the laptop. Ensure that only one USB device is connected to the laptop;
2. Open a Terminal;
3. Type the command: cd /opt/gfi/bin
4. Type the command: ./ezspmac /dev/ttyUSB0
5. The ZigBeeRadio MAC number should be displayed.

Documentation

The following documentation is available for GFI:

Installation Manual	A guide on how to install the Operating System and the GFI testing tool.
Technical Reference Manual	A technical reference manual for the GFI testing tool intended to provide detailed technical information for standard and advanced user operation and configuration.
User Manual	A guide on how to use the Graphical User Interface for the GFI testing tool with a Step-by-Step example.