]HackingTeam[

Remote Control System Installation

Delivery Assessment Procedure

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1 General

This document details the compliancy test suite required for assessing the functional compliance of the Customer's installation of HackingTeam Remote Control System software.

The provided suite of tests is intended to be used while delivering the solution at the Customer's Site. The detailed tests shall be carried out by HackingTeam's Representatives in the presence of Customer's representatives.

All the tests are going to be performed on modules and platforms enabled by the RCS license provided to the Customer (refer to paragraphs 1.1 and 1.4 for a complete list of modules and platforms).

All the tests are going to be performed during or after the installation process. On successful completion of the acceptance procedure the Customer shall sign the enclosed Acceptance Certificate.

The Signature Date will be considered as the Service Delivery Date for any future use or reference.

1.1 RCS Modules

The following naming conventions will be used during all the tests to avoid any ambiguity or misunderstanding. Please get familiar with these naming conventions prior to reading the rest of the document. Most of the names are specific of the RCS product.

Target Any installation of RCS on intercepted devices.

Backdoor The RCS software installed on target for the purpose of interception and control.

Console The GUI used to administer all the installation.

Backend The server that contains the database, comprising any external storage.

Frontend Any set of one or more servers directly connected to the Internet and accepting connections from the RCS targets.

Anonymizer Any set of one or more servers spread over the internet used to re-route connections coming from the Targets.

Injection Proxy The appliance used for performing on-the-fly melting of executables while downloaded from the Internet.

Mediation Node A Bluetooth device used to collect evidences from Windows Mobile targets.

Remote Mobile Installation A module used to perform installation of RCS on mobile devices by sending them a special SMS.

1.2 Architecture

Depicted in Figure 1 is a drawing representing a typical installation of RCS, following our best practices. The actual installation may differ due to customizations made for the Customer.

The tests shall be performed following the guidelines of traffic and connections depicted here, according to the Customer's actual installation.

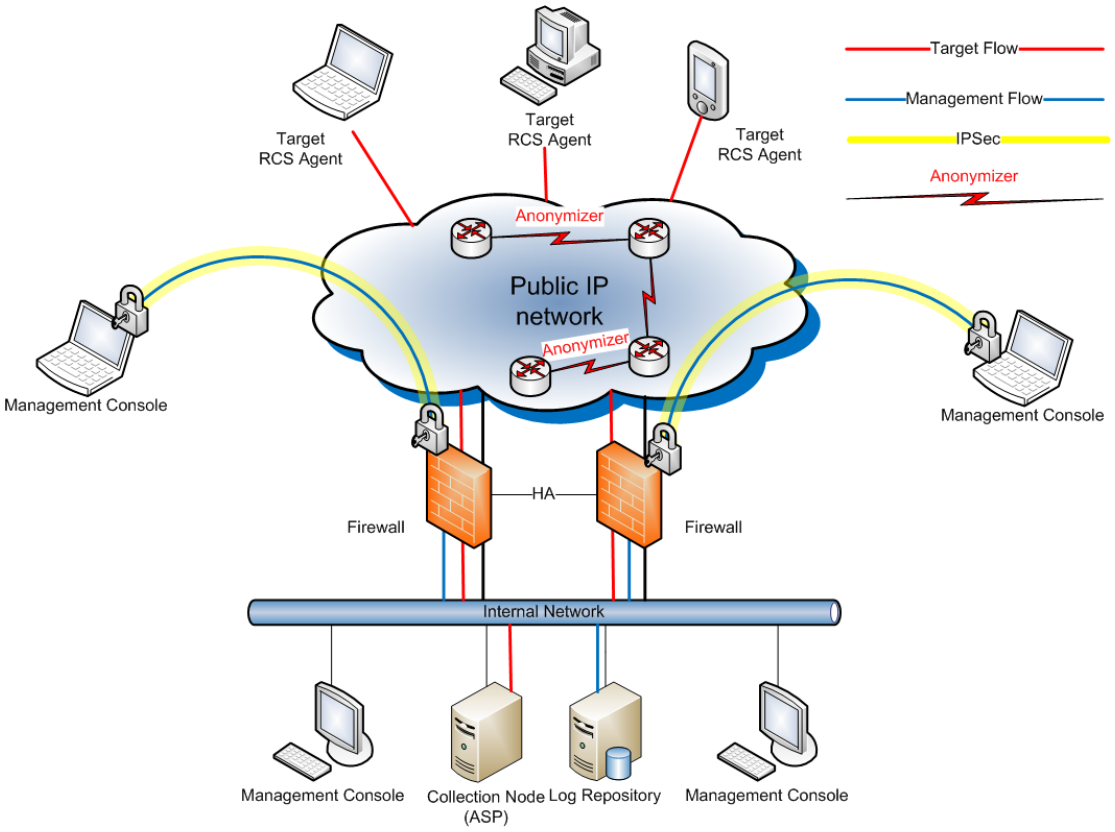

Figure 1 - General architecture

1.3 Testing Scenario

A full installation of the Remote Control System is required for performing the tests. An HackingTeam Representative shall perform the installation for the Customer and verify the minimal set of functionality required for RCS to operate:

1. Check network connectivity among components.
2. Check network connectivity to the Frontend from the Internet.
3. Check all the components status using the Monitor panel of the Console.

NOTE Please refrain from asking to perform any of the activity concerning this procedure in an actual investigation environment. Only the designed tests systems will be used.

1.4 Reference platforms

During the tests for all the platforms, the following versions will be used as reference:

Operating System	Reference Version
Microsoft Windows	**7 64bit**
MacOS X	**10.6** (Snow Leopard)
iOS (Apple iPhone)	**4.0**
Windows Mobile	**6.5**
BlackBerry	**6.0**
Symbian	**S60** (5th Edition)
Android	**2.2**

NOTE All the hardware used as Targets during the tests will be provided by HackingTeam.

2 Functional tests

Functional tests include testing of all the product's features. During the tests some activities are required to be performed upon installation in order to setup minimum functionality for the RCS system to be used.

The purpose of this set of tests is to assess proper functionality of the Customer's RCS installation. Tests are divided into Units, each concerning a specific functionality of the system.

Each Unit specifies a procedure that shall be strictly followed by HackingTeam and Customer Representatives. The Units must be carried out in the order listed to guarantee all assumptions to be in place and verified as needed during the tests.

The Customer should consider these activities as a first setup of the RCS installation by HackingTeam Representatives, following our company best practices: this is to guarantee a flawless testing experience and usage of the system thereafter.

NOTE The activities, groups, targets and backdoors created during tests may be deleted after tests completion, leaving the Customer's with a clean RCS installation.

2.1 Collectors

This Unit verifies that each Collector (Frontend and Anonymizers if available) is reachable from the Internet, and when contacted by any system other than a valid backdoor, correctly redirects to a decoy website (i.e. Google), to prevent disclosure of its intended purpose.

2.1.1 Procedure

The activity and tests required for this unit may be performed on any system connected to the Internet that can reach the public addresses of the Collectors (Frontends and Anonymizers)

Please follow the steps listed below to complete the procedure:

1. Open a web browser.
2. For each Collector, direct the browser to the URL composed as follows http://<IP address of the Collector under test>
3. Verify that the browser replies with the default web site (Google).

2.1.2 Results

Please fill the table below indicating for each expected outcome where it was verified.

	Verified?
Collector replies with default web page.	☐ **N/A** ☐ **OK** ☐ **Error:**

2.2 User creation

The scope of this first Unit of tests is to setup and verify a minimum set of users required to make use of the features of RCS and perform the remaining Units.

2.2.1 Procedure

The activity and tests required for this Unit will be performed on the Console, following the steps listed below:

1. Logon using the ‘admin’ user and password created during installation.
2. Create a user with ‘tech’ privilege.
3. Create a user with ‘view’ privilege.
4. For each of the created users, log in to the Console.

2.2.2 Results

Please fill the table below indicating for each expected outcome where it was verified.

Login with ‘tech’ user.	☐ **N/A** ☐ **OK** ☐ **Error:**
Login with ‘view’ user.	☐ **N/A** ☐ **OK** ☐ **Error:**

At completion of this Unit, the Customer shall have one (1) user with ‘admin’ privilege, one (1) with ‘tech’ privilege and one (1) with ‘view’ privilege, all enabled to logon to the Console.

2.3 Activity, group and target creation

This second Unit verifies proper creation of an activity, a group and associated targets.

2.3.1 Procedure

The activity and tests required for this unit will be performed on the Console, following the steps listed below:

1. Logon using the ‘admin’ user.
2. From the Console Panel, create a new activity, naming it ‘Test Activity’.
3. Create a new group, naming it ‘Test Group’.
4. Click on the Available Users and add all the users present.
5. Click on the Available Activities and add the ‘Test Activity’.
6. Create a new target associated with the ‘Test Activity’, naming it ‘Test Target’.
7. Verify activity, group and target creation using the Audit panel.

2.3.2 Results

Please fill the table below indicating for each expected outcome where it was verified.

Test Activity created.	☐ **N/A** ☐ **OK** ☐ **Error:**
Group created.	☐ **N/A** ☐ **OK** ☐ **Error:**
Activity and users associated to group.	☐ **N/A** ☐ **OK** ☐ **Error:**
Target created.	☐ **N/A** ☐ **OK** ☐ **Error:**
Audit log entries are present.	☐ **N/A** ☐ **OK** ☐ **Error:**

2.4 Backdoor creation and configuration

This Unit verifies that 'tech' users are able to create and configure backdoors for all the supported platforms. Configuration templates will be used during this step and all the tests carried out on the following Units.

2.4.1 Procedure

The activity and tests required for this unit will be performed on the Console, following the steps listed.

1. Logon using the 'tech' user.
2. Create a new backdoor of type DESKTOP.
3. Create a new backdoor of type MOBILE.
4. Load the DESKTOP backdoor in the Build Panel and then load the *"[D] Test Configuration"* template.
5. Modify the synchronization server address according to the reachable Frontend address, then save the configuration.
6. Load the MOBILE backdoor in the Build Panel, then load the *"[M] Test Configuration"* template and save the configuration.
7. Modify the synchronization according to the connectivity method selected during step 1; modify the synchronization server address according to the reachable Frontend address; save the configuration.

NOTE Steps related to Desktop and Mobile should be performed only if at least one desktop and/or mobile platform is included in the license.

2.4.2 Results

Please fill the table below Indicating for each expected outcome where it was verified.

Desktop backdoor created and configured.	☐ **N/A** ☐ **OK** ☐ **Error:**
Mobile backdoor created and configured.	☐ **N/A** ☐ **OK** ☐ **Error:**

2.5 Build installation vectors

This Unit verifies that installation vectors can be built by 'tech' users, starting from the backdoor configurations created in the previous Unit.

NOTE	The artefacts (products) of this Unit are needed during some of the following Units. Care should be taken in saving them to a proper place and keep them safe from deletion for the duration of the tests. Pay attention to modify the default names for each file in order to avoid any overwriting.
NOTE	To create an installation vector for Symbian devices, the Customer needs to acquire a certificate for signing the vector. HT shall provide the Customer with the documentation needed to ease the procedure of issuing the certificate.
NOTE	Installation vectors should be built only for platforms included in the Customer's license.

2.5.1 Procedure

The activity and tests required for this unit will be performed on the Console, following the steps listed below:

1. Logon using the 'tech' user.
2. In the Build Panel, load the configuration for the DESKTOP backdoor.
3. Create and save an EXE vector for installation on Windows targets.
4. Create and save an EXE vector for installation on Mac targets.
5. In the Build Panel, load the configuration for the MOBILE backdoor.
6. Create and save an SD vector for installation on Windows Mobile targets.
7. Create and save a Remote COD vector for installation on BlackBerry targets.
8. Create and save a SIS vector for installation on Symbian targets.
9. Create and save an APP vector for installation on iPhone targets.
10. Create and save an APK vector for installation on Android targets.

2.5.2 Results

Please fill the table below indicating for each expected outcome where it was verified.

Executable file for Windows created.	☐ N/A ☐ OK ☐ Error:
Executable file for Mac created.	☐ N/A ☐ OK ☐ Error:
SD vector created.	☐ N/A ☐ OK ☐ Error:
COD file created.	☐ N/A ☐ OK ☐ Error:
SIS file created.	☐ N/A ☐ OK ☐ Error:
APP file for iPhone created.	☐ N/A ☐ OK ☐ Error:
APK file for Android created.	☐ N/A ☐ OK ☐ Error:

2.6 Target lifecycle

This Unit verifies that following two assumptions:

1. Proper installation can be performed on each of the available target platforms, using the vectors previously created.
2. The RCS agent running on the each target platform is able to send collected evidences to the Frontend.
3. The RCS agent can be removed from the target system by the console.

2.6.1 Procedure

The activity and tests required for this unit will be performed both on the Console and on each target system, following the steps listed below:

1. Logon using the 'viewer' user.
2. Start from a clean installation of the selected operating system.
3. Verify internet connectivity to the Frontend (or the Anonymizer chain).
4. Install RCS using the previously created infection vector (par.2.5.1) for the selected platform.
    a. In case of Android installation, if disabled you'll have to enable the option "Unknown sources" in *Settings, Application* before the installation.
    b. In case of Android installation reboot the phone after installing the package.
5. In case of mobile platforms, wait for the phone to go in standby mode.
6. Using the dashboard, verify that synchronization is performed within 4 minutes from the installation afte.
7. Verify that collected data reflects actual configuration of the RCS agent.
8. Reboot the system.
9. Wait for another synchronization to be performed.
10. Logon using the 'tech' user.
11. Using the console, change the Status field of the backdoor to CLOSED.
12. Wait the next synchronization for the uninstallation message to be delivered to the device.
13. Logon using the 'viewer' user.
14. No more synchronizations shall come from the CLOSED backdoor.

2.6.2 Results

Please fill the table below indicating for each expected outcome where it was verified.

First synchronization performed.	☐ **N/A** ☐ **OK** ☐ **Error:**
Data received correctly.	☐ **N/A** ☐ **OK** ☐ **Error:**
Synchronization after reboot performed.	☐ **N/A** ☐ **OK** ☐ **Error:**
No more synchronizations are received from the closed backdoor.	☐ **N/A** ☐ **OK** ☐ **Error:**

2.7 Injection Proxy

This Unit aims at testing the correct functionality of the Injection Proxy (IP) after installation. A setup network is required and shall be configured by HackingTeam Representatives according to the available network environment at the Customer's site.

Production test for the IP can be carried out only when the IP is deployed in the production environment (i.e. ISP).

To guarantee proper functionality of the IP once deployed, the following tests can be performed to assess proper network functionality.

2.7.1 Procedure

On the RCS Console:

1. Login in console with the 'tech' user.
2. In the Monitor panel, verify the IP is shown with a green icon and no errors are reported.

On the root prompt of the appliance:

1. Place the IPA In a switched environment
2. Connect monitor and USB keyboard to the IP if needed.
3. Login as 'root'.
4. Start tcpdump with the following command: *tcpdump -ni dag0* (or the corresponding network interface)
5. Verify that expected traffic is shown.
6. Close tcpdump by pressing Ctrl-C.
7. Logout with 'exit'.

2.7.2 Results

Please fill the table below indicating for each expected outcome where it was verified.

Green Icon in monitor.	☐ **N/A** ☐ **OK** ☐ **Error:**
Traffic seen by tcpdump.	☐ **N/A** ☐ **OK** ☐ **Error:**

2.8 Exploit portal

This Unit aims at verifying proper communication between the Console and the Exploit Portal. Exploit building is verified as well.

NOTE	HackingTeam will provide Virtual Machines with vulnerable versions of selected software.

2.8.1 Procedure

The activity and tests required for this unit shall be performed on the RCS Console.

Please follow the steps listed below to complete the procedure:

1. Login with ‘tech’ user.
2. Create a new backdoor of type DESKTOP.
3. Load the “*[DSK] Test Configuration”* template.
4. Modify the synchronization server address according to the reachable Frontend address, then save the configuration.
5. In the Build Panel click on EXPL button.
6. Once the Exploit Portal is loaded, agree with the Customer on the exploit to be tested, selecting one whose software requirements are met by provided Virtual Machines.
7. Build the package following the peculiar procedure of the selected exploit.
8. On the target system, verify internet connectivity to the Frontend.
9. Run the exploit on the target system.
10. Login with ‘viewer’ user on the console.
11. Wait for a synchronization to happen.

2.8.2 Results

Please fill the table below indicating for each expected outcome where it was verified.

Exploit Portal is loaded.	☐ **N/A** ☐ **OK** ☐ **Error:**
Correct access level is provided to the Customer.	☐ **N/A** ☐ **OK** ☐ **Error:**
Exploit successfully built.	☐ **N/A** ☐ **OK** ☐ **Error:**
Synchronization received.	☐ **N/A** ☐ **OK** ☐ **Error:**

2.9 Remote Mobile Installation

This Unit verifies that it's possible to install an RCS Agent on mobile devices by sending an SMS directly to the devices.

NOTE	To perform this test, a public IP address must be associated to the Collector and reachable from the Internet.

2.9.1 Procedure

The activity and tests required for this Unit shall be performed on the RCS Console and a mobile device in the list of the supported platforms.

Please follow the steps listed below to complete the procedure:

1. Factory reset the designed target mobile phone.
2. Verify that WAP Push reception is enabled on the mobile phone.
3. Verify that internet connectivity (at least GPRS) is present on the target device, and that Frontend is reachable.
4. Login with 'tech' user to the console.
5. Create a new backdoor of type MOBILE.
6. Load the "*[MOB] Test Configuration"* template.
7. Modify the synchronization according to the connectivity method selected during step 1; modify the synchronization server address according to the reachable Frontend address; save the configuration.
8. Build the package according to the target platform (refer to paragraph 2.5.1).
9. On the Collector, copy the resulting file in C:\RCSASP\EXPREPO.
10. In the Build Panel, select the Mobile backdoor and click on the WAP button.
11. Fill in the phone number of the selected mobile device.
12. Fill in the URL with http:// followed by the public IP address of the Collector and the backdoor name (i.e. http://40.30.20.10/backdoor.exe)
13. Click OK.
14. On the mobile device, wait for the incoming SMS message.
15. Depending on the configuration of the mobile phone, you may be asked to confirm the download or execution of the file. If so, please confirm.
16. Login with 'viewer' user on the console.
17. Wait for a synchronization to happen.

2.9.2 Results

Please fill the table below indicating for each expected outcome where it was verified.

WAP message was received on the phone.	☐ **N/A** ☐ **OK** ☐ **Error:**
Synchronization received.	☐ **N/A** ☐ **OK** ☐ **Error:**

2.10 Report creation

This last Unit aims at verifying that evidences can be exported from the system for maintenance (i.e. archival) or third party use (i.e. filing to court).

2.10.1 Procedure

The activity and tests required for this unit shall be performed on the Console.

Please follow the steps listed below to complete the procedure:

1. Login with the 'view' user.
2. From the Console Panel, choose the Test Activity.
3. Select a backdoor that have some evidences.
4. Browsing the evidences, select an evidence to be exported.
5. Click on the Download button to export the single evidence.
6. Browse again the evidences and, for each evidence you want to export, click on the 'Add to blotter' button. Add a few evidences to populate the blotter.
7. From the Console Panel, select the Activity and click on the Blotter button.
8. Verify that the selected evidences are present in the list shown.
9. Click on the Download Blotter button, then save the file.
10. Validate the exported files are valid ZIP files and exported evidences are complete.

2.10.2 Results

Please fill the table below indicating for each expected outcome where it was verified.

Blotter exported.	☐ **N/A** ☐ **OK** ☐ **Error:**
Single entry exported.	☐ **N/A** ☐ **OK** ☐ **Error:**
Zip file is valid.	☐ **N/A** ☐ **OK** ☐ **Error:**
Evidences are complete.	☐ **N/A** ☐ **OK** ☐ **Error:**

2.11 Invisibility Tests

This Unit verifies that during installation and synchronization, the RCS agent running on the target platforms is invisible to antivirus and malware detection technologies.

The customer may choose up to 3 products among the following security suites as the security tools against which invisibility of RCS will be tested (please note that for some platforms there may be a limited number of security suites available). Tests will be performed using the default security level of each security tool, as available after a default installation of the same tool.

NOTE Security Tools other than the ones listed below may be proposed during the tests by HackingTeam representatives.

Operating System	Security Tools
Microsoft Windows	Kaspersky Internet Security 2011
	Norton Internet Security 2011
	Avast! Internet Security
	Panda Global Protection 2011
	Avira AntiVir Personal
MacOS X	Kaspersky AntiVirus for Mac
	Norton Antivirus 2011 for Mac
BlackBerry	Lookout Mobile Security 4
Symbian	Kaspersky Mobile Security
Android	AVG Free
Windows Mobile	Bullguard Mobile Security 10 for Smartphones
	F-Secure Mobile Security
	Mobile Security Suite for Windows Mobile

NOTE As of today, no antivirus or security suite seems to be available for iPhone.

2.11.1 Procedure

The activity and tests required for this unit shall be performed on the target systems provided by HackingTeam.

Please follow the steps listed below to complete the procedure:

1. Start from a clean installation of the selected operating system.
2. Install the security tool and update to latest protection.
3. Isolate the system from any network connection to prevent leakage of RCS to antivirus companies.
4. Copy the executable file containing the RCS installation (“vector”) to the test system.
5. Scan the vector for malicious content.
6. Execute the vector to perform installation of RCS.
7. Verify synchronization is performed within 2 minutes from the installation.
8. Reboot the system.
9. Verify that no detection by the antivirus is issued during or after the reboot phase.
10. Wait for a synchronization to be performed.

2.11.2 Results

Please fill the table below indicating which of the available security tools have been selected for conducting the invisibility tests.

	Security Tool 1	Security Tool 2	Security Tool 3
Windows			
MacOS X			
Windows Mobile			
Symbian			
Android			
BlackBerry			

2.11.2.1 Windows

Please fill the table below indicating for each expected outcome where it was verified.

> **NOTE** Installation on Windows may be performed indifferently using an EXE vector or the bootable ISO.

	Security Tool 1	Security Tool 2	Security Tool 3
Not detected on scan.			
First synchronization.			
Not detected during reboot.			
Second Synchronization.			

2.11.2.2 MacOS X

Please fill the table below indicating for each expected outcome where it was verified.

	Security Tool 1	Security Tool 2	Security Tool 3
Not detected on scan.			
First synchronization.			
Not detected during reboot.			
Second Synchronization.			

2.11.2.3 Windows Mobile

Please fill the table below indicating for each expected outcome where it was verified.

	Security Tool 1	Security Tool 2	Security Tool 3
Not detected on scan.			
First synchronization.			
Not detected during reboot.			
Second Synchronization.			

2.11.2.4 Symbian

Please fill the table below indicating for each expected outcome where it was verified.

	Security Tool 1	Security Tool 2	Security Tool 3
Not detected on scan.			
First synchronization.			
Not detected during reboot.			
Second Synchronization.			

2.11.2.5 Android

Please fill the table below indicating for each expected outcome where it was verified.

	Security Tool 1	Security Tool 2	Security Tool 3
Not detected on scan.			
First synchronization.			
Not detected during reboot.			
Second Synchronization.			

2.11.2.6 BlackBerry

Please fill the table below indicating for each expected outcome where it was verified.

	Security Tool 1	Security Tool 2	Security Tool 3
Not detected on scan.			
First synchronization.			
Not detected during reboot.			
Second Synchronization.			

2.11.2.7 iPhone

Please fill the table below indicating for each expected outcome where it was verified. Since there are no known security tools available for iPhone, only the synchronization operation will be verified.

NOTE	iPhone must be jailbroken for installation to be performed.

First synchronization.	☐ **N/A** ☐ **OK** ☐ **Error:**

Delivery Acceptance Certificate

Issued by the Customer to HackingTeam

The following items (being either the Licensed Software or a part of the Licensed Software) have been accepted for the purposes of this Agreement.

(please list below the accepted items)

Other conditions attached to the Certificate of Acceptance.
(specify here if there are any conditions attached to the Certificate of Acceptance)

Customer Representative	Customer Representative
Full name	Full name
Title	Title
Signature	Signature
Date	Date

HackingTeam Representative

Full Name and signature