

# S.CORE

Web-Based Image Analysis

## User Guide

Version 090422

## General information

S.CORE is an innovative image analysis system, that provides you with powerful analysis modules for evaluation of assays in life science research. Because of its web-based approach and an intuitive user interface S.CORE can be used directly **without any administration or training efforts**.

As an S.CORE user you will setup a **workspace**, which you can customize **with analysis modules** to your own choice.

### Accesses to use S.CORE:

There are two ways to access S.CORE:

#### 1. The html based access (“The Comfortable”):

The html based access is characterized by a comfortable and self explaining user interface. We recommend this access if you have a **limited number of images** to be analysed at once.

The html based access is available for the following most common **web browser**:

- Microsoft Internet Explorer 7.x (Windows XP and Windows Vista)
- Mozilla Firefox 2.x, 3.x (Windows XP, Windows Vista, Linux Kernel 2.6.X)
- Apple Safari 3.x (for Mac OS X)

If none of these browser is installed on your system please contact your administrator.

#### 2. The ftp based access (“The Flexible”):

The main advantage of the ftp based access is the possibility to analyse a **multiplicity of images** at once, which might be organized in a **complex structure of folders and subfolders**. If you choose the ftp based access our recommendation is to use an ftp program. However nowadays most web browsers have the built in capability to access ftp servers, too.

## Html based access

### Login

You can enter your workspace by using the **myS.CORE Login field** on our homepage <http://www.sco-lifescience.de> or at <http://score.sco-lifescience.eu>.

### Help

To get a short description (tooltip) of the commands on the homepage just put the cursor on the preferred command. In addition you can get direct access to the content of the handbook by clicking the help function in the workspace control line (top right on the S.CORE page).

### Structure of the workspace – Control

The screenshot shows the S.CORE Web-Based Image Analysis interface. The top navigation bar includes links for Workspace, Coupon, Administration, Contact, and Logout. The main content area is divided into several sections:

- Workspace of Public:** Contains an Active Module section for "IS, nuclear, paraffin" with options for Start Analysis, Processing, Results, and Specifications.
- My Modules:** Lists modules like Live\_Dead (231), TF, AngioKit (37), and IS, nuclear, paraffin (27).
- Free Modules:** Lists modules like Feasibility Study (∞), Scratch Assay (5), TF, native (2), TF, fluorescent (1), SA, spheroid (3), and IS, nuclear (2).

Callouts provide additional information:

- Workspace toolbar:** Points to the top navigation bar.
- Controlling active module (list of all functions):** Points to the Active Module section.
- Catalog of modules which are available to you. You can add new modules by purchasing licences. "( ) ": Number of analysis still available for this module:** Points to the My Modules section.
- Catalog of modules which are available to you free of charge. Please contact us if you are interested in testing other modules:** Points to the Free Modules section.

## Structure of the workspace - Action field

The screenshot displays the S.CORE Web-Based Image Analysis interface. The workspace is titled "IS, nuclear, paraffin". The left sidebar contains a "Workspace Header" with navigation links: "Start Analysis", "Processing", "Results" (highlighted), and "Specifications". Below this is the "Workspace" section with "My Modules" (Live\_Dead (226)) and "Free Modules" (Feasibility Study (10), Scratch Assay (5)). At the bottom is the "Workspace Toolbar" with a dropdown menu showing "IS, nuclear (2)".

The main content area shows a search filter for "W1C14" from "05-09-2008" to "06-09-2008" with the "Only new files" checkbox checked. Below the search is a table of analysis results:

Image Name	Analysis Date	Original Image	Analyzed Image	Result	Select All
W1C14e	05-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	←
W1C14d	05-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	←
W1C14c	05-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	←
W1C14b	05-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	←
G1M14Ce	05-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	←
W1C14a	05-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	←
G1M14Cb	04-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	←
G1M14Ca	04-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	←
		↑	↑	↑	↕

At the bottom of the table are buttons for "Download all new files", "Download all new project statistics", "Download", "Delete", and "Reset".

## Active Module Toolbar

The screenshot shows the S.CORE Web-Based Image Analysis interface with annotations for the "Active Module" section. The workspace is titled "IS, nuclear, paraffin". The left sidebar shows the "Active Module" section with navigation links: "Start Analysis", "Processing", "Results" (highlighted), "FTP Explorer", and "Specifications". Below this is the "My Modules" section with "Live\_Dead (212)", "TF, AngioKit (32)", and "IS, nuclear, paraffin (15)". At the bottom is the "Free Modules" section with "Feasibility Study (10)", "Scratch Assay (5)", "TF, native (2)", "TF, fluorescent (1)", "SA, spheroid (3)", and "IS, nuclear (2)".

The main content area shows the "Status of analysis process" section with buttons for "Start Analysis", "Results", and "FTP Explorer". Annotations point to the "Active Module" section and the "Results" button, explaining their functions:

- Select images to be analysed & start analysis
- Status of analysis process
- View, download and delete results
- If available: view files on the S.CORE ftp server (-> Chapter „ftp approach“)
- If available: specification sheet for the active modules (pdf)

## Start Analysis

Workspace of Public

Start Analysis

IS, nuclear, paraffin

Technical image requirements for the active analysis module

Analysis module adapted to tif files, 1388x1040 px image size, 24 bit color depth.

File 1: D:\temp\Live\_Death\_po Durchsuchen...

File 2: D:\temp\Live\_Death\_po Durchsuchen...

File 3: D:\temp\Live\_Death\_20( Durchsuchen...

File 4: Durchsuchen...

File 5: Durchsuchen...

Selection of up to 5 images in parallel

Starts upload and analysis

Start Upload and Analysis

Close

## Processing

Workspace of Public

Live\_Death

Analysis status: requested - processing - done

Option to be informed via SMS or email after analysis is done

You can cancel the analysis in the 'requested' status

Images waiting to be processed

080213_Live_Death_Tag_1_II1_MB_c1c2#2.TIF	done	
080213_Live_Death_Tag_1_II2_MB_c1c2#2.TIF	done	
080213_Live_Death_Tag_1_II2_MB_c1c2#1.TIF	done	
080213_Live_Death_Tag_1_III1_MB_c1c2#2.TIF	processing	notify by +49 179 362846 / email
080213_Live_Death_Tag_1_III4_MB_c1c2#1.TIF	requested	notify by sms /john.public@sco-lifescience.de Cancel

Start Analysis Results

## Results

**S.CORE**  
Web-Based Image Analysis

Workspace of Public

Active Module  
IS, nuclear, paraffin  
>> Start Analysis  
>> Processing  
>> **Results**  
>> Specifications

My Modules  
Live\_Dead (226)

Free Modules  
Feasibility Study (0)  
Scratch Assay (5)  
TF, native (2)  
TF, fluorescent (1)

Results

IS, nuclear, paraffin

Search term (max. 100 characters): W1C14 From 05-09-2008 Until 06-09-2008 Only new files  Select images to be displayed Search Reset

Image Name	Analysis Date	Original Image	Analyzed Image	Result	Select All
W1C14e	05-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W1C14d	05-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W1C14c	05-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W1C14b	05-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G1M14Ce	04-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W1C14a	04-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G1M14Cb	04-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G1M14Ca	04-09-2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Download all new files Download all new project statistics Download Delete Reset

Direct Download of all files which have not been downloaded yet

Direct download of all project statistics which have not been downloaded yet

- Download selected files  
- Delete selected files  
- Reset selection

Callouts:  
- Click to sort (twice)  
- Select images to be displayed  
- Move Cursor -> Thumbnail Click -> Direct View  
- Files which have not been downloaded yet: bold and marked yellow  
- „Select all“ button

## Direct View

**S.CORE**  
Web-Based Image Analysis

Workspace of Public

Active Module  
IS, nuclear, paraffin  
>> Start Analysis  
>> Processing  
>> **Results**  
>> Specifications

My Modules  
Live\_Dead (212)  
TF, AngioKit (32)  
IS, nuclear, paraffin (17)

Free Modules  
Feasibility Study (0)  
Scratch Assay (5)  
TF, native (2)  
TF, fluorescent (1)  
SA, spheroid (3)  
IS, nuclear (2)

Direct View

IS, nuclear, p

Image with marked objects of interest

Main result

Statistics for whole image objects

W1C14a  
Analysis Date: 05.9.08

Original Processed Result Project Statistics

Click on icons for details

Skip to next or previous file in the result list

Previous Next Close

## Download results

The screenshot shows the S.CORE web interface with the 'Download Results' section. The active module is 'IS, nuclear, paraffin'. A message states: 'Download file was created successfully. Click [here](#) to start the download process.' Below this is a 'Back to Results' button.

An IZArc file explorer window is open, showing the contents of 'C:\Dokumente und Einstellungen\Administrator\Lokale Einstellungen\Temp\result.zip'. The files listed are:

File Name	File Type	Modified
G1M14Ca.tif	TIF.Bild	04.09.2008 22:20:02
G1M14Ca_ExportView.jpg		20:02
G1M14Ca_ProjectStatistics.csv		20:02
G1M14Cb.tif		52:46
G1M14Cb_ExportView.jpg		52:46
G1M14Cb_ProjectStatistics.csv		52:46
W1C14a.tif		49:16
W1C14a_ExportView.jpg		49:16
W1C14a_ProjectStatistics.csv		49:16
_Summary_ProjectStatistics.csv		53:52

Annotations in the image explain the file types:

- Result files per image:**
  1. Original image
  2. Result image („ExportView“): - Shows detected objects
  3. Extracted Data („Object / Project statistics“): - csv-format -> can be displayed with any data management software (e.g. Excel, OpenOffice)
- \_Summary\_ProjectStatistics.csv:** All project statistics of the downloaded files summarized in one table

The file explorer shows the zip file is 14454920 bytes and is 12% packed.

## Coupon

The screenshot shows the S.CORE web interface with the 'Coupon' section. The page title is 'Redeem your coupon'. A message states: 'Page to redeem a coupon to use S.CORE analysis modules'. Below this is a form with a 'Coupon Number:' label and an input field. A 'Redeem your coupon' button is located below the input field.

## Administration – Account Settings

..... S.CO LifeScience GmbH :: Boltzmannstrasse 11a :: 85748 Garching :: Germany :: Phone: +49 (0)89 1214023 40 :: Fax: +49 (0)89 1214023 44 :: info (at) sco-lifescience.com :: .....

**S.CO**  
Web-Based Image Analysis

Administration Account settings Workspace Coupon Administration Contact Logout

>> Account settings  
>> Guest administration

Title  Manage your personal data

First name

Last name \*

Gender

Company / Organisation

Department (max. 70 digits)

Password \*

Please re-type password \*

Please select decimal symbol for result data  Select the decimal symbol that your IT system uses

I would like to receive information.

I would like to receive an email when my analyses are ready.

Sends an email notification when the last image of the current waiting line (-> Processing) will be analysed

## Administration – Guest Management

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**S.CO**  
Web-Based Image Analysis

Administration Guest administration Workspace Coupon Administration Contact Logout

>> Account settings  
>> Guest administration

**My guests:**

betty.public@sco-lifescience.com: IS, nuclear, paraffin, SA, spheroid, IS, nuclear delete

Robert.Koch@charite.de: Feasibility Study, TF, native, TF, fluorescent, SA, spheroid, Bacteria, blue delete List of your guests

You have the possibility to share your S.CO modules with guests. You can decide which modules should be shared with your guests.

**Guests are allowed to:**

- view the status of the analysis process
- view results
- download results
- start analyses with the free modules
- manage their guest account (e.g. change password)

**Guest are not allowed to:**

- start analyses with your non-free modules
- invite other guests

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# S.CORE

Web-Based Image Analysis

Administration    Add new guest    Workspace    Coupon    Administration    Contact    Logout

>> Account settings  
>> Guest administration

A guest name should be a valid email address

Please enter the email adress of your guest

**The username of your guest will be his/her email address**

Feasibility Study     Live\_Dead     TF, AngioKit  
 IS, nuclear, paraffin     Scratch Assay     TF, native  
 TF, fluorescent     SA, spheroid     IS, nuclear  
 Bacteria, blue

**Please select the modules which should be available for this guest**

**By creating a guest account a password will be generated automatically and emailed your guest.**

## Contact

S.CORE LifeScience GmbH :: Boltzmannstrasse 11a :: 85748 Garching :: Germany :: Phone: +49 (0)89 1214023 40 :: Fax: +49 (0)89 1214023 44 :: info[at]sco-lifescience.com ::

# S.CORE

Web-Based Image Analysis

Contact    Formular    Workspace    Coupon    Administration    Contact    Logout

**Your contact person**

Request Manager  
phone: +49 89 1214023 40

Subject

Dear S.CORE Team,

I was very happy about the last results of the evaluation of my Tube Formation Assays. However I need some more information extracted from the images. Please find attached a pdf document with a summary of my needs.

Best regards.  
John Public

**Email your contact person at S.CORE Team**

Attachment (max. 10 MB)

## FTP based access

### Login / Access

The IP-address of the S.CORE ftp-server is

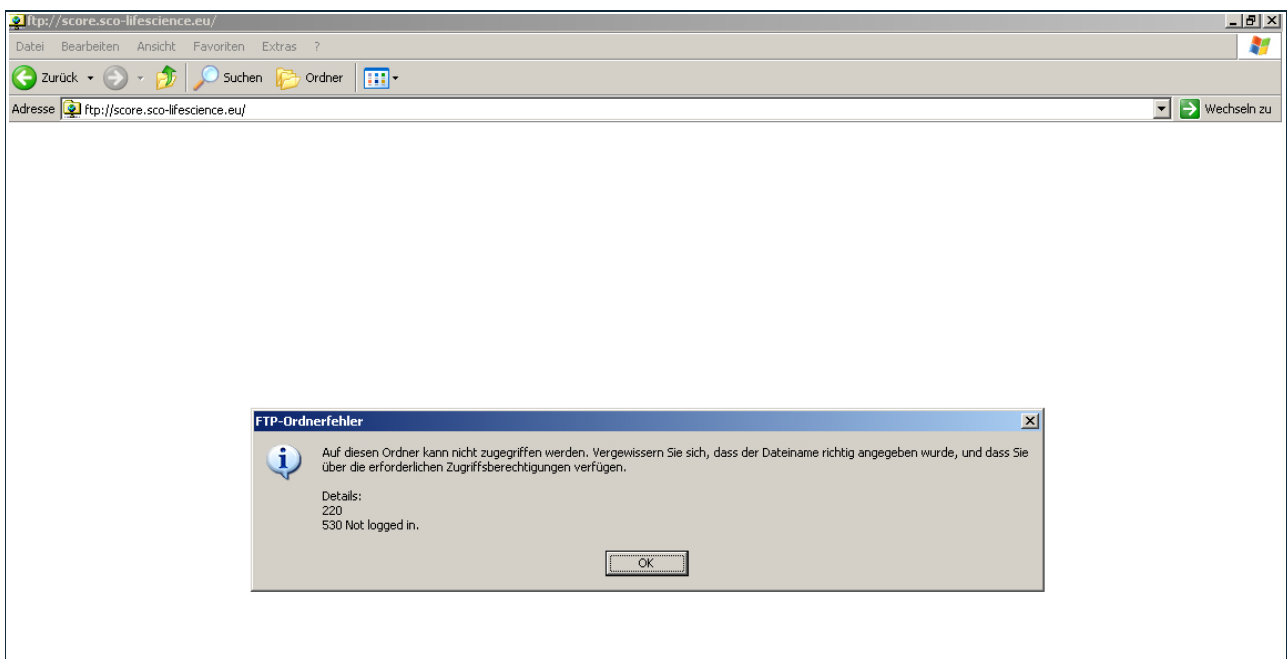
**ftp://score.sco-lifescience.eu.**

To enter the S.CORE ftp-server we recommend to use a **ftp program**. Next to a variety of commercial ftp programs there are also several freeware versions available (e.g. WS\_FTP LE you can download this program at [http://vipmeister.com/dl/wsftp/ws\\_ftple.html](http://vipmeister.com/dl/wsftp/ws_ftple.html)). In case that you use a ftp program please follow the instructions of the individual program.

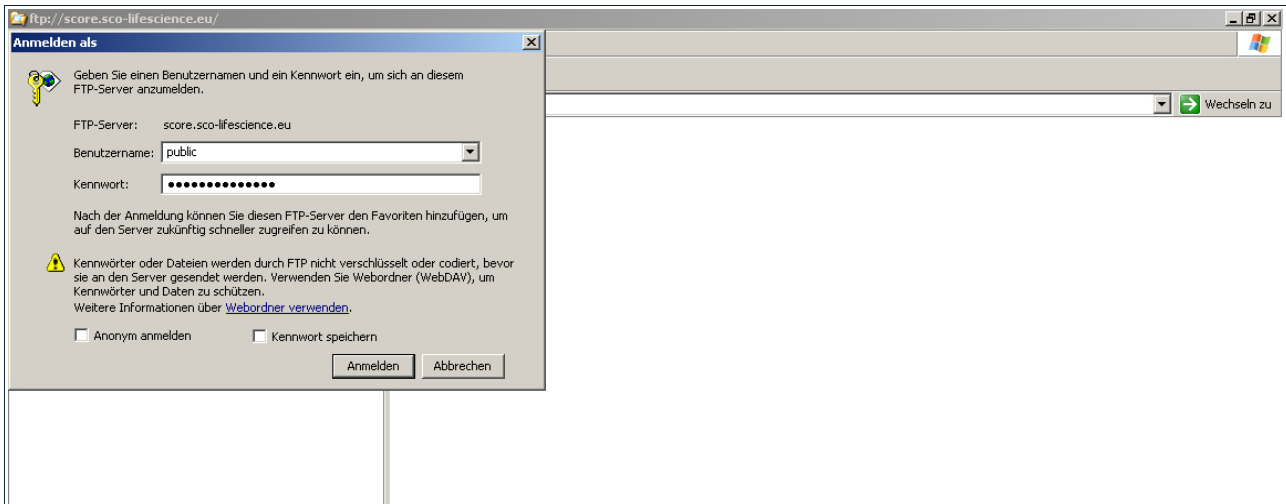
As an alternative you may also use the **Microsoft Windows® Explorer**. Please find bellow a short description of how to get an access to the S.CORE ftp-server.

- Open the **Microsoft Windows® Explorer** (not Microsoft Windows® *Internet Explorer!*)
- As address enter **<ftp://score.sco-lifescience.eu>**.

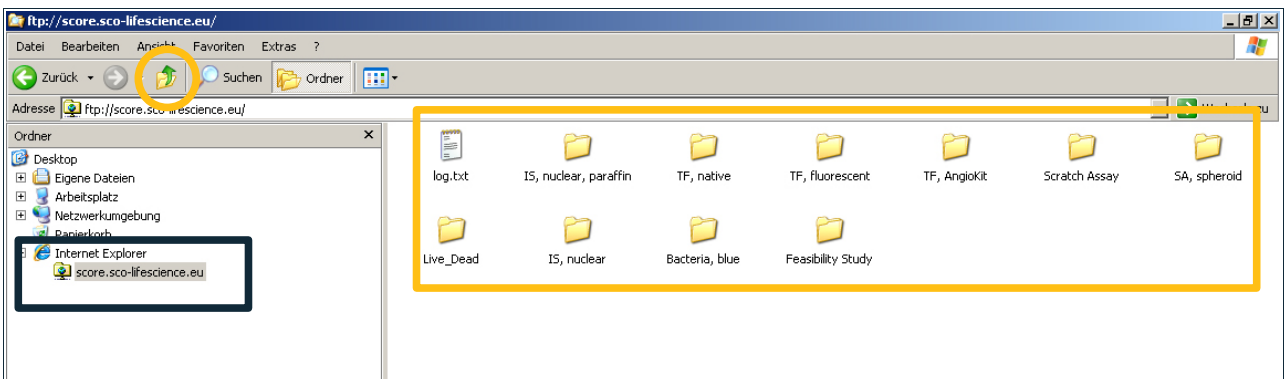
A warning message appears (see below). Please click the **OK button**.



Please click with the right mouse button on the white screen and select the option 'Login as' that appears in the pop up menu. Now you can login with your S.CORE user name and password (see screen shot).



For each S.CORE Analysis Module you will find a folder on the S.CORE ftp server (see example below).



To navigate within the S.CORE ftp server click directly on the folders (yellow box) and use the 'upwards' button (yellow circle). Do not use the main folder menu on the left (grey box), because in this case you have to repeat to login every time you change the folder.

If you have any problems to access the S.CORE ftp-server please contact your administrator. It could be that due to security policy reasons in your institution you are not immediately allowed to use external ftp server. However in most cases it will be possible for your administrator to provide you with the rights to use the S.CORE ftp-server.

## **Performing the analysis**

To start the image analysis you just have to copy the images into the appropriate S.CORE Module Folder. The ftp-based approach offers you the possibility to copy entire folders and folder structures (including subfolders). This approach brings two advantages:

1. You are able to start the analysis of multiple images in only one step.
2. You can keep the structure of folders and subfolders like you have created it on your computer.

Please note: In case you copy entire folders or folder structures every image within the folder structure will be analyzed. The analysis will start immediately after you have copied your images into the appropriate S.CORE Module Folder.

## S.CORE Data

S.CORE is a Rich Internet Application (RIA), which is designed to run completely inside the browser (in the box). Optionally S.CORE provides a FTP based access to up or download complex structures of files and sub directories or to upload data post processing macros.

### Technical requirements for http html based access

S.CORE via http is accessible under the **URL: score.sco-lifescience.eu** and the standard **TCP port 80**.

#### Suitable browser:

Internet Explorer 7.X (Windows XP and Windows Vista)

Firefox 2.X, 3.X (Windows XP, Windows Vista, Linux Kernel 2.6.X)

Safari 3.X (for Mac OS X)

S.CORE is an AJAX application. Therefore we recommend to enable JavaScript \*. Nevertheless S.CORE remains accessible without JavaScript but with limited usability.

\* Java support is needed for the annotation feature of S.CORE (Feasibility Studies).

### Technical requirements for ftp based access:

S.CORE by ftp is accessible under the **URL: score.sco-lifescience.eu** and the standard **TCP port 21**.

Every FTP client on every operating system which fulfills RFC 959 (<http://tools.ietf.org/html/rfc959>) should work.

### Network requirements on client side:

All connections to S.CORE will be initiated by the client. S.CORE never tries to push a connection. During http operations (mainly during the JavaScript enabled upload) the JavaScript Code of S.CORE needs to use a registered port (> 1024). If your network security policy does not allow the use of registered ports (opened by the client) you could use S.CORE without JavaScript.

S.CORE was tested with many firewalls. Network address translation (NAT) and IP masquerading do not cause any problems. S.CORE also should work with most of the known transparent and non-transparent proxy servers. Due to the fact that there is an unmanageable amount of proxy servers we cannot guarantee that S.CORE will run with every configuration.

### **Data transfer**

All data to S.CORE are transferred by using TCP/IP protocol. The connection from the client network to the S.CORE servers is not persistent and transmitted or received data is not encrypted.